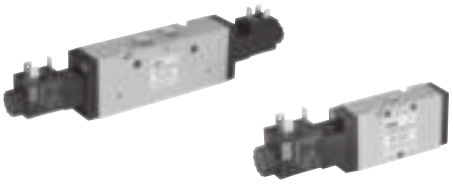
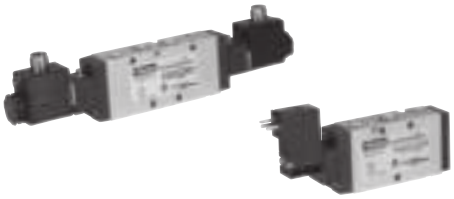
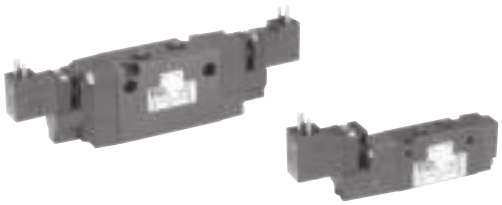
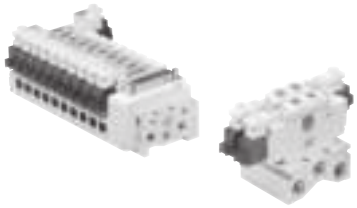
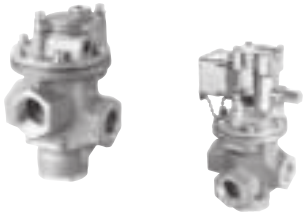










Pneumatic Valve Products
Inline Valve Series

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Viking Lite Series

The Viking Lite valve range is robust, versatile and combines a large flow capacity with short change-over times, designer may choose 1/8, 1/4 or 3/8 port sizes along with 24VDC and 120VAC voltage options. Viking Lite valves are fitted with dynamic bi-directional spool seals suitable for pressures up to 10 bar and ambient temperatures between -10°C to + 50°C. When in service, radial expansion of the spool seal occurs to maintain sealing contact with the valve bore. This sealing method reduces friction and produces a lower required pilot pressure. Valves do not require lubrication in operation but they can also be installed in systems that are lubricated.

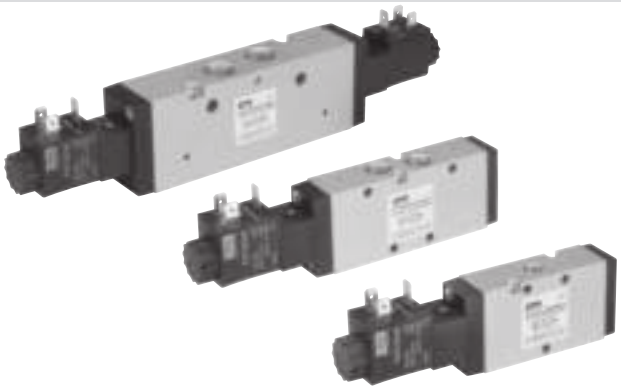
Ports
- P2LAZ: 1/8 inch NPT & BSPP, Cv = 0.6
- P2LBZ: 1/4 inch NPT & BSPP, Cv = 1.5
- P2LCZ: 3/8 inch NPT & BSPP, Cv = 2.5

Mounting
- Inline
- IEM aluminum bar

Solenoids
2.5 watts
- 22mm, 3-pin (DIN 43650)

24VDC and 120VAC

- **Certification / approval**
  - IP65 Rated, RoHS, CE



Operating information

Operating pressure:	145 PSIG (10 bar)
Minimum:	See chart
Operating temperature:	14°F to 122°F (-10°C to 50°C)

Materials

Valve body	Anodized aluminium
End covers	Anodized aluminium
Spool	Aluminium
Piston	Acetal plastic / Anodized aluminium
End cover seals	Nitrile rubber
End cover screws	Zinc plated steel
Springs	Stainless steel
Mounting screws for solenoid	Stainless steel
Spool seals	Nitrile

Minimum operating pressure, PSIG (bar)

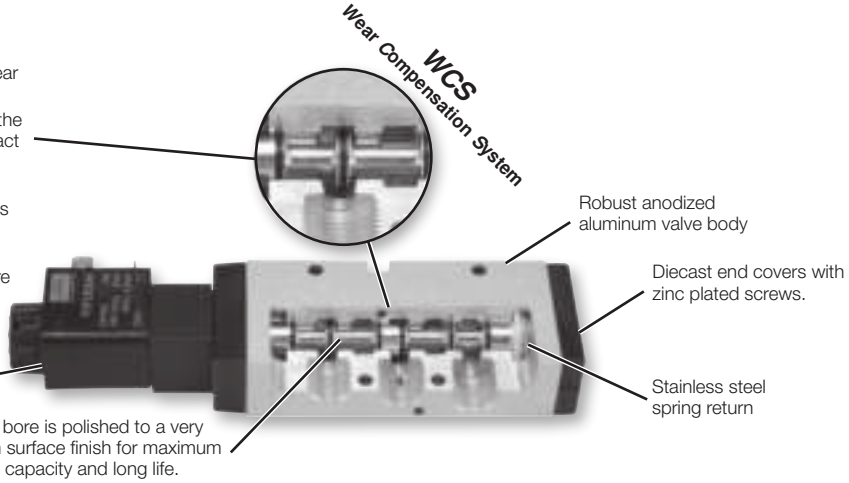
Valve type - Internal pilot	P2LAZ	P2LBZ	P2LCZ
Single solenoid - spring return	43.5 (3.0)	43.5 (3.0)	43.5 (3.0)
Single remote pilot - spring return	43.5 (3.0)	43.5 (3.0)	43.5 (3.0)
Double solenoid - 2-position	22 (1.5)	22 (1.5)	22 (1.5)
Double remote pilot - 2-position	22 (1.5)	22 (1.5)	22 (1.5)
Double solenoid - 3-position (APB, PC, CE)	43.5 (3.0)	43.5 (3.0)	43.5 (3.0)
Double remote pilot - 3-position (APB, PC, CE)	43.5 (3.0)	43.5 (3.0)	43.5 (3.0)

Recommended air quality for valves

For best possible service life and trouble free operation, ISO 8573-1 quality class 3.4.3 should be used. This means 5µm filter (standard filter) dew point +3°C for indoor operation (a lower dew point should be selected for outdoor operation) and oil concentration 1.0 mg oil/m³, which is what a standard compressor with a standard filter gives.

Features

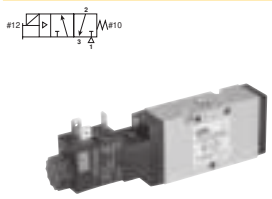
WCS
- Maximum Performance
  - Low friction - fast response - less wear
- Long Cycle Life
  - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore
- Non-Lube Service
  - No lubrication required for continuous valve shifting
- Bi-Directional Spool Seals
  - Common spool used for any pressure



- Solenoid operated, IP65, RoHS, CE
- 90° rotation

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

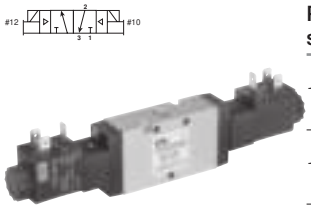
3/2 - 2-Position Single Solenoid, Non-locking Manual Override



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	15 / 35	0.35 (0.16)	24VDC	**P2LAZ391ESNDBB49**	**P2LAZ311ESNDBB49**
				120VAC	**P2LAZ391ESNDBB53**	**P2LAZ311ESNDBB53**
1/4	1.5	18 / 45	0.35 (0.16)	24VDC	**P2LBZ392ESNDBB49**	**P2LBZ312ESNDBB49**
				120VAC	**P2LBZ392ESNDBB53**	**P2LBZ312ESNDBB53**
3/8	2.5	27 / 45	0.77 (0.35)	24VDC	**P2LCZ393ESNDBB49**	**P2LCZ313ESNDBB49**
				120VAC	**P2LCZ393ESNDBB53**	**P2LCZ313ESNDBB53**

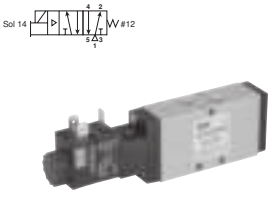
3/2 - 2-Position Double Solenoid, Non-locking Manual Override



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	10 / 10	0.40 (0.18)	24VDC	**P2LAZ391EENDBB49**	**P2LAZ311EENDBB49**
				120VAC	**P2LAZ391EENDBB53**	**P2LAZ311EENDBB53**
1/4	1.5	12 / 12	0.40 (0.18)	24VDC	**P2LBZ392EENDBB49**	**P2LBZ312EENDBB49**
				120VAC	**P2LBZ392EENDBB53**	**P2LBZ312EENDBB53**
3/8	2.5	17 / 17	0.80 (0.36)	24VDC	**P2LCZ393EENDBB49**	**P2LCZ313EENDBB49**
				120VAC	**P2LCZ393EENDBB53**	**P2LCZ313EENDBB53**

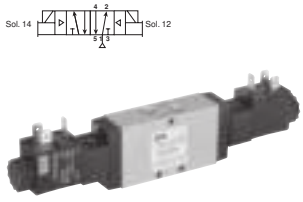
5/2 - 2-Position Single Solenoid, Non-locking Manual Override



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	15 / 35	.037 (0.17)	24VDC	**P2LAZ591ESNDBB49**	**P2LAZ511ESNDBB49**
				120VAC	**P2LAZ591ESNDBB53**	**P2LAZ511ESNDBB53**
1/4	1.5	18 / 45	0.44 (0.20)	24VDC	**P2LBZ592ESNDBB49**	**P2LBZ512ESNDBB49**
				120VAC	**P2LBZ592ESNDBB53**	**P2LBZ512ESNDBB53**
3/8	2.5	27 / 45	0.95 (0.43)	24VDC	**P2LCZ593ESNDBB49**	**P2LCZ513ESNDBB49**
				120VAC	**P2LCZ593ESNDBB53**	**P2LCZ513ESNDBB53**

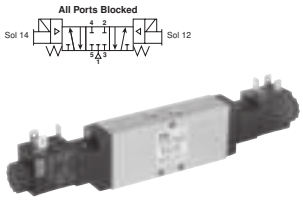
5/2 - 2-Position Double Solenoid, Non-locking Manual Override



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	10 / 10	.042 (0.19)	24VDC	**P2LAZ591EENDBB49**	**P2LAZ511EENDBB49**
				120VAC	**P2LAZ591EENDBB53**	**P2LAZ511EENDBB53**
1/4	1.5	12 / 12	0.46 (0.21)	24VDC	**P2LBZ592EENDBB49**	**P2LBZ512EENDBB49**
				120VAC	**P2LBZ592EENDBB53**	**P2LBZ512EENDBB53**
3/8	2.5	17 / 17	0.97 (0.44)	24VDC	**P2LCZ593EENDBB49**	**P2LCZ513EENDBB49**
				120VAC	**P2LCZ593EENDBB53**	**P2LCZ513EENDBB53**

5/3 - 3-Position, All Ports Blocked, Non-locking Manual Override

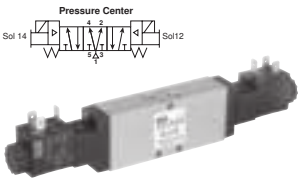


P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ691EENDBB49**	**P2LAZ611EENDBB49**
				120VAC	**P2LAZ691EENDBB53**	**P2LAZ611EENDBB53**
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ692EENDBB49**	**P2LBZ612EENDBB49**
				120VAC	**P2LBZ692EENDBB53**	**P2LBZ612EENDBB53**
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ693EENDBB49**	**P2LCZ613EENDBB49**
				120VAC	**P2LCZ693EENDBB53**	**P2LCZ613EENDBB53**

Most popular. **Notes:** Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C)

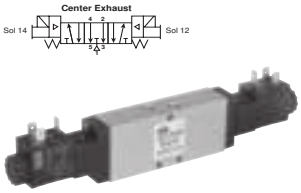
5/3 - 3-Position, Pressure Center, Non-locking Manual Override



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ791EENDBB49**	**P2LAZ711EENDBB49**
				120VAC	**P2LAZ791EENDBB53**	**P2LAZ711EENDBB53**
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ792EENDBB49**	**P2LBZ712EENDBB49**
				120VAC	**P2LBZ792EENDBB53**	**P2LBZ712EENDBB53**
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ793EENDBB49**	**P2LCZ713EENDBB49**
				120VAC	**P2LCZ793EENDCB53**	**P2LCZ713EENDBB53**

5/3 - 3-Position, Center Exhaust



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ891EENDBB49**	**P2LAZ811EENDBB49**
				120VAC	**P2LAZ891EENDBB53**	**P2LAZ811EENDBB53**
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ892EENDBB49**	**P2LBZ812EENDBB49**
				120VAC	**P2LBZ892EENDBB53**	**P2LBZ812EENDBB53**
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ893EENDBB49**	**P2LCZ813EENDBB49**
				120VAC	**P2LCZ893EENDBB53**	**P2LCZ813EENDBB53**

Notes: Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C)

Viking Lite Single & Double Solenoid Operated Valves

P2L A Z 5 91 ES N D C B 49

Valve size

1/8"	A
1/4"	B
3/8"	C

Series

Viking Lite	Z

Valve type / function

Internal pilot supply to solenoid	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8

Main port thread

G1/8 (P2LA)	11
G1/4 (P2LB)	12
G3/8 (P2LC)	13
1/8" NPT (P2LA)	91
1/4" NPT (P2LB)	92
3/8" NPT (P2LC)	93

12 End operator

EE	Double solenoid
ES*	Single solenoid, spring return

* Not available with 3-position valves.

Valve type

N	14°F to 122°F (-10°C to 50°C)

Solenoid pilot type

D	Pilot exhaust vented

Overrides

C	Extended - locking
B	Flush - non-locking

Enclosures / lead length

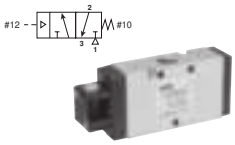
B	22mm rectangular 3-pin – type B industrial (male only)
N	Valve less coil

Voltage / frequency

49	24VDC
53	120VAC
Blank	Valve less coil

☐ Most popular.

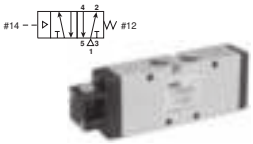
Single Remote Air Pilot, 3-way, 2-position



P2LBZ Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.25 (0.11)	P2LAX	**P2LAZ391PS**
1/4"	1.3	25 / 65	0.25 (0.11)	P2LBX	**P2LBZ392PS**
3/8"	2.5	25 / 65	0.67 (0.30)	P2LCX	**P2LCZ393PS**

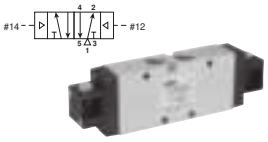
Single Remote Air Pilot, 4-way, 2-position



P2LBZ Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.27 (0.12)	P2LAX	**P2LAZ591PS**
1/4"	1.3	20 / 55	0.27 (0.12)	P2LBX	**P2LBZ592PS**
3/8"	2.5	25 / 85	0.85 (0.35)	P2LCX	**P2LCZ593PS**

Double Remote Air Pilot, 4-way, 2-position



P2LBZ Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	11 / 11	0.22 (0.10)	P2LAX	**P2LAZ591PP**
1/4"	1.3	13 / 13	0.26 (0.12)	P2LBX	**P2LBZ592PP**
3/8"	2.5	18 / 18	0.77 (0.35)	P2LCX	**P2LCZ593PP**

Notes: Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Viking Lite Remote Air Pilot Operated Valves

P2L A Z 5 91 PS

Valve size	
1/8"	A
1/4"	B
3/8"	C

Valve type / function	
Internal pilot supply to solenoid	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8

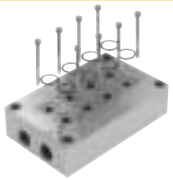
Main port thread	
11	G1/8 (P2LA)
12	G1/4 (P2LB)
13	G3/8 (P2LC)
91	1/8" NPT (P2LA)
92	1/4" NPT (P2LB)
93	3/8" NPT (P2LC)

Operators / return	
PP	Double remote pilot, 5/32" (4mm) tube
PS*	Single remote pilot, spring return, 5/32" (4mm) tube

* Not available with 3-position valves.

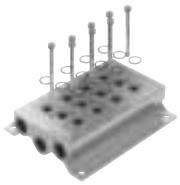
Most popular.

IEM Bar Manifold, Inline Valve Only*



Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LAZ / P2LBZ	3-way	2	0.84 (0.38)	**91213202SXZN**	**91213202SXZ**
P2LAZ / P2LBZ	3-way	4	1.41 (0.64)	**91213204SXZN**	**91213204SXZ**
P2LAZ / P2LBZ	3-way	6	1.96 (0.89)	**91213206SXZN**	**91213206SXZ**
P2LAZ / P2LBZ	3-way	8	2.54 (1.15)	**91213208SXZN**	**91213208SXZ**
P2LAZ / P2LBZ	3-way	10	3.09 (1.40)	**91213210SXZN**	**91213210SXZ**

Kits include: Manifold, valve hold down bolts, gaskets.



Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LAZ	4-way	2	0.68 (0.31)	**9121658068N**	**9121658068**
P2LAZ	4-way	4	1.06 (0.48)	**9121658075N**	**9121658075**
P2LAZ	4-way	6	1.39 (0.63)	**9121658076N**	**9121658076**
P2LAZ	4-way	8	1.76 (0.80)	**9121658077N**	**9121658077**
P2LAZ	4-way	10	2.16 (0.98)	**9121658078N**	**9121658078**

Kits include: Manifold, valve hold down bolts, gaskets.

Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LBZ	4-way	2	1.53 (0.69)	**9121594805XN**	**9121594805X**
P2LBZ	4-way	4	2.49 (1.13)	**9121594806XN**	**9121594806X**
P2LBZ	4-way	6	3.44 (1.56)	**9121594807XN**	**9121594807X**
P2LBZ	4-way	8	4.41 (2.00)	**9121594808XN**	**9121594808X**
P2LBZ	4-way	10	5.40 (2.45)	**9121594812XN**	**9121594812X**

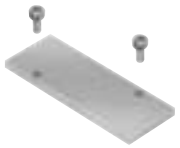
Kits include: Manifold, valve hold down bolts, gaskets.
* For odd number of stations, consider Viking Xtreme bar manifold.

IEM Bar Manifold, Inline Valve Only

Valve series	Valve function	# of Stations	Manifold only (NPT & BSPP)
P2LCZ	4-way	Use Viking Xtreme IEM bar manifold	

Note: Only 4-way Viking Lite will mount on Viking Xtreme manifold. If 3-way desired, use 4-way and plug part #2 for N.C. valve function.

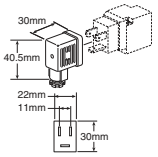
Manifold Accessories / Parts



Valve series	Description	Weight lb (kg)	Kit number
P2LAZ / P2LBZ *	3-way: Blanking kit with mounting screws (2)	0.22 (0.10)	**912132BPSXZ**
P2LAZ *	4-way: Blanking kit with mounting screws (2)	0.11 (0.05)	**9121658063**
P2LBZ *	4-way: Blanking kit with mounting screws (2)	0.04 (0.02)	**9121594809X**

***Note:** O-ring for blanking kit included with manifold. For replacement o-rings or fastener bolts, use Viking Xtreme Kits.

22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure "B")



Description	Connector with 6' (2m) cord	Connector
Unlighted	**PS2429JBP**	**PS2429BP**
Light – 24VDC	**PS2430J79BP***	**PS243079BP**
Light – 120V/60Hz	**PS2430J83BP***	**PS243083BP**

* LED with surge suppression.
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
conductors: 2 poles plus ground; cable range (connector only): 6 to 8mm (0.24 To 0.31 Inch); contact spacing: 11mm

Most popular.

Replacement Parts

Description	Part number
24VDC solenoid coil kit	**P2FCB449**
110VAC solenoid coil kit	**P2FCB453**

Description	Part number
Remote pilot kit	**P2FP1P**

*Includes adaptor, gasket, screws

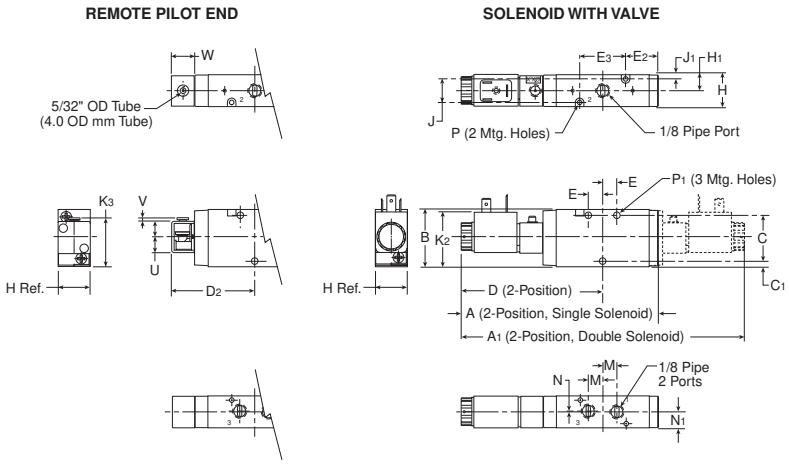
Description	Part number
Solenoid nut, diffuser	**PS1556**

Description	Part number
Solenoid nut, vented	**PS2892P**

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P2LAZ 3/2 Single & Double Operators – Solenoid & Remote Air Pilot



P2LAZ 3/2
Solenoid & remote air pilot

A	A1	B	C	C1	D
5.35 (136)	7.68 (195)	1.57 (40)	1.26 (32)	.16 (4)	3.84 (97.5)

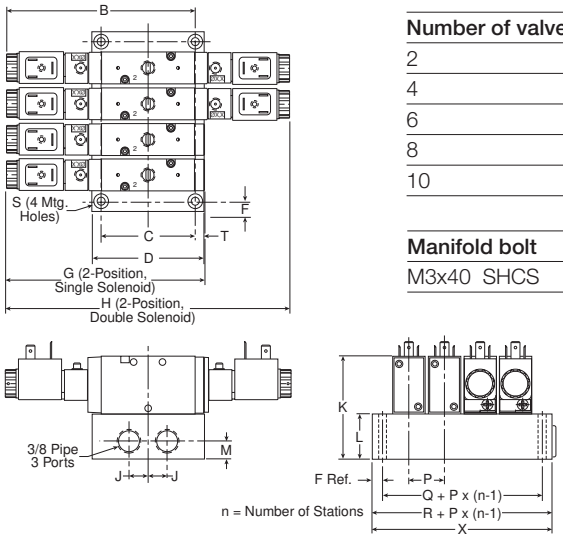
D2	E	E2	E3	H	H1
2.28 (58)	.39 (10)	.91 (23)	1.26 (32)	.87 (22)	.43 (11)

J	J1	K2	K3	M	N
.65 (16.5)	.11 (2.75)	1.50 (38)	1.31 (33.2)	.39 (10)	.02 (.5)

N1	P	P1	U	V	W
.43 (11)	Ø .12 Ø (3.1)	Ø .17 Ø (4.3)	0.43 (11)	0.087 (2.2)	0.59 (15.2)

Inches (mm)

P2LAZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

Manifold bolt	Torque value
M3x40 SHCS	4 in.lb (0.45 Nm)

P2LAZ 3/2
IEM Aluminum bar manifold

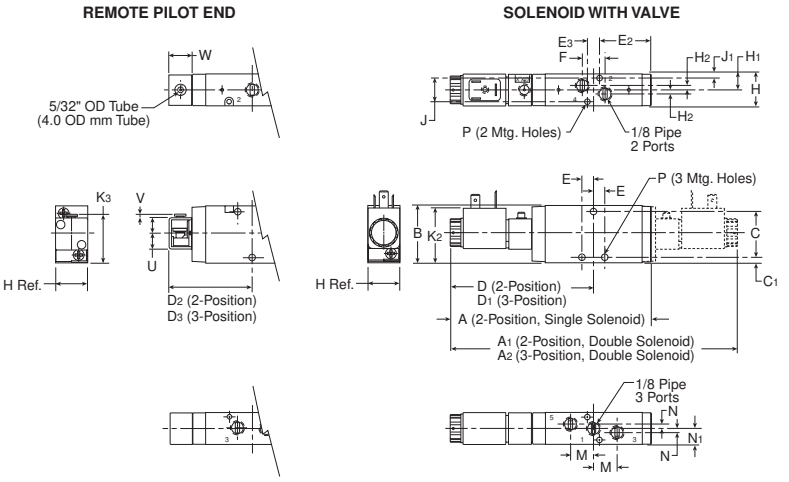
B	C	D	F	G
5.06 (128.5)	2.44 (62)	2.99 (76)	.28 (7)	5.35 (136)

H	J	K	L	M
7.68 (195)	.51 (13)	2.78 (70.5)	1.20 (30.5)	.47 (12)

P	Q	R	S	T
.94 (24)	1.42 (36)	1.97 (50)	Ø .22 Ø (5.5)	.88 (7)

Inches (mm)

P2LAZ 5/2 & 5/3 Single & Double Operators – Solenoid & Remote Air Pilot



P2LAZ 5/2 & 5/3
Solenoid & remote air pilot

A	A1	A2	B	C	C1
5.47 (139)	7.76 (197)	8.70 (221)	1.57 (40)	1.30 (33)	.14 (3.5)

D	D1	D2	D3	E	E2
3.88 (98.5)	4.35 (110.5)	2.33 (59.3)	2.80 (71)	.31 (8)	1.86 (47.3)

E3	F	H	H1	H2	J
.33 (8.5)	.63 (16)	.87 (22)	.43 (11)	.12 (3)	.63 (16)

J1	K2	K3	M	N	N1
.12 (3)	1.50 (38)	1.31 (33.2)	.63 (16)	.12 (3)	.43 (11)

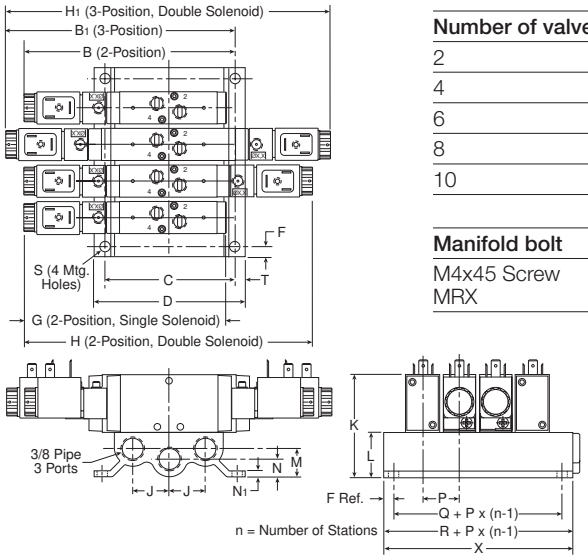
P	U	V	W
Ø .16 Ø (4.1)	0.43 (11)	0.087 (2.2)	0.59 (15.2)

Inches (mm)

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P2LAZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	3.07 (78)
4	4.96 (126)
6	6.85 (174)
8	8.74 (222)
10	10.63 (270)

Inches (mm)

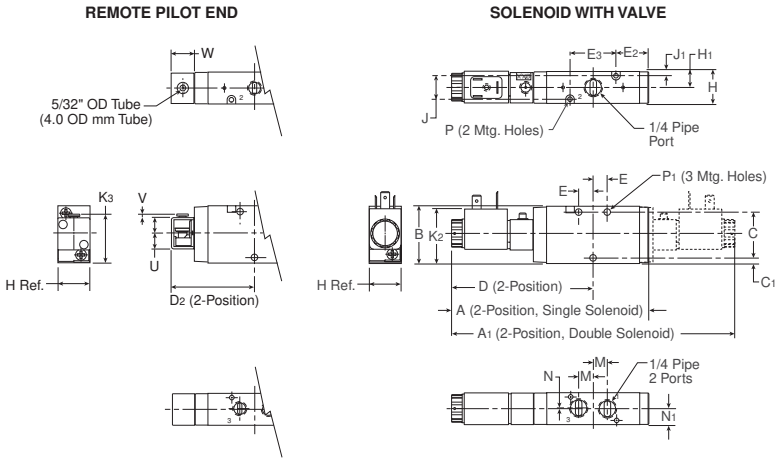
Manifold bolt	Torque value
M4x45 Screw MRX	9 in.lb (0.75 Nm)

P2LAZ 5/2 & 5/3
IEM Aluminum bar manifold

B	B1	C	D	F
5.10 (149.5)	6.36 (161.5)	3.46 (88)	4.02 (102)	.28 (7)
G	**H**	**H1**	**J**	**K**
5.47 (139)	7.76 (197)	8.70 (221)	.96 (24.5)	2.76 (70)
L	**M**	**N**	**N1**	**P**
1.18 (30)	.75 (19)	.47 (12)	.16 (4)	.94 (24)
Q	**R**	**S**	**T**	
1.57 (40)	2.13 (54)	Ø .28 Ø (7)	.28 (7)	

Inches (mm)

P2LBZ 3/2 Single & Double Operators – Solenoid & Remote Air Pilot

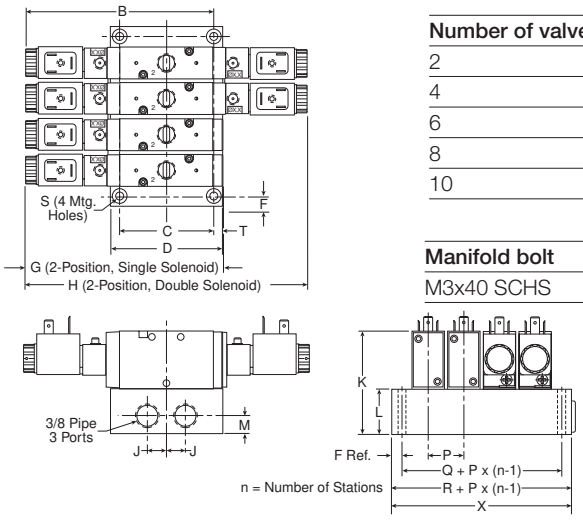


P2LBZ 3/2
Solenoid & remote air pilot

A	A1	B	C	C1	D
5.35 (136)	7.68 (195)	1.57 (40)	1.26 (32)	.16 (4)	3.84 (97.5)
D2	**E**	**E2**	**E3**	**H**	**H1**
2.28 (58)	.39 (10)	.91 (23)	1.26 (32)	.87 (22)	.43 (11)
J	**J1**	**K2**	**K3**	**M**	**N**
.65 (16.5)	.11 (2.75)	1.50 (38)	1.31 (33.2)	.39 (10)	.02 (.5)
N1	**P**	**P1**	**U**	**V**	**W**
.43 (11)	Ø .12 Ø (3.1)	Ø .17 Ø (4.3)	0.43 (11)	0.087 (2.2)	0.59 (15.2)

Inches (mm)

P2LBZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

Manifold bolt	Torque value
M3x40 SCHS	4 in.lb (0.45 Nm)

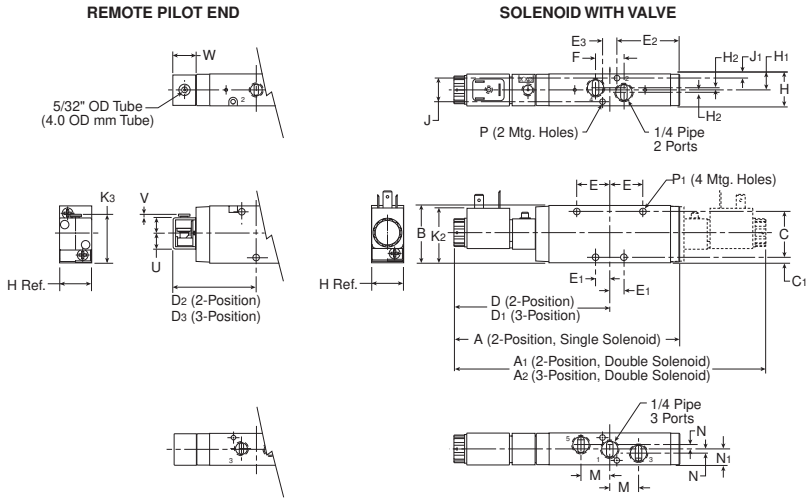
P2LBZ 3/2
IEM Aluminum bar manifold

B	C	D	F	G
5.06 (128.5)	2.44 (62)	2.99 (76)	.28 (7)	5.35 (136)
H	**J**	**K**	**L**	**M**
7.68 (195)	.51 (13)	2.78 (70.5)	1.20 (30.5)	.47 (12)
P	**Q**	**R**	**S**	**T**
.94 (24)	1.42 (36)	1.97 (50)	Ø .22 Ø (5.5)	.88 (7)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P2LBZ 5/2 & 5/3 Single & Double Operators – Solenoid & Remote Air Pilot



P2LBZ 5/2 & 5/3
Solenoid & remote air pilot

A	A1	A2	B	C	C1
6.14 (156)	8.46 (215)	9.29 (236)	1.57 (40)	1.26 (32)	.16 (4)

D	D1	D2	D3	E	E1
4.23 (107.5)	4.65 (118)	2.68 (68)	3.09 (78.5)	.91 (23)	.39 (10)

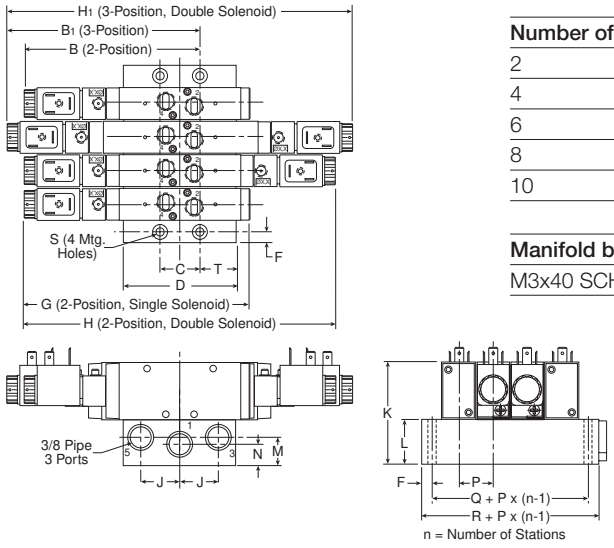
E2	E3	F	H	H1	H2
1.14 (29)	.39 (10)	.79 (20)	.87 (22)	.43 (11)	.06 (1.5)

J	J 1	K2	K3	M	N
.65 (16.5)	.11 (2.8)	1.50 (38)	1.31 (33.2)	.79 (20)	.08 (2)

N1	P	P1	U	V	W
.43 (11)	Ø .12 Ø (3.1)	Ø .17 Ø (4.3)	0.43 (11)	0.087 (2.2)	0.59 (15.2)

Inches (mm)

P2LBZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

Manifold bolt	Torque value
M3x40 SCHS	9 in.lb (0.75 Nm)

P2LBZ 5/2 & 5/3
IEM Aluminum bar manifold

B	B1	C	D	F
4.43 (112.5)	4.84 (123)	1.04 (26.5)	2.99 (76)	.28 (7)

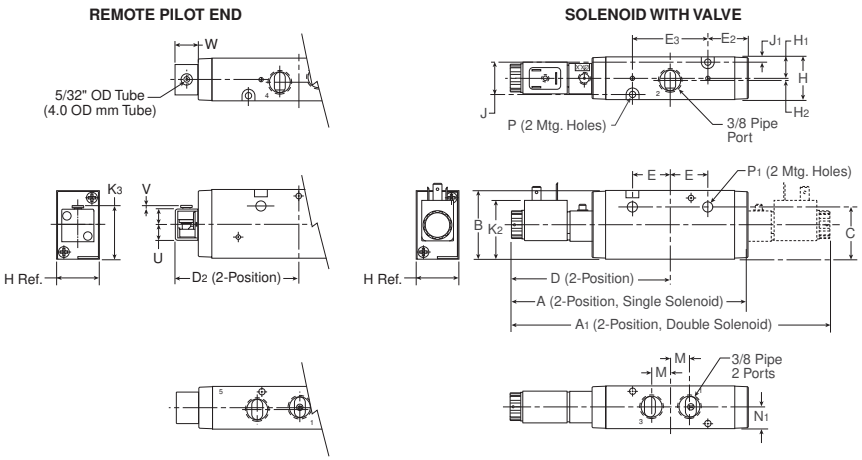
G	H	H1	J	K
6.14 (156)	8.46 (215)	9.29 (236)	1.02 (26)	2.781 (70.5)

L	M	N	P	Q
1.20 (30.5)	.75 (19)	.57 (14.5)	.94 (24)	1.57 (40)

R	S	T
1.97 (50)	Ø .22 Ø (5.5)	.97 (25)

Inches (mm)

P2LCZ 3/2 Single & Double Operators – Solenoid & Remote Pilot



P2LCZ 3/2
Solenoid & remote air pilot

A	A1	B	C	D	D2
6.50 (165)	8.66 (220)	1.89 (48)	1.46 (37)	4.33 (110)	2.78 (70.5)

E	E2	E3	H	H1	H2
1.04 (26.5)	1.10 (28)	2.09 (53)	1.18 (30)	.59 (15)	.06 (1.55)

J	J1	K2	K3	M	N1
.91 (23)	.14 (3.5)	1.50 (38)	1.46 (37.2)	.53 (13.5)	.59 (15)

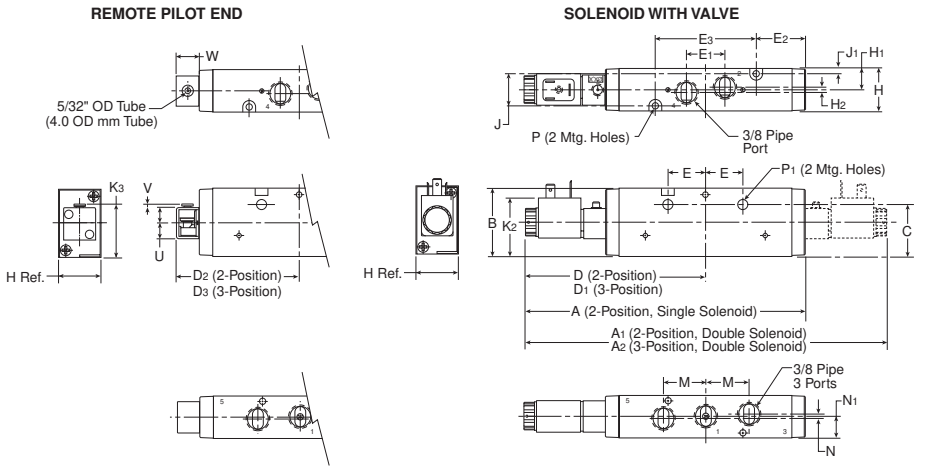
P	P1	U	V	W
Ø .17 Ø (4.4)	Ø .27 Ø (6.9)	0.43 (11)	0.087 (2.2)	0.59 (15.2)

Inches (mm)

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

P2LCZ 5/2 & 5/3 Single & Double Operators – Solenoid & Remote Air Pilot

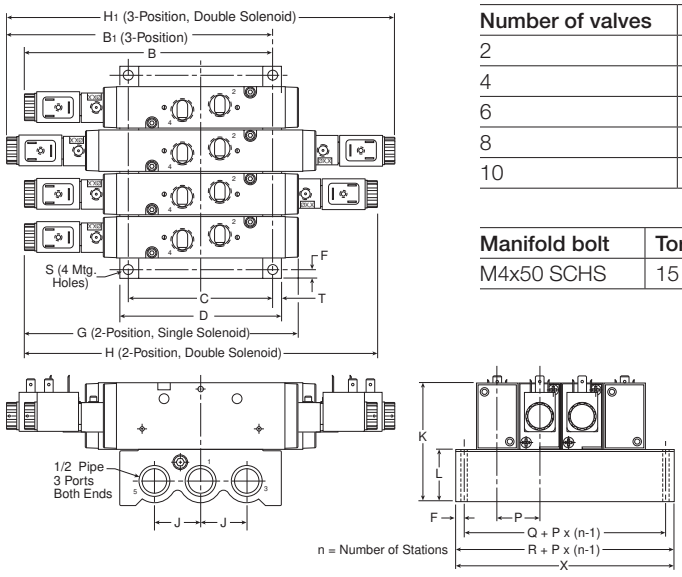


P2LBZ 5/2 & 5/3
Solenoid & remote air pilot

A	A1	A2	B	C
7.68	9.88	10.70	1.89	1.46
(195)	(251)	(272)	(48)	(37)
D	**D1**	**D2**	**D3**	**E**
4.94	5.35	3.39	3.80	1.04
(125.5)	(136)	(86)	(96.5)	(26.5)
E1	**E2**	**E3**	**H**	**H1**
1.06	1.71	2.80	1.18	.59
(27)	(43.5)	(71)	(30)	(15)
H2	**J**	**J1**	**K2**	**K3**
.12	.91	.14	1.50	1.48
(.3)	(23)	(3.5)	(38)	(37.5)
M	**N**	**N1**	**P**	**P1**
1.18	.08	.59	Ø .17	Ø .27
(30)	(2)	(15)	Ø (4.4)	Ø (6.9)
U	**V**	**W**		
0.43	0.087	0.59		
(11)	(2.2)	(15.2)		

Inches (mm)

P2LCZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	3.29 (84)
4	5.96 (152)
6	8.44 (215)
8	10.93 (278)
10	13.41 (341)

Inches (mm)

Manifold bolt	Torque value
M4x50 SCHS	15 in.lb (2.0 Nm)

P2LCZ 5/2 & 5/3
IEM Aluminum bar manifold

C	D	F	G	H
3.97	4.41	.24	7.68	9.88
(101)	(112)	(6)	(195)	(251)
H1	**J**	**K**	**L**	**P**
10.70	1.26	3.43	1.54	1.24
(272)	(32)	(87)	(39)	(31.5)
Q	**R**	**S**	**T**	
1.77	2.24	Ø .26	.24	
(45)	(57)	Ø (6.5)	(6)	

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Viking Extreme Series

The Viking Xtreme valve range is robust, versatile and combines high performance with compact installation dimensions. Large flow capacity, short change-over times and low change-over pressure are important characteristics of this valve range.

Ports
- P2LAX: 1/8 inch NPT & BSPP
- P2LBX: 1/4 inch NPT & BSPP
- P2LCX: 3/8 inch NPT & BSPP
- P2LDX: 1/2 inch NPT & BSPP

Mounting
- Inline
- IEM aluminum bar

Solenoids

1.2 watts to 7.3 watts
- 22mm (Type B) & 30mm 3-pin (DIN 43650)
- 15mm 3-pin (EN 17530-803)
- M12, 4-pin, surge suppression
- Grommet, surge suppression
- Conduit
- Deutsche Connectors, surge suppression

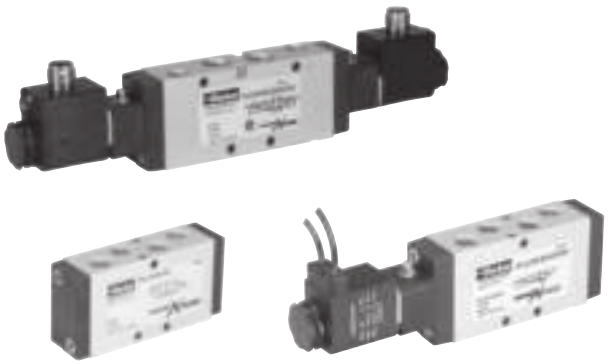
12VDC to 240VAC

Certification / approval
- IP65 Rated, RoHS, CE
- cCSAus Approved to 145 PSIG (10 bar)
- Canada Registration Number available (CRN)
- ATEX option available

Mobile applications
- Viking Xtreme tested to +5g shock and vibration
- Solenoids operate with wide voltage tolerance bands
- Corrosion resistant design
- Passed 500 hour salt spray test

Material specifications

Body	Anodized aluminum
End caps	Anodized aluminum
Coils	Thermoplastic
Fasteners	Stainless steel
Spool	Aluminum and nitrile rubber
Springs	Stainless steel



Operating information

Operating pressure:
- Normal: Vacuum to 145 PSIG (Vacuum to 10 bar)
- Xtreme: (P2LAX & P2LBX) Vacuum to 232 PSIG (Vacuum to 16 bar)
- (P2LCX & P2LDX) Vacuum to 174 PSIG (Vacuum to 12 bar)
- Minimum: See chart

Operating temperature:
- Normal: 14°F to 122°F (-10°C to 50°C)
- Xtreme: -40°F to 158°F (-40°C to 70°C)

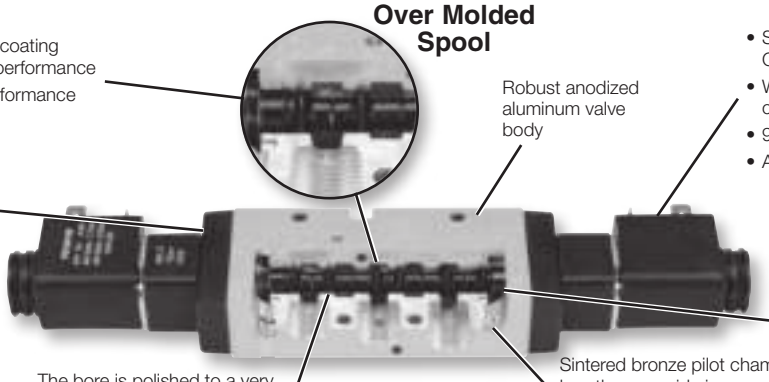
Minimum operating pressure, PSIG (bar)

Valve type - Internal pilot	P2LAX	P2LBX	P2LCX	P2LDX
Single solenoid - spring return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Single remote pilot - spring return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Double solenoid - 2-position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double remote pilot - 2-position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double solenoid - 3-position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)
Double remote pilot - 3-position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)

Features

Over Molded Spool
- Aluminum spool with nitrile rubber coating ground to exact size for optimum performance
- Precision ground for maximum performance
- Wide operating temperature range - Low temperature to -40°

Diecast end covers with stainless steel screws to resist aggressive environments.

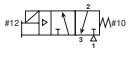
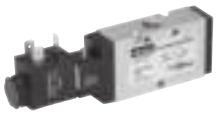


- Solenoid operated, IP65, RoHS, CE, CSA
- Wide variety of electrical connections
- 90° rotation
- Air pilot available

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

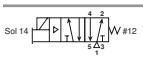
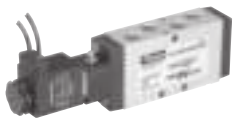
Single Solenoid, 3-way, 2-position, Normal Operating Pressure / Temperature, Non-locking Manual Override

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNDDB49**
							120VAC	**P2LAX391ESNDDB53**
	22mm DIN	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNDDB49**
							120VAC	**P2LBX392ESNDDB53**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNDDB49**
							120VAC	**P2LCX393ESNDDB53**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNDDB49**
P2LAX 22mm DIN Shown							120VAC	**P2LDX394ESNDDB53**
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNDDG49**
							120VAC	**P2LAX391ESNDDG53**
	18" Grommet	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNDDG49**
							120VAC	**P2LBX392ESNDDG53**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNDDG49**
							120VAC	**P2LCX393ESNDDG53**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNDDG49**
P2LAX 18" Grommet Shown							120VAC	**P2LDX394ESNDDG53**
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNDD7B9**
	M12 Coil with LED	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNDD7B9**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNDD7B9**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNDD7B9**
P2LAX M12 Coil Shown								
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNXB549**
							120VAC	**P2LAX391ESNXB553**
	15mm DIN	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNXB549**
							120VAC	**P2LBX392ESNXB553**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNXB549**
							120VAC	**P2LCX393ESNXB553**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNXB549**
P2LAX 15mm DIN Shown							120VAC	**P2LDX394ESNXB553**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

☐ Most popular.

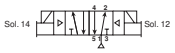
Single Solenoid, 4-way, 2-position, Normal Operating Pressure / Temperature, Non-locking Manual Override

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
	22mm DIN	1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNDDB49**
							120VAC	**P2LAX591ESNDDB53**
		1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNDDB49**
							120VAC	**P2LBX592ESNDDB53**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNDDB49**
							120VAC	**P2LCX593ESNDDB53**
		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNDDB49**
P2LBX 22mm DIN Shown							120VAC	**P2LDX594ESNDDB53**
	18" Grommet	1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNDDG49**
							120VAC	**P2LAX591ESNDDG53**
		1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNDDG49**
							120VAC	**P2LBX592ESNDDG53**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNDDG49**
							120VAC	**P2LCX593ESNDDG53**
		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNDDG49**
P2LAX 18" Grommet Shown							120VAC	**P2LDX594ESNDDG53**
	M12 Coil with LED	1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNDD7B9**
		1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNDD7B9**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNDD7B9**
P2LAX M12 Coil Shown		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNDD7B9**
	15mm DIN	1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNXB549**
							120VAC	**P2LAX591ESNXB553**
		1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNXB549**
							120VAC	**P2LBX592ESNXB553**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNXB549**
							120VAC	**P2LCX593ESNXB553**
		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNXB549**
P2LAX 15mm DIN Shown							120VAC	**P2LDX594ESNXB553**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Most popular.

Double Solenoid, 4-way, 2-position, Normal Operating Pressure / Temperature, Non-locking Manual Override

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
  P2LBX 22mm DIN Shown	22mm DIN	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENDDB49**
							120VAC	**P2LAX591EENDDB53**
		1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENDDB49**
							120VAC	**P2LBX592EENDDB53**
		3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENDDB49**
							120VAC	**P2LCX593EENDDB53**
		1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENDDB49**
							120VAC	**P2LDX594EENDDB53**
 P2LAX 18" Grommet Shown	18" Grommet	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENDDG49**
							120VAC	**P2LAX591EENDDG53**
		1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENDDG49**
							120VAC	**P2LBX592EENDDG53**
		3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENDDG49**
							120VAC	**P2LCX593EENDDG53**
		1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENDDG49**
							120VAC	**P2LDX594EENDDG53**
 P2LBX M12 Coil Shown	M12 Coil with LED	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENDD7B9**
		1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENDD7B9**
		3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENDD7B9**
		1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENDD7B9**
 P2LAX 15mm DIN Shown	15mm DIN	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENXB549**
							120VAC	**P2LAX591EENXB553**
		1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENXB549**
							120VAC	**P2LBX592EENXB553**
		3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENXB549**
							120VAC	**P2LCX593EENXB553**
		1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENXB549**
							120VAC	**P2LDX594EENXB553**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

☐ Most popular.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Normal Operating Pressure / Temperature, Non-locking Manual Override

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number: All Ports Blocked	Part number: Center Exhaust
 P2LBX 22mm DIN Shown	22mm DIN	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC	**P2LAX691EENDDB49**	**P2LAX891EENDDB49**
							120VAC	**P2LAX691EENDDB53**	**P2LAX891EENDDB53**
		1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC	**P2LBX692EENDDB49**	**P2LBX892EENDDB49**
							120VAC	**P2LBX692EENDDB53**	**P2LBX892EENDDB53**
		3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC	**P2LCX693EENDDB49**	**P2LCX893EENDDB49**
							120VAC	**P2LCX693EENDDB53**	**P2LCX893EENDDB53**
		1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC	**P2LDX694EENDDB49**	**P2LDX894EENDDB49**
							120VAC	**P2LDX694EENDDB53**	**P2LDX894EENDDB53**
 P2LBX 18" Grommet Shown	18" Grommet	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC	**P2LAX691EENDDG49**	**P2LAX891EENDDG49**
							120VAC	**P2LAX691EENDDG53**	**P2LAX891EENDDG53**
		1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC	**P2LBX692EENDDG49**	**P2LBX892EENDDG49**
							120VAC	**P2LBX692EENDDG53**	**P2LBX892EENDDG53**
		3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC	**P2LCX693EENDDG49**	**P2LCX893EENDDG49**
							120VAC	**P2LCX693EENDDG53**	**P2LCX893EENDDG53**
		1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC	**P2LDX694EENDDG49**	**P2LDX894EENDDG49**
							120VAC	**P2LDX694EENDDG53**	**P2LDX894EENDDG53**
 P2LBX M12 Coil Shown	M12 Coil with LED	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC	**P2LAX691EENDD7B9**	**P2LAX891EENDD7B9**
		1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC	**P2LBX692EENDD7B9**	**P2LBX892EENDD7B9**
		3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC	**P2LCX693EENDD7B9**	**P2LCX893EENDD7B9**
		1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC	**P2LDX694EENDD7B9**	**P2LDX894EENDD7B9**
 P2LBX 15mm DIN Shown	15mm DIN	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC	**P2LAX691EENXB549**	**P2LAX891EENXB549**
							120VAC	**P2LAX691EENXB553**	**P2LAX891EENXB553**
		1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC	**P2LBX692EENXB549**	**P2LBX892EENXB549**
							120VAC	**P2LBX692EENXB553**	**P2LBX892EENXB553**
		3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC	**P2LCX693EENXB549**	**P2LCX893EENXB549**
							120VAC	**P2LCX693EENXB553**	**P2LCX893EENXB553**
		1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC	**P2LDX694EENXB549**	**P2LDX894EENXB549**
							120VAC	**P2LDX694EENXB553**	**P2LDX894EENXB553**

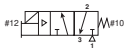
Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

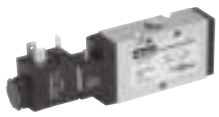
Most popular.

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Single Solenoid, 3-way, 2-position, Xtreme Operating Pressure / Temperature, Non-locking Manual Override





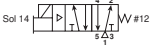
P2LBX 22mm DIN Shown

P2LBX 18" Grommet Shown

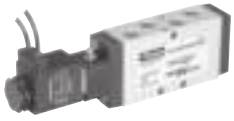
Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX391ESHDDB47**
						24VDC	**P2LAX391ESHDDB48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX392ESHDDB47**
						24VDC	**P2LBX392ESHDDB48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX393ESHDDB47**
						24VDC	**P2LCX393ESHDDB48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX394ESHDDB47**
						24VDC	**P2LDX394ESHDDB48**
18" Grommet	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX391ESHDDG47**
						24VDC	**P2LAX391ESHDDG48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX392ESHDDG47**
						24VDC	**P2LBX392ESHDDG48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX393ESHDDG47**
						24VDC	**P2LCX393ESHDDG48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX394ESHDDG47**
						24VDC	**P2LDX394ESHDDG48**

Notes: Above valves have Mobile Rated Coils and are rated for an operating temperature from -40°F to 158°F (-40°C to 70°C).
See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Single Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature Non-locking Manual Override



P2LBX 22mm DIN Shown



P2LAX 18" Grommet Shown

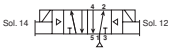
Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX591ESHDDB47**
						24VDC	**P2LAX591ESHDDB48**
	1/4"	1.3	P2LBX	20 / 55	0.84 (0.38)	12VDC	**P2LBX592ESHDDB47**
						24VDC	**P2LBX592ESHDDB48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX593ESHDDB47**
						24VDC	**P2LCX593ESHDDB48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX594ESHDDB47**
						24VDC	**P2LDX594ESHDDB48**
18" Grommet	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX591ESHDDG47**
						24VDC	**P2LAX591ESHDDG48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX592ESHDDG47**
						24VDC	**P2LBX592ESHDDG48**
	3/8"	2.5	P2LCX	28 / 85	1.01 (0.46)	12VDC	**P2LCX593ESHDDG47**
						24VDC	**P2LCX593ESHDDG48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX594ESHDDG47**
						24VDC	**P2LDX594ESHDDG48**

Notes: Above valves have Mobile Rated Coils and are rated for an operating temperature from -40°F to 158°F (-40°C to 70°C).
See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Most popular.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Double Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature, Non-locking Manual Override



22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LAX 18" Grommet Shown

Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	11 / 11	0.60 (0.27)	12VDC	**P2LAX591EEHDDB47**
						24VDC	**P2LAX591EEHDDB48**
	1/4"	1.3	P2LBX	13 / 13	0.93 (0.42)	12VDC	**P2LBX592EEHDDB47**
						24VDC	**P2LBX592EEHDDB48**
	3/8"	2.5	P2LCX	18 / 18	1.06 (0.48)	12VDC	**P2LCX593EEHDDB47**
						24VDC	**P2LCX593EEHDDB48**
	1/2"	2.7	P2LDX	18 / 18	1.06 (0.48)	12VDC	**P2LDX594EEHDDB47**
						24VDC	**P2LDX594EEHDDB48**
18" Grommet	1/8"	0.7	P2LAX	11 / 11	0.60 (0.27)	12VDC	**P2LAX591EEHDDG47**
						24VDC	**P2LAX591EEHDDG48**
	1/4"	1.3	P2LBX	13 / 13	0.93 (0.42)	12VDC	**P2LBX592EEHDDG47**
						24VDC	**P2LBX592EEHDDG48**
	3/8"	2.5	P2LCX	18 / 18	1.06 (0.48)	12VDC	**P2LCX593EEHDDG47**
						24VDC	**P2LCX593EEHDDG48**
	1/2"	2.7	P2LDX	18 / 18	1.06 (0.48)	12VDC	**P2LDX594EEHDDG47**
						24VDC	**P2LDX594EEHDDG48**

Notes: Above valves have Mobile Rated Coils and are rated for an operating temperature from -40°F to 158°F (-40°C to 70°C).
See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature Non-locking Manual Override

22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LBX 18" Grommet Shown

Solenoid	Port size	Cv	Valve type (NPT)	Response time (msec)	Weight lb (kg)	Voltage	Part number: All Ports Blocked	Part number: Center Exhaust
22mm DIN	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	12VDC	**P2LAX691EEHDDB47**	**P2LAX891EEHDDB47**
						24VDC	**P2LAX691EEHDDB48**	**P2LAX891EEHDDB48**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	12VDC	**P2LBX692EEHDDB47**	**P2LBX892EEHDDB47**
						24VDC	**P2LBX692EEHDDB48**	**P2LBX892EEHDDB48**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	12VDC	**P2LCX693EEHDDB47**	**P2LCX893EEHDDB47**
						24VDC	**P2LCX693EEHDDB48**	**P2LCX893EEHDDB48**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	12VDC	**P2LDX694EEHDDB47**	**P2LDX894EEHDDB47**
						24VDC	**P2LDX694EEHDDB48**	**P2LDX894EEHDDB48**
18" Grommet	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	12VDC	**P2LAX691EEHDDG47**	**P2LAX891EEHDDG47**
						24VDC	**P2LAX691EEHDDG48**	**P2LAX891EEHDDG48**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	12VDC	**P2LBX692EEHDDG47**	**P2LBX892EEHDDG47**
						24VDC	**P2LBX692EEHDDG48**	**P2LBX892EEHDDG48**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	12VDC	**P2LCX693EEHDDG47**	**P2LCX893EEHDDG47**
						24VDC	**P2LCX693EEHDDG48**	**P2LCX893EEHDDG48**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	12VDC	**P2LDX694EEHDDG47**	**P2LDX894EEHDDG47**
						24VDC	**P2LDX694EEHDDG48**	**P2LDX894EEHDDG48**

Notes: Above valves have Mobile Rated Coils and are rated for an operating temperature from -40°F to 158°F (-40°C to 70°C).
See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Most popular.

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Pneumatic Division
Richland, Michigan
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Viking Xtreme Single & Double Solenoid Operated Valves

P2L A X 5 91 ES H D D G 49

Valve size	
1/8"	A
1/4"	B
3/8"	C
1/2"	D

Series	
Viking Xtreme	X

Valve type / function	
Internal pilot supply to solenoid*	
3/2 NC - 2-position	**3**
5/2 2-position	**5**
5/3 3-position, APB	**6**
5/3 3-position, PC	**7**
5/3 3-position, CE	**8**
External pilot supply to the solenoids through ports #12 & #14	
3/2 NC - 2-position	L
5/2 2-position	N
5/3 3-position, APB	P
5/3 3-position, PC	Q
5/3 3-position, CE	R

* Size A & B solenoid valves can be field converted from internal to external pilot. See page C25 for details.

Main port thread	
G1/8 (P2LA)	11
G1/4 (P2LB)	12
G1/4 (P2LB) NAMUR Mount	1N*
G3/8 (P2LC)	13
G1/2 (P2LD)	14
1/8" NPT (P2LA)	**91**
1/4" NPT (P2LB)	**92**
1/4" NPT (P2LB) NAMUR Mount	**9N***
3/8" NPT (P2LC)	**93**
1/2" NPT (P2LD)	**94**

* NAMUR mount available for 5/2, 2-position only.

Operator return	
Double solenoid	**EE**
Single solenoid, spring return	**ES***

* Not available with 3-position valves.

Valve type / operating pressure and temperature	
Normal, vacuum to 145 PSIG (10 bar), 14°F to 122°F (-10°C to 50°C), CSA Approved	**N**
Xtreme, vacuum to 145 PSIG (10 bar), -40°F to 140° F (-40°C to 70°C), CSA Approved	**K**
Xtreme, vacuum to 232 PSIG (16 bar), -40°F to 140° F (-40°C to 70°C)	**H***

* P2LC and P2LD solenoid operated valves have a maximum pressure rating of 175 PSIG (12 bar)

Solenoid pilot type	
D**	**Vented pilot exhaust**
N**	Tapped pilot exhaust
X*	15mm solenoid vented pilot exhaust

* Available enclosure "5", "X" and valve type "N" only.
** Not available on enclosure "5" & "X".

Voltage	
B9‡	**24 VDC w/ surge suppression & LED**
42	24VAC
45	12VDC
46†	**12VDC mobile with surge suppression**
47*	**12 VDC mobile**
48*	**24 VDC mobile**
49	**24VDC**
53	**120VAC**
57	240VAC
Blank	Valve less coil

* Only available with enclosures "A", "B", "G" & "5".
‡ Enclosure "7" only
† Enclosure "G", "T", "V" only.

Enclosures / lead length	
5†	**15mm, 3-pin DIN 43650C, 8mm pin spacing**
7§	**M12 4-pin coil with surge suppression & LED**
A	30mm square 3-pin – ISO 4400 Form A (male only)
B	**22mm rectangular 3-pin – type B industrial (male only)**
E*	Intrinsically safe, FM / CSA
F‡	Hazardous duty 1/2" NPT, FM / CSA
G	**Grommet - 18" leads**
H	1/2" NPT conduit - 18" leads
N**	Valve less "A - V, 7" enclosure
T#	**Grommet, single solenoid, 2-pin deutsche connector, surge suppression**
V#	**Grommet, double solenoid, 4-pin deutsche connector, surge suppression**
X†	Valve less 15mm solenoid

* Only available with voltage code "49" & override option "A", valve type "N" Only. Solenoid coil only CSA approved.
** Solenoid pilot type "D" & "N" only.
# Voltage code "46" only.
‡ Valve type "N" Only. Solenoid coil only CSA approved.
† Solenoid pilot type "X" only.
§ Voltage code "B9" only. Valve type "N" only.

Overrides	
A**	No override
B†	**Flush - Non-locking**
C*	**Flush - locking**
D	**Extended non-locking**
E*†	**Extended - locking**
X†	Valve less 15mm solenoid

* Override for valve type "N" only.
** Not available on enclosure "5", 15mm solenoid. Available solenoid pilot type "D" & "N" only.
† Available solenoid pilot type "X" only.

☐ Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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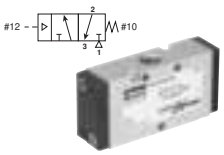
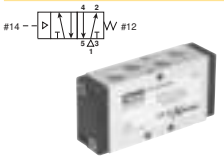
Single Remote Pilot, 3-way, 2-position, Xtreme Operating Pressure / Temperature, Non-locking Manual Override



P2LAX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.68 (0.31)	P2LAX	**P2LAX391PS**
1/4"	1.3	25 / 65	0.68 (0.31)	P2LBX	**P2LBX392PS**
3/8"	2.5	25 / 65	0.88 (0.40)	P2LCX	**P2LCX393PS**
1/2"	2.7	25 / 65	0.88 (0.40)	P2LDX	**P2LDX394PS**

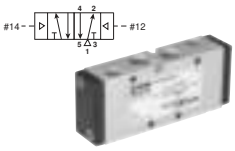
Single Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature, Non-locking Manual Override



P2LAX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.33 (0.15)	P2LAX	**P2LAX591PS**
1/4"	1.3	20 / 55	0.68 (0.31)	P2LBX	**P2LBX592PS**
3/8"	2.5	25 / 85	0.90 (0.41)	P2LCX	**P2LCX593PS**
1/2"	2.7	25 / 85	0.90 (0.41)	P2LDX	**P2LDX594PS**

Double Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature, Non-locking Manual Override

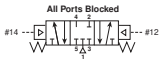
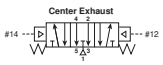


P2LBX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	11 / 11	0.33 (0.15)	P2LAX	**P2LAX591PP**
1/4"	1.3	13 / 13	0.68 (0.31)	P2LBX	**P2LBX592PP**
3/8"	2.5	18 / 18	0.90 (0.41)	P2LCX	**P2LCX593PP**
1/2"	2.7	18 / 18	0.90 (0.41)	P2LDX	**P2LDX594PP**

Double Remote Pilot, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature, Non-locking Manual Override


P2LBX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number: All Ports Blocked 	Part number: Center Exhaust 
1/8"	0.5	18 / 50	0.31 (0.14)	P2LAX	**P2LAX691PP**	**P2LAX891PP**
1/4"	0.9	25 / 65	0.73 (0.33)	P2LBX	**P2LBX692PP**	**P2LBX892PP**
3/8"	1.8	30 / 90	0.93 (0.42)	P2LCX	**P2LCX693PP**	**P2LCX893PP**
1/2"	1.9	30 / 90	0.93 (0.42)	P2LDX	**P2LDX694PP**	**P2LDX894PP**

Notes: Above valves are rated for an operating temperature from -40°F to 158°F (-40°C to 70°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Viking Xtreme Remote Air Pilot Operated Valves

Operating information

Operating pressure:
(P2LAX & P2LBX)
Vacuum to 232 PSIG (Vacuum to 16 bar)
(P2LCX & P2LDX)
Vacuum to 174 PSIG (Vacuum to 12 bar)

Operating temperature:
-40°F to 158°F (-40°C to 70°C)

P2L | A | X | 5 | 91 | PS

Valve size	
1/8"	A
1/4"	B
3/8"	C*
1/2"	D*

* P2LCX and P2LDX manual & remote air pilot valves have a maximum pressure rating of 175 PSIG (12 bar).

Valve type / function	
Internal pilot supply to solenoid	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8

Main port thread	
11	G1/8 (P2LA)
12	G1/4 (P2LB)
1N*	G1/4 NPT (P2LB) NAMUR mount
13	G3/8 (P2LC)
14	G1/2 (P2LD)
91	1/8" NPT (P2LA)
92	1/4" NPT (P2LB)
9N*	1/4 NPT (P2LB) NAMUR mount
93	3/8" NPT (P2LC)
94	1/2" NPT (P2LD)

* 5/2, 2-position valve only.

Operators / return	
PP	Double remote pilot
PS*	Single remote pilot, spring return

* Not available with 3-position valves.

☐ Most popular.

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Richland, Michigan
www.parker.com/pneumatics

ATEX Certified Single & Double Solenoid Operated Valves

Viking ATEX valves meet ATEX directive 94/9/EC with the following classification : CE Ex II 2GD c 135oc. This directive lays down minimum safety requirements for products intended for use in potentially explosive atmospheres. The Directive is commonly referred to as the 'ATEX' Directive ('ATmospheres EXplosibles'), but may also be called the ATEX Equipment Directive or ATEX 95. Both ATEX certified solenoid, remote pilot and manual operated valves, as well as complete solenoid pilot assemblies are available.

ATEX classification details:

CE Ex: fulfils the ATEX directive
II : Group II Equipment Area
2GD : Equipment Category 2. Gas Zone 1,2 and Dust Zone 21,22
c : Safe Design (EN13463-5)
135°C : Real temperature of the surface of product for test

Temperature Class of Solenoid : T4 135°C, ATEX 8-22T

Operating information

Operating pressure:	Vacuum to 145 PSIG (vacuum to 10 bar)
Operating temperature:	14°F to 122°F (-10°C to 50°C)

P2L A X 5 91 ES A D D M 49

Valve size

1/8"	A
1/4"	B
3/8"	C
1/2"	D

Valve type / function

Internal Pilot Supply to Solenoid	
2-position valve	5
3-position valve APB	6
3-position valve PC	7
3-position valve CE	8
External Pilot Supply to Solenoids through Ports #12 & #14	
2-position valve	N
3-position valve APB	P
3-position valve PC	Q
3-position valve CE	R

Main port thread

G1/8 (P2LA)	11
G1/4 (P2LB)	12
G3/8 (P2LC)	13
G1/2 (P2LD)	14
1/8" NPT (P2LA)	91
1/4" NPT (P2LB)	92
3/8" NPT (P2LC)	93
1/2" NPT (P2LD)	94

Operator return

EE	Double solenoid
ES*	Single solenoid, spring return

* Not available with 3-position valves.

Solenoid pilot type

D	Vented pilot exhaust
N	Tapped pilot exhaust (M5)

Overrides

D	Extended non-locking

Enclosures

M	ATEX 8-22T EExm T4 135°C

Voltage

49	24VDC

NOTE:
1. ATEX Valve includes a coil with sealed 3 meter cable.
2. Replacement solenoid kit P2FS13A3DM49 includes coil with sealed 3 meter cable, valve armature, solenoid, solenoid nut, screws and o-rings.

These products are designed for utilization in applications falling under the scope of ATEX Directive 94/9/EC. This coverage could only be referred to as long as operations required for the installation and the maintenance of these products are complying with related standards.

IEM Bar Manifold, Viking Xtreme Solenoid / Remote Pilot Valves †

Valve series	Valve function	## - Stations	Manifold only (NPT)	Manifold only (BSPP)
P2LAX*	3-way	02 - 12	**P2LAXGAXN##NP**	**P2LAXGAXG##NP**
P2LAX*	4-way	02 - 12	**P2LAXMAXN##NP**	**P2LAXMAXG##NP**
P2LBX*	3-way	02 - 12	**P2LBXGAXN##NP**	**P2LBXGAXG##NP**
P2LBX*	4-way	02 - 12	**P2LBXMAXN##NP**	**P2LBXMAXG##NP**
P2LCX*	3-way / 4-way	02 - 12	**P2LCXMAXN##NP**	**P2LCXMAXG##NP**

Kits include: (1) manifold, valve hold down bolts and o-rings. Replace ## with number of valve stations.
Valve size A, B, C only.

* Enclosure option A,E & F can not be mounted on size A & B manifolds and enclosure F can not be mounted on size C manifolds due to width of solenoid,
Enclosure option A & E can be mounted on size A & B manifolds if valve is a single solenoid valve and if every other valve is mounted in reverse (staggered).

† Consider Viking Lite manifolds for alternative solutions.

IEM Bar Manifold Add-A-Fold Assembly (Viking Xtreme Solenoid / Remote Air Pilot Valves Only)

Valve series	Valve function	## - Stations	Manifold only (NPT)	Manifold only (BSPP)
P2LAX*	3-way	02 - 12	**AAP2LAXGAXN##NP**	**AAP2LAXGAXG##NP**
P2LAX*	4-way	02 - 12	**AAP2LAXMAXN##NP**	**AAP2LAXMAXG##NP**
P2LBX*	3-way	02 - 12	**AAP2LBXGAXN##NP**	**AAP2LBXGAXG##NP**
P2LBX*	4-way	02 - 12	**AAP2LBXMAXN##NP**	**AAP2LBXMAXG##NP**
P2LCX*	3-way / 4-way	02 - 12	**AAP2LCXMAXN##NP**	**AAP2LCXMAXG##NP**

Kits include: (1) manifold, valve hold down bolts, o-rings and assembly. Replace ## with number of valve stations.
Valve size A, B, C only.

* Enclosure option A,E & F can not be mounted on size A & B manifolds and enclosure F can not be mounted on size C manifolds due to width of solenoid,

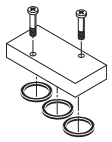
How to Order: 1. List Add-A-Fold assembly part number as line item 1

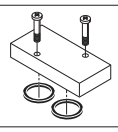
2. List the desired valves series part number in subsequent line items after the Add-A-Fold Assembly part number to complete the ordering code. Include all valves and blanking kits required. The left most station is station # 1 looking at the #12 end of the manifold.

Example: Viking Size B, 2 Station manifold, with 2, 4-way single solenoid valves

Line	Qty	Part number	Comment
1	1	AAP2LBXMAXN02NP	Add-A-Fold Assembly, 2-station IEM bar manifold
2	2	P2LBX592ESHDDB49	4-way, Station 1, 2

Blanking Plate





Type		Kit number
P2LAX	4-way	**9121658063**
P2LBX	4-way	**9121594809X**
P2LCX	3 & 4 way	**P2LCXK20P**
P2LAX	3-way	**912132BPSXZ**
P2LBX	3-way	**912132BPSXZ**

Kit includes: plate, screws, o-rings

Manifold Bolts

Type	Qty.	Kit number
P2LAX	12	**P2LAXK87P**
P2LBX	12	**P2LBXK87P**
P2LCX	12	**P2LCXK87P**

Manifold O-rings

Type	Qty.	Kit number
P2LAX	30	**P2LAXK84P**
P2LBX	18	**P2LBXK84P**
P2LCX	12	**P2LCXK84P**

Most popular.

Solenoids with Deutsche Connections : Environmentally-Sealed Transportation Connectors

Viking valves with solenoid options “T” & “V” include a grommet lead wire solenoid with internal surge suppression connected to Deutsche DTP Series male connectors. Heat shrunk cover holds the grommet lead wires together between the solenoid and deutsche connector. An environmentally-sealed connector designed specifically for cable to cable applications in harsh environments such as on the engine or transmission, under the hood, on the chassis or in the cab applications. On signal level circuits where even a small degradation in connection may be critical, these connectors will provide the reliability and performance when properly connected to DTP female connector assemblies. Thermoplastic housings with silicone seals are used to allow the connector to withstand conditions of extreme temperature and moisture. Properly wired and mated connection will withstand immersion under three feet of water without loss of electronic qualities or leakage.

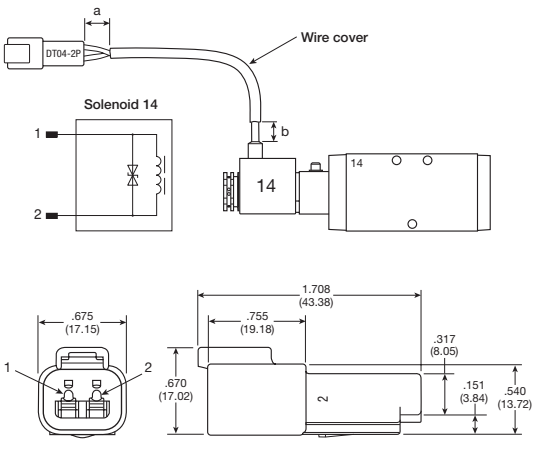
Deutsche Connector & Solenoid Information

		“T” Single Solenoid Option	“V” Double Solenoid Option
Solenoid Kit		**P2FCT446**	**P2FCV446**
Connector Information	Housing material	Thermoplastic	Thermoplastic
	Grommet seal material	Silicone	Silicone
	Connector housing / seal number	DT04-2P*	DT04-4P*
	Contact material	Copper alloy	Copper alloy
	Contact number	0460-202-16141*	0460-202-16141*
	Sealing plug (Wedge) material	Thermoplastic	Thermoplastic
	Wedge number	W2P*	W4P*
	Temperature rating of connector	-67°F (-55°C) to +257°F (+125°C)	-67°F (-55°C) to +257°F (+125°C)
Solenoid	Voltage	12VDC +10%, -30% mobile with bi-directional surge suppression	12VDC +10%, -30% mobile with bi-directional surge suppression
	Number of solenoids	1	2
	Connector pin out	pin 1 & 2	12 solenoid : pin 1 & 2 14 solenoid : pin 3 & 4
	Wire length (Connector to solenoid)	19" (483mm)	12 Solenoid : 19" (482mm) 14 Solenoid : 7.75" (196.5mm)
	Exposed insulated wire (a)	0.25" (6.4mm) - 0.5" (12.7mm)	0.25" (6.4mm) - 0.5" (12.7mm)
	Exposed insulated wire (b)	0.75" (19.1mm) - 1.5" (38.1mm)	0.75" (19.1mm) - 1.5" (38.1mm)
	Wire cover material	Heat shrunk PVC	Heat shrunk PVC

* Deutsche Industrial reference numbers. Male connections provided, mating female components and assemblies can be sourced from qualified Deutsche connector distributors.

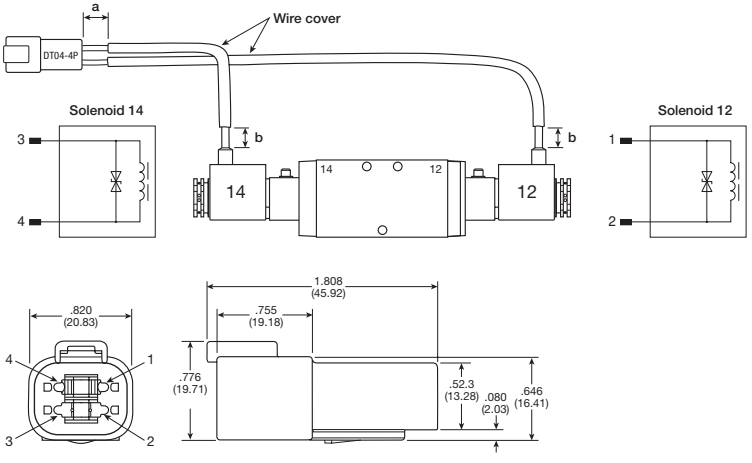
Enclosure / Lead Length - Option “T”

Solenoid Kit P2FCT446 shown



Enclosure / Lead Length - Option “V”

Solenoid Kit P2FCV446 shown



For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Pilot Operator Kits

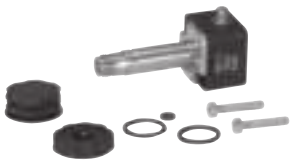
P2FP13 N 4 C

Type	
Pilot operator kit	P2FP13

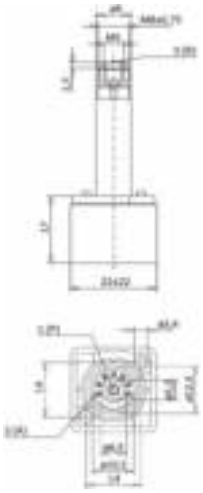
Pressure / temperature	
145 PSIG (10 bar) 14°F to 122°F (-10°C to 50°C)	N
232 PSIG (16 bar) -40°F to 158°F (-40°C to 70°C)	H

	Overrides
A	No override
C*	Locking (bistable) flush - plastic
D	Non-locking (monostable) extended - brass

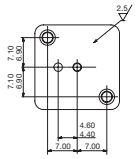
* Only available with "N" Pressure / Temperature option.



Kit includes:
Armature valve (1), solenoid nuts (2), screws (2), o-rings (3)



Operator mounting pattern (mm)



Solenoid Pilot Operators & Coils

Solenoid pilot options

The P2FP13*4* (NC) 3/2 solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases.

The P2FP operator is available for Normal operating pressures up to 10 bar or the Xtreme maximum operating pressure of 16 bar and wide band voltage tolerances required for mobile applications.

Corrosion resistant design

The pilot valve body is manufactured in thermoplastic PA6 material and the core tube brass / stainless steel. The plunger / core is made from stainless steel and the valve seats from FKM.

Solenoid pilot exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut (Solenoid pilot type "D") fitted to the core tube is a diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimizes ingress of dirt into the valve through this port. The alternative plastic knurled nut (Solenoid pilot type "N") can be specified (refer to part number system) if the exhaust air needs captured and piped away using the M5 tapped port.

Mobile applications

Viking Xtreme valves are tested to +5g shock and vibration. Solenoid operated valves are designed to operate with wide voltage tolerance bands within the ambient temperature ranges stated in the technical section.

Coils

Coils are wound with enameled copper wire, having a temperature index of 180°C with class F insulation (155°C) and are encapsulated in Thermoplastic resin. When fitted with suitable connector and correct gasket, they give protection to IP65.

☐ Most popular.

Manual override options

The pilot operators can be supplied with locking or non-locking manual override. The standard manual override is the monostable (spring return) extended brass override. Alternatively the bistable (locking) override can be specified as an alternative for the Normal duty 10 bar option.

Spares

Solenoid operators are available as spares complete with mounting screws and seals. Coils and connectors should be ordered separately unless ATEX certified and intrinsically safe is needed. ATEX certified operators and coils must be ordered together.

Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavorable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors / cable plugs with LEDs include this type of circuit protection.

Materials

Pilot Valve

Body ..... Polyamide

Armature tube:
Normal pilot operator ..... Brass
Xtreme pilot operator ..... Stainless steel

Plunger & core ..... Corrosion resistant CR-NI steel

Seals ..... FKM

Screws ..... Stainless steel

Coil

Encapsulation material ..... Thermoplastic

Solenoid Kits

P2FC B 4 49

Type	
Solenoid Kit	C

Enclosures / lead length	
M12 4-pin coil with surge suppression & LED	**7 §**
30mm square 3-pin – ISO 4400 Form A (male only)	**A**
22mm rectangular 3-pin – Type B Industrial (male only)	**B**
Hazardous duty, FM / CSA	F*
Grommet - 18" leads	**G**
1/2" NPT conduit - 18" leads	**H**
Grommet, single solenoid, 2-pin deutsche connector, surge suppression	**T #**
Grommet, double solenoid, 4-pin deutsche connector, surge suppression	**V #**
Grommet 72" leads	Q
1/2" conduit 72" leads	R

* Only available with voltage codes "45", "49", "53" & "57". Not for use with the Xtreme version (-40°C to 70°C).
# Voltage code 46 only.
§ Voltage code B9 only.

	Voltage
B9 ‡	**24 VDC w/ surge suppression & LED**
42	24VAC
45	12VDC
46 †	**12 VDC mobile w/ surge suppression**
47*	**12 VDC mobile**
48*	**24 VDC mobile**
49	**24VDC**
53	**120VAC**
57	240VAC

* Only available with enclosures "A", "B" & "G". Additional voltages are available upon request. Contact customer support for more information.
‡ Enclosure 7 only
† Enclosure G, T, V only.

Solenoid Enclosures

Option 7
M12, 4-Pin Coil with Surge Suppression

Option A
30mm Square, 3-Pin ISO 4400, DIN 43650A

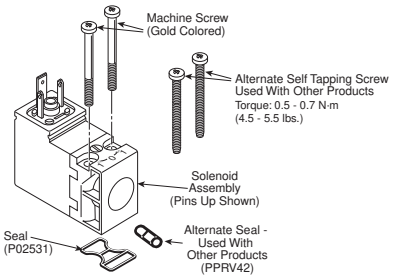
Option B
22mm Rectangular, 3-Pin DIN, Type B Industrial

Option G & Q
Grommet, 18" or 72" Leads

Option H & R
1/2" Conduit, 18" or 72" Leads

Solenoid Kits – 3-Pin, EN175301-803 (Former DIN 43650C), 15mm, 8mm

Standard



PS2982*##P – Enclosure '5'

*	## Voltage						
Override	42	45	47 †	48 †	49	53	57
B	O	O	–	–	S	S	O
C	O	O	–	–	S	S	O
D	–	–	O	O	O	O	–
E	–	–	O	O	O	O	–

S - Standard; O - Option
† Mobile voltage
Kit includes: Solenoid, (2) machine screws, (2) self threading screws, (1) gasket, (1) 3-cell gasket.

Solenoid Information (Solenoids are rated for continuous duty.)

Voltage				Enclosure "5"		Enclosure "A"		Enclosure "7", "B" to "R"	
	AC								
Code	60Hz	50Hz	DC	Power consumption	Holding (Amps)	Power consumption	Holding (amps)	Power consumption	Holding (amps)
B9†	24	—	—	—	—	—	—	4.8W	.20
42	24	22		1.6VA	.065	3.9VA	.14	7.3VA	.31
45	—	—	12	1.2W	.098	2.6W	.21	4.6W	.37
46*†	—	—	12	—	—	—	—	5.5W	.46
47*	—	—	12	0.91W	.074	6.2W	.52	5.5W	.46
48*	—	—	24	0.91W	.033	6.8W	.29	6.0W	.25
49	—	—	24	1.2W	.049	2.7W	.11	4.8W	.20
53	120	110	—	1.6W	.013	4.1VA	.04	6.3VA	.05
57	240	230	—	1.6W	.007	3.7VA	.02	6.4VA	.03

* Mobile voltages. † Surge suppression.

Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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Intrinsically safe solenoid valves ("E" option)

Hazardous location class:

Class I; Groups A, B, C & D

Class II; Groups E, F, & G

Class III; Div. I

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

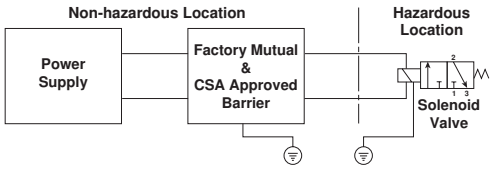
Comes standard with non-lighted solenoid connector.

36mm Coil width.

Must be connected to an FM approved Barrier.

For dimensions, reference standard solenoid models. Maximum internally piloted valve pressure is 115 PSIG. Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.

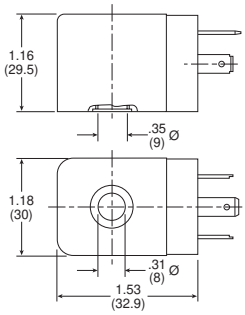
The intrinsically safe coil width (30mm) is wider than the body width of valve type A & B valves. If mounted on a manifold, the valves need to be staggered to fit and must be single solenoid valves only.



Intrinsically safe solenoid pilot assembly kits

Description	Part number
24VDC	**P2FS13N1AE49**

Kit includes: coil, armature, connector, o-ring & screws



Hazardous duty solenoid valves ("F" option)

Hazardous location class:

Class I; Zone I EX, M, II & T4

Class I; Div. I, Groups A, B, C, & D

Class II & III; Div. I, Groups E, F, & G

Comes standard with 1/2" conduit connection.

Voltage range = ±10%

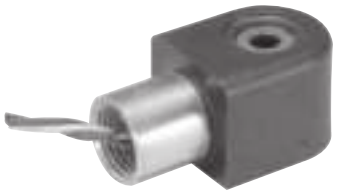
Ambient temperature range = -20°C (-4°F) to 60°C (140°F)

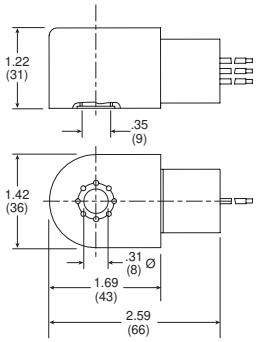
Duty factor = 100%

IP65 Rated (with connected conduit connector)

Notes:

1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Factory Mutual requires connections per ISA RP 12.6 instructions.
3. CSA requires "Installation to be in accordance with the Canadian Electrical Code. Part I."
4. The hazardous duty coil width (36mm) is wider than the body width of valve type A, B, C & D valves. Valves can not be mounted to IEM manifolds without installing a blanking plate between valves.

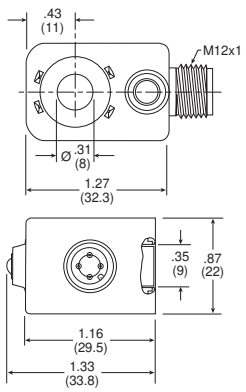


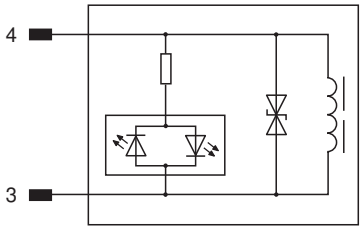


Option F
Hazardous Duty FM / CSA

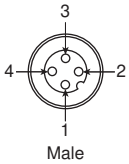
M12, 24VDC solenoid coil ("7" option)

Connection type: M12, metal thread, M12 x 1
DIN EN 60947-5-2 appendix D
LED color: yellow
Bi-directional surge suppression





1. Not Used
2. Not Used
3. +/– (blue)
4. +/– (black)



4-Pin Female Wiring Diagram
(only Pins 4 & 3 are used)
Per ISO 20401

For inventory, lead time, and kit lookup, visit www.pdnplu.com

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Richland, Michigan
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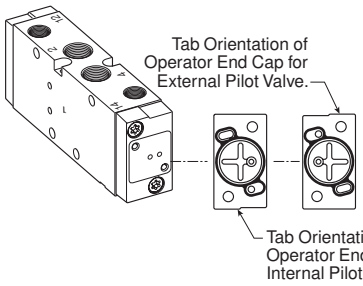
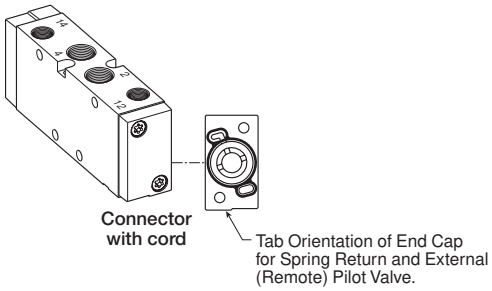
Internal to external pilot conversion (size A & B only)

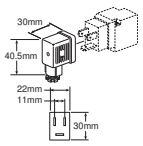
To convert from Internal to External Pilot Valve, simply remove the (2) fasteners that attach the end cap to the valve body. Rotate the end cap 180° and attach back to the valve body. For single solenoid valves, only the 14-End needs to be rotated. For double solenoid valves, both ends must be converted for proper function.

The 12 & 14-Ports are always tapped no matter what Valve Type / Function is selected. For Internal Pilot Function, ports do NOT need to be plugged.





22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure "B")



Description	Connector with 6' (2m) cord	Connector
Unlighted	**PS2429JBP**	**PS2429BP**
Light – 24V60Hz. 24VDC	**PS2430J79BP***	**PS243079BP**
Light – 120V/60Hz	**PS2430J83BP***	**PS243083BP**
Light – 240V/60Hz	N/A	**PS243087BP**

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

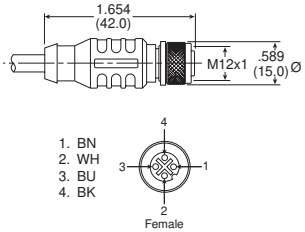
Engineering Data:
Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 6 to 8mm (0.24 to 0.31 Inch); Contact Spacing: 11mm

M12 A-code Cables

Description	Part number
4-Pin female to flying lead cable, PVC, 2m	**RKC 4.4T-2**

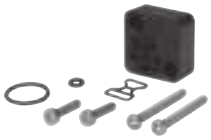
RKC Female Sockets

* Only pins 3 and 4 are used with solenoids Option "7".



4-Pin Female Wiring Diagram

15mm Solenoid Mount

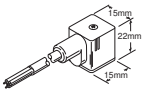


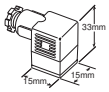
Description	Part number
15mm solenoid mount	**P2FA22-15**

Kit includes: adapter (1), O-rings (2), gasket (1), screws (4)

Most popular.

15mm 3-Pin DIN 43650C
(Use with Enclosure "5")





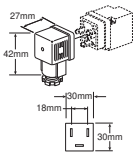
	Cord length	Connector	Connector only / Connector with cord
Unlighted	18 Inches	**PS2932BP**	**PS2932HBP**
Unlighted	6 Feet	**PS2932BP**	**PS2932JBP**
Light – 12VAC or DC	6 Feet	**PS294675BP**	**PS2946J75BP***
Light – 24VAC or DC	6 Feet	**PS294679BP**	**PS2946J79BP***
Light – 110/120VAC	6 Feet	**PS294683BP**	**PS2946J83BP***
Light – 240/230VAC		**PS294687BP**	N/A

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground Cable range (connector only): 4 to 6mm (0.16 to 0.24 Inch) Contact spacing: 8mm

30mm Square 3-Pin – ISO 4400, DIN 43650A
(Use with Enclosure "A")



Description	Connector with 6' (2m) cord	Connector
Unlighted	**PS2028JCP**	**PS2028BP**
Light – 6-48V. 50/60Hz. 6-48VDC	**PS2032J79CP***	**PS203279BP**
Light – 120V/60Hz	**PS2032J83CP***	**PS203283BP**
Light – 240V/60Hz	N/A	**PS203283BP**

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground; cable range (connector only): 8 to 10mm (0.31 To 0.39 Inch); contact spacing: 18mm

Replacement Solenoid Nut

Description	Part number
Solenoid diffuser nut	**PS1556**

Description	Part number
Solenoid vented nut	**PS2892P**

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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It is the users responsibility to verify product performance when applied at maximum tolerance ranges of multiple technical specifications simultaneously.

Operating temperature

- **Normal**.....14°F to 122°F (-10°C to 50°C)
- **Xtreme**..... -40°F to 158°F (-40°C to 70°C)

Flow Rating

Valve size	Port size	2-position	3-position
P2LAX	1/8"	0.7	0.5
P2LBX	1/4"	1.3	0.9
P2LCX	3/8"	2.5	1.8
P2LDX	1/2"	2.7	1.9

Operating pressure*

Maximum: Normal.....145 PSIG (10 bar)
Xtreme.....232 PSIG (16 bar)
Minimum:

	Minimum PSIG (bar)			
Valve type - internal pilot	**P2LAX**	**P2LBX**	**P2LCX**	**P2LDX**
Single solenoid - spring return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Single remote pilot - spring return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Double solenoid - 2-position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double remote pilot - 2-position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double solenoid - 3-position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)
Double remote pilot - 3-position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)

Valve type - External pilot	**P2LAX**	**P2LBX**	**P2LCX**	**P2LDX**
All Viking series	Vacuum			

* P2LC and P2LD solenoid operated valves have a maximum pressure rating of 175 PSIG (12 bar).

Size A and B solenoid valves can be field converted from internal pilot to external pilot and visa versa. See previous page for information.

Solenoid voltage characteristics

Non-Mobile Coil -

Voltage Code 42, 45, 49, 53, 57

15mm, DIN 43650C (Enclosure: 5)
+10%, -15%

Mobile Coil -

Voltage Code 47, 48

15mm, Din 43650C (Enclosure: 5)
+25%, -30%

Voltage Code 46

(Enclosure G,T,V)
+10%, -30%

Solenoid voltage characteristics

Non-mobile coils -

Voltage code B9, 42, 45, 49, 53, 57

Enclosure (7, A, B, E, F, G, H)
+10%, -10%

Mobile coils - (valve type N)

22mm 12 & 24VDC - Mobile (47 & 48 voltage code)

Minimum inlet pressure (bar)	Operating temperature		
	-10°C	**+10°C**	**+50°C**
3	+30 / -25% VDC	+30 / -20% VDC	+25 / -15% VDC
6	+30 / -30% VDC	+30 / -25% VDC	+25 / -20% VDC
8	+30 / -30% VDC	+30 / -30% VDC	+25 / -25% VDC
10	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC

30mm 12 & 24VDC - Mobile (47 & 48 voltage code)

Minimum inlet pressure (bar)	Operating temperature		
	-10°C	**+10°C**	**+50°C**
3	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
6	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
8	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
10	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC

Mobile coils - (valve type K & H)

22mm 12 & 24VDC - Mobile (47 & 48 voltage code)

Minimum inlet pressure (bar)	Operating temperature			
	-40°C	**+10°C**	**+50°C**	**+70°C**
4	+30 / -25% VDC	+30 / -25% VDC	+30 / -10% VDC	+20 / -10% VDC
8	+30 / -30% VDC	+30 / -25% VDC	+30 / -15% VDC	+20 / -15% VDC
12	+30 / -30% VDC	+30 / -30% VDC	+30 / -15% VDC	+20 / -15% VDC
16	+30 / -30% VDC	+30 / -30% VDC	+30 / -20% VDC	+20 / -20% VDC

30mm 12 & 24VDC - Mobile (47 & 48 voltage code)

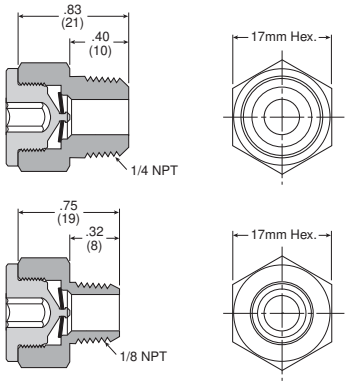
Minimum inlet pressure (bar)	Operating temperature			
	-40°C	**+10°C**	**+50°C**	**+70°C**
4	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
8	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
12	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
16	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC

Note: All table ratings are based on 100% continuous duty and 5G shock vibration. At 50% continuous duty all ratings are +30% / -30% for all Temperatures and Pressures.

Exhaust Protector

Features

- 1/8 and 1/4 NPT male sizes
- Fitted with a brass pipe adapter and a fluorocarbon membrane
- Resistant to rust, clog, wash down and contamination



Applications

These protectors are intended for mobile applications, quick venting applications and alternative exhaust port breathers that require protection against clogging.

Ideal for valves exposed to harsh environmental conditions (which can cause a "caking up" in the exhaust pipe ports where the bronze mufflers or breather vents are installed).

Particularly suitable for time-sensitive applications such as axle-lift suspensions or pushers or tag axles.

Operating information

Operating pressure:	0 to 150 PSIG (0 to 10 bar)
Operating temperature:	-40°F to 140°F (-40°C to 60°C)

Flow data (SCFM)

Size	60 PSIG Inlet	90 PSIG Inlet	125 PSIG Inlet	Part number
1/8"	40.1	56.5	75.5	**E90016**
1/4"	44.6	62.7	83.5	**E90017**

Material specifications

Body & pipe adapter	Brass
Membrane	Fluorocarbon

Exhaust Mufflers

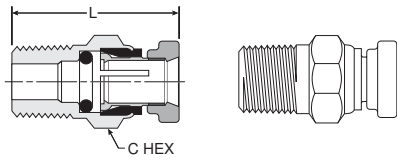
Pipe thread	Part number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**
3/8" NPT	**EM37**
1/2" NPT	**EM50**

P6M - Plastic; EM - Sintered bronze

Plastic Silencers

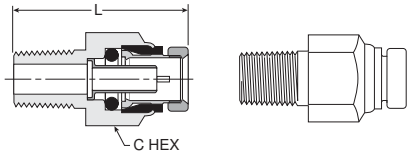
Thread size	A (mm)	B (mm)	Part number NPT	BSPT	Metric
M5	.43 (11)	.32 (8)	–	–	**AS-5**
1/8"	1.57 (40)	.63 (16)	**ASN-6**	**AS-6**	–
1/4"	2.56 (65)	.83 (21)	**ASN-8**	**AS-8**	–
3/8"	3.35 (85)	.98 (25)	**ASN-10**	**AS-10**	–
1/2"	3.74 (95)	1.18 (30)	**ASN-15**	**AS-15**	–

68PM Male Connector



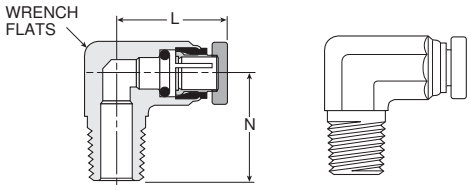
Part number	Tube size	Pipe thread (NPTF)	C hex	L
68PM-2-1	1/8	1/16	3/82	0.93
68PM-2-2	1/8	1/8	7/16	0.88
68PM-5/32-1	5/32	1/16	3/8	0.95
68PM-5/32-2	5/32	1/8	7/16	0.74
68PM-5/32-4	5/32	1/4	9/16	0.99
68PM-3-1	3/16	1/16	7/16	0.95
68PM-3-2	3/16	1/8	7/16	0.92
68PM-3-4	3/16	1/4	9/16	1.10

68PMT Male Connector



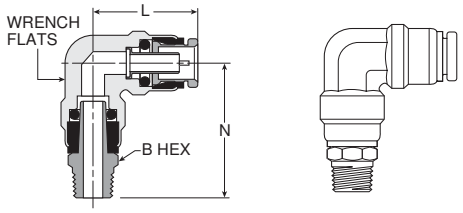
Part number	Tube size	Pipe thread (NPTF)	C hex	L
68PMT-4-2	1/4	1/8	1/2	1.06
68PMT-4-4	1/4	1/4	9/16	1.19
68PMT-4-6	1/4	3/8	3/4	1.27
68PMT-6-2	3/8	1/8	3/4	1.37
68PMT-6-4	3/8	1/4	3/4	1.43
68PMT-6-6	3/8	3/8	3/4	1.33
68PMT-6-8	3/8	1/2	7/8	1.38
68PMT-8-4	1/2	1/4	7/8	1.72
68PMT-8-6	1/2	3/8	7/8	1.52
68PMT-8-8	1/2	1/2	7/8	1.44
68PMT-10-6	5/8	3/8	1	1.88
68PMT-10-8	5/8	1/2	1	1.88
68PMT-12-8	3/4	1/2	1-3/16	2.03

169PMNS Male Elbow Non-Swivel 90°



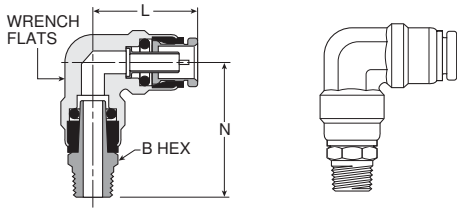
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N
169PMNS-2-2	1/8	1/8	3/8	0.86	0.68
169PMNS-5/32-2	5/32	1/8	3/8	0.88	0.68
169PMNS-3-2	3/16	1/8	3/8	0.75	0.67
169PMNS-3-4	3/16	1/4	1/2	0.74	0.93

169PMT Male Elbow Swivel 90°



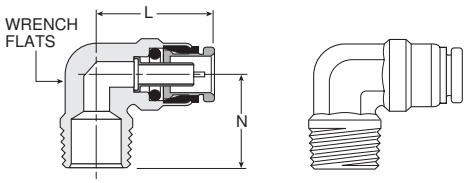
Part number	Tube size	Pipe Thread (NPTF)	Wrench flats	B hex	L	N
169PMT-4-2	1/4	1/8	13/32	7/16	0.84	1.21
169PMT-4-4	1/4	1/4	13/32	9/16	0.84	1.43
169PMT-4-6	1/4	3/8	13/32	11/16	0.84	1.43
169PMT-6-2	3/8	1/8	9/16	9/16	1.11	1.41
169PMT-6-4	3/8	1/4	9/16	9/16	1.11	1.58
169PMT-6-6	3/8	3/8	9/16	11/16	1.11	1.58
169PMT-6-8	3/8	1/2	9/16	7/8	1.11	1.79
169PMT-8-4	1/2	1/4	11/16	5/8	1.27	1.73
169PMT-8-6	1/2	3/8	11/16	3/4	1.27	1.81
169PMT-8-8	1/2	1/2	11/16	7/8	1.27	1.96
169PMT-10-6	5/8	3/8	7/8	3/4	1.53	2.03
169PMT-10-8	5/8	1/2	7/8	7/8	1.53	2.18

169PMTL Male Elbow Long Non-Swivel 90°



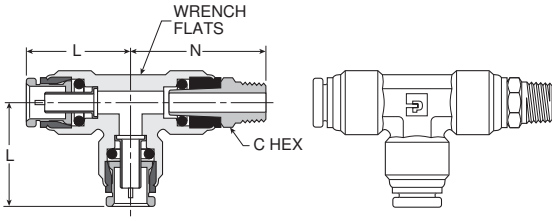
Part number	Tube size	Pipe Thread (NPTF)	Wrench flats	B hex	L	N
169PMTL-6-4	3/8	1/4	9/16	9/16	1.06	1.63
169PMTL-6-6	3/8	3/8	9/16	7/8	1.19	2.50
169PMTL-6-8	3/8	1/2	9/16	7/8	1.19	2.50
169PMTL-8-8	1/2	1/2	11/16	7/8	1.22	2.50
169PMTL-10-8	5/8	1/2	7/8	7/8	1.46	2.50

169PMTNS Male Elbow Non-Swivel 90°



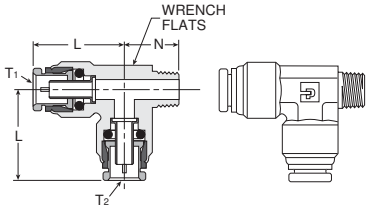
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N
169PMTNS-4-2	1/4	1/8	1/2	0.84	0.72
169PMTNS-4-4	1/4	1/4	1/2	0.84	0.90
169PMTNS-4-6	1/4	3/8	1/2	0.84	1.06
169PMTNS-6-2	3/8	1/8	9/16	1.05	0.75
169PMTNS-6-4	3/8	1/4	9/16	1.05	0.94
169PMTNS-6-6	3/8	3/8	3/4	1.05	0.94
169PMTNS-6-8	3/8	1/2	11/16	1.12	1.26
169PMTNS-8-4	1/2	1/4	11/16	1.17	1.06
169PMTNS-8-6	1/2	3/8	11/16	1.22	1.06
169PMTNS-8-8	1/2	1/2	11/16	1.22	1.26
169PMTNS-10-6	5/8	3/8	7/8	1.46	1.11
169PMTNS-10-8	5/8	1/2	7/8	1.46	1.32
169PMTNS-12-8	3/4	1/2	1	1.81	1.44

171PMT Male Run Tee Swivel



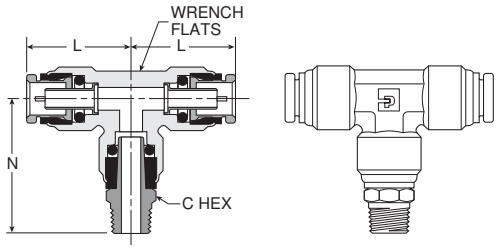
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N	N
171PMT-4-2	1/4	1/8	1/2	7/16	.85	1.25
171PMT-4-4	1/4	1/4	1/2	9/16	.85	1.48
171PMT-4-6	1/4	3/8	1/2	11/16	.85	1.43
171PMT-6-4	3/8	1/4	5/8	9/16	1.21	1.83
171PMT-6-6	3/8	3/8	5/8	11/16	1.21	1.83
171PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.74
171PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.83
171PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.99

171PMTNS Male Run Tee Non-Swivel



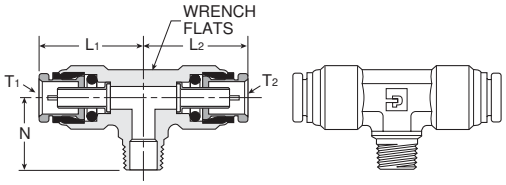
Part number	Tube 1 size	Tube 2 size	Pipe thread (NPTF)	Wrench flats	L1	L2	N
171PMTNS-4-4	1/4	1/4	1/4	15-32	0.91	0.91	0.94
171PMTNS-4-6-4	1/4	3/8	1/4	5/8	0.93	1.21	0.97
171PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
171PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	0.93	0.97
171PMTNS-6-4-6	3/8	1/4	3/8	5/8	1.22	0.97	0.93
171PMTNS-6-6	1/2	3/8	3/8	5/8	1.21	1.27	0.97
171PMTNS-6-8	1/2	3/8	1/2	5/8	1.17	1.27	1.26
171PMTNS-8-4	1/2	1/2	1/4	7/8	1.28	1.27	1.06

172PMT Male Branch Tee Swivel



Part number	Tube size	Pipe thread (NPTF)	Wrench flats	C hex	L	N
172PMT-4-2	1/4	1/8	1/2	7/16	0.85	1.25
172PMT-4-4	1/4	1/4	1/2	9/16	0.85	1.43
172PMT-6-2	3/8	1/8	5/8	9/16	1.22	1.66
172PMT-6-4	3/8	1/4	5/8	5/8	1.22	1.83
172PMT-6-6	3/8	3/8	5/8	3/4	1.22	1.83
172PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.73
172PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.79
172PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.97

172PMTNS Male Branch Tee Non-Swivel



Part number	Tube 1 size	Tube 2 size	Pipe thread (NPTF)	Wrench flats	L1	L2	N
172PMTNS-4-2	1/4	1/4	1/8	1/2	0.91	0.91	0.78
172PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
172PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	.93	0.97
172PMTNS-6-6	3/8	3/8	3/8	5/8	1.21	1.21	0.97
172PMTNS-6-8	3/8	3/8	1/2	7/8	1.17	1.17	1.26
172PMTNS-8-6	1/2	1/2	3/8	7/8	1.28	1.28	1.06
172PMTNS-8-6-8	1/2	3/8	1/2	7/8	1.25	1.25	1.25
172PMTNS-8-8	1/2	1/2	1/2	7/8	1.34	1.25	1.25

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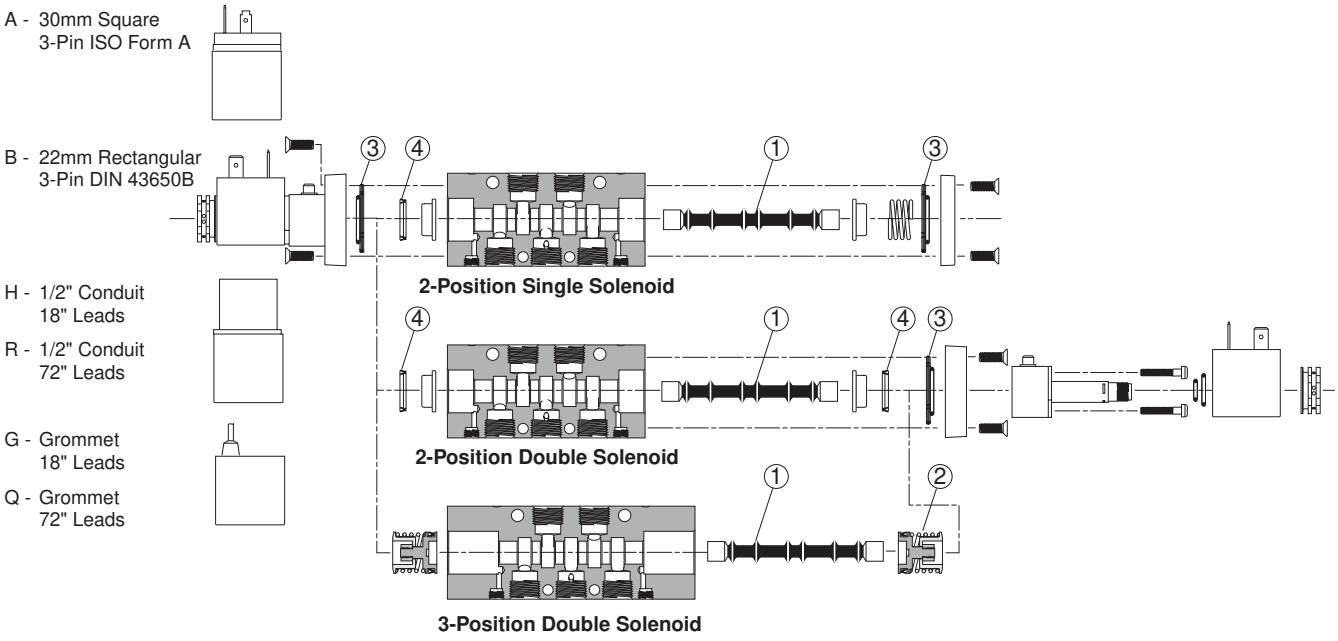
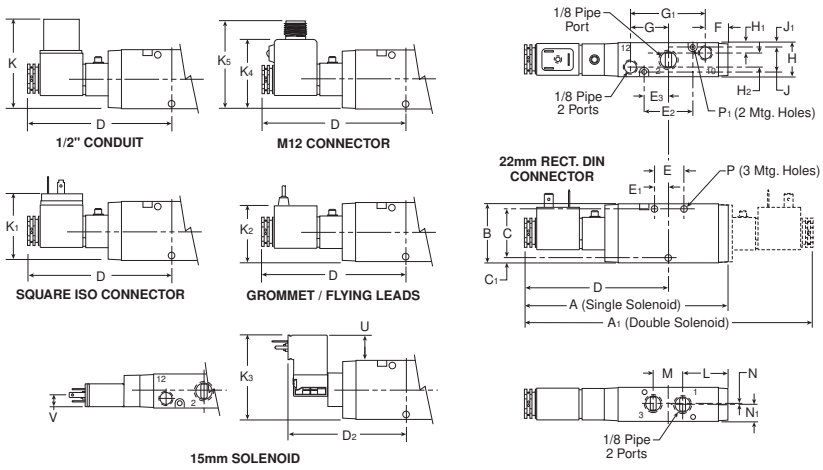
Spool Service Kits

Description	Includes items (qty.)	Part number
Size A, 4-way, 2-position, solenoid & air pilot valves	1 (1), 3 (2), 4 (2)	**P2LAXSK1**
Size A, 4-way, 3-position, solenoid & air pilot valves	1 (1), 2 (2), 3 (2), 4 (2)	**P2LAXSK2**
Size A & Size B, 3-way, 2-position, solenoid & air pilot valves	1 (1), 3 (2), 4 (2)	**P2LAXBXSK1**
Size B, 4-way, 2 & 3-position valves	1 (1), 3 (2), 4 (2)	**P2LBXSK1**
Size C & Size D, 3-way, 2-position valves	1 (1), 3 (2), 4 (2)	**P2LCXDXSK1**
Size C & Size D, 4-way, 2 & 3-position valves	1 (1), 3 (2), 4 (2)	**P2LCXDXSK1**



P2LAX 3/2 Single & Double Operators – Solenoid

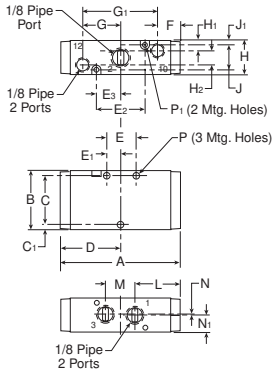


P2LAX 3/2 (solenoid)

A	A1	B	C	C1	D
5.35	7.60	1.57	1.26	.16	3.80
(136)	(193)	(40)	(32)	(4)	(97)
D2	**E**	**E1**	**E2**	**E3**	**F**
3.00	.79	.39	1.26	.63	.55
(76.8)	(20)	(10)	(32)	(16)	(14)
G	**G1**	**H**	**H1**	**H2**	**J**
.98	1.97	.87	.26	.35	.65
(25)	(50)	(22)	(6.6)	(9)	(16.5)
J1	**K**	**K1**	**K2**	**K3**	**K4**
.11	2.36	1.61	1.50	2.24	1.70
(2.9)	(60)	(41)	(38)	(57)	(43.3)
K5	**L**	**M**	**N**	**N1**	**P**
2.10	1.14	.79	.02	.42	Ø .17
(53.3)	(29)	(20)	(0.5)	(11)	Ø (4.3)
P1	**U**	**V**			
Ø .12	0.81	0.29			
Ø (3.1)	(20.5)	(7.5)			

Inches (mm)

P2LAX 3/2 Single & Double Operators – Remote Air Pilot

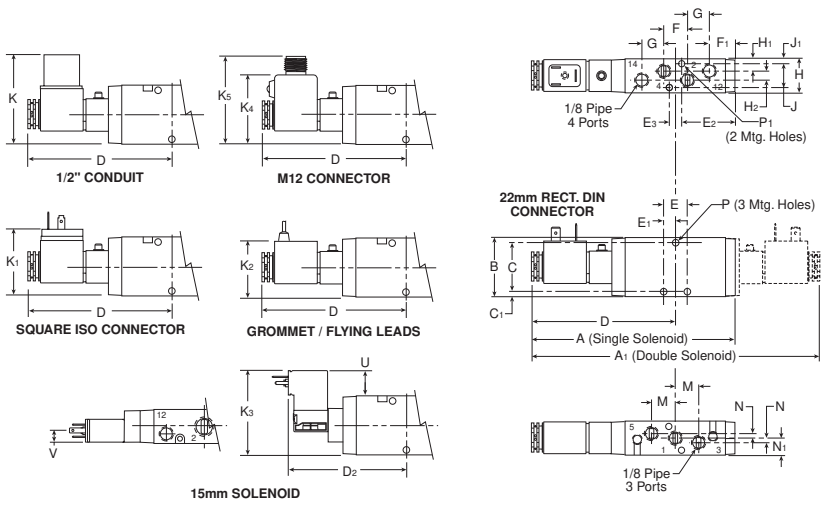


P2LAX 3/2 (remote air pilot)

A	B	C	C1	D	E
3.07	1.57	1.26	.16	1.54	.79
(78)	(40)	(32)	(4)	(39)	(20)
E1	**E2**	**E3**	**F**	**G**	**G1**
.39	1.26	.63	.55	.98	1.97
(10)	(32)	(16)	(14)	(25)	(50)
H	**H1**	**H2**	**J**	**J1**	**L**
.87	.26	.35	.65	.11	1.14
(22)	(6.6)	(9)	(16.5)	(2.9)	(29)
M	**N**	**N1**	**P**	**P1**	
.79	.02	.42	Ø .17	Ø .12	
(20)	(0.5)	(11)	Ø (4.3)	Ø (3.1)	

Inches (mm)

P2LAX 5/2 & 5/3 Single & Double Operators, 4-way



P2LAX 5/2 & 5/3 (solenoid)

A	A1	B	C	C1	D
5.47	7.72	1.57	1.30	.14	3.86
(139)	(196)	(40)	(33)	(3.5)	(98)
D2	**E**	**E1**	**E2**	**E3**	**F**
3.48	.63	.31	1.42	.33	.63
(88.3)	(16)	(8)	(36)	(8.5)	(16)
F1	**G**	**H**	**H1**	**H2**	**J**
.67	.59	.87	.31	.24	.63
(17)	(15)	(22)	(8)	(6)	(16)
J1	**K**	**K1**	**K2**	**K3**	**K4**
.12	2.36	1.61	1.50	2.24	1.63
(39)	(60)	(41)	(38)	(57)	(41.3)
K5	**M**	**N**	**N1**	**P**	**P1**
2.10	.63	.12	.43	Ø .17	Ø .12
(53.3)	(16)	(3)	(11)	Ø (4.3)	Ø (3.1)
U	**V**				
0.81	0.29				
(20.5)	(7.5)				

Inches (mm)

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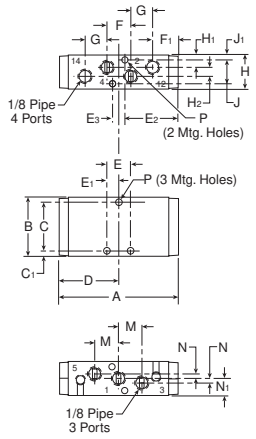
P2LAX 5/2 & 5/3 Single & Double Operators – Remote Pilot

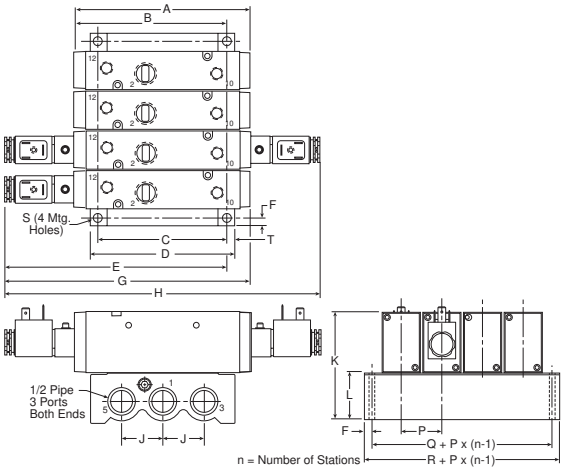


P2LAX 5/2 & 5/3 (remote)

A	B	C	C1	D
3.19 (81)	1.57 (40)	1.30 (33)	.14 (3.5)	1.59 (40.5)
E	**E1**	**E2**	**E3**	**F**
1.47 (16)	.31 (8)	1.42 (36)	.33 (8.5)	.63 (16)
F1	**G**	**H**	**H1**	**H2**
.67 (17)	.59 (15)	.87 (22)	.31 (8)	.24 (6)
J	**J1**	**M**	**N**	**N1**
.63 (16)	.12 (3)	.63 (16)	.12 (3)	.43 (11)
P	**P1**			
Ø .17 Ø (4.3)	Ø .12 Ø (3.1)			

Inches (mm)

P2LAX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

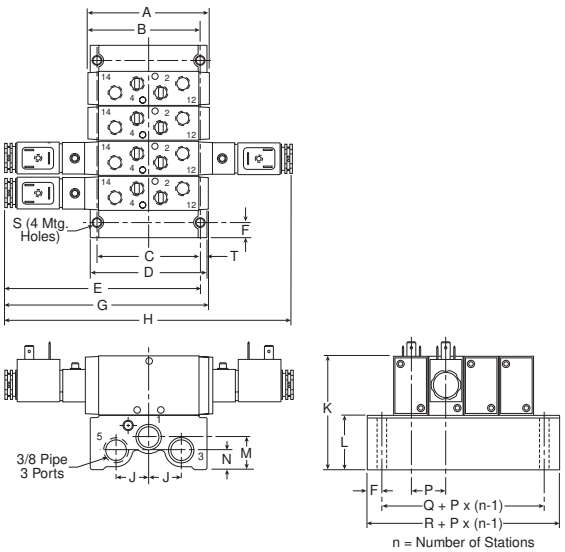


P2LAX 3/2
IEM Aluminum bar manifold

A	B	C	D	E
3.07 (78)	2.83 (72)	2.76 (70)	3.12 (79)	5.18 (132)
F	**G**	**H**	**J**	**K**
41 (10.5)	5.35 (136)	7.72 (193)	.87 (22)	3.11 (79)
L	**M**	**N**	**P**	**Q**
1.54 (39)	.87 (22)	.52 (13.2)	.93 (23.5)	1.56 (39.5)
R	**S**	**T**		
2.36 (60)	Ø .22 Ø (5.5)	.18 (4.5)		

Inches (mm)

P2LAX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



P2LAX 5/2 & 5/3
IEM Aluminum bar manifold

A	B	C	D	E
3.19 (81)	2.97 (76)	2.76 (70)	3.12 (79)	5.26 (134)
F	**G**	**H**	**J**	**K**
41 (10.5)	5.47 (139)	7.72 (196)	.87 (22)	3.11 (79)
L	**M**	**N**	**P**	**Q**
1.54 (39)	.87 (22)	.52 (13.2)	.93 (23.5)	1.56 (39.5)
R	**S**	**T**		
2.36 (60)	Ø .22 Ø (5.5)	.18 (4.5)		

Inches (mm)

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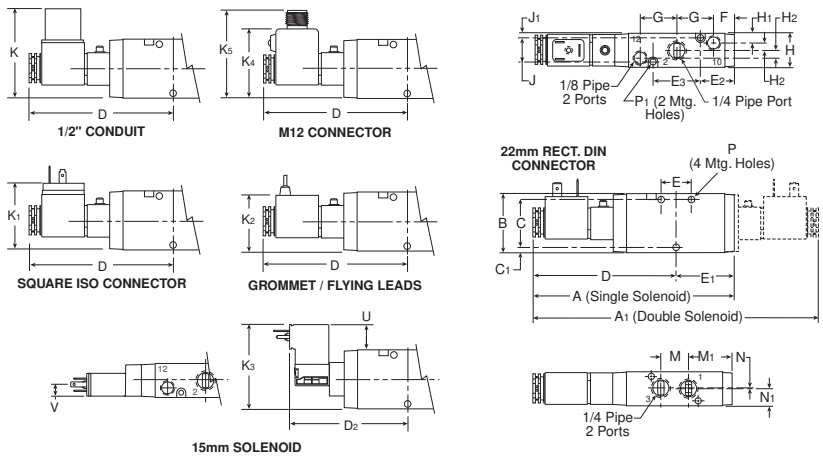
P2LBX 3/2 Single & Double Operators – Solenoid

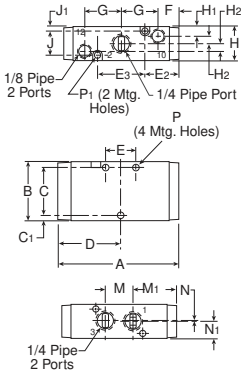


P2LBX 3/2 (solenoid)

A	A1	B	C	C1	D
5.35 (136)	7.60 (193)	1.57 (40)	1.26 (32)	.16 (4)	3.80 (96.5)
D2	**E**	**E1**	**E2**	**E3**	**F**
3.02 (76.8)	.79 (20)	1.54 (39)	.51 (13)	1.26 (32)	.55 (14)
G	**H**	**H1**	**H2**	**J**	**J1**
.98 (25)	.87 (22)	.26 (6.6)	.18 (4.5)	.65 (16.5)	.11 (2.9)
K	**K1**	**K2**	**K3**	**K4**	**K5**
2.36 (60)	1.61 (41)	1.50 (38)	2.24 (57)	1.63 (41.3)	2.10 (53.3)
M	**M1**	**N**	**N1**	**P**	**P1**
.79 (20)	1.14 (29)	.02 (0.5)	.42 (11)	Ø .17 Ø (4.3)	Ø .12 Ø (3.1)
U	**V**				
0.81 (20.5)	0.29 (7.5)				

Inches (mm)

P2LBX 3/2 Single & Double Operators – Remote Air Pilot

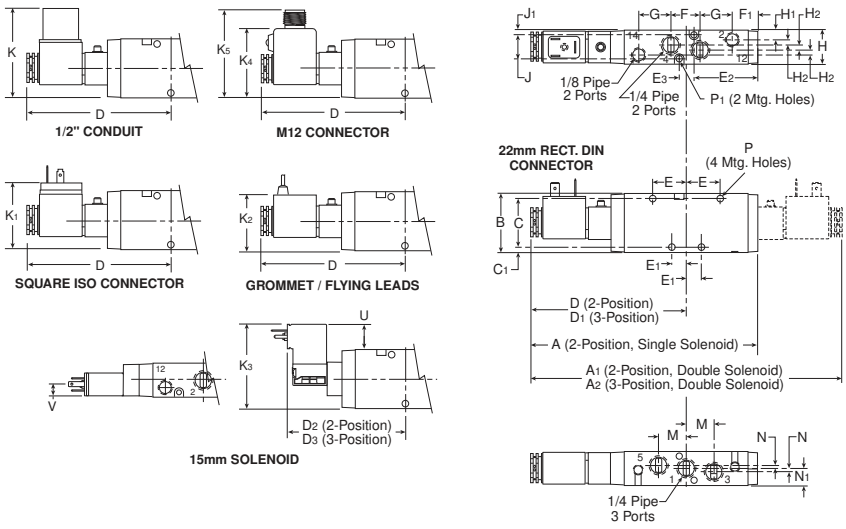


P2LBX 3/2 (remote air pilot)

A	B	C	C1	D	E
3.08 (78)	1.57 (40)	1.26 (32)	.16 (4)	1.54 (39)	.79 (20)
E2	**E3**	**F**	**G**	**H**	**H1**
.51 (13)	1.26 (32)	.55 (14)	.98 (25)	.87 (22)	.26 (6.6)
H2	**J**	**J1**	**M**	**M1**	**N**
.18 (4.5)	.65 (16.5)	.11 (2.9)	.79 (20)	1.14 (29)	.02 (0.5)
N1	**P**	**P1**			
.42 (11)	Ø .17 Ø (4.3)	Ø .12 Ø (3.1)			

Inches (mm)

P2LBX 5/2 & 5/3 Single & Double Operators – Solenoid



P2LBX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C	C1
6.14 (156)	8.39 (213)	9.23 (235)	1.57 (40)	1.26 (32)	.16 (4)
D	**D1**	**D2**	**D3**	**E**	**E1**
4.21 (107)	4.64 (118)	3.48 (88.3)	3.92 (99.6)	.91 (23)	.39 (10)
E2	**E3**	**F**	**F1**	**G**	**H**
1.73 (44)	.39 (10)	.79 (20)	.67 (17)	.87 (22)	.87 (22)
H1	**H2**	**J**	**J1**	**K**	**K1**
.26 (6.6)	.12 (3)	.65 (16.5)	.12 (3)	2.36 (60)	1.61 (41)
K2	**K3**	**K4**	**K5**	**M**	**N**
1.50 (38)	2.24 (57)	1.70 (43.3)	2.10 (53.3)	.79 (20)	.08 (2)
N1	**P**	**P1**	**U**	**V**	
.43 (11)	Ø .17 Ø (4.3)	Ø .12 Ø (3.1)	0.81 (20.5)	0.29 (7.5)	

Inches (mm)

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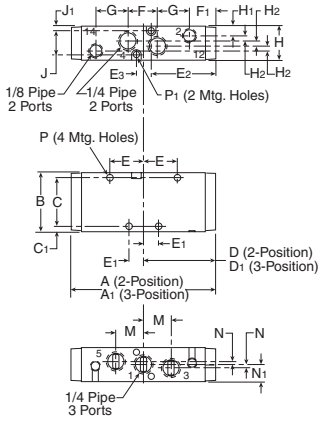
P2LBX 5/2 & 5/3 Single & Double Operators – Remote Air Pilot

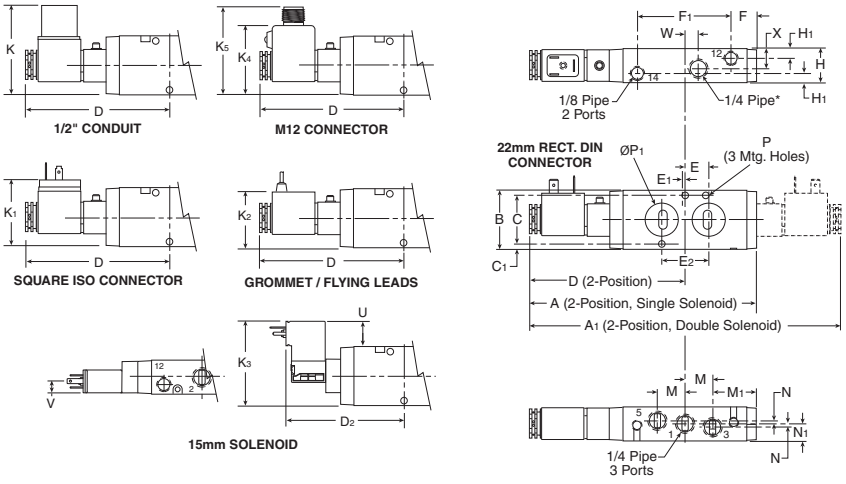


P2LBX 5/2 & 5/3 (remote air pilot)

A	A1	B	C	C1	D
3.95 (100)	4.61 (117)	1.57 (40)	1.26 (32)	.16 (4)	1.93 (49)
D1	**E**	**E1**	**E2**	**E3**	**F**
2.28 (58)	91 (23)	.39 (10)	1.73 (44)	.39 (10)	.79 (20)
F1	**G**	**H**	**H1**	**H2**	**J**
.67 (17)	.87 (22)	.8 (22)	.26 (6.6)	.12 (3)	.65 (16.5)
J1	**K**	**M**	**N**	**N1**	**P**
.11 (2.8)	2.90 (74)	.79 (20)	.08 (2)	.43 (11)	Ø .17 Ø (4.3)
P1					
Ø .12 Ø (3.1)					

Inches (mm)

P2LBX 5/2 Single & Double Operators – Solenoid NAMUR



P2LBX 5/2 (NAMUR)

A	A1	B	C	C1	D
6.15 (156)	8.39 (213)	1.57 (40)	1.26 (32)	.16 (4)	4.21 (107)
D2	**E**	**E1**	**E2**	**F**	**F1**
3.48 (88.3)	.47 (12)	.08 (2)	.94 (24)	.67 (17)	2.52 (64)
K	**K1**	**K2**	**K3**	**K4**	**K5**
2.36 (60)	1.61 (41)	1.50 (38)	2.24 (57)	1.70 (43.3)	2.10 (53.3)
H	**H1**	**M**	**M1**	**N**	**N1**
.87 (22)	.26 (6.6)	.79 (20)	1.14 (29)	.08 (2)	.43 (11)
P	**P1**	**U**	**V**	**W**	**X**
Ø .22 (5.5)	Ø .76 (19.4)	0.81 (20.5)	0.29 (7.5)	0.39 (10)	0.50 (12.6)

Inches (mm)

* Valve includes 1/4 pipe plug, o-rings and mounting bolts.

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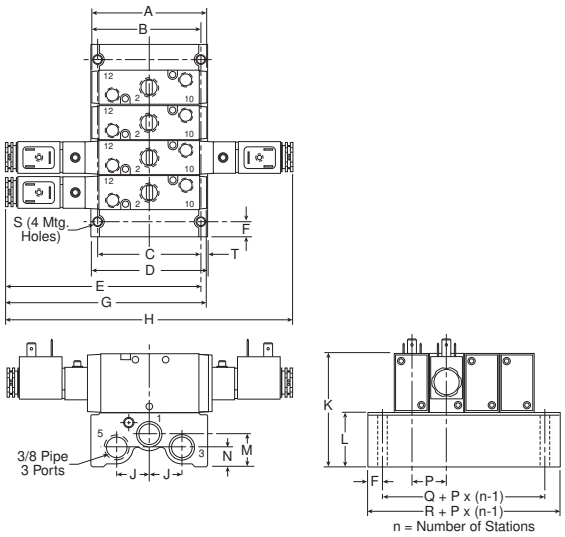
P2LBX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

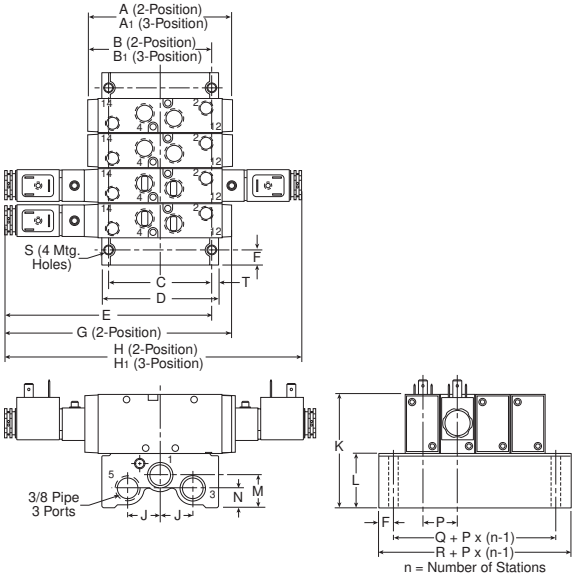


P2LBX 3/2
IEM Aluminum bar manifold

A	B	C	D	E
3.86 (78)	2.91 (74)	2.76 (70)	3.12 (79)	5.17 (131)
F	**G**	**H**	**J**	***K***
.40 (10.2)	5.33 (136)	7.6 (193)	.87 (22)	3.11 (79)
L	**M**	**N**	**P**	**Q**
1.47 (37)	.87 (22)	.52 (13.2)	.93 (23.5)	1.56 (39.6)
R	**S**	**T**		
2.36 (60)	Ø .22 Ø (5.5)	.18 (4.6)		

Inches (mm)

P2LBX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold

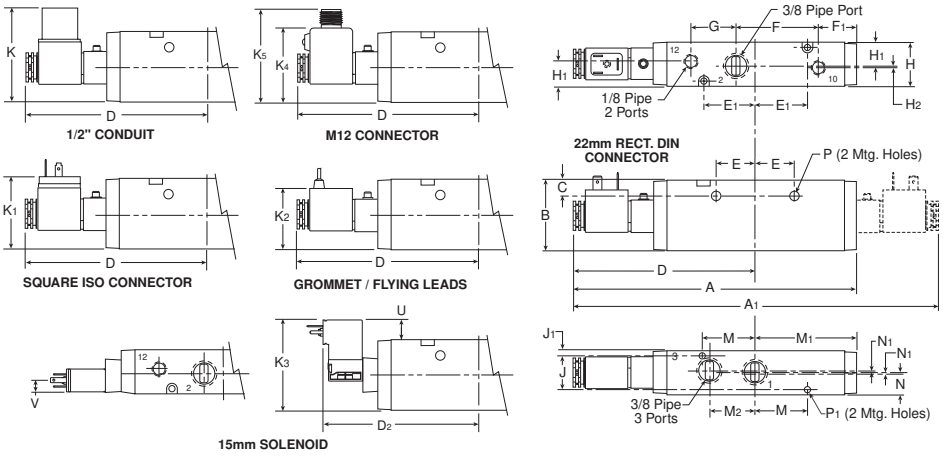


P2LBX 5/2 & 5/3
IEM Aluminum bar manifold

A	A_1	B	B_1	C
3.86 (98)	4.70 (120)	3.42 (84)	3.73 (95)	2.76 (70)
D	**E**	**F**	**G**	**H**
3.12 (79)	5.59 (142)	.40 (10.2)	6.14 (156)	8.39 (213)
H_1	**J**	**K**	**L**	**M**
9.23 (235)	.87 (22)	3.11 (79)	1.47 (37)	.87 (22)
N	**P**	**Q**	**R**	**S**
.52 (13.2)	.93 (23.5)	1.56 (39.6)	2.36 (60)	Ø .22 Ø (5.5)
T				
.18 (4.6)				

Inches (mm)

P2LCX 3/2 Single & Double Operators – Solenoid



P2LCX 3/2 (solenoid)

A	A1	B	C	D
7.66 (194.5)	9.80 (249)	1.89 (48)	.43 (11)	4.90 (124.5)

D2	E	E1	F	F1
4.17 (105.8)	1.04 (26.5)	1.40 (35.5)	2.24 (57)	1.02 (26)

G	H	H1	H2	J
1.22 (31)	1.18 (30)	.67 (17)	.02 (0.5)	.91 (23)

J1	K	K1	K2	K3
.14 (3.5)	2.52 (64)	1.77 (45)	1.65 (42)	2.41 (61.3)

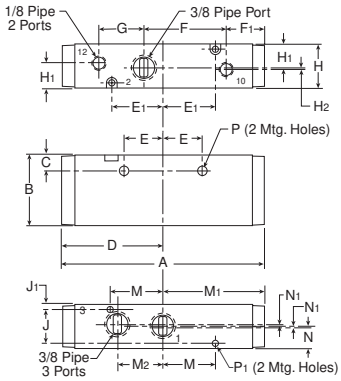
K4	K5	M	M1	M2
1.78 (45.3)	2.26 (57.3)	1.40 (35.5)	2.76 (70)	1.18 (30)

N	N1	P	P1	U
.55 (14)	.04 (1)	Ø .27 Ø (6.9)	Ø .17 Ø (4.4)	0.52 (13.3)

V
0.65 (7.5)

Inches (mm)

P2LCX 3/2 Single & Double Operators – Remote Air Pilot



P2LCX 3/2 (remote air pilot)

A	B	C	D	E
5.51 (140)	1.89 (48)	.43 (11)	2.76 (70)	1.04 (26.5)

E1	F	F1	G	H
1.40 (35.5)	2.24 (57)	1.02 (26)	1.22 (31)	1.18 (30)

H1	H2	J	J1	M
.67 (17)	.02 (0.5)	.91 (23)	.14 (3.5)	1.40 (35.5)

M1	M2	N	N1	P
2.76 (70)	1.18 (30)	.55 (14)	.04 (1)	Ø .27 Ø (6.9)

P1
Ø .17 Ø (4.4)

Inches (mm)

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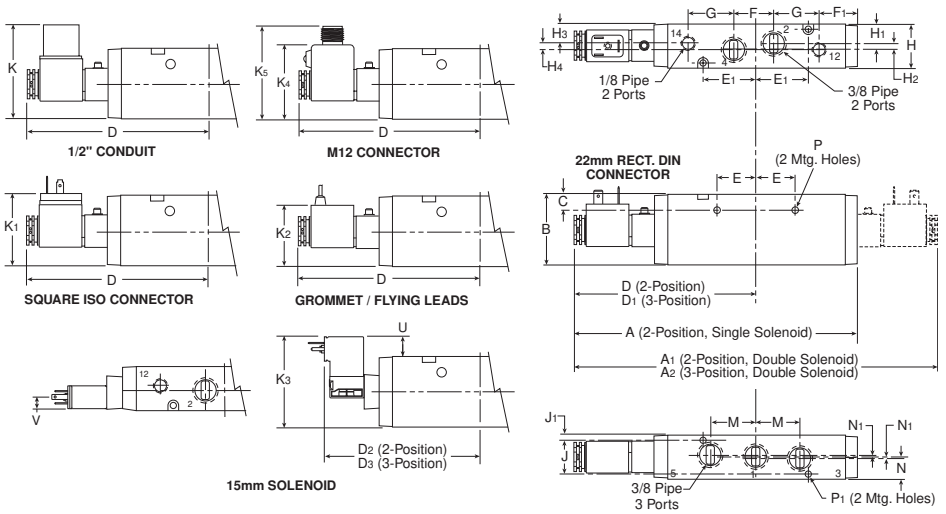
P2LCX 5/2 & 5/3 Single & Double Operators – Solenoid

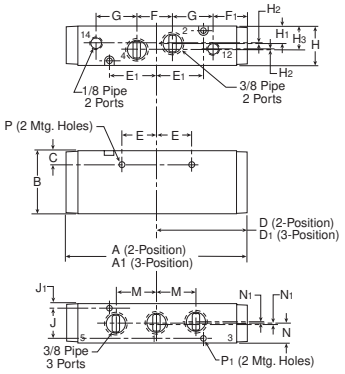


P2LCX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
7.68 (195)	9.84 (250)	10.71 (272)	1.89 (48)	.43 (11)
D	**D1**	**D2**	**D3**	**E**
4.92 (125)	5.35 (136)	4.17 (105.8)	4.61 (117.2)	1.04 (26.5)
E1	**F**	**F1**	**G**	**H**
1.40 (35.5)	1.06 (27)	1.02 (26)	1.22 (31)	1.18 (30)
H1	**H2**	**H3**	**H4**	**J**
.53 (13.5)	.12 (3)	.51 (13)	.16 (4)	.91 (23)
J1	**K**	**K1**	**K2**	**K3**
.14 (3.5)	2.52 (64)	1.77 (45)	1.65 (42)	2.41 (61.3)
K4	**K5**	**M**	**N**	**N1**
1.78 (45.3)	2.26 (57.3)	1.18 (30)	.55 (14)	.04 (1)
P	**P1**	**U**	**V**	
Ø .27 Ø (6.9)	Ø .17 Ø (4.4)	0.52 (13.3)	0.29 (7.5)	

Inches (mm)

P2LCX 5/2 & 5/3 Single & Double Operators – Remote Air Pilot

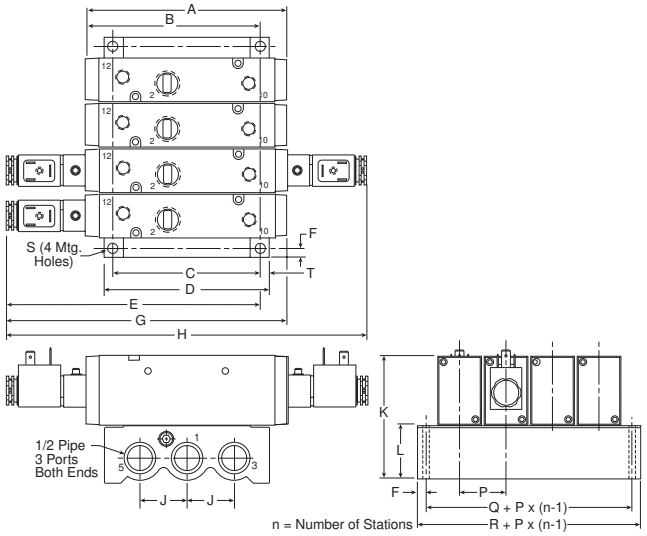


P2LCX 5/2 & 5/3 (remote air pilot)

A	A1	B	C	D	D1
5.51 (140)	6.38 (162)	1.89 (48)	.43 (11)	2.76 (70)	3.18 (81)
E	**E1**	**F**	**F1**	**G**	**H**
1.04 (26.5)	1.40 (35.5)	1.06 (27)	1.02 (26)	1.22 (31)	1.18 (30)
H1	**H2**	**H3**	**J**	**J1**	**M**
.51 (13)	.02 (0.5)	.12 (3)	.91 (23)	.14 (3.5)	1.18 (30)
N	**N1**	**P**	**P1**		
.55 (14)	.04 (1)	Ø .27 Ø (6.9)	Ø .17 Ø (4.4)		

Inches (mm)

P2LCX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold



P2LCX 3/2
IEM Aluminum bar manifold

A	B	C	D	E	F
5.51 (140)	4.96 (126)	3.94 (100)	4.41 (112)	7.11 (180.5)	.24 (6)
G	**H**	**J**	**K**	**L**	**P**
7.66 (194.5)	9.80 (249)	1.26 (32)	3.43 (87)	1.54 (39)	1.24 (31.5)
Q	**R**	**S**	**T**		
1.77 (45)	2.24 (57)	Ø .26 Ø (6.5)	.24 (6)		

Inches (mm)

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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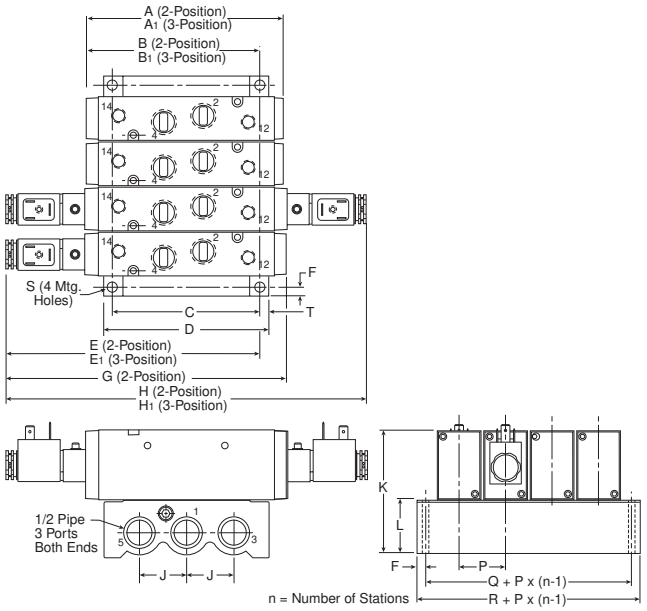
P2LCX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold

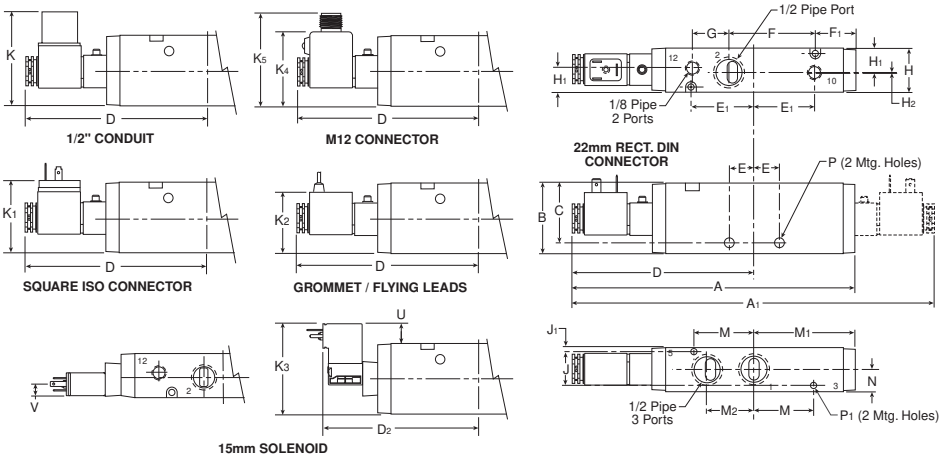


P2PCX 5/2 & 5/3
IEM Aluminum bar manifold

A	A1	B	B1	C
5.51 (140)	6.38 (162)	4.72 (120)	5.16 (131)	3.94 (100)
D	**E**	**E1**	**F**	**G**
4.41 (112)	6.89 (170)	7.13 (181)	.24 (6)	7.68 (195)
H	**H1**	**J**	**K**	**L**
9.84 (250)	10.71 (272)	1.26 (32)	3.43 (87)	1.54 (39)
P	**Q**	**R**	**S**	**T**
1.24 (31.5)	1.77 (45)	2.24 (57)	Ø .26 Ø (6.5)	.24 (6)

Inches (mm)

P2LDX 3/2 Single & Double Operators – Solenoid



P2LDX 3/2 (solenoid)

A	A1	B	C	D
7.66 (194.5)	9.80 (249)	1.89 (48)	1.59 (40.5)	4.90 (124.5)
D2	**E**	**E1**	**F**	**F1**
4.17 (105.8)	.67 (17)	1.65 (42)	2.36 (60)	1.08 (27.5)
G	**H**	**H1**	**H2**	**J**
.98 (25)	1.18 (30)	.67 (17)	.02 (0.5)	.91 (23)
J1	**K**	**K1**	**K2**	**K3**
.14 (3.5)	2.52 (64)	1.77 (45)	1.65 (42)	2.41 (61.3)
K4	**K5**	**M**	**M1**	**M2**
1.78 (45.3)	2.26 (57.3)	1.65 (42)	2.76 (70)	1.30 (33)
N	**P**	**P1**	**U**	**V**
.59 (15)	Ø .26 Ø (6.6)	Ø .17 Ø (4.4)	0.65 (16.5)	0.29 (7.5)

Inches (mm)

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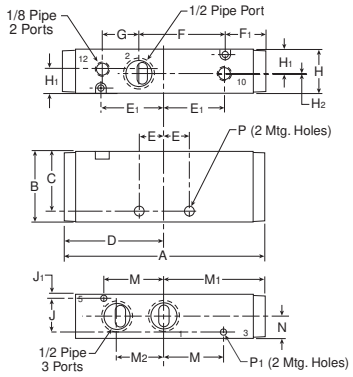
P2LDX 3/2 Single & Double Operators – Remote Air Pilot

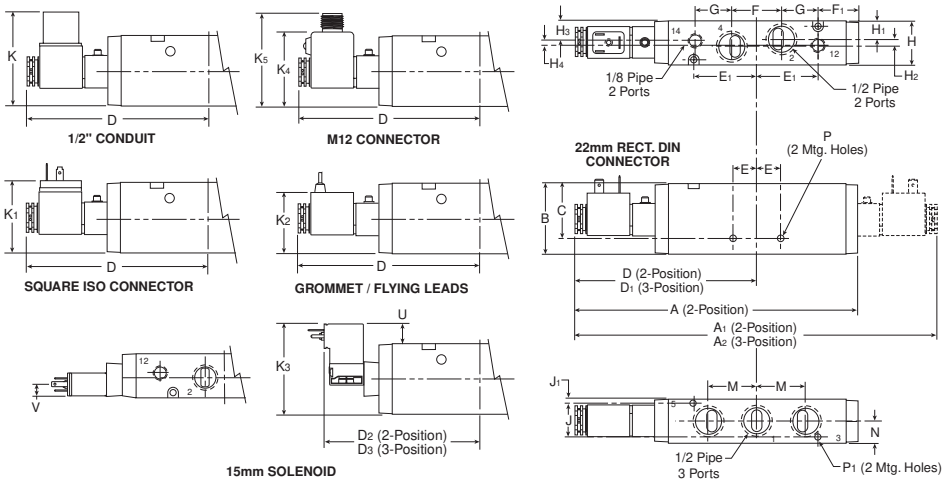


P2LDX 3/2 (remote air pilot)

A	B	C	D	E
5.51 (140)	1.89 (48)	1.59 (40.5)	2.76 (70)	.67 (17)
E1	**F**	**F1**	**G**	**H**
1.65 (42)	2.36 (60)	1.08 (27.5)	.98 (25)	1.18 (30)
H1	**H2**	**J**	**J1**	**M**
.67 (17)	.02 (0.5)	.91 (23)	.14 (3.5)	1.65 (42)
M1	**M2**	**N**	**P**	**P1**
2.76 (70)	1.30 (33)	.59 (15)	Ø .26 Ø (6.6)	Ø .17 Ø (4.4)

Inches (mm)

P2LDX 5/2 & 5/3 Single & Double Operators – Solenoid

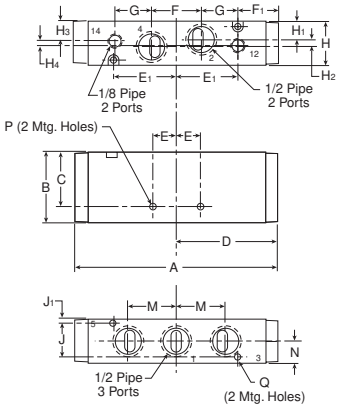


P2LDX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
7.67 (195)	9.84 (250)	10.7 (272)	1.89 (48)	1.59 (40.5)
D	**D1**	**D2**	**D3**	**E**
4.92 (125)	5.79 (147)	4.17 (105.3)	4.61 (117.2)	.67 (17)
E1	**F**	**F1**	**G**	**H**
1.65 (42)	1.34 (34)	1.10 (28)	.98 (25)	1.18 (30)
H1	**H2**	**H3**	**H4**	**J**
.49 (12.5)	.20 (5)	.51 (13)	.16 (4)	.91 (23)
J1	**K**	**K1**	**K2**	**K3**
.14 (3.5)	2.52 (64)	1.77 (45)	1.65 (42)	2.41 (61.3)
K4	**K5**	**M**	**N**	**P**
1.78 (45.3)	2.26 (57.3)	1.30 (33)	.59 (15)	Ø .26 Ø (6.6)
P1	**U**	**V**		
Ø .17 Ø (4.4)	0.52 (13.3)	0.29 (7.5)		

Inches (mm)

P2LDX 5/2 & 5/3 Single & Double Operators – Remote Pilot



P2LDX 5/2 & 5/3 (remote)

A	B	C	D	E
5.47 (139)	1.89 (48)	1.59 (40.5)	2.63 (67)	.67 (17)
E1	**F**	**F1**	**G**	**H**
1.65 (42)	1.34 (34)	1.08 (27.5)	.98 (25)	1.18 (30)
H1	**H2**	**H3**	**H4**	**J**
.49 (12.5)	.20 (5)	.51 (13)	.16 (4)	.91 (23)
J1	**P**	**M**	**N**	**Q**
.14 (3.5)	Ø .26 Ø (6.6)	1.29 (32.7)	.59 (15)	Ø .17 Ø (4.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
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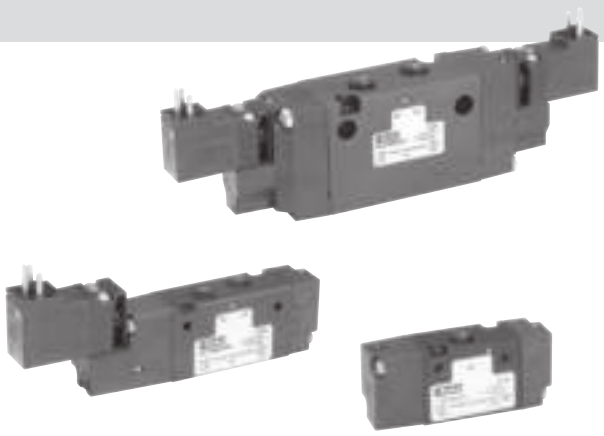
B Series

B Series, an exceptional performing industrial valve in a compact size with an enhanced flow range.

Available in solenoid pilot operated and remote air pilot models. The B series features Parker's proven WCS (Wear Compensating Seal) system ensuring long life and fast response.



Ports
- B3: 1/8, 1/4 inch – 0.75 Cv
- B5: 1/4, 3/8 inch – 1.40 Cv
- B6: 3/8 inch – 2.50 Cv
- B7: 1/2 inch – 5.90 Cv
- B8: 3/4 inch – 7.00 Cv

Mounting
- Inline
- Subbase
- IEM stackable base
- IEM aluminum bar
- 5-port subbase aluminum bar

Solenoids
- 1.2 W – 15mm, 3-pin EN175301-803
- 2.5 to 7.3 watt - conduit, grommet, 22mm & 30mm, 3-pin DIN (433650)
- 12VDC to 240VAC
- Female DIN electrical connectors

Certification / Approval
- Approved to be CE marked
- IP65 rated
- cCSAus ‡

Operating information

Operating pressure:	Vacuum to 145 PSIG (Vacuum to 10 bar)
Minimum:	See chart below
CSA-NRTL/C:	See chart below
Operating temperature:	5°F to 120°F (-15°C to 49°C)

Material specifications

Body	Anodized aluminum
End caps	Nylon polymer - 33% glass filled
Seals	Nitrile
Solenoid	Polyamide
Spool	Aluminum

Minimum operating pressure

Operator / function	Internal pilot	Minimum PSIG (kPa) B3	B5	B6	B7	B8
1. G. H	Single solenoid - air return	20 (138)	20 (138)	20 (138)	35 (241)	35 (241)
2. A. J. S	Double solenoid					
3. K. L	Single remote pilot - air return					
4. M	Double remote pilot	Vacuum				
5. 6. 7	Double solenoid - APB, CE, PC	30 (207)	30 (207)	30 (207)	45 (310)	45 (310)
8. 9. 0	Double remote pilot - APB, CE, PC	Vacuum				
E. V. W	Single solenoid - air return / spring assist	35 (241)	35 (241)	35 (241)	35 (241)	35 (241)
F. X. Y	Single remote pilot - air return / spring assist					
	External pilot*†					
All	"B" series	Vacuum				

* External Pilot Pressure / Remote Pilot Signal 35-145 PSIG (241-1000 kPa).
† Not Available with B3 Dual 3/2.

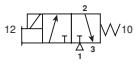
‡ CSA-NRTL/C operating pressure

Note: For CSA-NRTL/C approved solenoid valves – insert an 'L' at the end of the valve part number.

Valve	Maximum PSIG (kPa)
B3	120 (827)
B5 & B6	145 (1000)*§
B7 & B8	145 (1000)*†

* Enclosure Option E is CSA / FM approved at source. For certification of valve / solenoid assembly, consult factory.
† Not Available with Enclosure 5
§ Not available with Enclosures 0. 5 & X

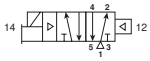
Single Solenoid, 3-way, 2-position, NC



B3 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.75 Cv	120VAC 24VDC	B3 Inline	**B3G0BB553C B3G0BB549C**
	1/4"	1.4 Cv	120VAC 24VDC	B5 Inline	**B5G1BB553C B5G1BB549C**
	3/8"	1.4 Cv	120VAC 24VDC	B5 Inline	**B5G2BB553C B5G2BB549C**
	3/8"	2.7 Cv	120VAC 24VDC	B6 Inline	**B6V2BB553A B6V2BB549A**
	1/2"	5.9 Cv	120VAC 24VDC	B7 Inline	**B7V3BB553A B7V3BB549A**
	3/4"	7.0 Cv	120VAC 24VDC	B8 Inline	**B8V4BB553A B8V4BB549A**

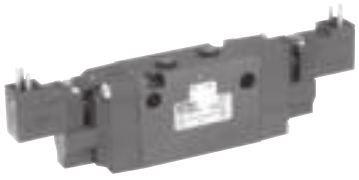
Single Solenoid, 4-way, 2-position

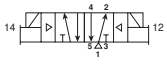


B3 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.75 Cv	120VAC 24VDC	B3 Inline	**B310BB553C B310BB549C**
	1/4"	1.4 Cv	120VAC 24VDC	B5 Inline	**B511BB553C B511BB549C**
	3/8"	1.4 Cv	120VAC 24VDC	B5 Inline	**B512BB553C B512BB549C**
	3/8"	2.7 Cv	120VAC 24VDC	B6 Inline	**B612BB553A B612BB549A**
	1/2"	5.9 Cv	120VAC 24VDC	B7 Inline	**B713BB553A B713BB549A**
	3/4"	7.0 Cv	120VAC 24VDC	B8 Inline	**B814BB553A B814BB549A**
	Less base	0.65 Cv	120VAC 24VDC	B3 Subbase	**B31VBB553C B31VBB549C**

Double Solenoid, 4-way, 2-position





B5 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.75 Cv	120VAC 24VDC	B3 Inline	**B320BB553C B320BB549C**
	1/4"	1.4 Cv	120VAC 24VDC	B5 Inline	**B521BB553C B521BB549C**
	3/8"	1.4 Cv	120VAC 24VDC	B5 Inline	**B522BB553C B522BB549C**
	3/8"	2.7 Cv	120VAC 24VDC	B6 Inline	**B622BB553A B622BB549A**
	1/2"	5.9 Cv	120VAC 24VDC	B7 Inline	**B723BB553A B723BB549A**
	3/4"	7.0 Cv	120VAC 24VDC	B8 Inline	**B824BB553A B824BB549A**
	Less base	0.65 Cv	120VAC 24VDC	B3 Subbase	**B32VBB553C B32VBB549C**

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

☐ Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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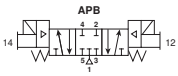
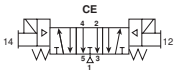
Double Solenoid, 4-way, 3-position, APB



B5 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.60 Cv	120VAC 24VDC	B3 Inline	**B350BB553C B350BB549C**
	1/4"	1.1 Cv	120VAC 24VDC	B5 Inline	**B551BB553C B551BB549C**
	3/8"	1.1 Cv	120VAC 24VDC	B5 Inline	**B552BB553C B552BB549C**
	3/8"	2.1 Cv	120VAC 24VDC	B6 Inline	**B652BB553A B652BB549A**
	1/2"	5.7 Cv	120VAC 24VDC	B7 Inline	**B753BB553A B753BB549A**
	3/4"	6.6 Cv	120VAC 24VDC	B8 Inline	**B854BB553A B854BB549A**
	Less base	0.50 Cv	120VAC 24VDC	B3 Subbase	**B35VBB553C B35VBB549C**

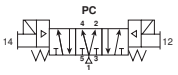
Double Solenoid, 4-way, 3-position, CE



B5 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.60 Cv	120VAC 24VDC	B3 Inline	**B360BB553C B360BB549C**
	1/4"	1.1 Cv	120VAC 24VDC	B5 Inline	**B561BB553C B561BB549C**
	3/8"	1.1 Cv	120VAC 24VDC	B5 Inline	**B562BB553C B562BB549C**
	3/8"	2.1 Cv	120VAC 24VDC	B6 Inline	**B662BB553A B662BB549A**
	1/2"	5.7 Cv	120VAC 24VDC	B7 Inline	**B763BB553A B763BB549A**
	3/4"	6.6 Cv	120VAC 24VDC	B8 Inline	**B864BB553A B864BB549A**
	Less base	0.50 Cv	120VAC 24VDC	B3 Subbase	**B36VBB553C B36VBB549C**

Double Solenoid, 4-way, 3-position, PC



B5 shown, 3-Pin DIN 43650C electrical connection. Non-locking flush override.

Symbol	Port size	Cv	Voltage	Valve type	Part number
	1/8"	0.60 Cv	120VAC 24VDC	B3 Inline	**B370BB553C B370BB549C**
	1/4"	1.1 Cv	120VAC 24VDC	B5 Inline	**B571BB553C B571BB549C**
	3/8"	1.1 Cv	120VAC 24VDC	B5 Inline	**B572BB553C B572BB549C**
	3/8"	2.1 Cv	120VAC 24VDC	B6 Inline	**B672BB553A B672BB549A**
	1/2"	5.7 Cv	120VAC 24VDC	B7 Inline	**B773BB553A B773BB549A**
	3/4"	6.6 Cv	120VAC 24VDC	B8 Inline	**B874BB553A B874BB549A**
	Less base	0.50 Cv	120VAC 24VDC	B3 Subbase	**B37VBB553C B37VBB549C**

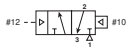
ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

Most popular.

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

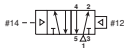
Single Remote Pilot, 3-way, 2-position, NC



B3 Shown, M5 remote pilot ports

Symbol	Port size	Cv	Valve type	Part number
	1/8"	0.75 Cv	B3 Inline, remote pilot	**B3K0000XXC**
	1/4"	1.4 Cv	B5 Inline, remote pilot	**B5K1000XXC**
	3/8"	1.4 Cv	B5 Inline, remote pilot	**B5K2000XXC**
	3/8"	2.7 Cv	B6 Inline, remote pilot	**B6X2000XXA**
	1/2"	5.9 Cv	B7 Inline, remote pilot	**B7X3000XXA**
	3/4"	7.0 Cv	B8 Inline, remote pilot	**B8X4000XXA**

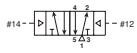
Single Remote Pilot, 4-way, 2-position



B5 Shown, M5 remote pilot ports

Symbol	Port size	Cv	Valve type	Part number
	1/8"	0.75 Cv	B3 Inline, remote pilot	**B330000XXC**
	1/4"	1.4 Cv	B5 Inline, remote pilot	**B531000XXC**
	3/8"	1.4 Cv	B5 Inline, remote pilot	**B532000XXC**
	3/8"	2.7 Cv	B6 Inline, remote pilot	**B632000XXA**
	1/2"	5.9 Cv	B7 Inline, remote pilot	**B733000XXA**
	3/4"	7.0 Cv	B8 Inline, remote pilot	**B834000XXA**
	Less base	0.65 Cv	B3 Subbase, remote pilot	**B33V000XXC**

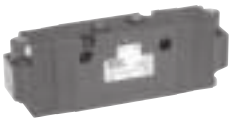
Double Remote Pilot, 4-way, 2-position

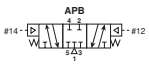


B5 Shown, M5 remote pilot ports

Symbol	Port size	Cv	Valve type	Part number
	1/8"	0.75 Cv	B3 Inline, remote pilot	**B340000XXC**
	1/4"	1.4 Cv	B5 Inline, remote pilot	**B541000XXC**
	3/8"	1.4 Cv	B5 Inline, remote pilot	**B542000XXC**
	3/8"	2.7 Cv	B6 Inline, remote pilot	**B642000XXA**
	1/2"	5.9 Cv	B7 Inline, remote pilot	**B743000XXA**
	3/4"	7.0 Cv	B8 Inline, remote pilot	**B844000XXA**
	Less base	0.65 Cv	B3 Subbase, remote pilot	**B34V000XXC**

Double Remote Pilot, 4-way, 3-position, APB





B5 Shown, M5 remote pilot ports

Symbol	Port size	Cv	Valve type	Part number
	1/8"	0.60 Cv	B3 Inline, remote pilot	**B380000XXC**
	1/4"	1.1 Cv	B5 Inline, remote pilot	**B581000XXC**
	3/8"	1.1 Cv	B5 Inline, remote pilot	**B582000XXC**
	3/8"	2.1 Cv	B6 Inline, remote pilot	**B682000XXA**
	1/2"	5.7 Cv	B7 Inline, remote pilot	**B783000XXA**
	3/4"	6.6 Cv	B8 Inline, remote pilot	**B884000XXA**
	Less Base	0.50 Cv	B3 Subbase, remote pilot	**B38V000XXC**

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
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B3 Series

B3 1 0 B B 5 49 – C

Basic series	
B3 series	B3

Operator Function	
3-way	
Single solenoid, 2-position NC - air return	**G**
Single solenoid, 2-position NO - air return	H
Double solenoid, 2-position	J
Single remote pilot, 2-position NC - air return	**K**
Single remote pilot, 2-position NO - air return	L
Double remote pilot, 2-position	M
Single solenoid, 2-position NC - air return / spring assist	V
Single solenoid, 2-position NO - air return / spring assist	W
Single remote pilot, 2-position NC - air return / spring assist	X
Single remote pilot, 2-position NO - air return / spring assist	Y
4-way	
Single solenoid, 2-position - air return	**1**
Double solenoid, 2-position	**2**
Single remote pilot, 2-position - air return	**3**
Double remote pilot, 2-position	**4**
Double solenoid, 3-position - APB	**5**
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Double remote pilot, 3-position - APB	**8**
Double remote pilot, 3-position - CE	9
Double remote pilot, 3-position - PC	0
Single solenoid, 2-position - air return / spring assist	E
Single remote pilot, 2-position - air return / spring assist	F

Port size / thread type	
3-way	
1/8" NPT inline	0*
1/8" BSPP "G" inline	5*
4-way	
1/8" NPT inline	**0***
1/8" BSPP "G" inline	5*
1/4" NPT subbase	H‡
1/8" NPT face mount	T**
Subbase valve less base	**V‡**

* Available for use on IEM Manifolds.

** 4-way only.

‡ Subbase valves available for 4-way valves only, included base.

Pilot source / pilot exhaust	
0	**None, remote pilot valve**
B†	**Internal - port #1 / vented**
E*	Dual pressure - port #3 / vented
K†	External - body / tapped M5
X‡	External - manifold / vented

* Not available for 3-way Valves.

† Not available for Remote Pilot Valves.

‡ See Pilot Source Note below.

Overrides§	
0	**None, remote pilot valve**
B	**Flush - non-locking**
C	**Flush - locking**
D	Extended - non-locking
E	Extended - locking
X	Valve less 15mm solenoid

Enclosure / lead length	
0	None, remote pilot valve
5	**15mm 3-pin DIN 43650C (male only)**
X	Valve less 15mm solenoid

Voltage§	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote pilot - M5 or valve less 15mm solenoid**		
YY	Remote pilot - 5/32" (4mm) tube		

Options	
Blank	**None**
02	Solenoid rotated 180° - pins down

Engineering level	
C	**Current**
CL	CSA Current

Pilot Source 'X'
External-Manifold / Vented

INLINE & SUBBASE Valves –
Only used IF an IEM or 5-Ported Subbase Aluminum Bar Manifold requires a common external pilot signal through the manifold for low pressure / vacuum applications OR when used with Sandwich Regulators.

§ Enclosure '5' – Override / Voltage Availability

S - Standard
O - Option

Voltage code	Override code Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage code	"02" Option			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Most popular.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
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B5 Series

B5	1	1	B	B	5	49	–	C

Basic series	
B5 series	**B5**

Operator function	
3-way	
Single solenoid, 2-position NC - air return	**G**
Single solenoid, 2-position NO - air return	H
Double solenoid, 2-position	J
Single remote pilot, 2-position NC - air return	**K***
Single remote pilot, 2-position NO - air return	L*
Double remote pilot, 2-position	M*
Single solenoid, 2-position NC - air return / spring assist	V
Single solenoid, 2-position NO - air return / spring assist	W
Single remote pilot, 2-position NC - air return / spring assist	X*
Single remote pilot, 2-position NO - air return / spring assist	Y*
4-way	
Single solenoid, 2-position - air return	**1**
Double solenoid, 2-position	**2**
Single remote pilot, 2-position - air return	**3***
Double remote pilot, 2-position	**4***
Double solenoid, 3-position - APB	**5**
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Double remote pilot, 3-position - APB	**8***
Double remote pilot, 3-position - CE	9*
Double remote pilot, 3-position - PC	0*
Single solenoid, 2-position - air return / spring assist	E
Single remote pilot, 2-position - air return / spring assist	F*

* Pilot source/pilot exhaust, override, and enclosure must be "0".

Port Size / Thread Type	
3-way	
1/4" NPT inline	1*
3/8" NPT inline	**2***
1/4" BSPP "G" inline	6*
3/8" BSPP "G" inline	7*
4-way	
1/4" NPT inline	**1***
3/8" NPT inline	**2***
1/4" BSPP "G" inline	6*
3/8" BSPP "G" inline	7*
3/8" NPT subbase	J†
1/4" NPT NAMUR mount	T‡†
Subbase valve less base	V‡
1/4" BSPP "G" NAMUR mount	W‡†

* Available for use on IEM manifolds.
† 4-way only includes base.
‡ Available with pilot source "0", "A", and "B" only.

Pilot Source / Pilot Exhaust	
Enclosures "0, 5 & X"	
None, remote pilot valve	0
Internal - port #1 / vented	**B†**
Dual pressure - port #3 / vented	E*
External - body / tapped M5	K†
External - manifold / vented	X‡
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - port #1 / tapped M5	**A†**
Internal - port #1 / vented	**B†**
Dual pressure - port #3 / tapped M5	D*†
External - body / tapped 1/8"	K†

* Not available for 3-way valves.
† Not available for remote pilot valves.
‡ See pilot source note below.

Overrides§	
None. Remote pilot valve	**0**
No override	A†
Flush - non-locking	**B***
Flush - locking	**C**
Extended - non-locking	D
Extended - locking	E*
Valve less 15mm solenoid	X

* Only available with encl. "5".
† Only available with encl. "E".

Voltage§	AC 60Hz	AC 50Hz	DC
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote pilot - M5 or valve less solenoid**		
YY	Remote pilot - 5/32" (4mm) tube		

Enclosure / lead length	
0	None, remote pilot valve
5	**15mm 3-pin DIN 43650C (male only)**
A	30mm square 3-pin – ISO 4400 form A (male only)
B	**22mm rectangular 3-pin – type B industrial (male only)**
C	3-pin automotive - mini
D	5-pin automotive - mini
E*	Intrinsically safe - 30mm 3-pin
F**	Hazardous duty 1/2" NPT conduit - 18" leads
G	**Grommet - 18" leads**
H	**1/2" NPT conduit - 18" leads**
N	Valve less "A -R" coil
Q†	Grommet - 72" leads
R	1/2" NPT conduit - 72" leads
X	Valve less 15mm solenoid

* 24 VDC & override "A" only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.
† 24 VDC only.

Engineering level	
C	**Current**
CL	CSA Current

Options	
Blank	**None**
02	Solenoid rotated 180° - pins down
MD††	Manual detent

†† Only available with operator function 1 & 3 and Enclosure "N", "X" or mobile voltages upon request.

Pilot Source 'X'
External-Manifold / Vented or Tapped M5

INLINE & SUBBASE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal through the manifold for low pressure / vacuum applications.

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage code	Override code Standard B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage code	Override code "02" Option B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

☐ Most popular.

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Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

B6 Series

B6	1	2	B	B	5	49	–	A

Basic series	
B6 series	**B6**

Operator function	
3-way	
Single solenoid, 2-position NC - air return / spring assist	V
Single solenoid, 2-position NO - air return / spring assist	W
Single remote pilot, 2-position NC - air return / spring assist	X
Single remote pilot, 2-position NO - air return / spring assist	Y
4-way	
Single solenoid, 2-position - air return	**1**
Double solenoid, 2-position	**2**
Single remote pilot, 2-position - air return	**3**
Double remote pilot, 2-position	**4**
Double solenoid, 3-position - APB	**5**
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Double remote pilot, 3-position - APB	**8**
Double remote pilot, 3-position - CE	9
Double remote pilot, 3-position - PC	0
Single solenoid, 2-position - air return / spring assist	E
Single remote pilot, 2-position - air return / spring assist	F

Port size / thread type	
3-way / 4-way	
3/8" NPT inline	**2***
3/8" BSPP "G" inline	7*
3/8" NPT NAMUR mount	T†

* Available for use on IEM manifolds.

† 4-way only. Available with pilot source "0", "A" and "B" only.

Pilot source / pilot exhaust	
Enclosures "0, 5 & X"	
None. Remote pilot valve	0
Internal - Port #1 / vented	**B†**
Dual pressure - port #5 / vented	H*
External - Body / tapped M5	K†
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - Port #1 / tapped M5	**A†**
Internal - Port #1 / vented	**B†**
External - Body / tapped 1/8"	K†

* Not available for 3-way valves.

† Not available for remote pilot valves.

Overrides§	
None, remote pilot valve	**0**
No override	A†
Flush - non-locking	**B***
Flush - locking	**C**
Extended - non-locking	D
Extended - locking	E*
Valve less 15mm solenoid	X

* Only available with enclosure "5".

† Only available with enclosure "E".

Enclosure / lead length	
0	None, remote pilot valve
5	**15mm 3-pin DIN 43650C (male only)**
A	30mm square 3-pin – ISO 4400 form A (male only)
B	**22mm rectangular 3-pin – Type B industrial (male only)**
E*	Intrinsically safe - 30mm 3-pin
F**	Hazardous duty 1/2" NPT conduit - 18" leads
G	**Grommet - 18" leads**
H	**1/2" NPT conduit - 18" leads**
N	Valve less "A - R" coil
Q	Grommet - 72" leads
R	1/2" NPT conduit - 72"leads
X	Valve less 15mm solenoid

* 24 VDC & override "A" only.

** 12 VDC, 24 VDC, 120 VAC or 240 VAC.

† 24 VDC only.

Voltage§			
	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote pilot - M5 or valve less 15mm solenoid**		
YY	Remote pilot - 5/32" (4mm) tube		

Options	
Blank	**None**
02	Solenoid rotated 180° - pins down

Engineering level	
A	**Current**
AL	CSA Current

INLINE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal through the manifold for low pressure / vacuum applications.

§ Enclosure '5' – Override / Voltage Availability

S - Standard
O - Option

Voltage code	Override code Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage code	Override code "02" Option			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

☐ Most popular.

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

B7 & B8 Series

B7 | 1 | 3 | A | B | G | 53 | – | A

Basic series	
B7 series	**B7**
B8 series	**B8**

Operator function	
3-way	
Single solenoid, 2-position NC - air return / spring assist	V
Single solenoid, 2-position NO - air return / spring assist	W
Single remote pilot, 2-position NC - air return / spring assist	X
Single remote pilot, 2-position NO - air return / spring assist	Y
4-way	
Single solenoid, 2-position - air return	**1**
Double solenoid, 2-position	**2**
Single remote pilot, 2-position - air return	**3**
Double remote pilot, 2-position	**4**
Double solenoid, 3-position - APB	**5**
Double solenoid, 3-position - CE	6
Double solenoid, 3-position - PC	7
Double remote pilot, 3-position - APB	**8**
Double remote pilot, 3-position - CE	9
Double remote pilot, 3-position - PC	0
Single solenoid, 2-position - air return / spring assist	E
Single remote pilot, 2-position - air return / spring assist	F

Port size / thread type	
B7 series	
1/2" NPT inline	**3***
1/2" BSPP "G" inline	8*
B8 series	
3/4" NPT inline	**4***
3/4" BSPP "G" inline	9*

* Available for use on IEM manifolds.

Pilot source / pilot exhaust	
Enclosures "0, 5 & X"	
None. Remote pilot valve	0
Internal - Port #1 / vented	**B†**
External - Body / tapped M5	K†
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - Port #1 / tapped M5	**A†**
Internal - Port #1 / vented	**B†**
External - Body / tapped 1/8"	K†

† Not available for remote pilot valves.

Overrides§	
None, remote pilot valve	**0**
No override	A†
Flush - non-locking	**B***
Flush - locking	**C**
Extended - non-locking	D
Extended - locking	E*
Valve less 15mm solenoid	X

* Only available with encl. "5".
† Only available with encl. "E".

Voltage§	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote pilot - M5 or valve less solenoid**		
YY	Remote pilot - 5/32" (4mm) tube		

Enclosure / lead length	
0	None, remote pilot valve
5	**15mm 3-pin DIN 43650C (male only)**
A	30mm square 3-pin – ISO 4400 form A (male only)
B	**22mm rectangular 3-pin – Type B industrial (male only)**
E*	Intrinsically safe - 30mm 3-pin
F**	Hazardous duty 1/2" NPT conduit - 18" leads
G	**Grommet - 18" leads**
H	**1/2" NPT conduit - 18" leads**
N	Valve less "A - R" coil
R	1/2" NPT conduit - 72" leads
X	Valve less 15mm solenoid

* 24 VDC & Override "A" only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.

Engineering level	
A	**Current**
AL	CSA Current

Options	
Blank	**None**

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage code	Override code Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

INLINE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal through the manifold for low pressure / vacuum applications.

☐ Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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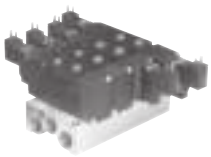
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

IEM Bar Manifold, Inline Valves Only

Valve series	Valve function	## – Stations	Manifold only (NPT)	Manifold only (BSPP)
B3	3-way	02 to 12	**PSG3BXN##NP**	**PSG3BXG##NP**
B3	4-way	02 to 12	**PSM3BXN##NP**	**PSM3BXG##NP**
B5	3-way	02 to 12	**PSG5BXN##NP**	**PSG5BXG##NP**
B5	4-way	02 to 12	**PSM5BXN##NP**	**PSM5BXG##NP**
B6	3-way	02 to 12	**PSG6BXN##NP**	**PSG6BXG##NP**
B6	4-way	02 to 12	**PSM6BXN##NP**	**PSM6BXG##NP**
B7, B8	4-way	02 to 12	**PSM7BXN##NP**	**PSM7BXG##NP**

Kits include: (1) manifold, valve hold down bolts, gaskets. For external pilot valve option "X", external manifold galley must be pressurized.

IEM Bar Manifold Add-A-Fold Assembly



Valve series	Valve function	## – Stations	Manifold assembly (NPT)	Manifold assembly (BSPP)
B3	3-way, 1/4	02 to 12	**AAPSG3BXN##NP**	**AAPSG3BXG##NP**
B3	4-way, 1/4	02 to 12	**AAPSM3BXN##NP**	**AAPSM3BXG##NP**
B5	3-way, 3/8	02 to 12	**AAPSG5BXN##NP**	**AAPSG5BXG##NP**
B5	4-way, 3/8	02 to 12	**AAPSM5BXN##NP**	**AAPSM5BXG##NP**
B6	3-way, 1/2	02 to 12	**AAPSG6BXN##NP**	**AAPSG6BXG##NP**
B6	4-way, 1/2	02 to 12	**AAPSM6BXN##NP**	**AAPSM6BXG##NP**
B7, B8	4-way, 1/2	02 to 12	**AAPSM7BXN##NP**	**AAPSM7BXG##NP**

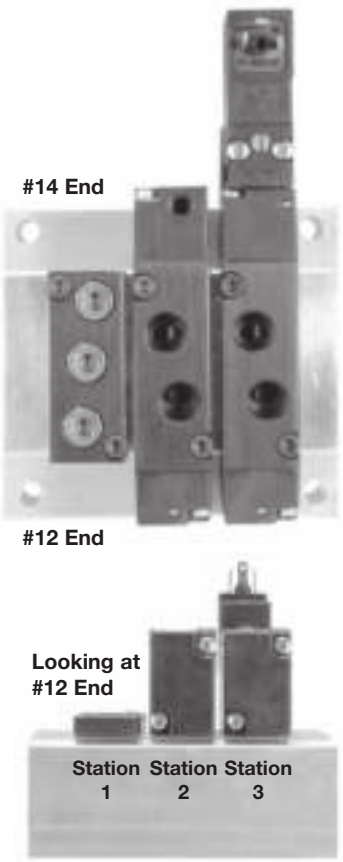
Kits include: (1) manifold, valve hold down bolts, gaskets and assembly. For external pilot valve option "X", external manifold galley must be pressurized.

How to Order:

1. List Add-A-Fold Assembly Part Number as line item 1
2. List the desired valves series part number in subsequent line items after the Add-A-Fold Assembly part number to complete the ordering code. Include all valves and blanking kits required. The left most station is station # 1 looking at the #12 end of the manifold.

Example: B3, 4-way manifold with station #1 blanked off with valves assembled

Line	Qty	Part number	Comment
1	1	AAPSM3BXN03NP	Add-A-Fold Assembly
2	1	PS2920P	Blank Plate - station 1
3	1	B3100BB549C	4-way B3 - station 2
4	1	B330000XXC	4-way B3 - station 3



Most popular.

B3 Subbase Side Ported Manifold, Subbase Valves Only

35mm DIN Rail Mount

Valve series	Valve function	## – Stations	Manifold only (NPT)	Manifold only (BSPP)
B3	4-way	02 to 12	**PSJ3B1N##NP**	**PSJ3B1G##NP**

Kits include: (1) manifold, valve hold down bolts, gaskets. For external pilot valve option "X", external manifold galley must be pressurized. Replace ## with number of valve stations.

B3 Subbase Side Ported Manifold Add-A-Fold Assembly

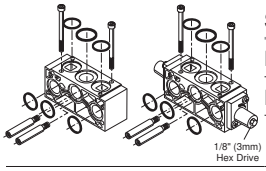
Valve series	Valve function	## – Stations	Manifold assembly (NPT)	Manifold assembly (BSPP)
B3	4-way	02 to 12	**AAPSJ3B1N##NP**	**AAPSJ3B1G##NP**

Kits include: (1) manifold, valve hold down bolts, gaskets and assembly. For external pilot valve option "X", external manifold galley must be pressurized.

- Utilizes Subbase mount B3 valves.
- Available for 4-Way valves. If 3-way function is required, plug a cylinder port.
- Common External Pilot galley is standard.
- Standard Internal Pilot valves need not use this galley, and the galley does not need to be plugged.
- External Pilot Valves – "X", must have Common External Galley pressurized.

IEM Stackable Manifolds

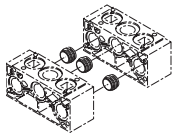
- Individual Manifold Bases stack together to form lightweight custom length manifold system.
- Easy-to-connect male / female tie rods for modular assembly.
- Utilizes B3 and B5 4-way Inline Valves.
- Low-cost built-in Flow Controls with heavy-duty brass adjusting needles to control meter-out exhaust flow.
- Accessories include Isolator Plugs for pressure isolation and Universal Blanking Plates for auxiliary inlet and exhaust supply and future valve additions.



Series	Type	Kit number Standard	Flow control
B3	4-way	**PS2917P**	**PS2918P**
B5	4-way	**PS2817P**	**PS2818P**

Kit includes: (1) manifold base, (2) hold-down bolts, tie-rods, gaskets and o-rings.

Isolator Plugs

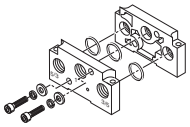


Series	Description	Kit number
B3	4-way, IEM stackable	**PS2919P**
B5	4-way, IEM stackable	**PS2819P**

Used to isolate the #1, #3 or #5 gallery between two manifold bases. (IEM stackable only)

Kit includes: (3) plugs and (6) o-rings

End Plate Kits



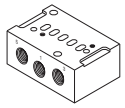
Series	Type	Port Type	Kit number
B3	4-way, NPT	1/8	**PS2915P**
B5	4-way, NPT	1/4	**PS2815P***

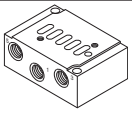
Kit includes: right and left end plate, o-rings, socket head cap screws, flat washers and lockwashers.

* B5 4-Way use the same kit

Most popular.

Single Subbase (subbase valves only)

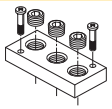


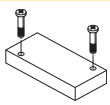


Series	Type	Kit number
B3	4-way, 1/4" NPT	**PS2934P**
B5	4-way, 3/8" NPT	**PS2834P**

Kit includes: (1) subbase.
(Hold down bolts & gasket are included with valve.).

Blanking Plate

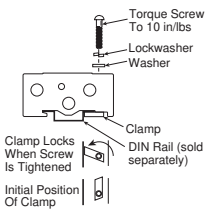




		IEM universal NPT	IEM universal BSPP "G"	IEM Blank	Subbase Blank
B3	3-way	**PS2966P**	**PS2967P**	**PS2968P**	—
	4-way	**PS2920P**	**PS2921P**	**PS2969P**	**PS2994P**
B5	3-way	**PS2866P**	**PS2867P**	**PS2868P**	—
	4-way	**PS2820P**	—	**PS2869P**	—
B6	3-way 4-way	**PS2620P**	—	—	—
B7-B8	4-way	**PS2520P**	—	**PS2569P**	—

Kit includes: (1) plate, (2) screws, seal / gaskets

DIN Rail Hardware Kit



Valve type	IEM bar	Part number
B3	(2) Screws, (2) Nuts, (2) Clamps	**PS2991P**

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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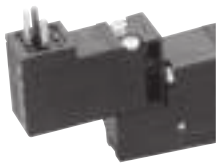
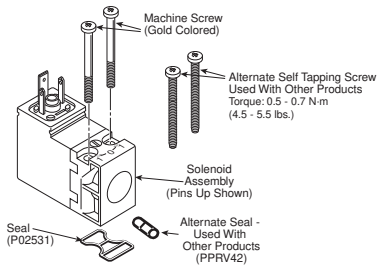
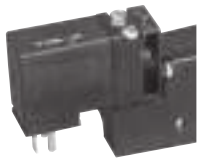
www.parker.com/pneumatics

Solenoid Kits – B3 'C', B5 'C', B6 'A', B7 'A', B8 'A' 3-Pin, EN175301-803 (Former DIN 43650C), 15mm



Standard





"02" Option

PS2982*##P – Enclosure '5'

Override *	## Voltage 42	45	47†	48†	49	53	57
B	O	O	–	–	S	S	O
C	O	O	–	–	S	S	O
D	–	–	O	O	O	O	–
E	–	–	O	O	O	O	–

S - Standard; O - Option

† Mobile voltage

Kit includes: Solenoid, (2) machine screws, (2) self threading screws, (1) gasket, (1) 3-cell gasket.

PS3541*##P – Enclosure '5 with "02" Option

Override *	## Voltage 42	45	49	53	57
B	O	O	S	S	O
C	O	O	S	S	O
D	–	–	O	O	–
E	–	–	O	O	–

Solenoid Kits Alternate Enclosures

P2FC A 4 49

Enclosures / lead length	
30mm square 3-pin – ISO 4400 form A (male only)	A
22mm rectangular 3-pin – type B industrial (male only)	B
Hazardous duty, FM / CSA	F*
Grommet - 18" leads	G
1/2" NPT conduit - 18" leads	H
Grommet 72" leads	Q
1/2" Conduit 72" leads	R

* Only available with voltage codes "45", "49", "53" & "57".

Voltage / frequency	
42	24VAC
45	12VDC
47*	12 VDC mobile
48*	24 VDC mobile
49	24VDC
53	120VAC
57	240VAC

* Only available with enclosures "A", "B" & "G".

Option A & E
30mm Square
3-pin ISO 4400, DIN 43650A

Option B
22mm Rectangular
3-pin DIN, Type B Industrial

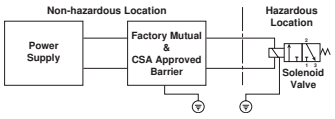
Option G & Q
Grommet, 18" or 72" Leads

Option F, H & R
1/2" Conduit, 18" or 72" Leads

Most popular.

Intrinsically Safe Solenoid Valves ("E" Option)

Hazardous Location Class:
Class I; Groups A, B, C & D
Class II; Groups E, F, & G
Class III; Div. I



For use in low voltage (24VDC) Intrinsically Safe applications.
NO OTHER VOLTAGE IS APPROVED. 1.6W coil.
36mm coil width.
Comes standard with non-lighted solenoid connector.
Must be connected to an FM approved Barrier.
For dimensions, reference standard solenoid models.
Maximum internally piloted valve pressure is 115 PSIG.
Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.

Intrinsically Safe Solenoid Pilot Assembly Kits

Description	Part number
24VDC	**P2FS13N1AE49**

Kit includes: coil, armature, connector, o-ring and screws.

Hazardous Duty Solenoid Valves ("F" Option)

Hazardous Location Class:
Class I; Zone I EX, M, II & T4
Class I; Div. I. Groups A, B, C, & D
Class II & III; Div. I. Groups E, F, & G

Comes standard with 1/2" conduit connection.
Voltage range = ± 10%, 4.6W
Ambient temperature range = -20°C (-4°F) to 60°C (140°F)
Duty factor = 100%
IP65 rated (with connected conduit connector)

Notes:

1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Factory Mutual requires connections per ISA RP 12.6 instructions.
3. CSA requires "Installation to be in accordance with the Canadian Electrical Code. Part I."
4. The hazardous duty coils are wider in size than both the B5 and the B6 valve. If mounted on a manifold, the valves need to be staggered to fit.

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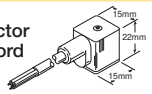
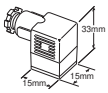
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

15mm 3-Pin DIN 43650C, 8mm Pin Spacing

Connector with cord





Connector only

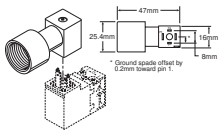
	Cord length	Connector	Connector with cord
Unlighted	18 Inches	**PS2932BP**	**PS2932HBP**
Unlighted	6 Feet	**PS2932BP**	**PS2932JBP**
Light – 12VAC or DC	6 Feet	**PS294675BP**	**PS2946J75BP***
Light – 24VAC or DC	6 Feet	**PS294679BP**	**PS2946J79BP***
Light – 110/120VAC	6 Feet	**PS294683BP**	**PS2946J83BP***
Light – 240/230VAC		**PS294687BP**	N/A

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground, polarity insensitive
Cable range (connector only): 4 to 6mm (0.16 To 0.24 Inch)
Contact spacing: 8mm

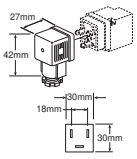
15mm 3-Pin DIN 43650C to 1/2" Conduit



Description	Connector
1/2" NPTF conduit – Unlighted with 3' (1m) leads 20 AWG wire	**PS2998P**

Note: Rated up to 250VAC or VDC; 6 amps
IP65 rated when properly installed.

30mm Square 3-Pin – ISO 4400, DIN 43650A
(Use with Enclosure "A")



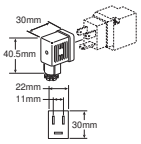
Description	Connector with 6' (2m) cord	Connector
Unlighted	**PS2028JCP**	**PS2028BP**
Light – 6-48V. 50/60Hz. 6-48VDC	**PS2032J79CP***	**PS203279BP**
Light – 120V/60Hz	**PS2032J83CP***	**PS203283BP**
Light – 240V/60Hz	N/A	**PS203283BP**

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground; cable range (connector only): 8 to 10mm (0.31 To 0.39 Inch); contact spacing: 18mm

22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure "B")



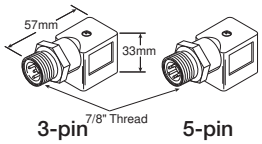
Description	Connector with 6' (2m) cord	Connector
Unlighted	**PS2429JBP**	**PS2429BP**
Light – 24V60Hz. 24VDC	**PS2430J79BP***	**PS243079BP**
Light – 120V/60Hz	**PS2430J83BP***	**PS243083BP**
Light – 240V/60Hz	N/A	**PS243087BP**

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering Data:
Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 6 to 8mm (0.24 to 0.31 Inch); Contact Spacing: 11mm

3-Pin / 5-Pin Male Automotive Connectors
(Use on 22mm Rectangular 3-Pin Solenoid)



Description	3-pin	5-pin
Unlighted	**PS2893CP**	**PS2893DP**
Lighted - Voltage	**PS2893C##P**	**PS2893D##P**

— 79 = 6 to 48VAC/VDC
83 = 100 to 240VAC/48 to 120 VDC

Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
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Solenoid Information (Solenoids are rated for continuous duty.)

Voltage				Enclosure "5"		Voltage				B5, B6, B7, B8 Enclosure "A"		B5, B6, B7, B8 Enclosure "B" to "R"	
	AC			Power	Holding		AC			Power	Holding	Power	Holding
Code	60Hz	50Hz	DC	Consumption	(Amps)	Code	60Hz	50Hz	DC	Consumption	(Amps)	Consumption	(Amps)
42	24	22		1.6VA	.065	42	24	22		3.9VA	.136	7.3VA	.309
45			12	1.2W	.098	45			12	2.6W	.208	4.6W	.365
47*			12	0.91W	.074	47*			12	—	—	4.9W	.298
48*			24	0.91W	.033	48*			24	—	—	4.8W	.142
49			24	1.2W	.049	49			24	2.7W	.112	4.8W	.200
53	120	110		1.6W	.013	53	120	110		4.1VA	.033	6.3VA	.047
57	240	230		1.6W	.007	57	240	230		3.7VA	.017	6.4VA	.026

Note: For enclosure "5" with "02" Option, solenoid wattage is 1.8W (2.4VA). Response time is 10% faster. Voltage rated +10 / -15%.
* 47 and 48 code are mobile voltages. voltage +25 / -30%.

Response Time (Sec)

		Enclosure "5"				Enclosure "A, B, C, D, G, H, Q & R"			
Valve	Port	0 Cu. In. Test Chamber		25* Cu. In. Test Chamber		0 Cu. In. Test Chamber		25* Cu. In. Test Chamber	
Size	Size	Fill	Exhaust	Fill	Exhaust	Fill	Exhaust	Fill	Exhaust
2-Position Single Solenoid / Internal Air Return									
B3	1/8"	.024	.026	.149	.242	—	—	—	—
B5	1/4"	.038	.040	.106	.156	.025	.026	.090	.142
B5*	3/8"	.039	.041	.150	.245	.025	.027	.141	.241
B6*	3/8"	.037	.038	.096	.132	.016	.018	.084	.119
B7	1/2"	.073	.075	.195	.275	.049	.051	.167	.249
B8	3/4"	.072	.074	.166	.226	.049	.051	.142	.206
2-Position Single Solenoid Spring / Air Return									
B3	1/8"	.019	.022	.128	.217	—	—	—	—
B5	1/4"	.039	.041	.108	.162	.024	.026	.091	.143
B5*	3/8"	.040	.042	.169	.261	.024	.026	.143	.240
B6*	3/8"	.035	.036	.096	.133	.023	.024	.083	.120
B7	1/2"	.071	.074	.194	.275	.049	.051	.167	.249
B8	3/4"	.072	.074	.176	.239	.046	.048	.142	.204
2-Position Double Solenoid									
B3	1/8"	.013	.015	.122	.213	—	—	—	—
B5	1/4"	.016	.018	.082	.132	.012	.014	.077	.128
B5*	3/8"	.016	.018	.129	.222	.016	.018	.128	.225
B6*	3/8"	.016	.017	.074	.110	.012	.013	.071	.107
B7	1/2"	.026	.028	.145	.228	.022	.024	.138	.225
B8	3/4"	.026	.028	.123	.185	.022	.024	.115	.178
3-Position Double Solenoid									
B3	1/8"	.021	.023	.091	.141	—	—	—	—
B5	1/4"	.022	.023	.091	.141	.011	.011	.079	.135
B5*	3/8"	.022	.024	.135	.229	.016	.019	.135	.234
B6*	3/8"	.024	.026	.094	.139	.016	.018	.084	.132
B7	1/2"	.049	.051	.167	.257	.028	.030	.148	.238
B8	3/4"	.035	.037	.136	.206	.028	.030	.130	.195

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 120V/60Hz solenoid. Times shown are average.

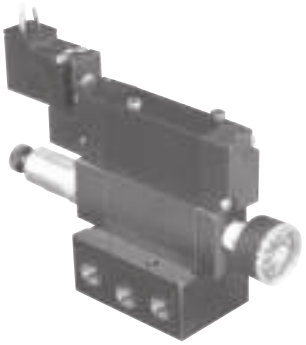
* For 3/8" ported, 50 cu. in. test chamber is used. For 1/2" & 3/4", a 200 cu. in. test chamber is used.

Sandwich Regulators

- Use with B3 subbase valves on 5-ported subbase bar manifolds.
- Common port or dual port regulation control.
- Unregulated pressure supplied to valve pilot - use pilot source - 'X'.
- Easy adjust knob control.

Pressure range	Cv	Common port with gauge *	Dual port without gauge
5-125 PSI	.33	**PS2930166P**	**PS2930233P**

* Gauge is 160 PSI. Gauge shipped unassembled. For different gauge mounting configuration, use brass adapters listed at bottom of page.



Brass Adapters for Gauge –

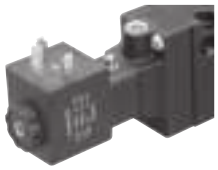
1/8" to 1/8" Female Coupling 207P-2
1/8" Male to Female Adapter 222P-2-2
1/8" to 1/8" 45° Female Elbow 2201P-2-2
1/8" to 1/8" 90° Female Elbow 2200P-2-2

Gauge 1" Face –

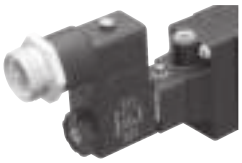
0-160 PSI PS4051160BP

Alternate Solenoid Enclosures

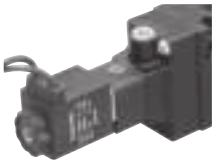
- Enclosure "A": 2.6W - 4.1VA (Coil rotates in 45° increments)
- Enclosure "B" - "R": 4.6W - 7.3VA (Coil rotates in 90° increments)



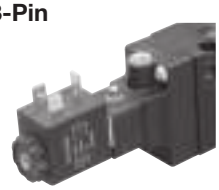
"A" 30mm 3-Pin



"C" 3-Pin Mini

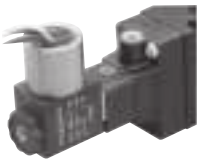


"G". "Q" Grommet



"B" 22mm 3-Pin

"D" 5-Pin Mini



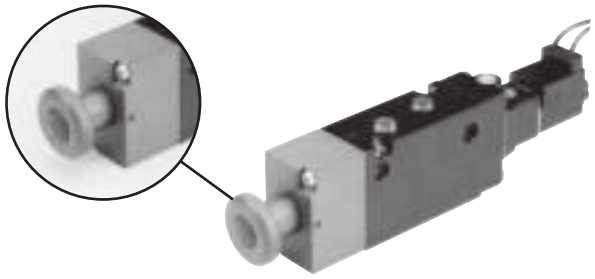
"F". "H". "R" 1/2" Conduit

Tube Fitting Remote Pilot

- "YY" Option
- 5/32" (4mm) Tube Fitting

B5 With Manual Detent

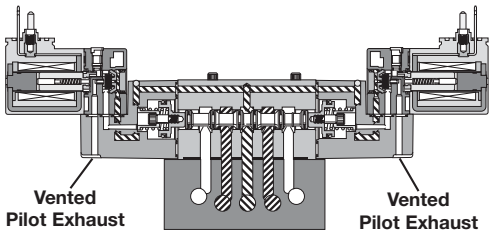
- Positive mechanical contact of the override knob assures actuation of valve, however, knob does not move during normal cycling.
- Hard coated override to resist harsh environments.
- Override return spring is stainless steel, for harsh environments.
- Heavy duty locking mechanism to maintain position.
- Use in combination with mobile voltages or valve less solenoid.



☐ **Most popular.**

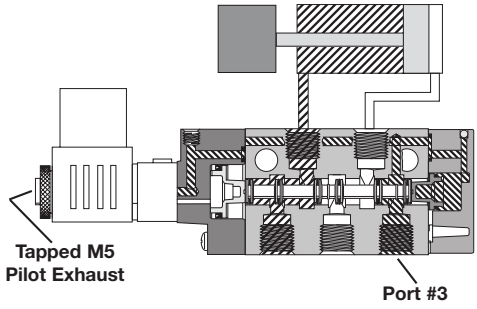
Pilot Configuration

B - Internal - Port #1 / Vented (B3 Shown)



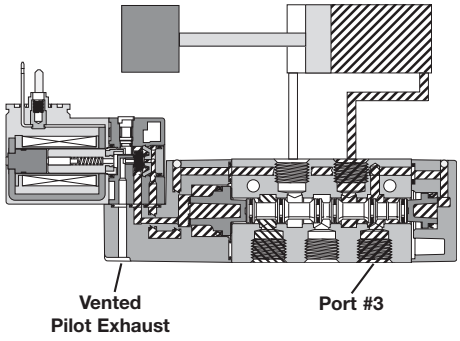
D - Dual Pressure - Port #3 / Tapped M5 (B5 Shown)

G - Dual Pressure - Port #5 / Tapped M5 (Similar)

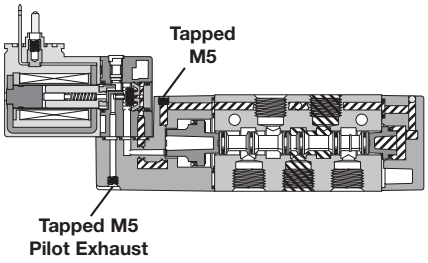


E - Dual Pressure - Port #3 / Vented (B3 Shown)

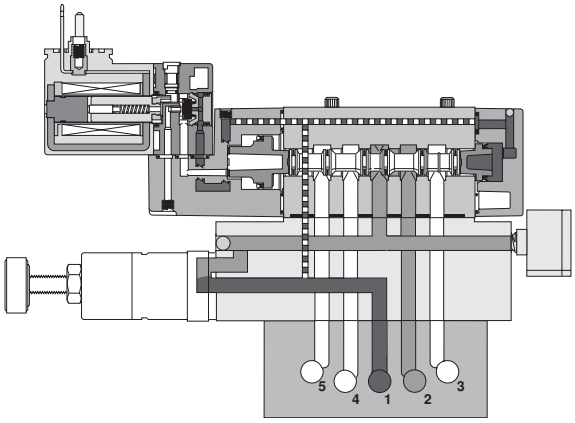
H - Dual Pressure - Port #5 / Vented (Similar)



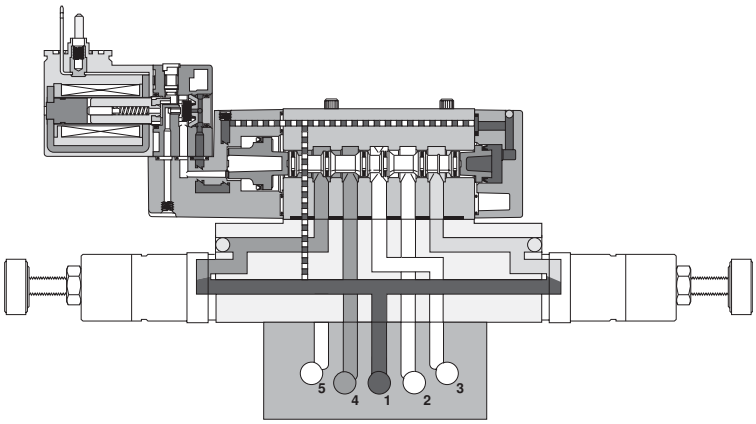
K - External - Body / Tapped M5 (B3 Shown)



Common Port



Dual Port



For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

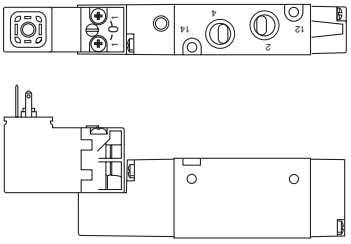
B3C Series

Spool / Body Service Kits

		Kit Includes:
PS2901CP	4-Way, 2-Pos	Item 15, 21 (2), 24, 25, 31 (2), grease packet
PS2902CP	4-Way, 3-Pos APB	Item 16, 21 (2), 31 (2), grease packet
PS2903CP	4-Way, 3-Pos CE	Item 16, 21 (2), 31 (2), grease packet
PS2904CP	4-Way, 3-Pos PC	Item 16, 21 (2), 31 (2), grease packet
PS2971CP	3-Way, 2-Pos	Item 15, 21 (2), 24, 25, 31 (2), grease packet

Valve to Manifold Kits

PS2980P	Gasket (10) - Inline 3-Way Valve to Segmented Manifold
PS2981P	Gasket (10) - Inline 4-Way Valve to Segmented Manifold
PS2984P	O-ring (10) - Inline Valve to IEM Bar Manifold
PS2986P	Gasket - Subbase Valve to Subbase Bar Manifold; Item 4 (10), 39 (10)
PS2987P	Mounting Bolts (10) - Inline Valve / Subbase Valve



Manifold to Manifold Kit

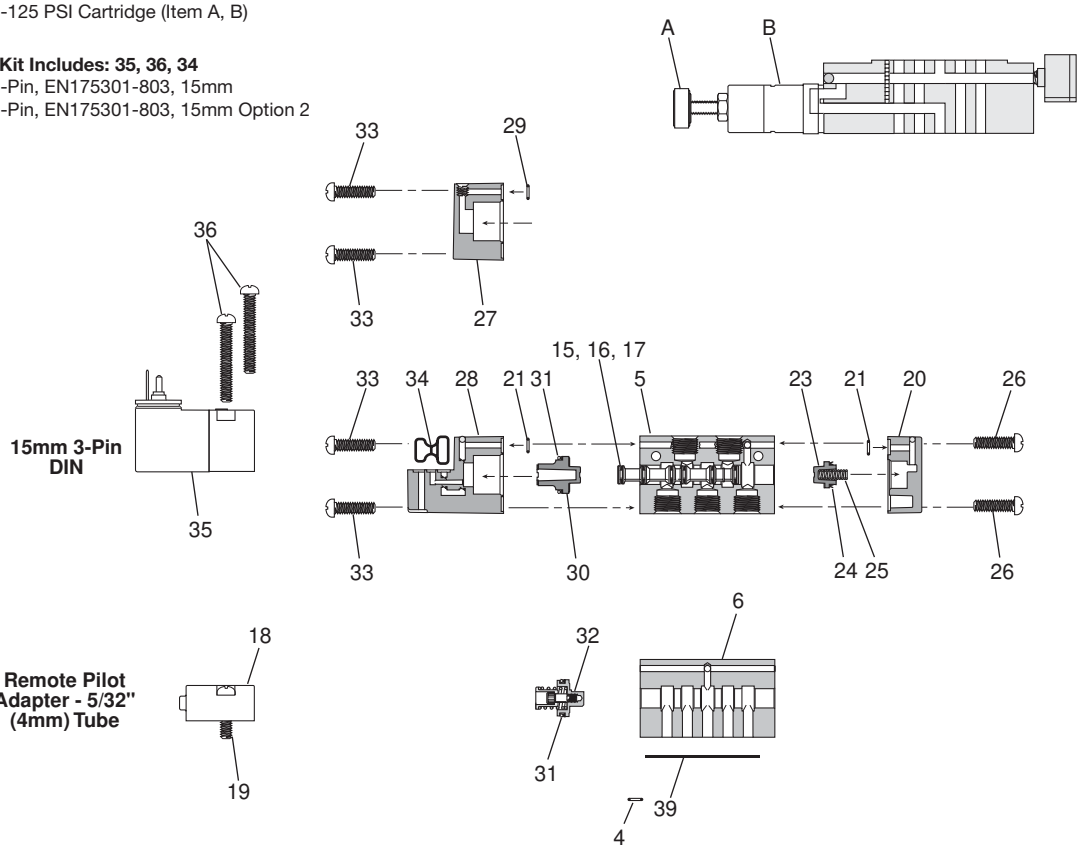
PS2996P	Gasket (10), Tie Rods (10) - 4-Way Manifold

Sandwich Regulator Cartridge Kit

PS299922P	2-60 PSI Cartridge (Item A, B)
PS299933P	5-125 PSI Cartridge (Item A, B)

Solenoid Kit **Kit Includes: 35, 36, 34**

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2



Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
4*	O-ring - Ext Pilot Valve to Manifold	23	Return Piston	31*	Lip Seal - Operator Piston
5	Inline Body - Tapped Ports	24*	Lip Seal - Return Piston	32	Operator Piston Mechanism - 3-Position
6	Subbase Body	25*	Spring, Return Assist	33	Screws - Operator Adapter
7	Inline Body - Tube Ports	26	Screws - Return Operator	34*	Gasket - Solenoid to Adapter
15*	Spool - 2-Position (Seals Assembled)	27	Remote Pilot Operator	35*	15mm Solenoid
16*	Spool - 3-Position (Seals Assembled)	28a	Solenoid Adapter - Vent Exhaust	36*	Self Tapping Screw - Solenoid (Effective May 99)
17*	Spool Seal	28b	Solenoid Adapter - Ext Pilot. Vent Exhaust		
18	Remote Pilot Adapter (PVAP111)	28c	Solenoid Adapter - Ext Pilot. Tapped Exhaust	36*	Machine Screw - Solenoid (Jan 96 - May 99)
19	Screw - Remote Pilot Adapter	28d	Solenoid Adapter - Tapped Exhaust	39*	Gasket - Subbase Valve to Base
20	Return Operator	29	O-ring - Remote Pilot	40*	Mounting Screws - Subbase Valve
21*	Gasket - Body to Operator	30	Operator Piston - 2-Position		

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

B5C Series

Spool / Body Service Kits

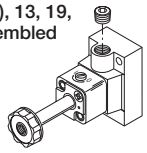
		Kit Includes:
PS2801*P	4-Way, 2-Pos	Item 2, 10 (2), 14, 15, 116, 6 (2), grease packet
PS2802*P	4-Way, 3-Pos APB	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2803*P	4-Way, 3-Pos CE	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2804*P	4-Way, 3-Pos PC	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2871*P	3-Way, 2-Pos NC	Item 2, 10 (2), 14, 15, 116, 6 (2), grease packet

* Fluorocarbon Seal Kit (i.e. PS2801VP)

Pilot Replacement Kit – Alternate Enclosure

Kit Includes: Item 6, 9, 10, 11, 17 (2), 18 (2), 13, 19, 20, 22, 23, 24 (2), 57, 58 Assembled

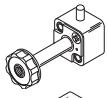
PS2897GBP	Non-Locking, BSPP
PS2897GCP	Locking, BSPP
PS2897NBP	Non-Locking, NPT
PS2897NCP	Locking, NPT



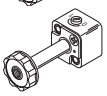
Armature / Override Kit

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

P2FP13N4D* Non-Locking



P2FP13N4C* Locking



* Comes with a Thru Nut and A Diffuser Nut.

Valve to Manifold Kits

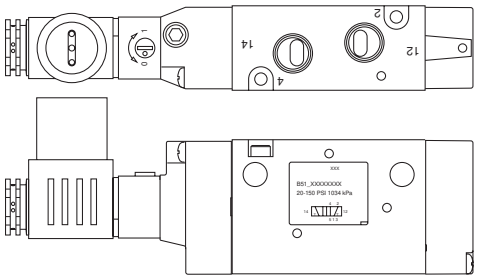
PS2884P	O-ring (10) - Inline Valve to IEM Manifold (All)
PS2886P	Gasket (10) - Subbase Valve to Subbase
PS2887P	Mounting Bolts (10) - Inline & Subbase Valve

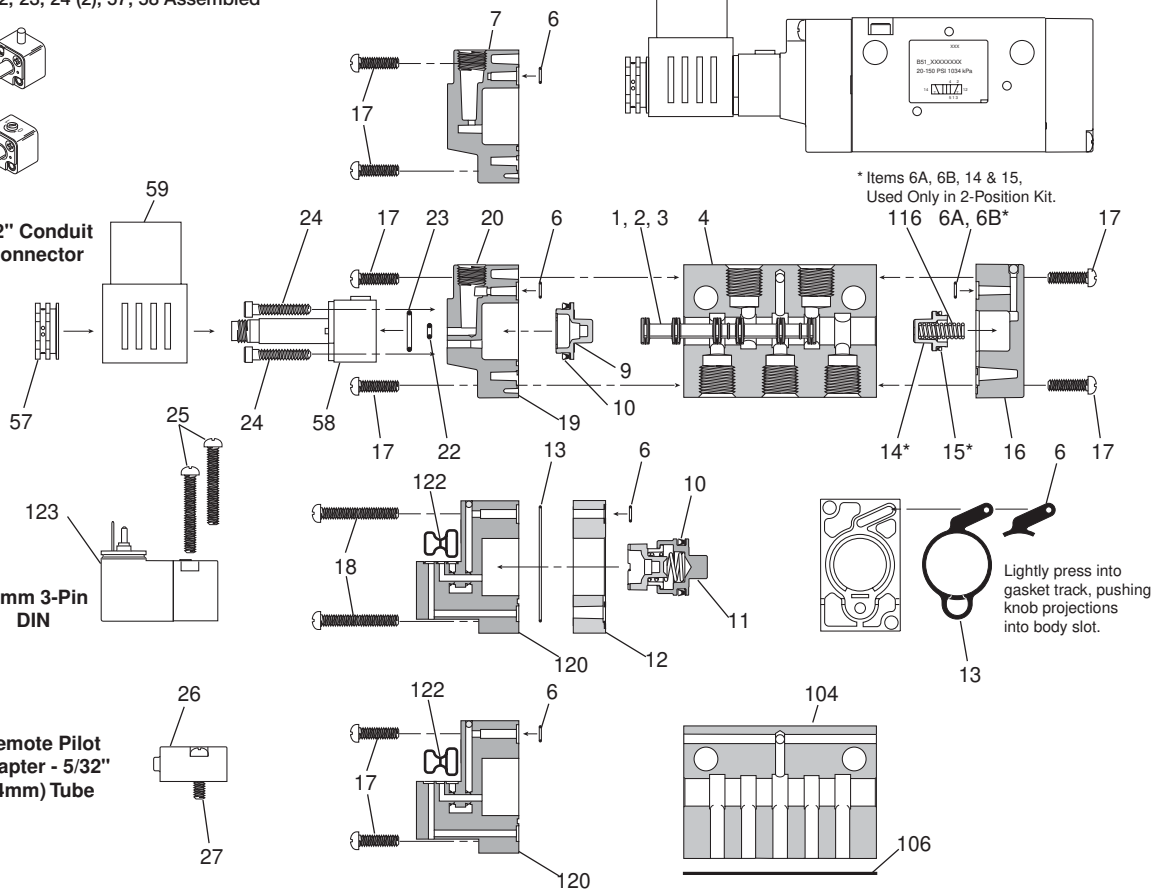
Manifold to Manifold Kit

PS2896P	Gasket (10), Tie Rods (10) - 4-Way Manifold

Solenoid Kit *Kit Includes: 25, 122, 123*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2





Item List – Parts not sold separately.

Item	Description
1*	Spool Seal
2*	Spool - 2-Position (Seals Assembled)
3*	Spool - 3-Position (Seals Assembled)
4	Inline Body
6A*	Gasket - Body to Operator
6B	O-ring - Body to Operator (Effective July 2007)
7	Remote Pilot Operator
9	Operator Piston - 2-Position
10*	Lip Seal - Operator Piston
11	Operator Piston Mechanism - 3-Position
12	Adapter - 3-Position
13*	Gasket - 3-Position Adapter to Body
14	Return Piston
15*	Lip Seal - Return Piston
16	Return Operator
17*	Screws - Operator Adapter - 2-Position
18*	Screws - Operator Adapter - 3-Position
19*	Operator Adapter - Alt Enclosure
20*	1/8" NPT Pipe Plug
22*	O-ring - Small - Solenoid Base
23*	O-ring - Large - Solenoid Base
24*	Bolts - Solenoid Base
25a*	Self Tapping Screw - Solenoid (Effective May 99)
25b*	Machine Screw - Solenoid (Jan 96 - May 99)
26	Remote Pilot Adapter - 5/32" Tube (PVAP111)
27	Screws - Remote Pilot Adapter
57*	Solenoid Nut
58a*	Solenoid Base Assembly - Locking
58b*	Solenoid Base Assembly - Non Locking
59*	Coil - Alternate Enclosure (see Page C51)
104	Subbase Body
106*	Gasket - Subbase Valve to Base
116*	Spring, Return Assist
120a	Solenoid Adapter - Vent Exhaust
120b	Solenoid Adapter - Tapped Exhaust
120d	Solenoid Adapter - Ext Pilot. Vent Exhaust
120e	Solenoid Adapter - Ext Pilot. Tapped Exhaust
122*	Gasket - Solenoid to Adapter
123*	15mm Solenoid

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

For inventory, lead time, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

B6A Series

Spool / Body Service Kits

		Kit Includes:
PS2601P	4-Way, 2-Pos	Item 2, 6 (2), 9 (2), 11, 14, grease packet
PS2602P	4-Way, 3-Pos APB	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2603P	4-Way, 3-Pos CE	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2604P	4-Way, 3-Pos PC	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS267101P	3-Way, 2-Pos. NC	Item 2, 6, 9, 14, grease packet
PS267102P	3-Way, 2-Pos. NO	Item 2, 6, 9, 14, grease packet

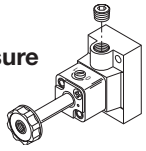
Valve to Manifold Kits

PS2684P	O-ring (10) - Inline Valve to IEM Manifold
PS2887P	Mounting Bolts (10) - Inline Valve

Pilot Replacement Kit – Alternate Enclosure

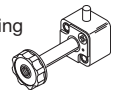
Kit Includes: Item 6, 8, 9, 10, 16 (2), 17 (2), 18, 13, 20, 22, 23, 24 (2), 57, 58 Assembled

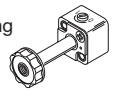
PS2897GBP	Non-Locking, BSPP
PS2897GCP	Locking, BSPP
PS2897NBP	Non-Locking, NPT
PS2897NCP	Locking, NPT



Armature / Override Kit –

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

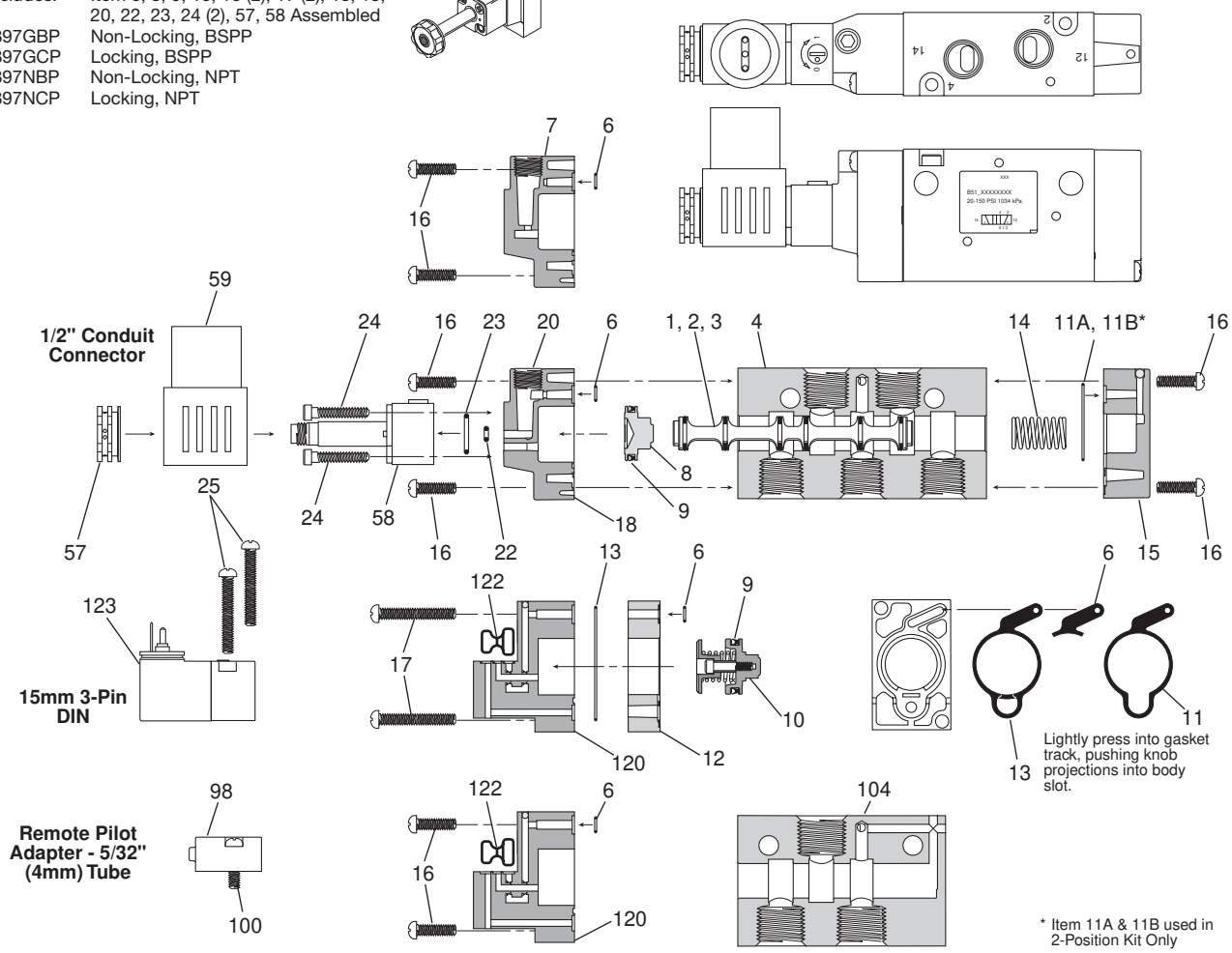
P2FP13N4D* Non-Locking 

P2FP13N4C* Locking 

* Comes with a Thru Nut and A Diffuser Nut.

Solenoid Kit *Kit Includes: 25, 122, 123*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2



Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	14*	Spring, Return Assist	58a*	Solenoid Base Assembly - Locking
2*	Spool - 2-Position (Seals Assembled)	15a	Return Operator	58b*	Solenoid Base Assembly - Non Locking
3*	Spool - 3-Position (Seals Assembled)	15b	Return Operator - CSA Option	59*	Coil - Alternate Enclosure (see Page C51)
4	Inline Body - 4-Way	16*	Screws - Operator Adapter - 2-Position	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
6*	Gasket - Body to Operator	17*	Screws - Operator Adapter - 3-Position	100	Screws - Remote Pilot Adapter
7	Remote Pilot Operator	18*	Operator Adapter - Alt Enclosure	104	Inline Body - 3-Way
8	Operator Piston - 2-Position	20*	1/8" NPT Pipe Plug	120a	Solenoid Adapter - Vent Exhaust
9*	Lip Seal - Operator Piston	22*	O-ring - Small - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
10	Operator Piston Mechanism - 3-Position	23*	O-ring - Large - Solenoid Base	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
11A*	Gasket - Body to Return Cap	24*	Bolts - Solenoid Base	120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
11B*	O-ring - Body to Operator (Effective Feb. 2008)	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	122*	Gasket - Solenoid to Adapter
12	Adapter - 3-Position	57*	Solenoid Nut	123*	15mm Solenoid
13	Gasket - 3-Position Adapter to Body				

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

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B7A / B8A Series

Spool / Body Service Kits

		Kit Includes:
PS2501P	4-Way, 2-Pos	Item 2, 6 (2), 9 (2), 11, grease packet
PS2502P	4-Way, 3-Pos APB	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2503P	4-Way, 3-Pos CE	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2504P	4-Way, 3-Pos PC	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS257101P	3-Way, 2-Pos. NC	Item 2, 6, 9, grease packet
PS257102P	3-Way, 2-Pos. NO	Item 2, 6, 9, grease packet

Valve to Manifold Kits

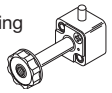
PS2584P	O-ring (10) - Inline Valve to IEM Manifold
PS2587P	Mounting Bolts (10) - Inline Valve

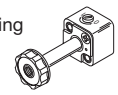
Pilot Replacement Kit – Alternate Enclosure

Kit Includes:	Item 6, 8, 9, 10, 16 (4), 18, 20, 22, 23, 24 (2), 57, 58 Assembled
PS2597GBP	Non-Locking, BSPP
PS2597GCP	Locking, BSPP
PS2597NBP	Non-Locking, NPT
PS2597NCP	Locking, NPT

Armature / Override Kit –

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

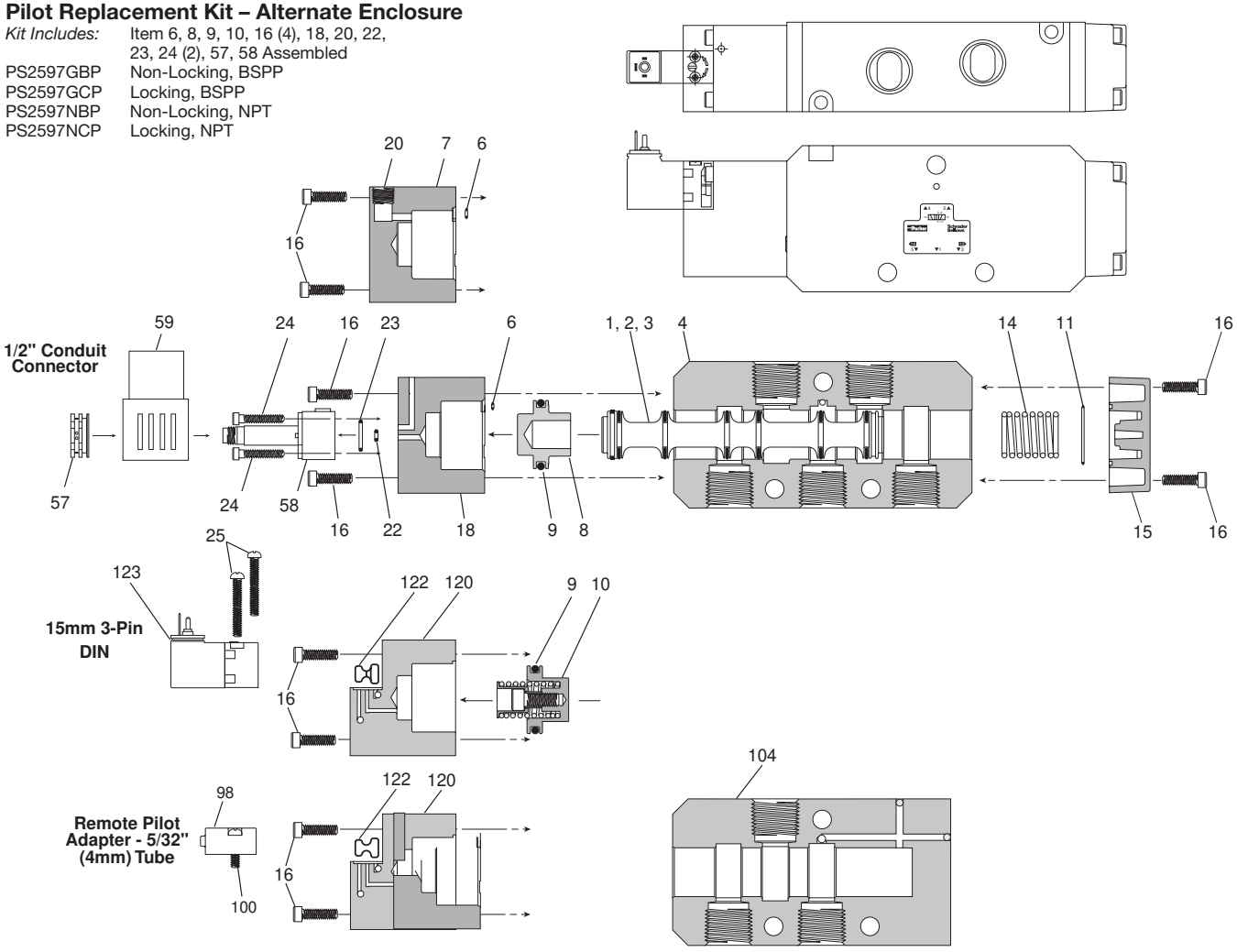
P2FP13N4D* Non-Locking 

P2FP13N4C* Locking 

* Comes with a Thru Nut and A Diffuser Nut.

Solenoid Kit *Kit Includes: 25, 122, 123*

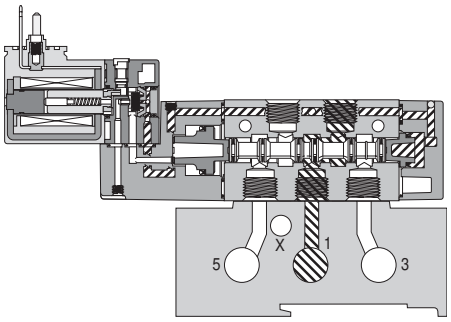
PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2



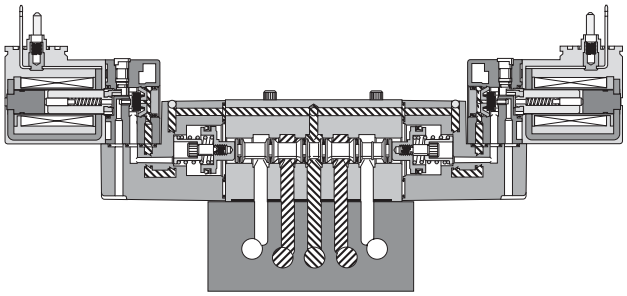
Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	15a	Return Operator	58b*	Solenoid Base Assembly - Non Locking
2*	Spool - 2-Position (Seals Assembled)	16*	Screws - Operator Adapter	59*	Coil - Alternate Enclosure (see Page C51)
3*	Spool - 3-Position (Seals Assembled)	8*	Operator Adapter - Alt Enclosure	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
4	Inline Body - 4-Way	20*	1/8" NPT Pipe Plug	100	Screws - Remote Pilot Adapter
6*	Gasket - Body to Operator	22*	O-ring - Small - Solenoid Base	104	Inline Body - 3-Way
7	Remote Pilot Operator	23*	O-ring - Large - Solenoid Base	120a	Solenoid Adapter - Vent Exhaust
8	Operator Piston - 2-Position	24*	Bolts - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
9*	Lip Seal - Operator Piston	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
10	Operator Piston Mechanism - 3-Position			120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
11*	Gasket - Body to Return Cap	57*	Solenoid Nut	122*	Gasket - Solenoid to Adapter
14*	Spring, Return Assist	58a*	Solenoid Base Assembly - Locking	123*	15mm Solenoid

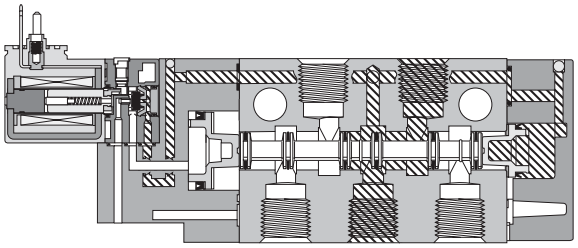
Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.



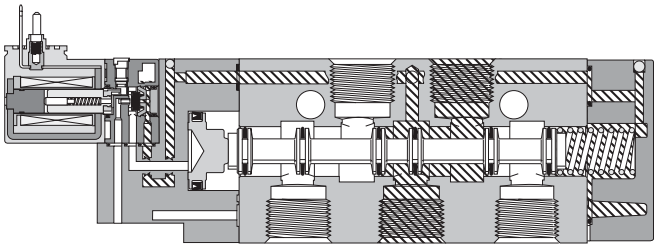
B3 Single Solenoid IEM Aluminum Bar Manifold
Shown De-Energized



B3 Double Solenoid 3-Position Subbase Mounted
Shown De-Energized



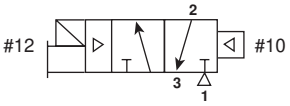
B5 Single Solenoid Inline - Air Return
Shown De-Energized



B6, B7 & B8 Single Solenoid Inline -
Spring / Air Return
Shown De-Energized

Pressure **Exhaust**

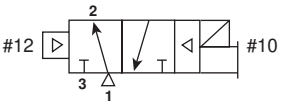
Single Solenoid 3-Way, 2-Position NC (NNP)



Normally Closed:
De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single Solenoid 3-Way, 2-Position NO (NP)



Normally Open:
De-energized position – Solenoid #10 de-energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

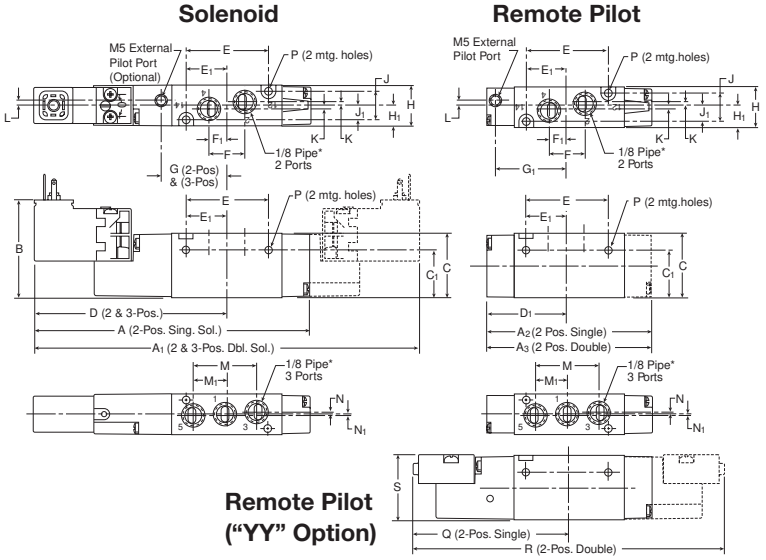
Energized position – Solenoid #10 energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

3-Way Configuration

B6, B7, B8:
Looking at the #1 and #3 ports, the solenoid (or remote operator) is always on the #3 port end. Different spools are used for NO and NC functions.

B3, B5:
Looking at the #1 and #3 ports, the solenoid (or remote operator) is on the #3 port end for NC and the #1 port end for NO. The same spool is used for both.

B3 Single & Double Operators – 4-way Inline

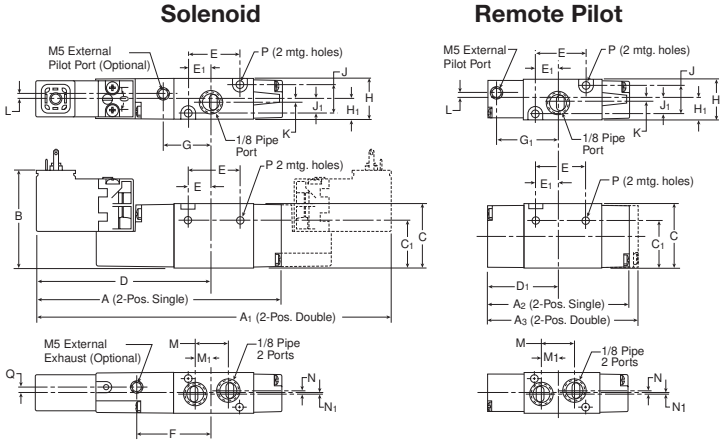


B3 4-way Inline

A	A1	A2	A3	B
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	1.66 (42)
C	**C1**	**D**	**D1**	**E**
1.13 (39)	.84 (21)	3.22 (82)	1.66 (42)	1.47 (37)
E1	**F**	**F1**	**G**	**G1**
.74 (19)	.63 (16)	.32 (8)	1.13 (29)	1.50 (38)
H	**H1**	**J**	**J1**	**K**
.71 (18)	.36 (9)	.51 (13)	.26 (7)	.06 (2)
L	**M**	**M1**	**N**	**N1**
.11 (3)	1.12 (28)	.56 (14)	.05 (1)	.05 (1)
P	**Q**	**R**	**S**	
Ø .13 Ø (3.3)	2.69 (68)	5.37 (136)	1.16 (29)	

Inches (mm)

B3 Single & Double Operators – 3-way Inline

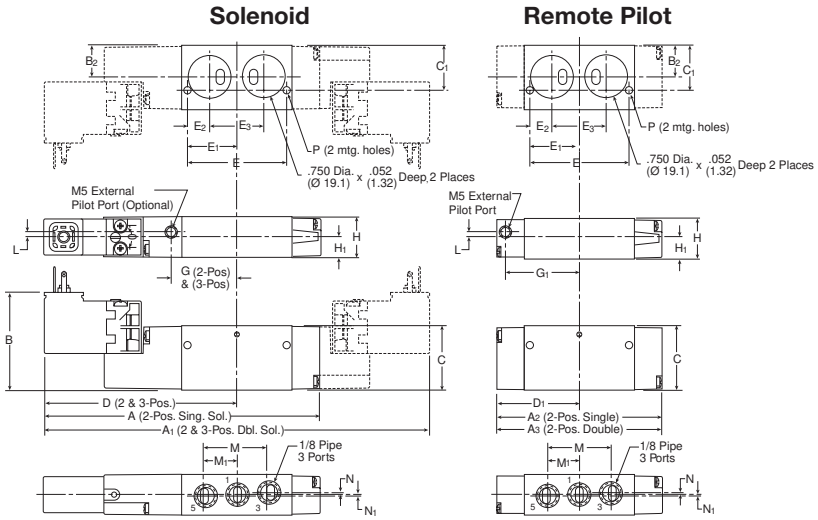


B3 3-way Inline

A	A1	A2	A3	B
4.20 (107)	5.96 (151)	2.65 (67)	2.86 (73)	1.66 (42)
C	**C1**	**D**	**D1**	**E**
1.13 (39)	.84 (21)	2.93 (74)	1.38 (35)	.98 (25)
E1	**F**	**G**	**G1**	**H**
.44 (11)	1.32 (34)	.85 (22)	1.22 (31)	.71 (18)
H1	**J**	**J1**	**K**	**L**
.36 (9)	.51 (13)	.26 (7)	.06 (2)	.11 (3)
M	**M1**	**N**	**N1**	**P**
.63 (16)	.27 (7)	.12 (3)	.06 (2)	Ø .13 Ø (3.3)
Q				
.08 (2)				

Inches (mm)

B3 Single & Double Operators – 4-way Face Mount



B3 4-way Face Mount

A	A1	A2	A3	B
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	1.66 (42)
B2	**C**	**C1**	**D**	**D1**
.58 (15)	1.13 (29)	.81 (21)	3.22 (82)	1.66 (42)
E	**E1**	**E2**	**E3**	**G**
1.74 (44)	.87 (22)	.39 (10)	.95 (24)	1.13 (29)
G1	**H**	**H1**	**L**	**M**
1.50 (38)	.71 (18)	.36 (9)	.11 (3)	1.12 (28)
M1	**N**	**N1**	**P**	
.56 (14)	.05 (1)	.05 (1)	Ø .13 Ø (3.3)	

Inches (mm)

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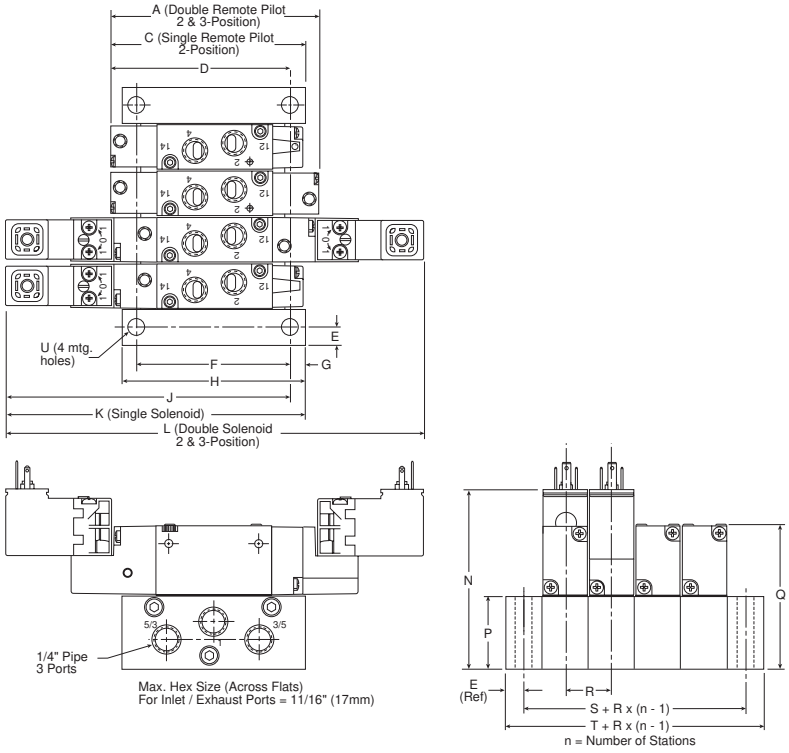
B3 Single & Double Operators – 4-way IEM Stackable

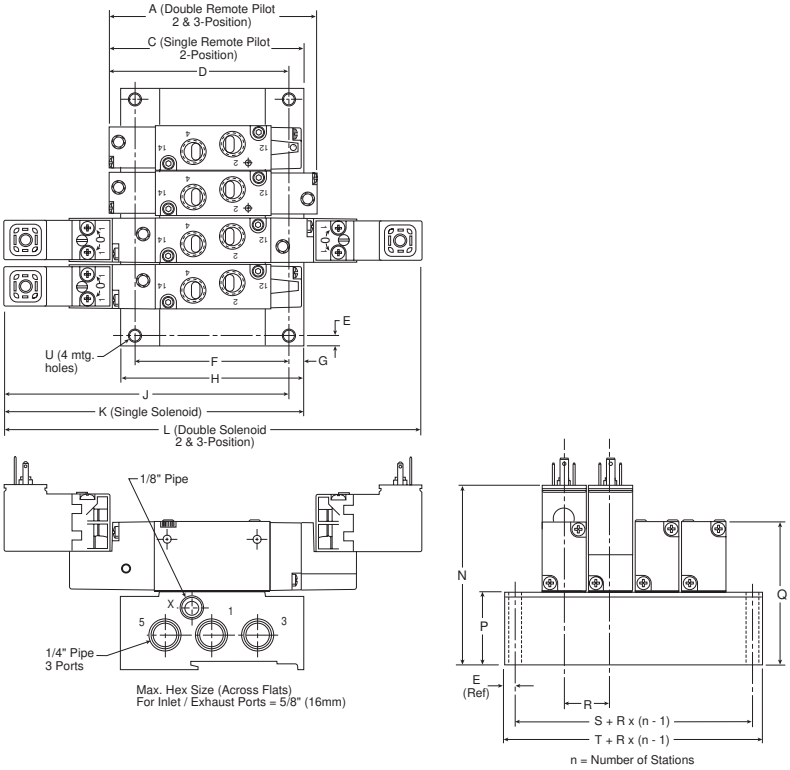


B3 4-way IEM Stackable

A	C	D	E	F
3.33 (84.6)	3.12 (79.2)	2.91 (73.9)	.30 (7.6)	2.49 (63.3)
G	**H**	**J**	**K**	**L**
.25 (6.4)	3.00 (76.2)	4.46 (113.3)	4.67 (118.6)	6.43 (163.3)
N	**P**	**Q**	**R**	
2.91 (73.9)	1.25 (31.8)	2.38 (60.5)	.74 ±.01 (18.8) ± .3	
S	**T**	**U**		
1.34 (34.0)	1.94 (49.3)	Ø .28 Ø (7.1)		

Inches (mm)

B3 Single & Double Operators – 4-way IEM Aluminum Bar



B3 4-way IEM Aluminum Bar Manifold

A	C	D	E	F
3.33 (84.6)	3.17 (80.5)	2.94 (74.7)	.25 (6.4)	2.54 (64.5)
G	**H**	**J**	**K**	**L**
.23 (5.9)	3.00 (76.2)	4.50 (114.2)	4.73 (120.1)	6.43 (163.3)
N	**P**	**Q**	**R**	**S**
2.94 (74.7)	1.28 (32.5)	2.41 (61.2)	.81 (20.5)	1.13 (28.8)
T	**U**			
1.64 (41.6)	Ø .23 Ø (5.8)			

Inches (mm)

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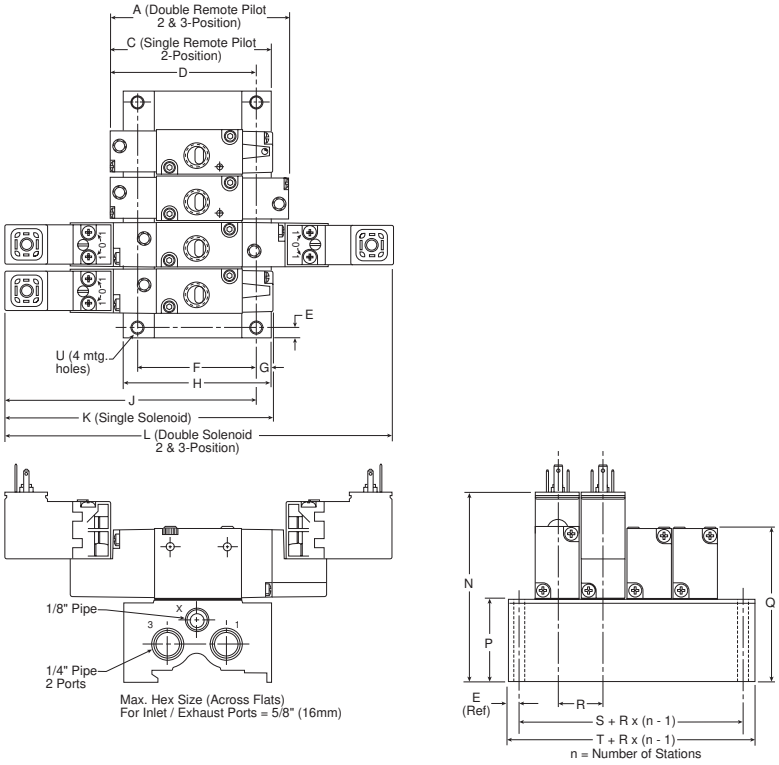
B3 Single & Double Operators – 3-way IEM Aluminum Bar



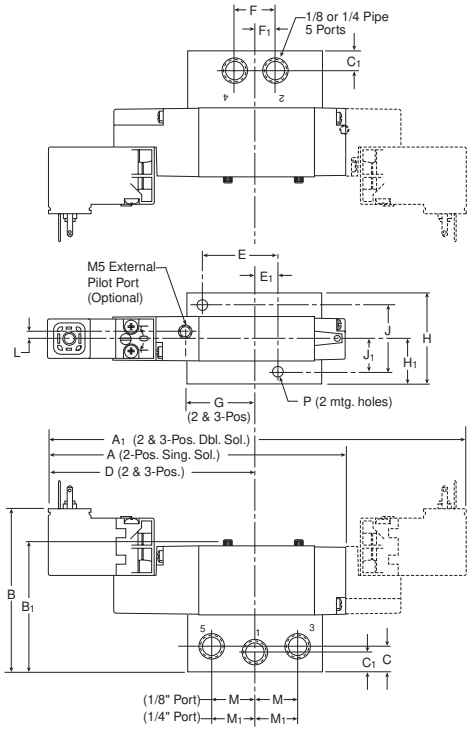
B3 4-way IEM Aluminum Bar Manifold

A	C	D	E	F
2.86 (72.6)	2.65 (67.3)	2.33 (59.2)	.25 (6.4)	1.80 (45.7)
G	**H**	**J**	**K**	**L**
.23 (5.9)	2.25 (57.2)	3.88 (98.6)	4.20 (106.7)	5.96 (151.4)
N	**P**	**Q**	**R**	**S**
2.93 (74.5)	1.27 (32.4)	2.40 (61.1)	.81 (20.5)	1.13 (28.8)
T	**U**			
1.64 (41.6)	Ø .23 Ø (5.8)			

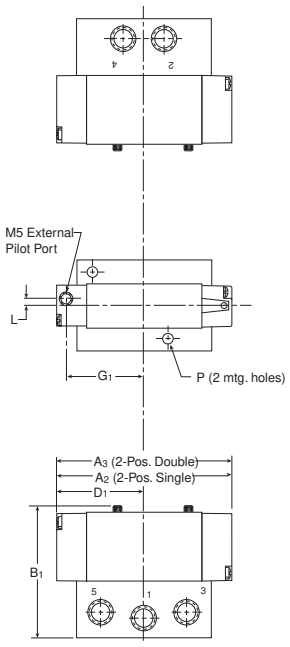
Inches (mm)

B3 Single & Double Operators – 4-way Single Subbase

Solenoid



Remote Pilot



B3 4-way Single Subbase

A	A1	A2	A3	B
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	2.63 (67)
B1	**C**	**C1**	**D**	**D1**
2.21 (56)	.47 (12)	.37 (9)	3.22 (82)	1.66 (42)
E	**E1**	**F**	**F1**	**G**
1.25 (32)	.38 (10)	.69 (18)	.34 (9)	1.13 (29)
G1	**H**	**H1**	**J**	**J1**
1.50 (38)	1.50 (38)	.75 (19)	1.12 (28)	.56 (14)
L	**M**	**M1**	**P**	
.11 (3)	.71 (18)	.76 (19)	Ø .18 Ø (4)	

Inches (mm)

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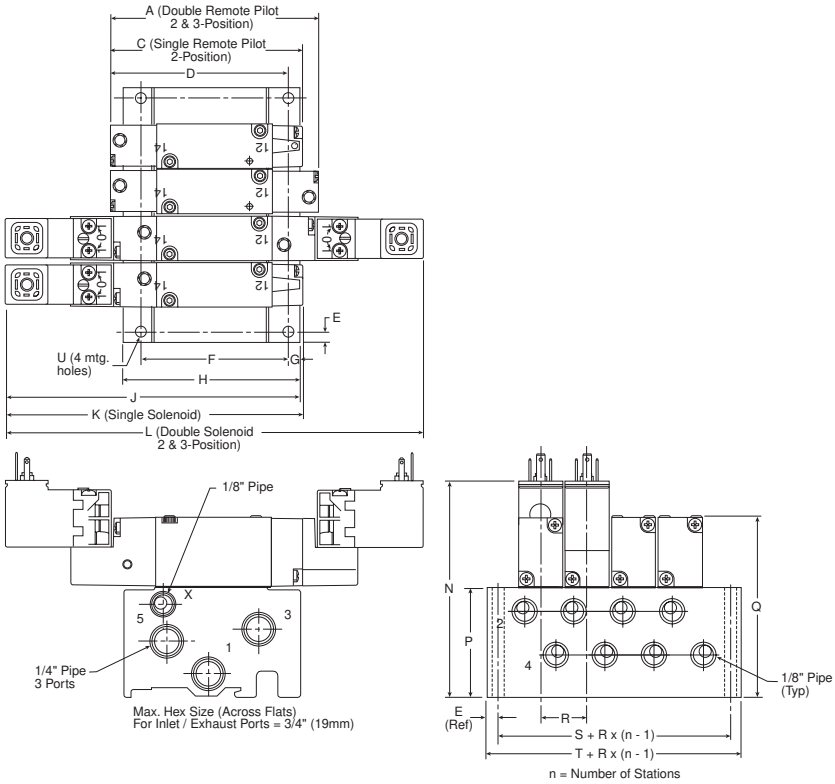
B3 Single & Double Operators – 5-port Subbase Bar Manifold

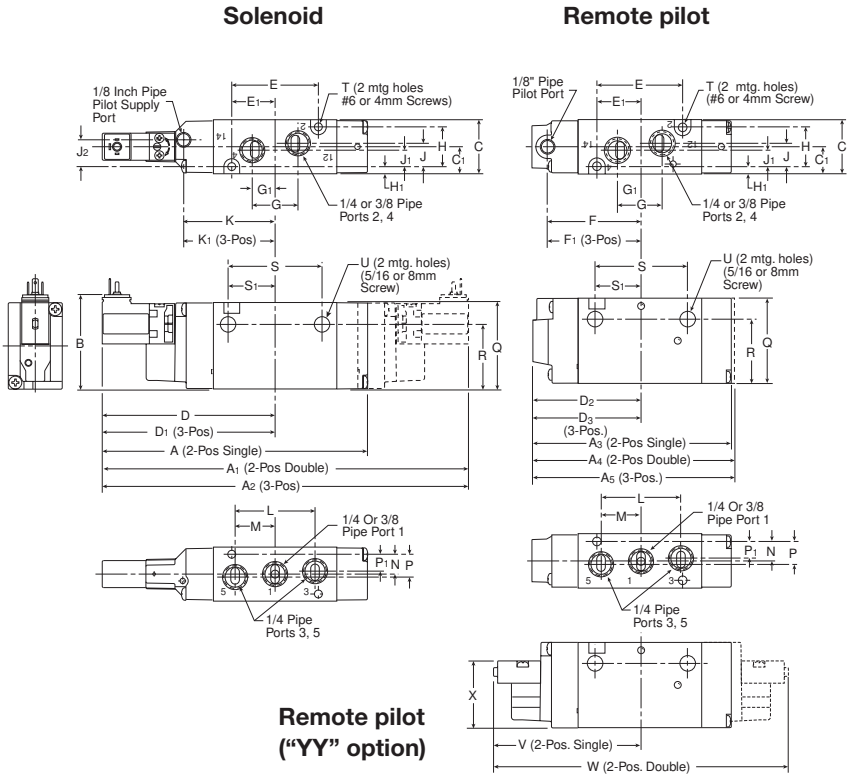


B3 5-port Subbase Bar Manifold

A	C	D	E	F
3.33 (84.6)	3.12 (79.2)	2.88 (73.2)	.25 (6.3)	2.43 (61.7)
G	**H**	**J**	**K**	**L**
.22 (5.5)	2.93 (74.5)	4.66 (118.3)	4.67 (118.6)	6.43 (166.3)
N	**P**	**Q**	**R**	**S**
3.47 (88.2)	1.81 (46.0)	2.94 (74.7)	.81 (20.5)	1.39 (35.4)
T	**U**			
1.89 (48.0)	Ø .22 Ø (5.6)			

Inches (mm)

B5 Single & Double Operators – 4-way Inline



B5 4-way Inline

A	A1	A2	A3	A4
5.78 (147)	7.51 (191)	8.45 (215)	4.37 (110)	4.70 (119)
A5	**B**	**C**	**C1**	**D**
5.64 (143)	2.06 (52)	1.18 (30)	.59 (15)	3.76 (96)
D1	**D2**	**D3**	**E**	**E1**
4.23 (107)	2.35 (60)	2.82 (72)	1.89 (48)	.95 (24)
F	**F1**	**G**	**G1**	**H**
2.01 (51)	2.47 (63)	1.00 (25)	.50 (13)	.87 (22)
H1	**J**	**J1**	**J**	**K**
.16 (4)	.51 (13)	.36 (9)	.58 (15)	2.00 (51)
K1	**L**	**M**	**N**	**P**
2.47 (63)	1.75 (44)	.88 (22)	.43 (48)	.50 (13)
P1	**Q**	**R**	**S**	**S1**
.37 (92)	1.89 (48)	1.41 (36)	2.05 (52)	1.03 (26)
T	**U**	**V**	**W**	**X**
Ø .177 Ø (4.5)	Ø .34 Ø (9)	3.24 (82)	6.48 (165)	1.50 (383)

Inches (mm)

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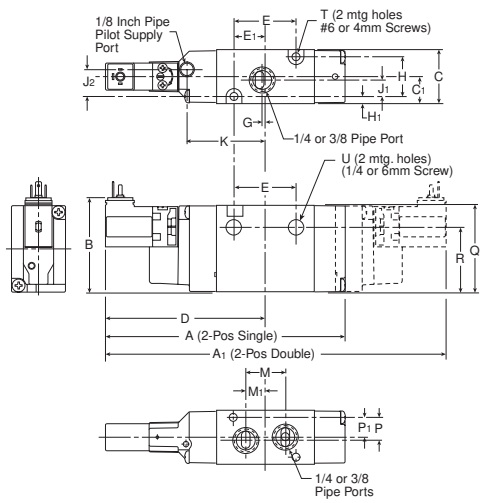
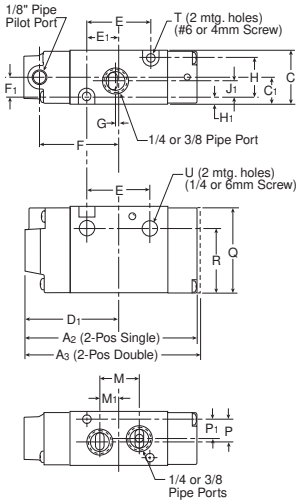
B5 Single & Double Operators – 3-way Inline

Solenoid



Remote pilot



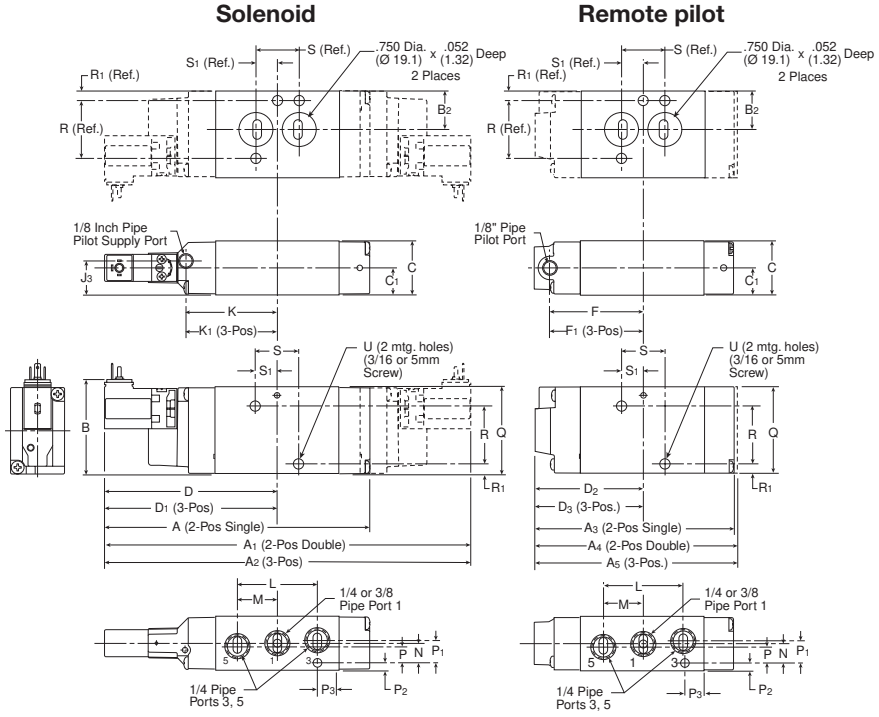
B5 3-way Inline

A	A1	A2	A3	B
5.29 (134)	7.03 (179)	3.88 (99)	4.21 (107)	2.06 (52)
C	**C1**	**D**	**D1**	**E**
1.18 (30)	.59 (15)	3.43 (87)	2.11 (54)	1.40 (36)
E1	**F**	**F1**	**G**	**H**
.70 (18)	1.77 (45)	.43 (11)	.06 (2)	.87 (22)
H1	**J1**	**J2**	**K**	**M**
.16 (4)	.36 (9)	.58 (15)	1.67 (42)	.88 (22)
M1	**P**	**P1**	**Q**	**R**
.44 (11)	.50 (13)	.37 (9)	1.89 (48)	1.41 (36)
T	**U**			
Ø .177 Ø (4.5)	Ø .26 Ø (6.6)			

Inches (mm)

B5 Single & Double Operators – 4-way NAMUR Mount

Solenoid



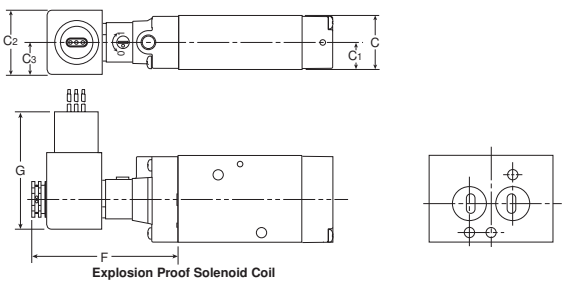
Remote pilot

B5 4-way NAMUR Mount

A	A1	A2	A3	A4
5.78 (147)	7.51 (191)	8.45 (215)	4.37 (110)	4.70 (119)
A5	**B**	**B2**	**C**	**C1**
5.64 (143)	2.06 (52)	.84 (21)	1.18 (30)	.59 (15)
D	**D1**	**D2**	**D3**	**F**
3.76 (96)	4.23 (107)	2.35 (60)	2.82 (72)	2.01 (51)
F1	**J3**	**K**	**K1**	**L**
2.47 (63)	.74 (19)	2.00 (51)	2.47 (63)	1.75 (44)
M	**N**	**P**	**P1**	**P2**
.88 (22)	.44 (11)	.37 (9.4)	.50 (13)	.16 (4)
P3	**Q**	**R**	**R1**	**S**
.40 (10)	1.89 (48)	1.26 (32)	.21 (5)	.94 (24)
S1	**U**			
.47 (12)	Ø .224 Ø (5.7)			

Inches (mm)

B5 Alternative Electrical Enclosure Option F



Explosion Proof Solenoid Coil

B5 4-way NAMUR Mount with Option F Enclosure

C	C1	C2	C3	F
1.18 (30)	.59 (15)	1.42 (36)	.71 (18)	3.15 (80)
G				
2.60 (66)				

Inches (mm)

For inventory, lead time, and kit lookup, visit www.pdnplu.com

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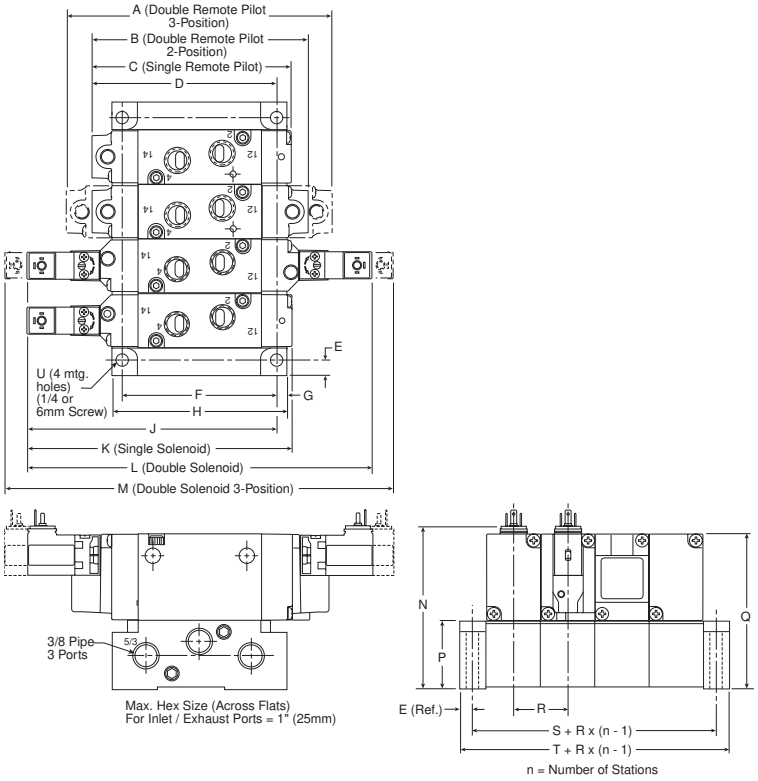
B5 Single & Double Operators – 4-way IEM Stackable

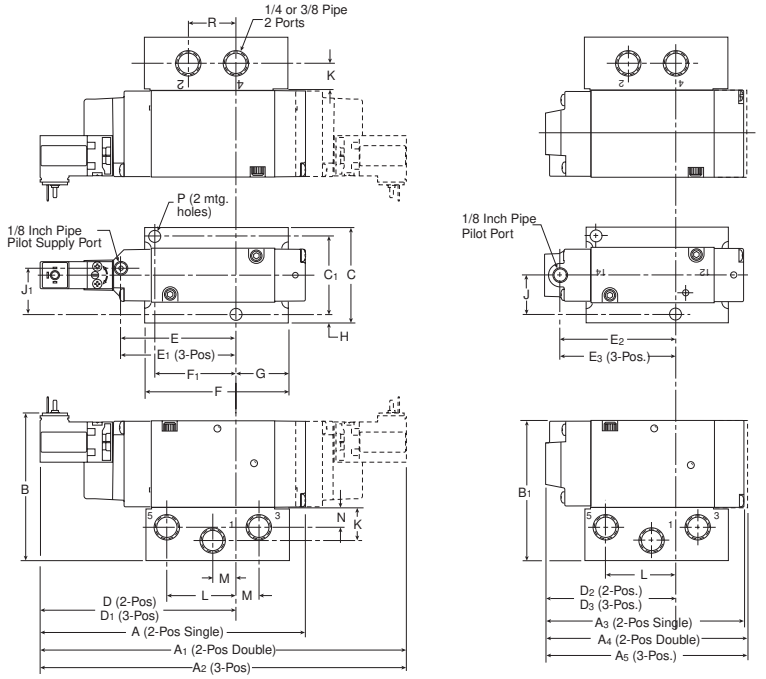


B5 4-way IEM Stackable

A	B	C	D	E
5.64 (143.3)	4.70 (119.4)	4.37 (110.0)	4.29 (109.0)	.29 (7.4)
F	**G**	**H**	**J**	**K**
3.44 (87.4)	.24 (6.1)	3.92 (99.6)	5.48 (139.2)	5.78 (146.8)
L	**M**	**N**	**P**	**Q**
7.52 (191.0)	8.46 (214.9)	3.56 (90.4)	1.50 (38.1)	3.42 (86.9)
R		**S**	**T**	**U**
1.21 ± .01 (30.7) ± (.3)		1.79 (45.5)	2.37 (60.2)	Ø .28 Ø (7.1)

Inches (mm)

B5 Single & Double Operators – 4-way Single Subbase



B5 4-way Subbase

A	A_1	A_2	A_3	A_4
5.78 (147)	7.52 (191)	8.46 (215)	4.37 (110)	4.70 (119)
A_5	B	B_1	C	C_1
5.64 (143)	3.21 (82)	3.03 (77)	2.12 (54)	1.69 (43)
D	D_1	D_2	D_3	E
4.26 (108)	4.73 (120)	2.85 (72)	3.32 (40)	2.51 (65)
E_1	E_2	E_3	F	F_1
2.98 (76)	2.60 (66)	3.07 (80)	2.90 (74)	1.69 (43)
G	H	J	J_1	K
.95 (24)	.22 (5)	.84 (21)	.99 (25)	.71 (18)
L	M	N	P	R
1.50 (38)	.50 (13)	.46 (12)	Ø .27 Ø (7)	1.00 (25)

Inches (mm)

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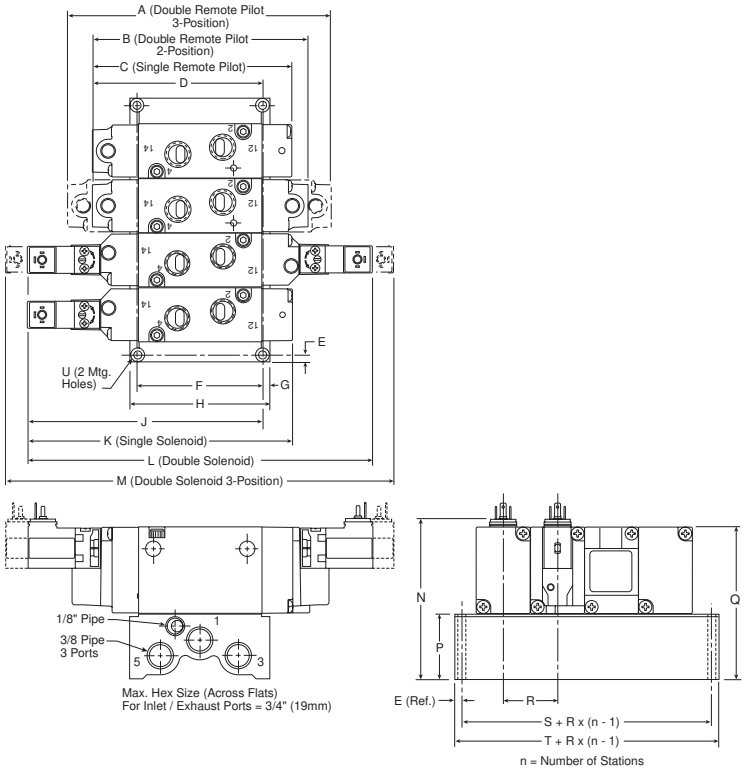
B5 Single & Double Operators – 4-way IEM Aluminum Bar

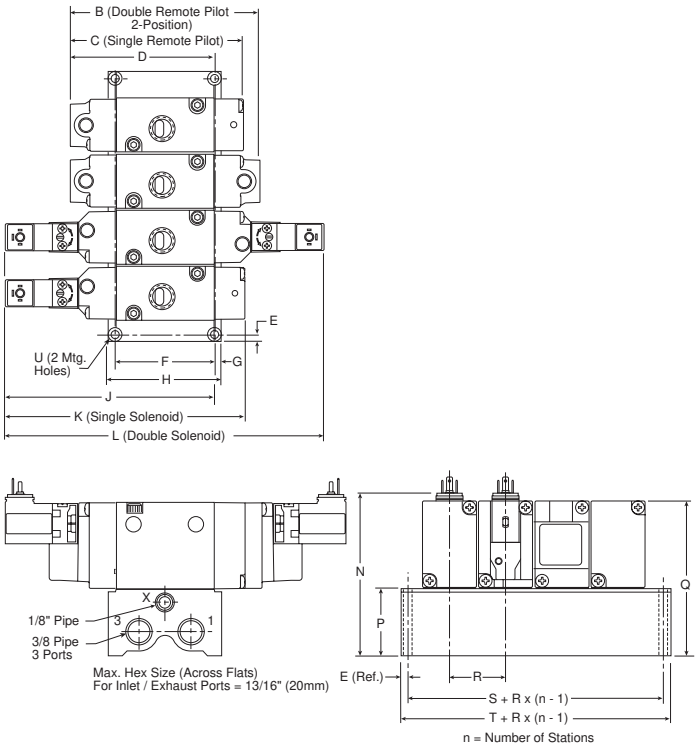


B5 4-way IEM Aluminum Bar Manifold

A	B	C	D	E
5.64 (143.3)	4.70 (119.4)	4.37 (110.0)	3.74 (95.0)	.18 (4.6)
F	**G**	**H**	**J**	**K**
2.78 (70.6)	.17 (4.3)	3.12 (79.2)	5.15 (130.8)	5.78 (146.8)
L	**M**	**N**	**P**	**Q**
7.52 (191.0)	8.46 (214.9)	3.50 (89.0)	1.44 (36.6)	3.36 (85.3)
R	**S**	**T**	**U**	
1.26 (32.0)	1.78 (45.2)	2.14 (54.4)	Ø .22 Ø (5.5)	

Inches (mm)

B5 Single & Double Operators – 3-way IEM Aluminum Bar



B5 3-way IEM Aluminum Bar Manifold

B	C	D	E	F
4.21 (106.9)	3.88 (98.6)	3.41 (86.6)	.18 (4.6)	2.12 (53.8)
G	**H**	**J**	**K**	**L**
.17 (4.3)	2.46 (62.5)	4.82 (122.4)	5.29 (134.4)	7.03 (178.6)
N	**P**	**Q**	**R**	**S**
3.50 (89.0)	1.44 (36.6)	3.36 (85.3)	1.26 (32.0)	1.76 (44.7)
T	**U**			
2.12 (53.8)	Ø .18 Ø (4.6)			

Inches (mm)

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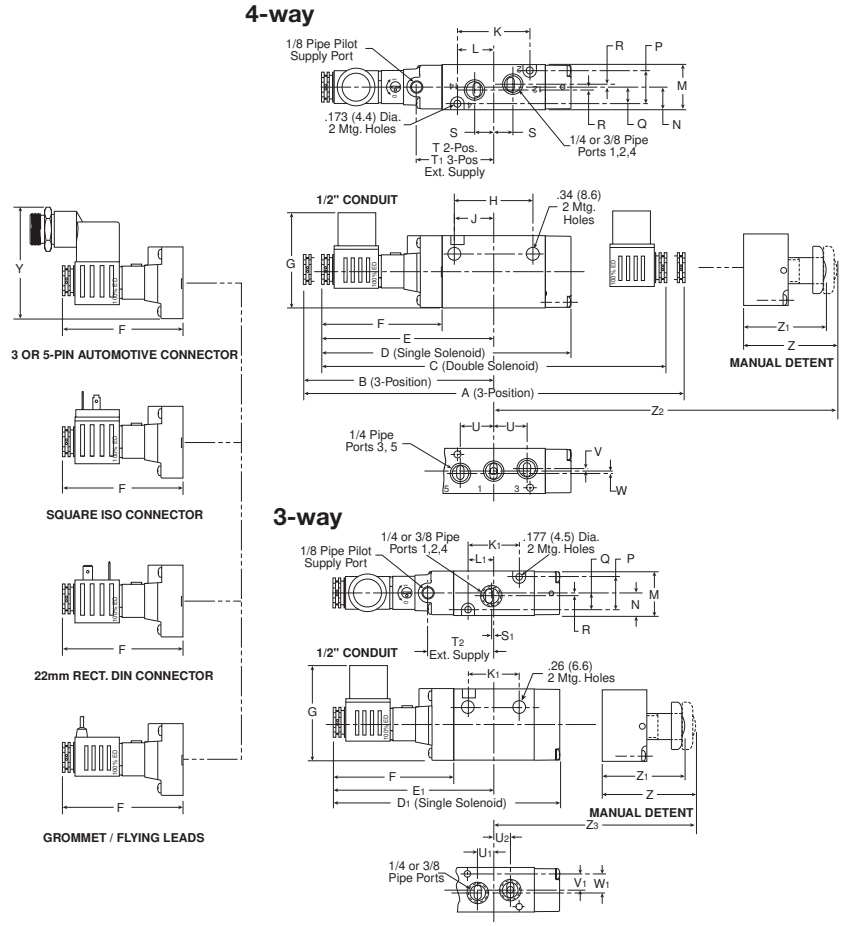
B5 3 & 4-way Alternative Electrical Enclosures

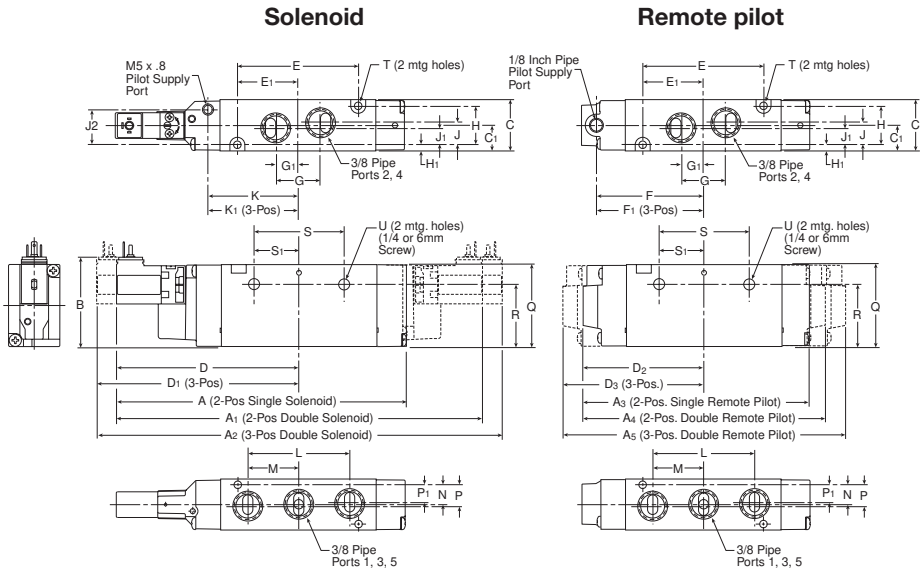


B5 Alternative – Electrical Enclosures

A	A1	B	C	D
9.94 (252.5)	.872 (221.4)	4.97 (126.2)	9.00 (228.6)	6.52 (165.6)
D1	**E**	**E1**	**F**	**G**
6.02 (152.9)	4.50 (114.3)	4.26 (108.1)	3.15 (80.0)	2.47 (62.8)
H	**J**	**K**	**K1**	**L**
2.05 (52.1)	1.03 (26.2)	1.89 (48.0)	1.40 (35.5)	.95 (24.1)
L1	**M**	**N**	**P**	**Q**
.70 (17.8)	1.18 (30.0)	.59 (15.0)	.87 (22.1)	.43 (10.9)
R	**S**	**S1**	**T**	**T1**
.08 (2.0)	.50 (12.7)	.06 (1.5)	2.01 (51.1)	2.47 (62.7)
T2	**U**	**U1**	**U2**	**V**
1.76 (44.8)	.87 (22.1)	.43 (10.9)	.45 (11.3)	.06 (1.5)
V1	**W**	**W1**	**Y**	**Z**
.37 (9.3)	.07 (1.8)	.50 (13)	2.90 (73.6)	2.40 (60.9)
Z1	**Z2**	**Z3**		
2.12 (53.8)	3.75 (95.2)	4.17 (105.8)		

Inches (mm)

B6 Single & Double Operators – 4-way Inline



B6 4-way Inline

A	A1	A2	A3	A4
6.67 (169.5)	8.41 (213.7)	9.35 (237.6)	5.26 (133.7)	5.59 (142.1)
A5	**B**	**C**	**C1**	**D**
6.54 (166)	2.06 (52)	1.18 (30.0)	.59 (15)	4.21 (106.8)
D1	**D2**	**D3**	**E**	**E1**
4.68 (118.8)	2.80 (71)	3.27 (83.0)	2.79 (70.8)	1.39 (35.4)
F	**F1**	**G**	**G1**	**H**
2.45 (62.3)	2.92 (74.3)	1.03 (26.1)	.51 (13.1)	.91 (23)
H1	**J**	**J1**	**J2**	**K**
.14 (3.5)	.51 (13.1)	.39 (10)	.81 (20.6)	2.09 (53)
K1	**L**	**M**	**N**	**P**
2.56 (64.9)	2.34 (59.4)	1.17 (29.7)	.45 (11.5)	.49 (12.5)
P1	**Q**	**R**	**S**	**S1**
.41 (10.5)	1.89 (48)	1.45 (36.8)	2.09 (53)	1.04 (26.5)
T	**U**			
Ø .17 Ø (4.4)	Ø .27 Ø (6.9)			

Inches (mm)

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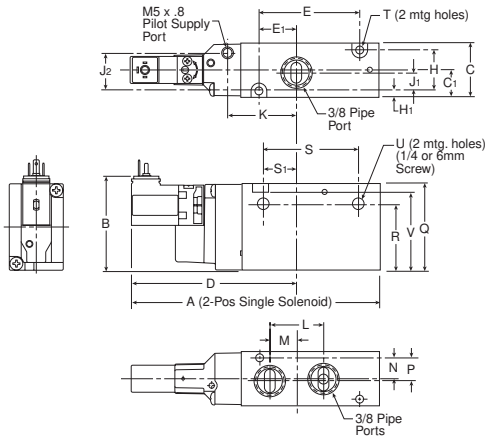
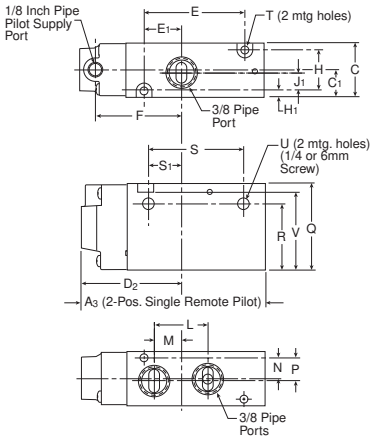
B6 Single Operators – 3-way Inline

Solenoid



Remote Pilot



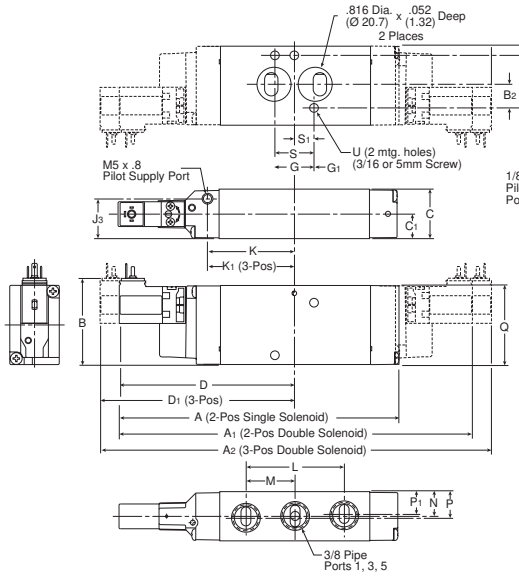
B6 3-way Inline

A	A3	B	C	C1
5.42 (137.7)	4.01 (101.9)	2.06 (52)	1.18 (30.0)	.59 (15.0)
D	**D2**	**E**	**E1**	**F**
3.63 (92.1)	2.22 (56.3)	2.19 (55.6)	0.82 (20.7)	1.87 (47.6)
H	**H1**	**J1**	**J2**	**K**
.91 (23.0)	.14 (3.5)	.39 (10.0)	.81 (20.6)	1.51 (38.3)
L	**M**	**N**	**P**	**Q**
1.17 (29.7)	.59 (15.0)	.45 (11.5)	.49 (12.5)	1.89 (48.0)
R	**S**	**S1**	**T**	**U**
1.45 (36.8)	2.09 (53.0)	0.76 (19.4)	Ø .17 Ø (4.4)	Ø .27 Ø (6.9)
V				
1.69 (43.0)				

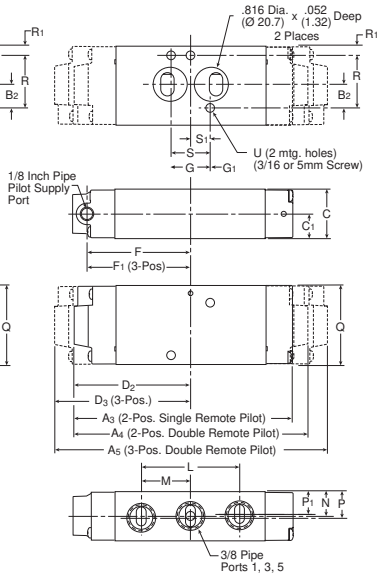
Inches (mm)

B6 Single & Double Operators – 4-way NAMUR Mount

Solenoid



Remote pilot

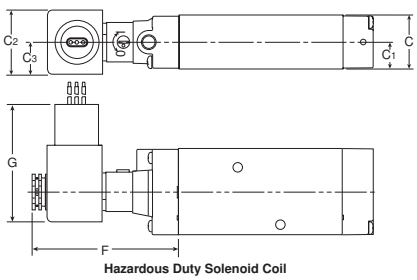


B6 4-way NAMUR Mount

A	A1	A2	A3	A4
6.67 (169.5)	8.41 (213.7)	9.35 (237.6)	5.26 (133.7)	5.59 (142.1)
A5	**B**	**B2**	**C**	**C1**
6.54 (166.0)	2.06 (52)	.57 (14.4)	1.18 (30.0)	.59 (15)
D	**D1**	**D2**	**D3**	**F**
4.21 (106.8)	4.68 (118.8)	2.80 (71.0)	3.27 (83.0)	2.45 (62.3)
F1	**G**	**G1**	**J3**	**K**
2.92 (74.3)	.95 (24.2)	.02 (0.53)	.95 24.1)	2.09 (53.0)
K1	**L**	**M**	**N**	**P**
2.56 (64.9)	2.34 (59.4)	1.17 (29.7)	.59 (15)	.63 (16)
P1	**Q**	**R**	**R1**	**S**
.55 (14)	1.89 (48.0)	1.26 (32)	.22 (5.5)	.94 (24)
S1	**T**	**U**		
.47 (12)	Ø .17 Ø (4.4)	Ø .27 Ø (6.9)		

Inches (mm)

B6 Alternative Electrical Enclosure Option F



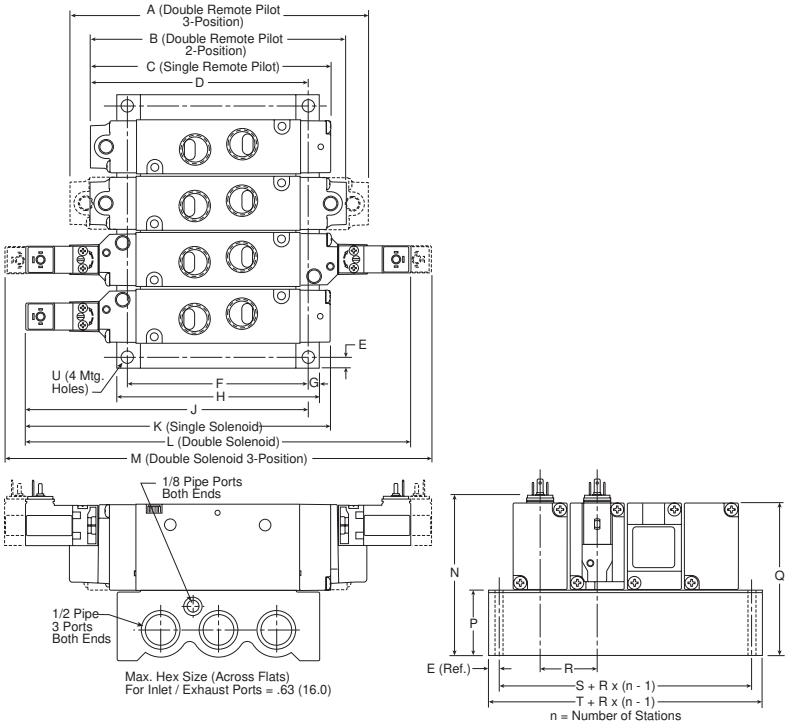
Hazardous Duty Solenoid Coil

B6 4-way NAMUR Mount with Option F Enclosure

C	C1	C2	C3	F
1.18 (30)	.59 (15)	1.42 (36)	.71 (18)	3.15 (80)
G				
2.60 (66)				

Inches (mm)

B6 Single & Double Operators – 4-way IEM Aluminum Bar

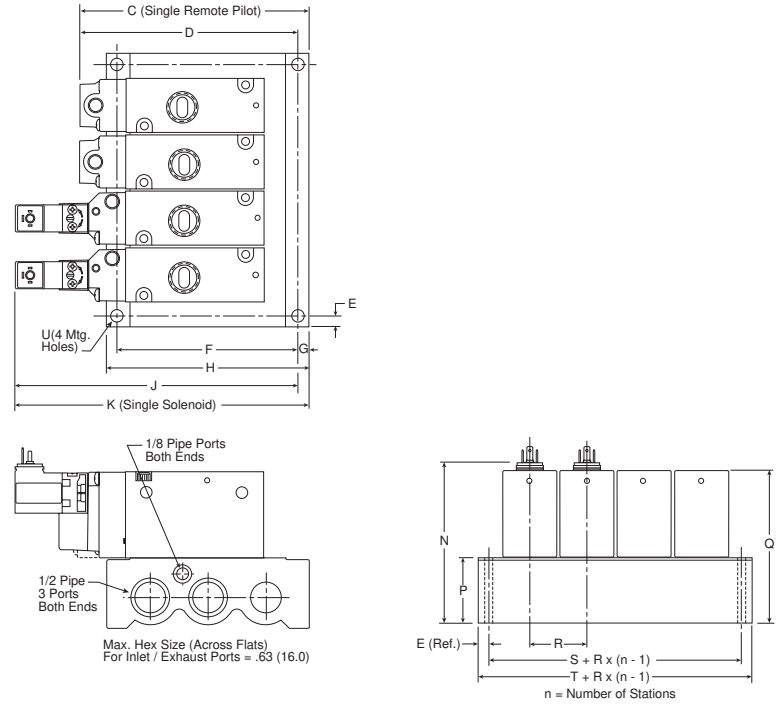


B6 4-way IEM Aluminum Bar Manifold

A	B	C	D	E
6.54 (166.0)	5.59 (142.1)	5.26 (133.7)	4.76 (121.0)	.24 (6.0)
F	**G**	**H**	**J**	**K**
3.94 (100.0)	.24 (6.0)	4.41 (112.0)	6.17 (156.8)	6.67 (169.5)
L	**M**	**N**	**P**	**Q**
8.41 (213.7)	9.35 (237.6)	3.60 (91.3)	1.54 (39.0)	3.43 (87.0)
R	**S**	**T**	**U**	
1.24 (31.5)	1.77 (45.0)	2.24 (57.0)	ø .26 ø (6.5)	

Inches (mm)

B6 Single Operators – 3-way IEM Aluminum Bar



B6 3-way IEM Aluminum Bar Manifold

C	D	E	F	G
5.00 (127.0)	4.76 (121.0)	.24 (6.0)	3.94 (100.0)	.24 (6.0)
H	**J**	**K**	**N**	**P**
4.41 (112.0)	6.17 (156.8)	6.41 (162.8)	3.60 (91.3)	1.54 (39.0)
Q	**R**	**S**	**T**	**U**
3.43 (87.0)	1.24 (31.5)	1.77 (45.0)	2.24 (57.0)	Ø .26 Ø (6.5)

Inches (mm)

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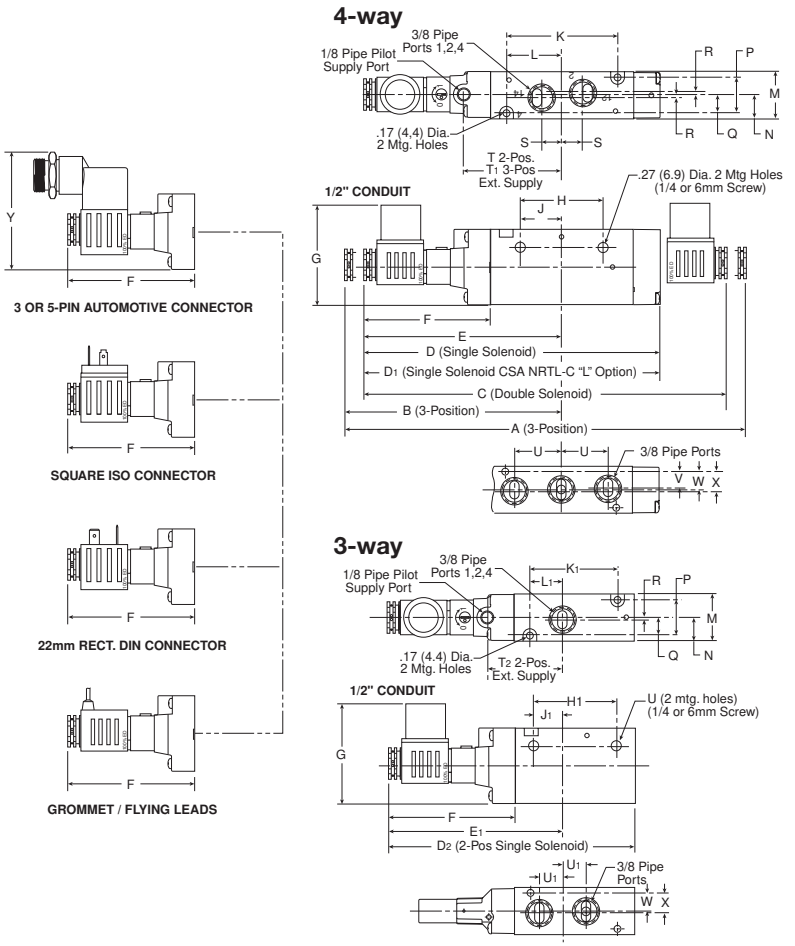
B6 3 & 4-way Alternative Electrical Enclosures

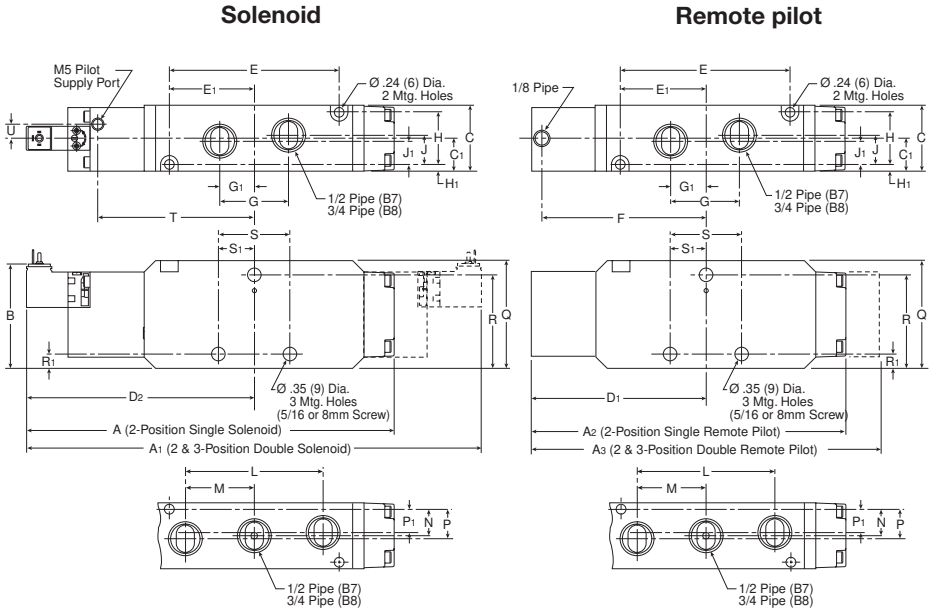


B6 Alternative – Electrical Enclosures

A	B	C	D	D1
10.84 (275.3)	5.41 (137.5)	9.89 (251.3)	7.41 (188.2)	7.74 (196.6)
D2	**E**	**E2**	**F**	**G**
6.17 (156.6)	4.94 (125.6)	4.37 (111.0)	3.15 (80.0)	2.47 (62.8)
H	**H1**	**J**	**J1**	**K**
2.09 (53.0)	2.09 (53.0)	1.04 (26.5)	0.76 (19.4)	2.79 (70.8)
K1	**L**	**L1**	**M**	**N**
2.19 (55.6)	1.39 (35.4)	.82 (20.7)	1.18 (30.0)	.59 (15.0)
P	**Q**	**R**	**S**	**T**
.91 (23.0)	.45 (11.5)	.06 (1.6)	.51 (13.1)	2.45 (62.3)
T1	**T2**	**U**	**U1**	**V**
2.93 (29.7)	1.89 (48.0)	.59 (15.0)	.59 (15.0)	.41 (10.5)
W	**X**	**Y**		
.45 (11.5)	.49 (12.5)	2.90 (73.6)		

Inches (mm)

B7& B8 Single & Double Operators – 4-way Inline



B7 & B8 4-way Inline

A	A1	A2	A3	B
9.13 (232)	11.29 (287)	7.79 (198)	8.62 (219)	2.59 (66)
C	**C1**	**D1**	**D2**	**E**
1.65 (42)	.83 (21)	4.29 (109)	5.63 (143)	4.21 (107)
E1	**F**	**G**	**G1**	**H**
2.13 (54)	4.06 (103)	1.73 (44)	.87 (22)	1.29 (33)
H1	**J**	**J1**	**L**	**M**
.16 (4)	.75 (19)	.59 (15)	3.39 (86)	1.69 (43)
N	**P**	**P1**	**Q**	**R**
.67 (17)	.75 (19)	.59 (15)	2.68 (68)	2.32 (59)
R1	**S**	**S1**	**T**	**U**
.35 (9)	1.81 (46)	.90 (23)	3.94 (100)	.35 (9)

Inches (mm)

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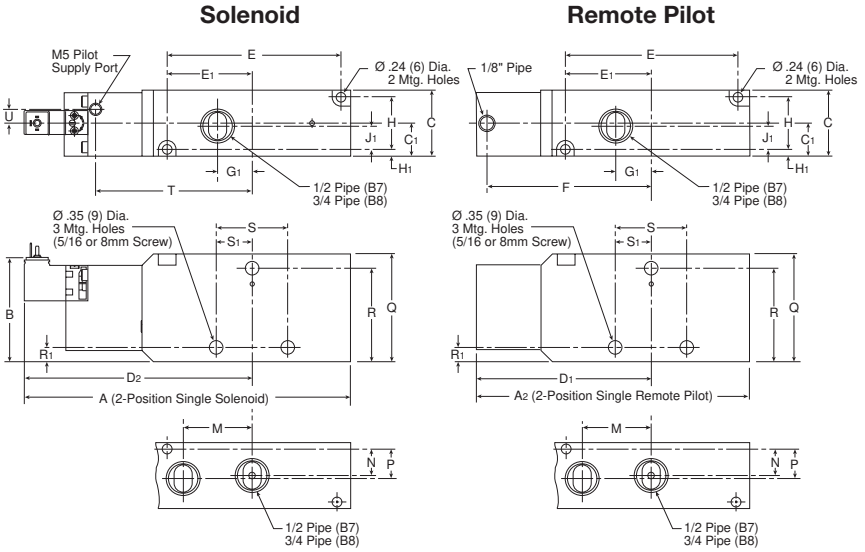
B7 & B8 Single Operators – 3-way Inline

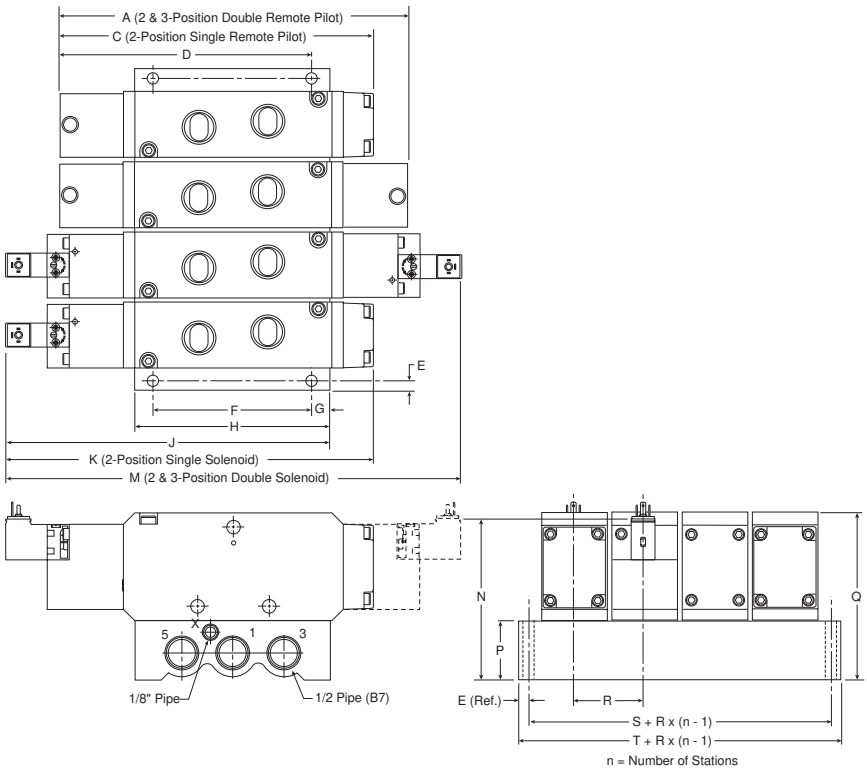


B7 & B8 3-way Inline

A	A2	B	C	C1
7.99 (203)	6.65 (169)	2.59 (66	1.65 (42)	.83 (21)
D1	**D2**	**E**	**E1**	**F**
4.29 (109)	5.63 (143)	4.21 (107)	2.13 (54)	4.06 (103)
G1	**H**	**H1**	**J1**	**M**
.86 (22)	1.29 (33)	.16 (4)	.59 (15)	1.69 (43)
N	**P**	**Q**	**R**	**R1**
.67 (17)	.75 (19)	2.68 (68)	2.32 (59)	.35 (9)
S	**S1**	**T**	**U**	
1.81 (46)	.90 (23)	3.94 (100)	.35 (9)	

Inches (mm)

B7 & B8 Single & Double Operators – 4-way IEM Aluminum Bar



B7 & B8 4-way IEM Aluminum Bar Manifold

A	C	D	E	F
7.79 (198)	8.62 (219)	6.26 (159)	.24 (6)	3.94 (100)
G	**H**	**J**	**K**	**M**
.45 (11.5)	4.84 (123)	8.07 (205)	9.13 (232)	11.29 (287)
N	**P**	**Q**	**R**	**S**
4.00 (101.5)	1.48 (37.5)	4.15 (105.5)	1.77 (45)	2.24 (57)
T				
2.72 (69)				

Inches (mm)

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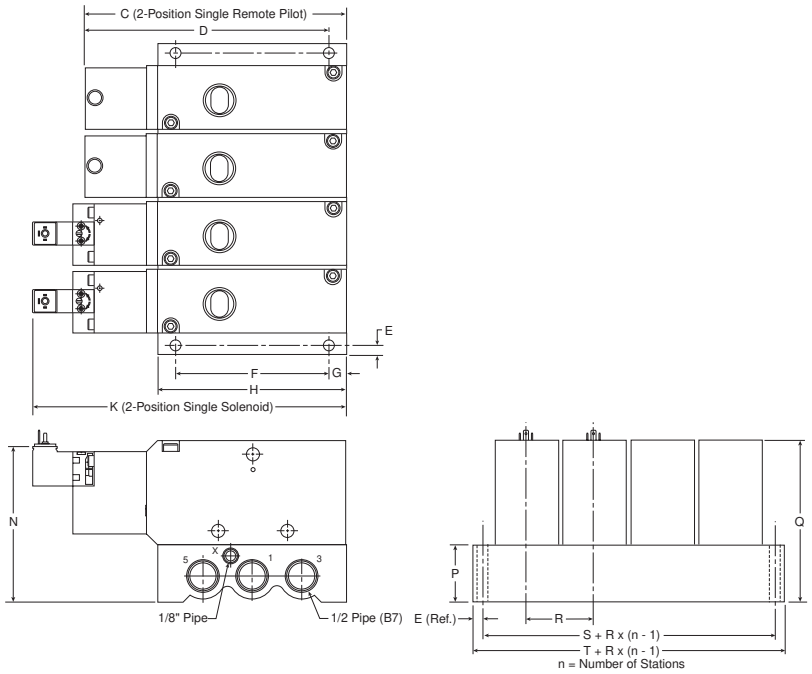
B7 & B8 Single Operators – 3-way IEM Aluminum Bar



B7 & B8 3-way IEM Aluminum Bar Manifold

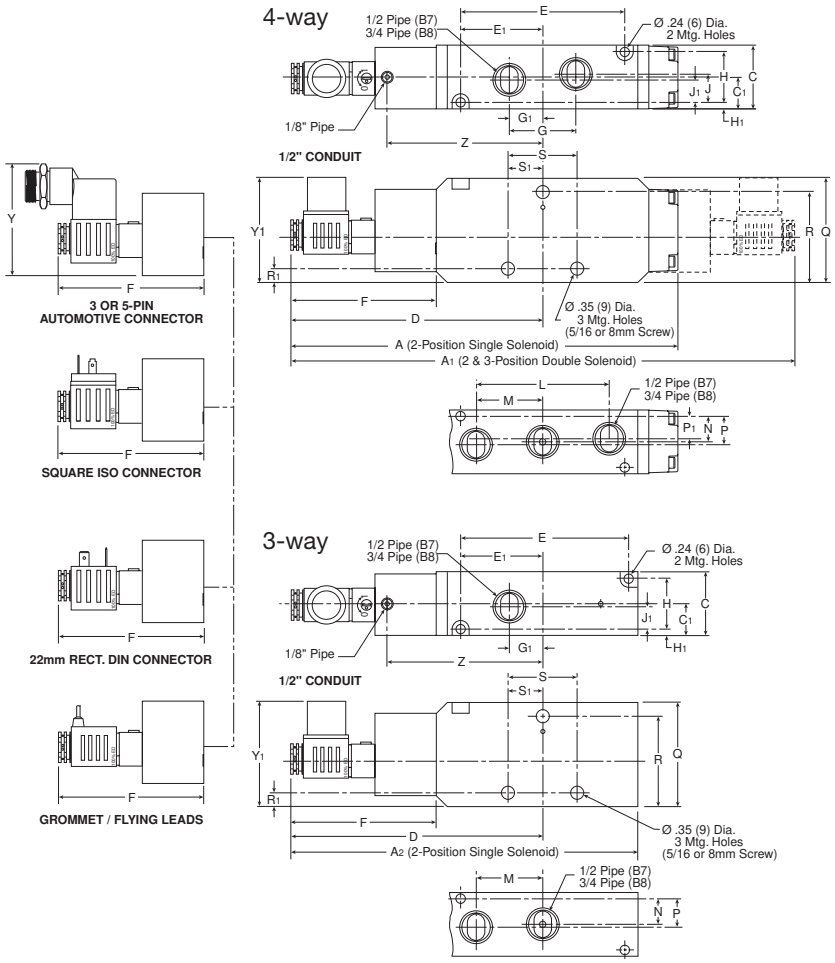
C	D	E	F	G
6.65 (169)	4.92 (124.9)	.24 (6)	3.94 (100)	.45 (11.5)

H	K	N	P	Q
4.84 (123)	7.99 (203)	4.00 (101.5)	1.48 (37.5)	4.15 (105.5)

R	S	T
1.77 (45)	2.24 (57)	2.72 (69)

Inches (mm)

B7 & B8 3 & 4-way Alternative Electrical Enclosures



B7 & B8 3 & 4-way Alternative Electrical Enclosures

A	A1	A2	C	C1
9.92 (252)	12.91 (328)	8.78 (223)	1.65 (42)	.83 (21)

D	E	E1	F	G
6.46 (164)	4.21 (107)	2.13 (54)	3.74 (95)	1.73 (44)

G1	H	H1	J	J1
.86 (22)	1.29 (33)	.16 (4)	.75 (19)	.59 (15)

L	M	N	P	P1
3.39 (86)	1.69 (43)	.67 (17)	.75 (19)	.59 (15)

Q	R	R1	S	S1
2.68 (68)	2.32 (59)	.35 (9)	1.81 (46)	.90 (23)

Y	Y1	Z
2.87 (73)	2.71 (69)	3.98 (101)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

An easy solution to your environmental protection efforts!

The Air Saver Unit contributes to power savings and CO^2 reduction.

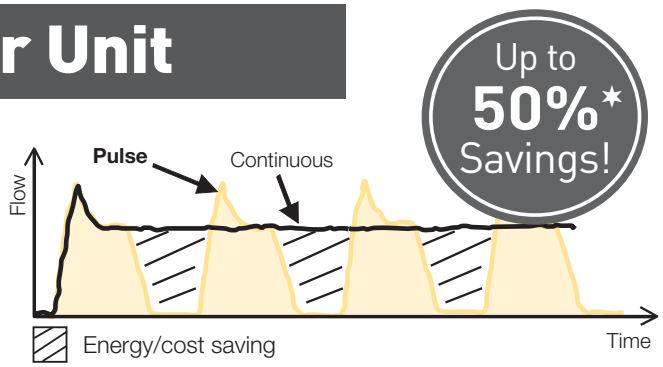
Parker Air Saver Unit

Pulsing air technology reduces consumption.

The Air Saver Unit is a valve that converts a continuous air blow to a pulsed air blow without the need for any other external control. Air is blown with a series of ON and OFF pulses. When the blow is OFF, there is no air consumption.

When using an Air Saver Unit several significant benefits can be achieved. Air blowing accounts for almost 50% of all compressed air used in plants. By using switching valve technology the Air Saver Unit can reduce air consumption by up to 50%!

- Large reductions in air consumption.
- Savings in compressor power consumption.
- Reduction in plant CO^2 emissions.
- Big contribution to energy-saving activities.
- Improved efficiency.



✶ To achieve the benefits of pulsed air, the Air Saver Unit should be installed no more than 3 meters away from the air blow orifice. For optimal results install within 1 meter.

ASV200 Series | ASC/ASO500 Series | ASV2000 Series | ASV5000 Series

Try our fast and easy online savings calculator! www.linktovms.com/airsaver

Sample Application → 4 nozzles 6mm dia. + $0.10 / kWh + 1 min blow per 4 min cycle + 3 shifts 5 days / week =

Parker

ENGINEERING YOUR SUCCESS.

Prepared for Prepared by **Air Saver Unit Valve Calculator** Summary Sheet

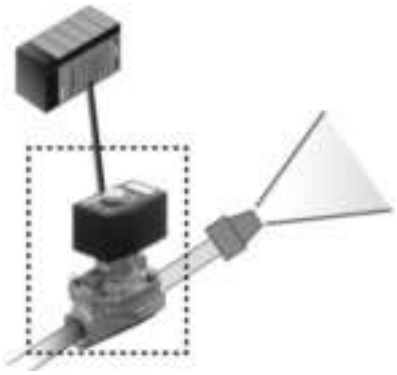
VALUE IMPACT SUMMARY

Reduced Total Annual Air Discharge Per Blowing Nozzle (cfm) by:	3,232,005
Reduced Annual CO^2 Emissions Generated (Per Blowing Nozzle - in Tons) by:	5.77 tons
Reduced Annual Air Generating Costs Per Blowing Nozzle by:	$ 892.03
Quantity of Air Blowing Nozzles With Same Application Specifications	4
Reduced Annual Air Generating Costs For All Nozzles by:	$ 3,568.13
Reduced Annual CO^2 Emissions Generated (For All Blowing Nozzles) by:	23.07

Installation is simple and reduction in air consumption can be realized immediately.

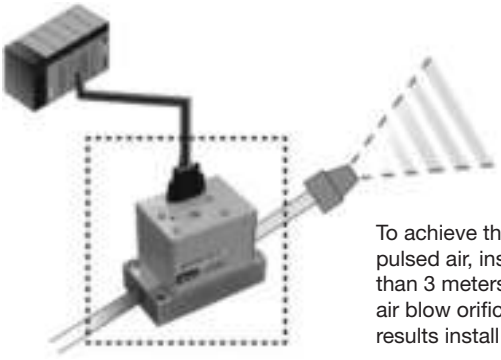
- When using an electrically operated solenoid valve to control the air blow, an Air Saver Unit can quickly and easily be retrofitted providing an immediate reduction in air consumption with no changes to the PLC program.

Before introduction of the unit



After introduction of the unit

- Easy to install. Change the current solenoid valve to Air Saver Unit. (ASC500 or ASO500)
- Program change of controller is not necessary.

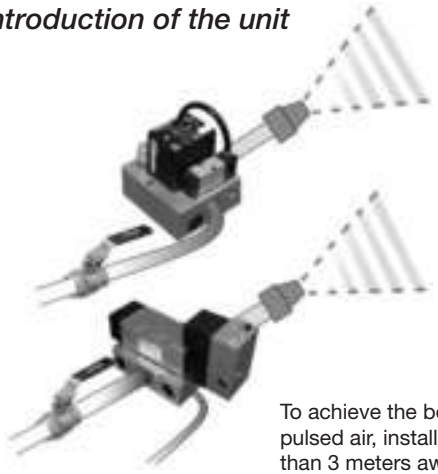


To achieve the benefits of pulsed air, install no more than 3 meters away from the air blow orifice. For optimal results install within 1 meter.

- When using manual valves such as ball valves, simply install either ASV200, ASV500 or ASV2000 units which do not need electrical power. Installing the unit brings immediate reduction in air consumption and improved compressor efficiency.

Before introduction of the unit

After introduction of the unit



To achieve the benefits of pulsed air, install no more than 3 meters away from the air blow orifice. For optimal results install within 1 meter.

[Company A] Food & Beverage manufacturer
"When we tested ASV5000, we achieved about 55% reduction of our air consumption. Because air blow efficiency was improved, we plan to use more Air Saver Units in other areas in the plant".

[Company B] Manufacturer of office document machines
"We are working on energy-saving activities. In those activities, we decided to use an Air Saver Unit. We have more than 100 points of air blow and we reduced our air consumption by 42% using this unit".

Specifications

								
	ASV200	**ASV2000**	**ASV5000**	**ASV13000**	**ASV15000**	**ASC500**	**ASO500**	**Unit**
Function	Normally closed						Normally open	— —
Fluid	Non lubricated air							— —
Flow (at 72.5 psi)	5.3	70.6	176.6	459.1	529.7	15.9	15.9	scfm
Adjustable pulse frequency	Up to 5	Up to 5	Up to 5	Up to 1	Up to 1	2-22	2-22	Hz
Port size	M5	3/8"	1/2"	1"	1-1/4"	1/8"	1/8"	NPT (BSPP)
Operating temperature	23 to 122							° F
Pressure range	43.5 - 116	0 - 116				29 - 101.5	29 - 72.5	PSI
Pilot air supply	Internal pilot	43.5 - 116 *				Internal pilot		PSI
Blow	Pulse blow					Pulse/Continuous blow		— —
Rated voltage	Electrical power is not necessary					DC 24 V		V
Power consumption	–					1.2 W		W
Grade of Insulation	–					NEMA 1		— —
Permissible voltage fluctuation	–					+ or - 10		%
Wiring	–					e-CON standard 4 pole sockets		— —
Filtration	Dry w/ 40 µm filtration †							— —

Notes:

* External pilot of 43.5 - 116 is required, to ensure proper operation.

† For maximum life of the unit we recommend 5 micron, but 40 micron filtration is acceptable and will not void warranty.

To achieve the benefits of pulsed air, the Air Saver Unit should be installed no more than 3 meters away from the air blow orifice. For optimal results install within 1 meter.

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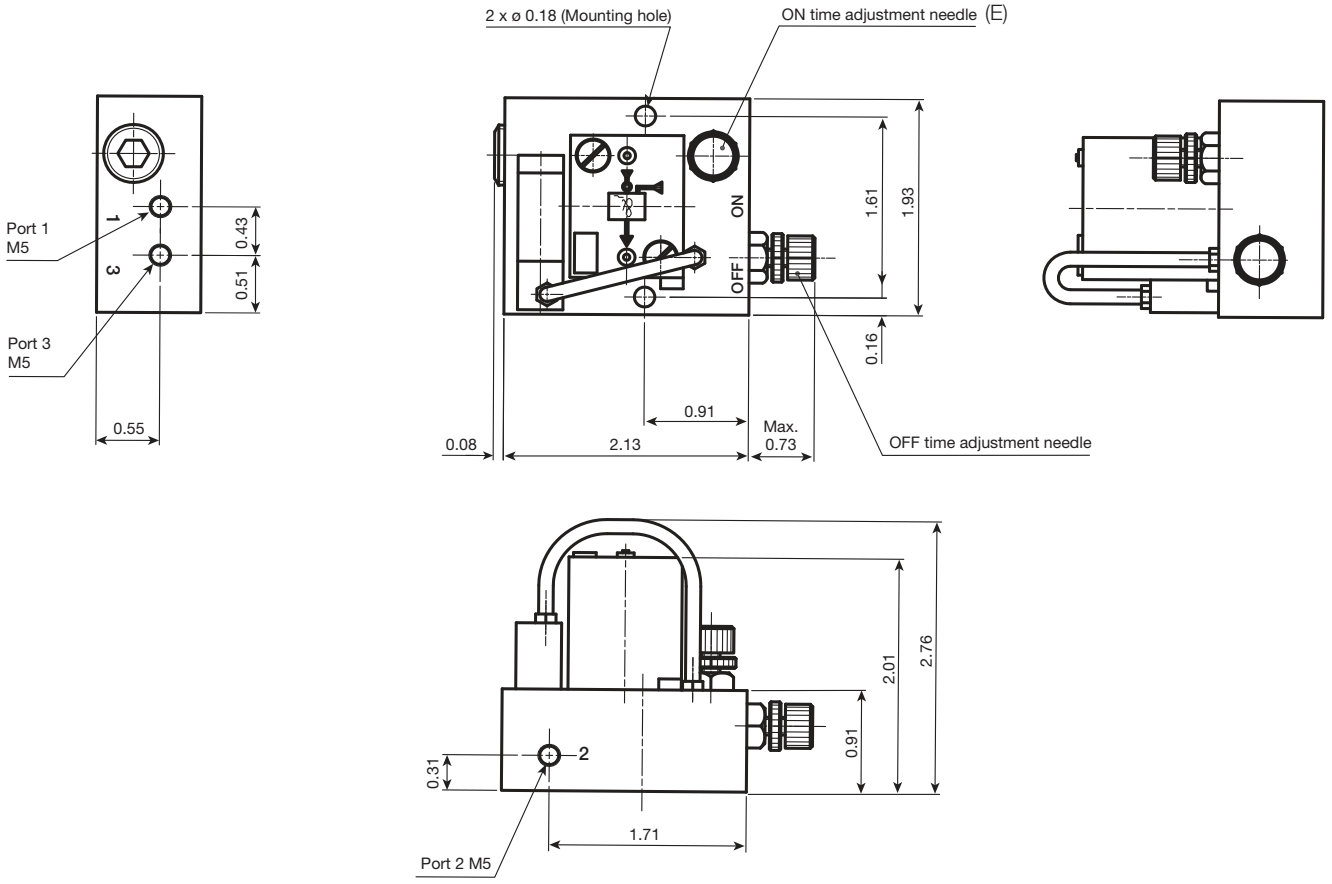
Ordering Information ASV200-AA-M5

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Grease	Part number
Normally closed	Dry air	5.3 scfm	M5	23-122°F (A)	43.5-116	Internal pilot	Pulse	Food grade	**ASV200-AA-M5**
								Petrolatum (for painting applications) (B), (C), (D)	**WPASV200-AA-M5**

Dimensions: ASV200-AA-M5



Piping

Port 1: Supply port (Compressor side)
Port 2: Output port (Blow nozzle side)
Port 3: Exhaust port*

* In order to keep out dust, the air muffler is recommended for exhaust port.

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Air Saver Units with WP prefix are suitable for most painting applications. Test before use if in direct contact with painted surface.

C. If test in painting application fails, try cycling Air Saver Unit for 48 hours and repeat test.

D. DO NOT use “WP” Air Saver Unit in ‘clear coat’ applications.

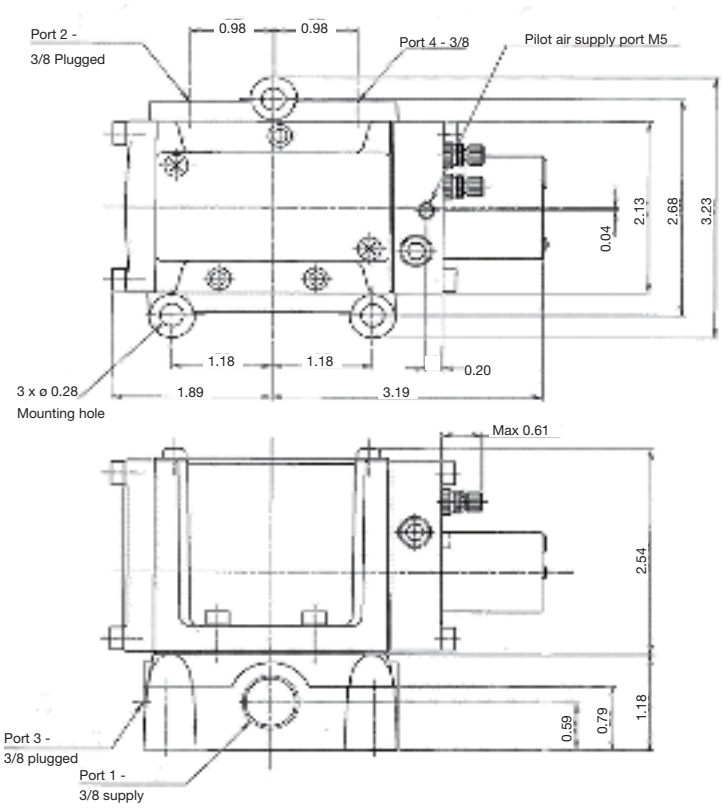
E. Adjustable to maximum frequency of 5Hz.

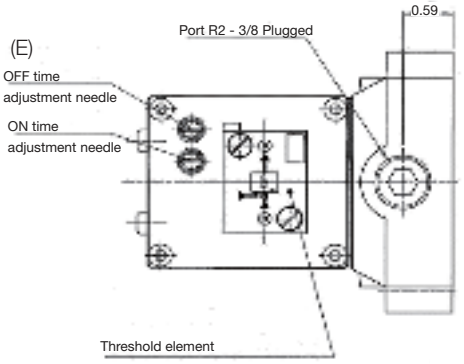
Most popular.

Ordering Information ASV2000-AA-xx

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Grease	Port type	Part number
Normally closed	Dry air	70.6 scfm	3/8"	23-122°F (A)	0-116	43.5-116	Pulse	Standard	NPT	**ASV2000-AA-97**
									BSPP	**ASV2000-AA-17**
								Petrolatum (for painting applications) (B), (C), (D)	NPT	**WPASV2000-AA-97**
									BSPP	**WPASV2000-AA-17**

Dimensions: ASV2000-AA-97 (NPT model)





Piping

Port 1: Supply port (Compressor side)
Port 2: Plugged
Port 3: Plugged
Port 4: Output port (Blow nozzle side)
Port R2: Plugged
Port X: M5 pilot air supply
>43.5 psi is required

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Air Saver Units with WP prefix are suitable for most painting applications. Test before use if in direct contact with painted surface.

C. If test in painting application fails, try cycling Air Saver Unit for 48 hours and repeat test.

D. DO NOT use "WP" Air Saver Unit in 'clear coat' applications.

E. Adjustable to maximum frequency of 5Hz.

☐ Most popular.

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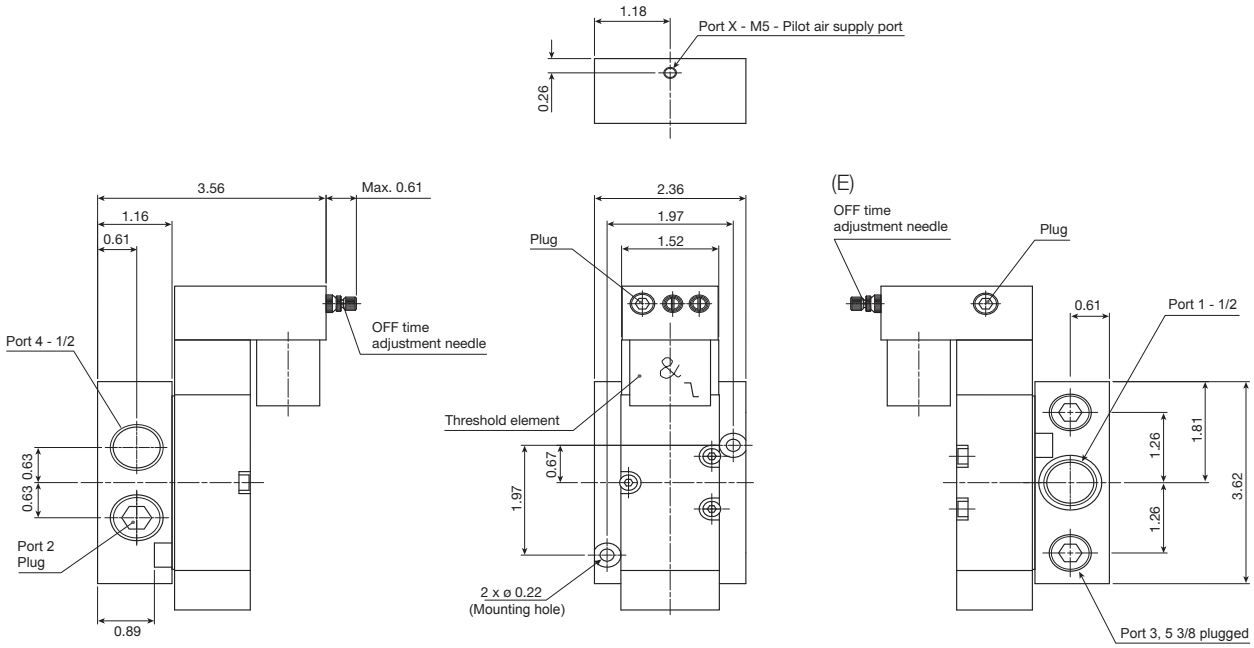
Ordering Information ASV5000-AA-xx

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Grease	Port type	Part number
Normally closed	Dry air	176.6 scfm	1/2"	23-122°F (A)	0-116	43.5-116	Pulse	Food grade	NPT	**ASV5000-AA-91**
									BSPP	**ASV5000-AA-21**
								Petrolatum (for painting applications) (B), (C), (D)	NPT	**WPASV5000-AA-91**
									BSPP	**WPASV5000-AA-21**

Dimensions: ASV5000-AA-91 (NPT model)



Piping

Port 1: Supply port (Compressor side)
Port 2: Plugged
Port 3: Plugged
Port 4: Output port (Blow nozzle side)
Port 5: Plugged
Port X: M5 pilot air supply >43.5 psi is required

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Air Saver Units with WP prefix are suitable for most painting applications. Test before use if in direct contact with painted surface.

C. If test in painting application fails, try cycling Air Saver Unit for 48 hours and repeat test.

D. DO NOT use "WP" Air Saver Unit in 'clear coat' applications.

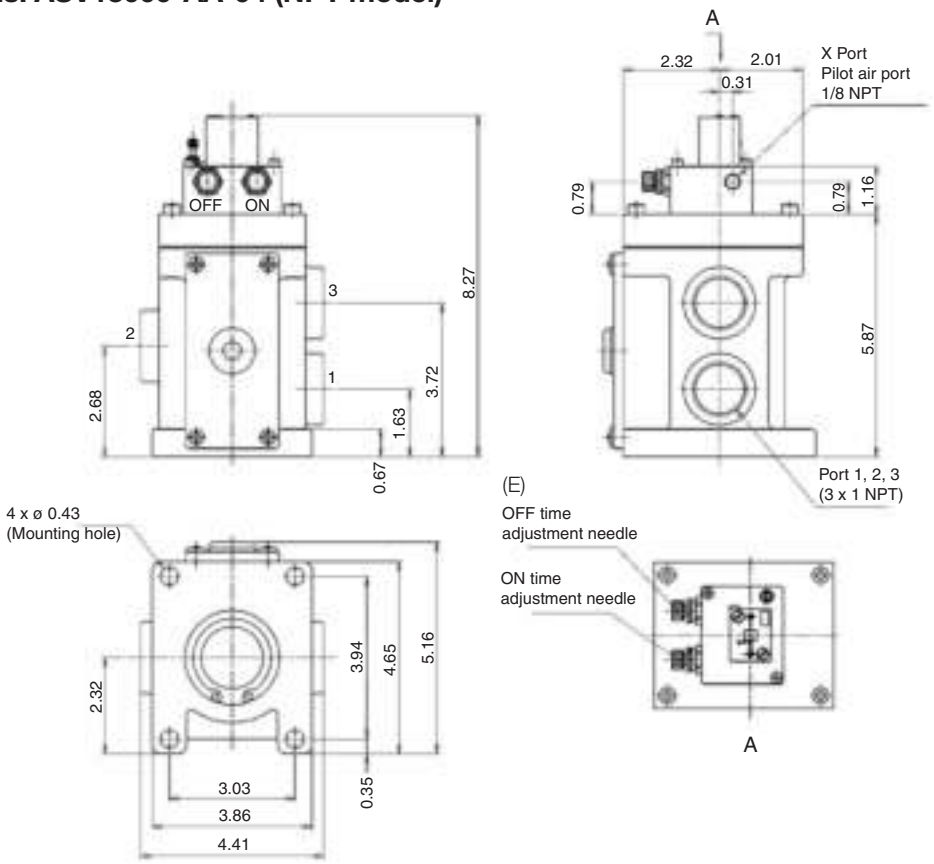
E. Adjustable to maximum frequency of 5Hz.

Most popular.

Ordering Information ASV13000-AA-xx

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Grease		Port type	Part number
Normally closed	Dry air	459.1 scfm	1"	23-122°F (A)	0-116	43.5-116	Pulse	Petrolatum (for painting applications)	(B), (C), (D)	NPT	**WPASV13000-AA-94**
										BSPP	**WPASV13000-AA-34**

Dimensions: ASV13000-AA-94 (NPT model)



Piping

Port 1: Supply port (Compressor side)
Port 2: Output port (Blow nozzle side)
Port 3: Plugged

Port X: 1/8 NPT pilot air supply
>43.5 psi is required

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Air Saver Units with WP prefix are suitable for most painting applications. Test before use if in direct contact with painted surface.

C. If test in painting application fails, try cycling Air Saver Unit for 48 hours and repeat test.

D. DO NOT use "WP" Air Saver Unit in 'clear coat' applications

E. Adjustable to maximum frequency of 1Hz.

☐ Most popular.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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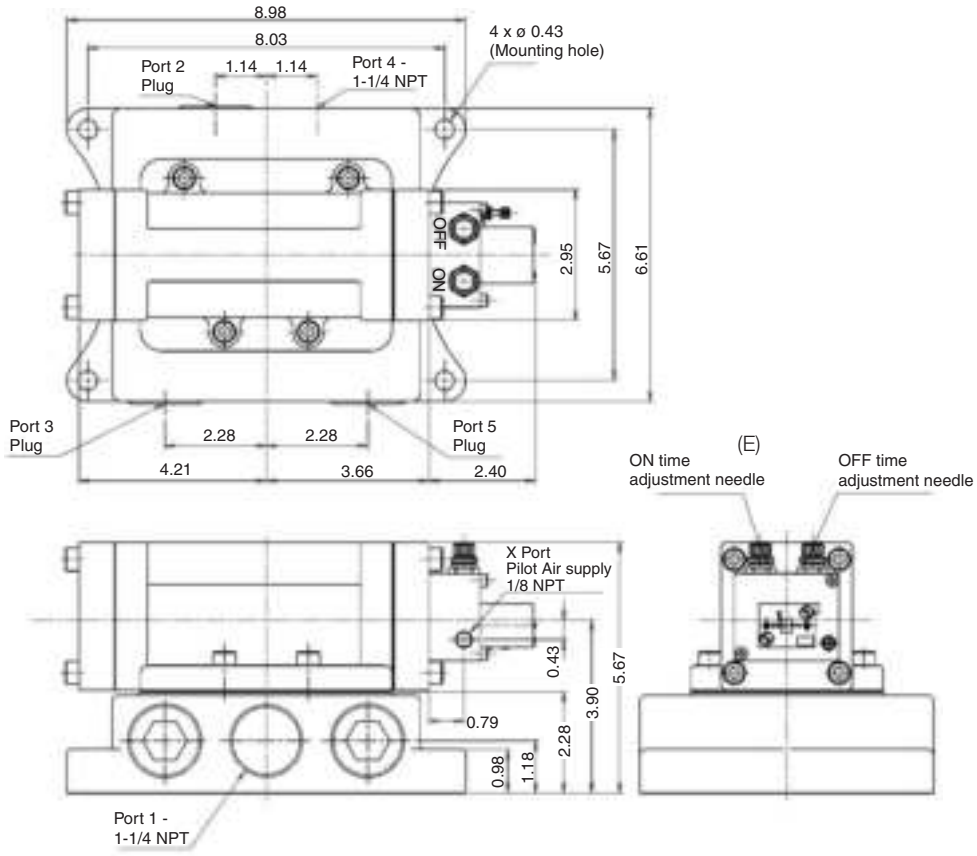
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Ordering Information ASV15000-AA-xx

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Grease	Port type	Part number
Normally closed	Dry air	529.7 scfm	1-1/4"	23-122°F (A)	0-116	43.5-116	Pulse	Petrolatum (B), (for painting (C), applications) (D)	NPT	**WPASV15000-AA-92**
									BSPP	**WPASV15000-AA-42**

Dimensions: ASV15000-AA-92 (NPT model)



Piping

Port 1: Supply port (Compressor side)
Port 2: Plug (1-1/4)
Port 3: Plug (1-1/4)
Port 4: Output port (Blow nozzle side)
Port 5: Plug (1-1/4)
Port X: 1/8 NPT pilot air supply
>43.5 psi is required

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Air Saver Units with WP prefix are suitable for most painting applications. Test before use if in direct contact with painted surface.

C. If test in painting application fails, try cycling Air Saver Unit for 48 hours and repeat test.

D. DO NOT use “WP” Air Saver Unit in ‘clear coat’ applications.

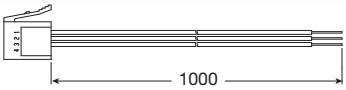
E. Adjustable to maximum frequency of 1Hz.

Most popular.

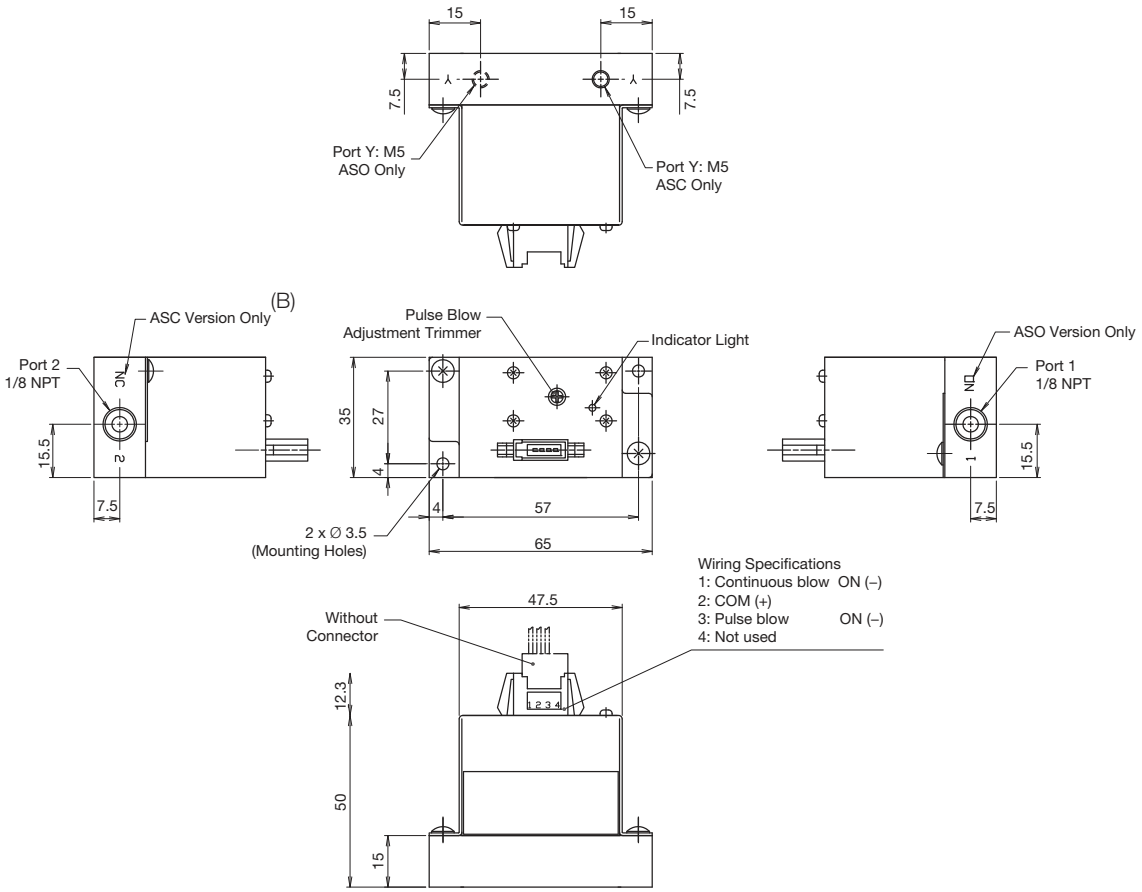
Ordering Information ASC500-1W / ASO500-1W

Function	Fluid	Flow @ 72.5 psi	Port size	Operating temperature	Pressure range, psi	Pilot air supply, psi	Blow type	Port type	Part number
Normally closed	Dry air	15.9 scfm	1/8"	23-122°F	29-72.5	Internal pilot	Pulse/ continuous	NPT	**ASC500-1W-90**
								BSPP	**ASC500-1W-10**
Normally open	Dry air	15.9 scfm	1/8"	23-122°F (A)	29-72.5	Internal pilot	Pulse/ continuous	NPT	**ASO500-1W-90**
								BSPP	**ASO500-1W-10**

Cable

Cable with specific connector (AWG26 ASC/ASO in common)		**ASC-D24-CL10**

Dimensions: ASC500-1W-90 / ASO500-1W-90 (NPT model)



Piping

Port 1: Supply port (Compressor side)
Port 2: Output port (Blow nozzle side)
Y port: Pilot exhaust port*
* In order to avoid dust, it is recommended to attach an air muffler.

Notes:

A. When temperature of valve goes below 5°C (41°F), complete dry air shall be supplied to prevent from freezing.

B. Adjustable to maximum frequency of 22Hz.

☐ Most popular.

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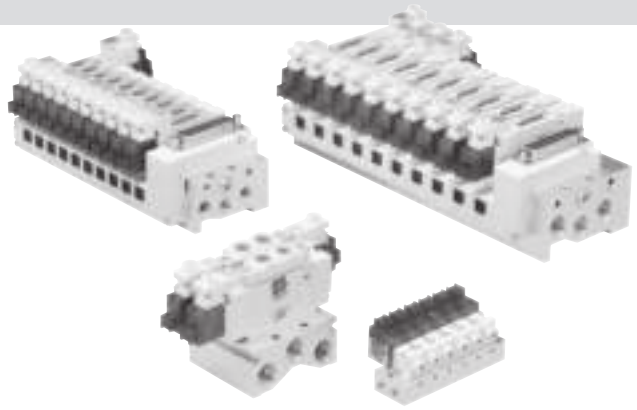
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

ADEX Series

ADEX Series are miniature low power consumption solenoid valves, ideal for powering small to mid-sized pneumatic actuators used in automation and process applications. ADEX's versatility is further enhanced through its three mounting styles and electronic connectivity options.



Features
- Compact body size
- Fast response < 10ms

Ports
- A00: M3 – .02 Cv
- A05: M5 – .18 Cv
- A12: 1/8 inch – .47 Cv

Mounting
- Inline
- Subbase mount

Solenoids
- 0.6 W
- 5VDC, 12VDC, 24VDC and 110/220VAC
- LED and surge suppression

Operating information

Maximum operating pressure*:

A05 & A12	Vacuum to 100 PSIG (Vacuum to 6.8 bar)
A00 (NC)	Vacuum to 100 PSIG (Vacuum to 6.8 bar)
A00 (NO)	Vacuum to 70 PSIG (Vacuum to 4.8 bar)

Minimum operating pressure: See chart below

Operating temperature:

Intermittent Duty (AC & DC Voltage):	32°F to 122°F (0°C to 50°C) Voltage Rated +10 / –10%
Continuous Duty (DC Voltage Only):	32°F to 104°F (0°C to 40°C) Voltage Rated +0 / –10%

* When using vacuum and pressure simultaneously on ports 1 & 3, normally closed valve, the maximum pressure is 85 PSIG (586 kPa).
When using vacuum and pressure simultaneously on ports 1 & 3, normally open valve, the maximum pressure is 58 PSIG (400 kPa).

Material specifications

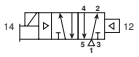
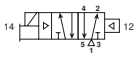
Body	Anodized aluminum
End caps	Anodized aluminum
Coils	Thermoplastic
Fasteners	Stainless steel
Spool	Aluminum and nitrile rubber

Minimum operating pressure

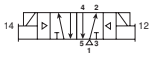
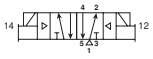
Description		Internal pilot		External pilot	
		PSIG	kPa	PSIG	kPa
4-way	Single Solenoid	22	152	Vacuum	
				36	248
	Double Solenoid – 2-position	15	104	Vacuum	
				36	248
	Double Solenoid – 3-position	30	207	Vacuum	
				36	248
3-way	A00 Series	Vacuum			

* When using vacuum and pressure on ports 1 & 3 – 85 PSIG (586 kPa) NC; 58 PSIG (400 kPa) NO.

Single Solenoid, 4-way, 2-position

	Symbol	Port size	Cv	Voltage	Valve type	Part number
		M5	.17 Cv	24VDC	A05 inline	**A05RS251PM5MF**
		1/8"	.47 Cv	24VDC	A12 inline	**A12RS251PN1MF**
		Less base	.18 Cv	24VDC	A06 subbase	**A05PS251P**
		Less base	.44 Cv	24VDC	A12 subbase	**A12PS251P**

Double Solenoid, 4-way, 2-position

	Symbol	Port size	Cv	Voltage	Valve type	Part number
		M5	.17 Cv	24VDC	A05 inline	**A05RD251PM5MF**
		1/8"	.47 Cv	24VDC	A12 inline	**A12RD251PN1MF**
		Less base	.18 Cv	24VDC	A06 subbase	**A05PD251P**
		Less base	.44 Cv	24VDC	A12 subbase	**A12PD251P**

Locking flush override. Mounting screws and gaskets included with valve.

A05 / A12 4-way, 2 & 3-position, P / R Types

A05 R S25 – 1 P M5 MF

Basic Series

Series	A05
Series	A12

Body Type

Subbase	P
Inline	R

Operator / Function

4-Way	
Single Solenoid, 2-Position, Air Return	S25
Double Solenoid, 2-Position	D25
Double Solenoid, 3-Position, APB	D35
Double Solenoid, 3-Position,CE	E35
Double Solenoid, 3-Position, PC	035

Pilot Source / Exhaust

Internal	Blank
External	X*

Voltage

1	24VDC
2	12VDC
9	120/60 VAC

Options

P	Lights / Surge Suppression

Port Size / Thread Type†

Blank	None (Subbase)
M5	M5 (A05R Only)
N1	1/8" NPT (A12R Only)
G1	1/8" BSPP "G" (A12R Only)

† Required for inline models only, port size code not used for subbase versions.

Valve Type

Blank	None (Subbase)
MF	Inline

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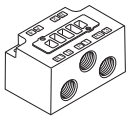
A05 & A12 Subbases



A05PB

Valve type	Port size	Part number
A05	1/8" NPT	**A05PBN1**
	1/8" BSPP "G"	**A05PBG1**
A12	1/4" NPT	**A12PBN2**
	1/4" BSPP "G"	**A12PBG2**

Kit Includes: (1) Subbase (Hold down bolts and gasket are included with valve)

A05 Valve IEM Bar Manifold

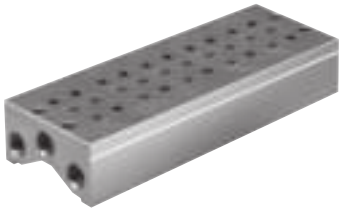
MMFU10A05F Shown

4-way, NPTF (Individual wiring type)	**MMFU##A05F**
4-way, NPTF (Collective wiring type)	**MMCU‡‡A05F**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

Pilot Exhaust for IEM Manifold –
is captured through the "3" and "5" galley.

A12 Valve IEM Bar Manifold



MMFU10A12F Shown

4-way, NPTF (Individual wiring type)	**MMFU##A12F**
4-way, NPTF (Collective wiring type)	**MMCU‡‡A12F**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

Pilot Exhaust for IEM Manifold –
is captured through the "3" and "5" galley.

A05 Valve Subbase Bar Manifold (5-Ported)

4-way, M5 (Individual Wiring Type)	**MMFS##A05FM5**
4-way, M5 (Collective Wiring Type)	**MMCS‡‡A05FM5**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

Internally Piloted Manifolds –
Pilot exhaust is captured through the "3" and "5" galley.

Externally Pilot Manifold –
Pilot exhaust is captured through the "Y" galley.

A12 Valve Subbase Bar Manifold (5-Ported)

4-way, 1/8" NPTF (Individual Wiring Type)	**MMFS##A12FF1**
4-way, 1/8" NPTF (Collective Wiring Type)	**MMCS‡‡A12FF1**

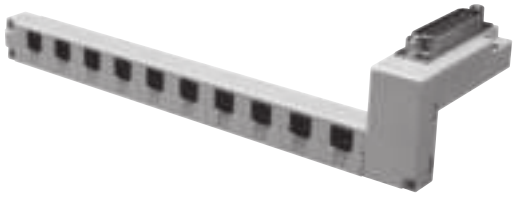
– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

Internally Piloted Manifolds –
Pilot exhaust is captured through the "3" and "5" galley.

Externally Pilot Manifold –
Pilot exhaust is captured through the "Y" galley.

Most popular.

Collective Wiring



MCS10A05PDL Shown

MCS | 2 | A05 | P | DL

Type	
Manifold collective wiring system	MCS

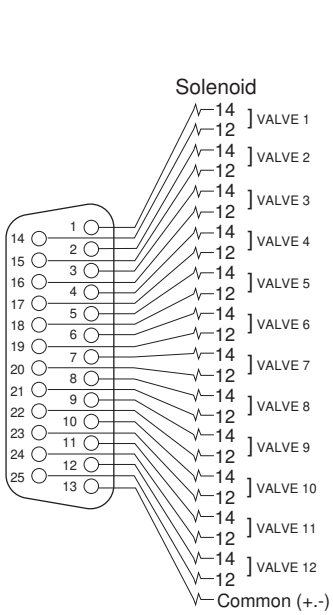
Number of stations*	
2 Stations	2
4 Stations	4
6 Stations	6
8 Stations	8
10 Stations	10
12 Stations	12

* Even Number of Stations Only.

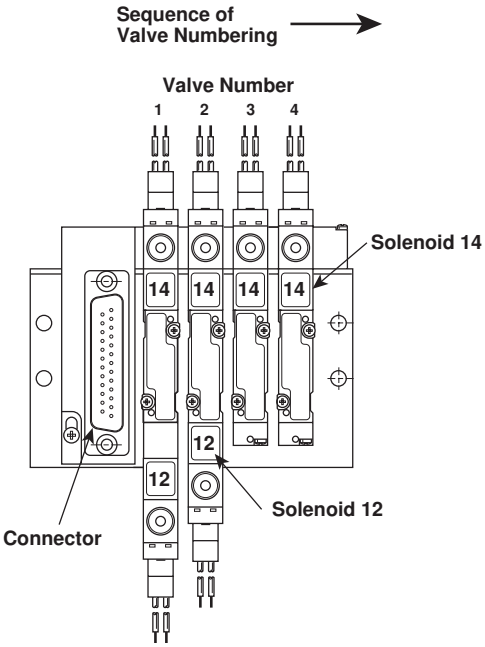
Valve size	
A05	10mm
A12	15mm

Options	
DL	D-sub 25
ML	26-pin ribbon

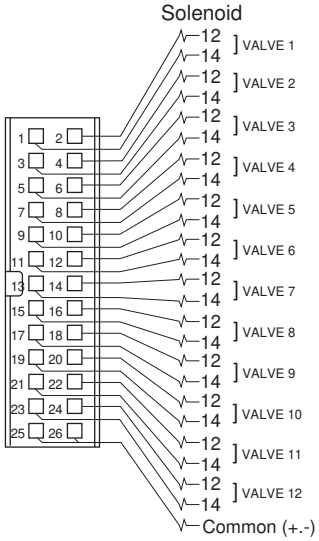
Collective Wiring Pin Mapping (Not Available for AC Voltages)



Pin Map for D-Sub 25 Connector



Valve and Solenoid Addresses



Pin Map for 26-Pin Ribbon Connector

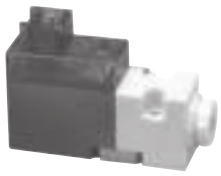
Notes:

1. The MCS Collective Wiring System is "Polarity Neutral". Polarity is addressed with the Collective Wired Connectors (page C88).
   Example: When 'positive' common is used, an A05 single solenoid valve uses an A05PSCC. When 'negative' common is used, use A05PSCCM.
2. The MCS Collective Wiring System provides for both the "14" and "12" addresses at each valve location. When single solenoid valves are used, skip the "12" address for both wiring and controller programming.
3. Be sure that the leakage current of the controller outputs is less than 1.5 ma.

For inventory, lead times, and kit lookup, visit www.pdnplu.com

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

A00 Valve Only – Single Solenoid, 3-way, 2-position*



A00SC23-1P Shown
* Screwdriver-Operated, Locking Manual Override (LMOR).

A00S | C23 | — | 1 | P

Function	
Single solenoid normally open	023
Single solenoid normally closed	**C23**

Connector Position	
P	**With indicator light & surge suppression**

Flow	
Standard type	**Blank**
Large flow type	J

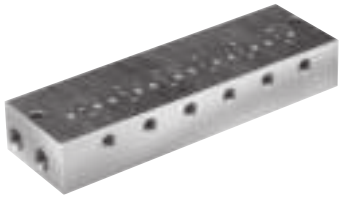
	Voltage
1	**24VDC**
2	12VDC
9	120/60 VAC

A00 Valve Subbase

Valve type	All Ports	Part number
A00	M3	**A00S-B-M3**

Mounting screws and gaskets included with valve.

A00 Valve Manifold*



MMFS6A00M5 Shown

* Normally closed valves (A00SC23•P) and Normally open valves (A00S023•P) cannot be mounted on the same manifold simultaneously.

Mounting screws and gaskets included with valve.

MMFS | 2 | A00 | M5

Number of stations	
2 Stations	**2**
3 Stations	**3**
4 Stations	**4**
•	•
•	•
20 Stations	**20**

Port size
M5

☐ Most popular.

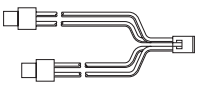
Individual Wired Connectors P / R Type

A05PDCCL##

Size	Voltage	Length	Part number
A00	DC	.5 meter	**A05P-DC-CL5**
A05		1 meter	**A05P-DC-CL10**
A12		3 meter	**A05P-DC-CL30**
	AC	.5 meter	**A05P-AC-CL5**
		1 meter	**A05P-AC-CL10**

DC Voltage: Positive "+" (Red Wire)
Negative "–" (Black Wire)
AC Voltage: Both Wires are Blue (Polarity Neutral)

Collective Wired Connectors P / R Type



A05PDCC

Size		Part number PNP	Part number NPN
A05	Single	**A05PSCCM**	**A05PSCC**
A12	Double	**A05PDCCM**	**A05PDCC**

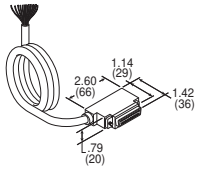
PNP = SOURCING = "Negative Common" = Yellow Wires
NPN = SINKING = "Positive Common" = Red Wires

Wired Connectors with Protective Cover - P / R Type

Size	Length	Part number
A00	1 meter	**A05P-DC-CB10**
A05		
A12		

The cover is made of chloroprene rubber for electrical use, assuring excellent weather and insulation resistance. However, be careful not to place it under splash of cutting oil.

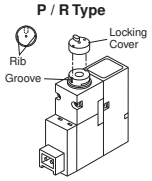
Cable with Female D-Sub, 25-Pin Connector



Description	Part number
25-Pin, D-Sub cable, 1 meter (3.3 ft.)	**DSS-25W-2K**

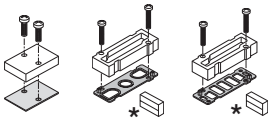
Note: For use with ADEX MCS system only.
Connection to control system is through 25 colored wires AWG 24. Includes (2) M2.5 screws.

Extended Override Cover



Size	Orange: for 14 side solenoid	Green: for 12 side solenoid
	A05P-LA	**A05P-LB**
A00		
A05		
A12		

Blanking Plate



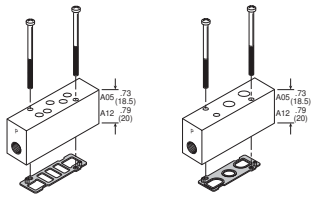
A00SBP A05RGBP A05PGBP

Size	Type	Part number
A00	Subbase	**A00SBP**
A05	Body ported	**A05RGBP**
	Subbase	**A05PG-BP**
A12	Body ported	**A12RGBP**
	Subbase	**A12PGBP**

* Outlet pin cover used with collective wiring system only.

Individual Air Supply Spacer

Mounts between valve and manifold. Supply from the manifold is blocked and only the valve mounted on the spacer receives the individual supply.



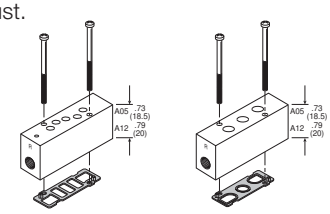
A05PAISM5 **A05RAISM5**

Size	Type	Port size	Internal pilot part number	External pilot* part number
A05	Inline	M5	**A05RAISM5**	**A05RAXISM5**
	Subbase	M5	**A05PAISM5**	**A05PAXISM5**
A12	Inline	1/8" NPT	**A12RAISN1**	**A12RAXISN1**
	Subbase	1/8" NPT	**A12PAISN1**	**A12PAXISN1**

Can only be used on Collective wiring type manifolds.
* Can only be used with External Piloted valve. External pilot is located on the X Port of the manifold
Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket

Individual Air Exhaust Spacer

Mounts between valve and manifold. Exhaust from the manifold is blocked and only the valve mounted on the spacer has the individual exhaust.

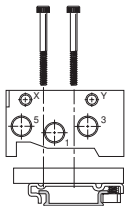


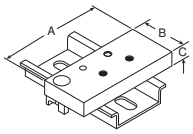
A05PAIEM5 **A05RAIEM5**

Size	Type	Port size	Internal pilot part number	External pilot* part number
A05	Inline	M5	**A05RAIEM5**	**A05RAXIEM5**
	Subbase	M5	**A05PAIEM5**	**A05PAXIEM5**
A12	Inline	1/8" NPT	**A12RAIEN1**	**A12RAXIEN1**
	Subbase	1/8" NPT	**A12PAIEN1**	**A12PAXIEN1**

Can only be used on Collective wiring type manifolds.
* Can only be used with External Piloted valve. External pilot is located on the X Port of the manifold
Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket

DIN Rail Hardware Kit

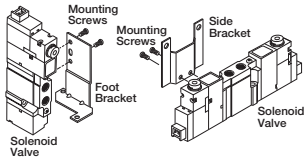




		Dimensions			
Size	Type	A	B	C	Part number
A05	IEM	2.24	1.00	.31	**MFUA05DB**
	Subbase	(57)	(25)	(8)	**MFSA05DB**
A12	IEM	2.91	1.00	.39	**MFUA12DB**
	Subbase	(74)	(25)	(10)	**MFSA12DB**

Kit includes: (2) Screws, (2) Clamps

Mounting Bracket



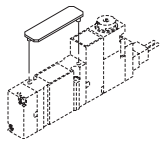
Size	Type	Part number
A05	Side	**A05RBS**
	Foot	**A05RBF**
A12	Side	**A12-RBS**
	Foot	**A12RBF**

Kit Includes: (1) Bracket, (2) Screws

M3 & M5 Fittings

Description	Part number
M5 Plug Fitting	**0220 19 00**
M3 to 3mm Barb	**BC03M3**
M3 to 4mm Barb	**BC04M3**
M5 to 3mm Barb	**BC03M5**

Labeling Tag



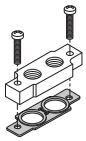
Size	Description	Part number
A05 A12	White Label Tag	**A05PN**

Exhaust Mufflers

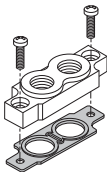
Pipe thread	Part number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**

P6M - Plastic; EM - Sintered Bronze

Replacement Cylinder Port Plate Kits



A05RABM5



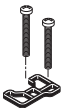
A12RABN1

Size	Fitting	Part number
A05	M5	**A05RABM5**
A12	1/8" NPT	**A12RABN1**
	1/8" BSPP "G"	**A12RABG1**

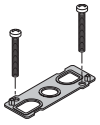
Replacement Base Gasket Kits

Screws

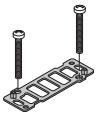
A00SS



A05RS



A05PS



Gaskets

A00SG

A05RG

A05PXG

Size	Type	Gasket only	Screw
A00	Subbase	**A00SG**	**A00SS**
A05	Body Ported	**A05RG**	**A05RS**
	Subbase Int.	**A05PG**	**A05PS**
	Subbase Ext.	**A05PXG**	**A05PS**
A12	Body Ported	**A12RG**	**A12RS**
	Subbase Int.	**A12PG**	**A12PS**
	Subbase Ext.	**A12PXG**	**A12PS**

These are spare parts, mounting screws and gaskets included with valves.

Flow Rating (Cv)

Size	Port Size	Mounting Style	ANSI / (NFPA) 2-Position	ANSI / (NFPA) 3-Position	JIS Method 2-Position	JIS Method 3-Position
A00	M3	Subbase	.010	—	—	—
	M5	Subbase	.017	—	—	—
A00**J**	M5	Subbase	.020	—	—	—
A05	M5	Inline	.18	.16	.22	.20
	M5	Subbase	.17	.16	.32	.32
A12	1/8" Ports	Inline	.47	.43	.48	.46
	1/8" Ports	Subbase	.44	.40	.61	.42

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

Response Time

Valve Size	Port Size	0 Cu. In. Test Chamber Fill	0 Cu. In. Test Chamber Exhaust
2-Position Single Solenoid / Air Return			
A00	M3	.004	.006
A05	M5	.014	.025
A12	1/8"	.016	.030
2-Position Double Solenoid			
A00	M3	—	—
A05	M5	.011	.015
A12	1/8"	.010	.012
3-Position Double Solenoid			
A00	M3	—	—
A05	M5	.013	.017
A12	1/8"	.013	.014

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 24VDC solenoid. Times shown are average.

Tested per ANSI / (NFPA) T3.21.8.

Solenoid Information

Power Consumption	**Standard**			
				With Indicator Light & Surge Suppressor
	DC		W	0.6
	AC	100V	VA	1.2
		110V	VA	1.4
	High Flow			
				With Indicator Light & Surge Suppressor
	DC		W	0.91
	AC	100V	VA	—
		110V	VA	—

ANSI Cv vs. JIS Cv

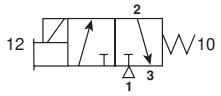
*For Pneumatic Valve flow, the measurement **Cv** – Coefficient of Flow – is used to convey to the user how much air can flow through a given valve. Most valve manufactures publish this information in their catalogs to assist the user in choosing the proper valve for their application. In publishing this data however, there are discrepancies in how the **Cv** is calculated, resulting in some **Cv**'s being OVERSTATED by **20 to 40%**. This can adversely affect the user's application because the valve flows LESS than the published **Cv**.*

The reason for the large discrepancy is in the method of calculation - the ANSI (NFPA) or the JIS standard.

*Parker's **Cv** valve is calculated using the ANSI (NFPA) T3.21.3-1990 standard. The ANSI (NFPA) method is a structured test using very specific tube sizes and lengths, inlet pressures and pressure drops, and volume chambers.*

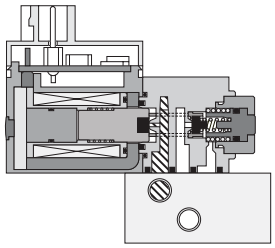
Locking Flush Override. Mounting screws and gaskets included with valve.

Single Solenoid 3-Way, 2-Position NC



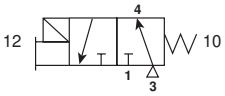
Vacuum Applications (Device becomes NO):
'1' port is connected to atmosphere or compressed air † when required.
'2' port is outlet
'3' port is connected to vacuum

† When both vacuum and compressed air are required, maximum pressure is 85 PSIG (586 kPa).



A00S Single Solenoid Normally Closed (NC)

Single Solenoid 3-Way, 2-Position NO*

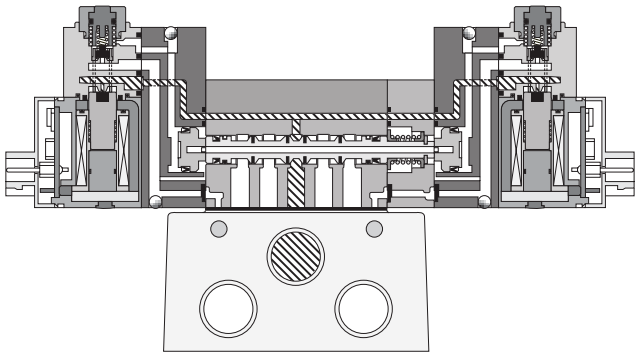


* To obtain NO function, ports 1 & 3 are reversed (1 becomes exhaust and 3 becomes supply).

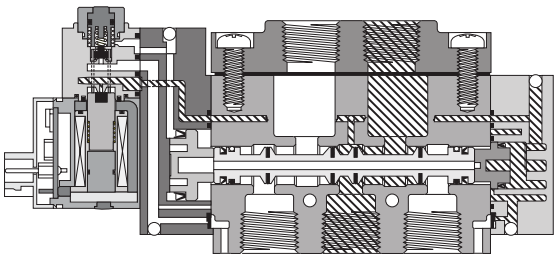
Vacuum Applications (Device becomes NC):
'1' port is connected to vacuum
'2' port is outlet
'3' port is connected to atmosphere or compressed air † when required.

† When both vacuum and compressed air are required, maximum pressure is 58 PSIG (400 kPa).

Caution: *Normally Open and Normally Closed 3-Way valve cannot be mixed on the same manifold.*



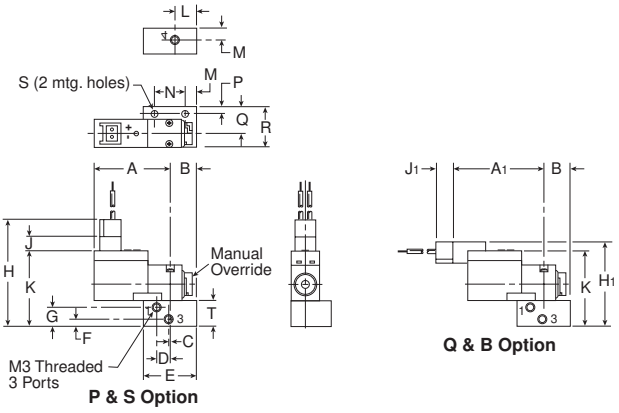
A05P Double Solenoid 3-Position Subbase Mounted



A12R Single Solenoid Inline

Pressure **Exhaust**

A00 Subbase

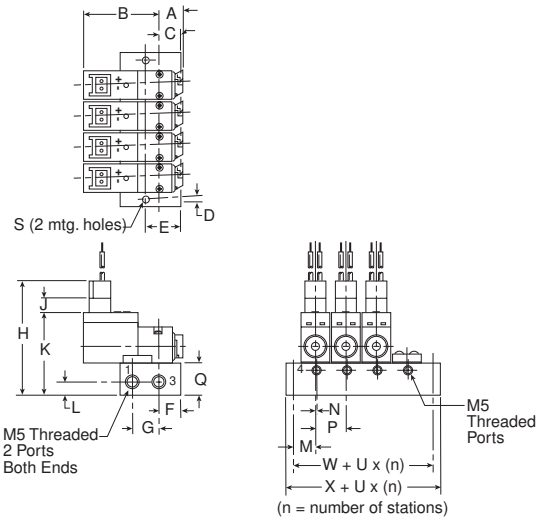


A00 - Subbase

A	A1	B	C	D
1.00 (25)	1.18 (30)	.41 (11)	.015 (.4)	.17 (4)
E	**F**	**G**	**H**	**H1**
.79 (20)	.12 (3)	.28 (7)	1.54 (39)	1.38 (34)
J	**J1**	**K**	**L**	**M**
.24 (6)	.20 (5)	1.11 (28)	.32 (8)	.18 (5)
N	**P**	**Q**	**R**	**S**
.47 (12)	.10 (3)	.39 (10)	.59 (15)	.106 (2.7)
T				
.38 (10)				

Inches (mm)

A00 Manifold

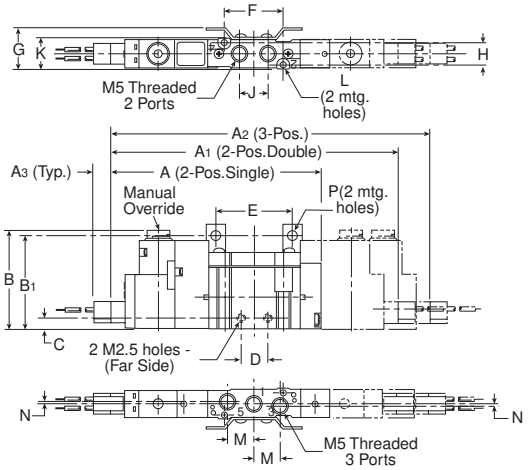


A00 - Manifold

A	B	C	D	E
.36 (9)	1.00 (25)	.31 (8)	.10 (3)	.51 (13)
F	**G**	**H**	**J**	**K**
.31 (8)	.39 (10)	1.63 (42)	.20 (5)	1.22 (31)
L	**M**	**N**	**P**	**Q**
.20 (5)	.33 (9)	.02 (.6)	.41 (10.5)	.47 (12)
S	**U**	**X**	**W**	
.125 (3.2)	.41 (10.5)	.45 (11.5)	.26 (6.5)	

Inches (mm)

A05R Single & Double Operators – Inline



A05R – Inline

A	A1	A2	A3	B
2.91 (74)	3.94 (100)	4.25 (108)	.24 (6)	1.38 (35)
B1	**C**	**D**	**E**	**F**
1.30 (33)	.16 (4)	.38 (10)	1.06 (27)	.83 (21)
G	**H**	**J**	**K**	**L**
.57 (15)	.33 (9)	.40 (10)	.45 (11.4)	Ø .08 Ø (2.1)
M	**N**	**P**		
.37 (10)	.04 (1)	Ø .14 Ø (3.5)		

Inches (mm)

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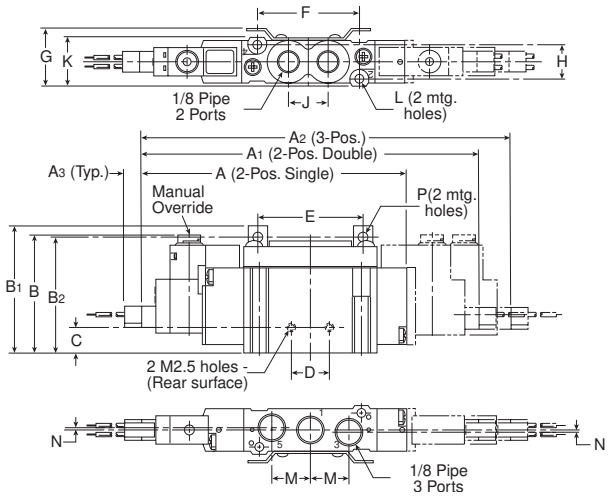
A12R Single & Double Operators – Inline

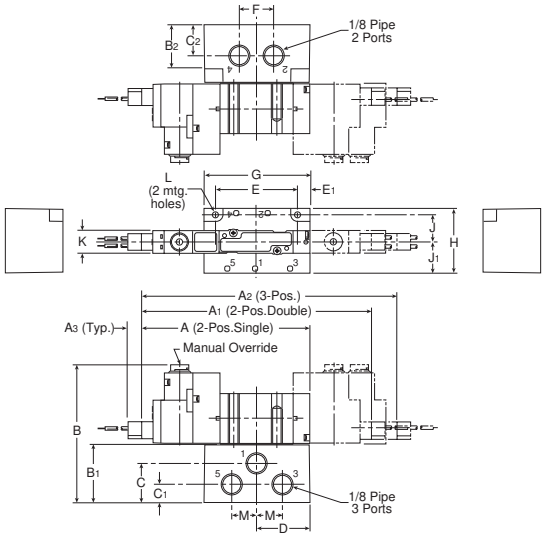


A12R – Inline

A	A1	A2	A3	B
3.68 (94)	4.69 (119)	5.12 (130)	.24 (6)	1.64 (42)
B1	**B2**	**C**	**D**	**E**
1.77 (45)	1.70 (43)	.35 (9)	.51 (13)	1.46 (37
F	**G**	**H**	**J**	**K**
1.42 (36)	.80 (20)	.47 (12)	.55 (14)	.68 (17)
L	**M**	**N**	**P**	
Ø .12 Ø (3.1)	.55 (14)	.03 (0.8)	Ø .14 Ø (3.5)	

Inches (mm)

A05P Single & Double Operators – Subbase

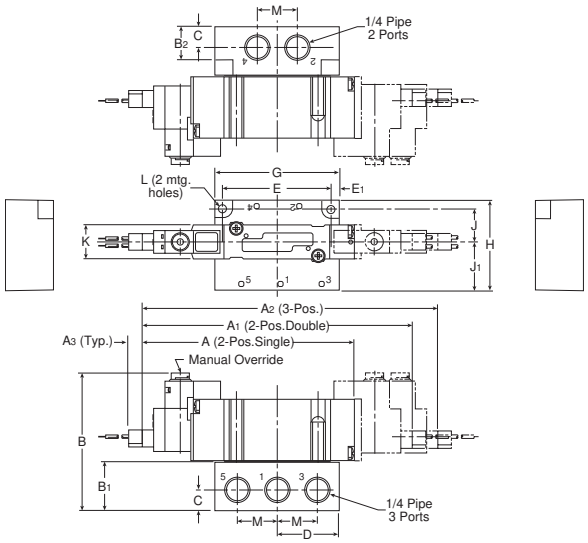


A05P – Subbase

A	A1	A2	A3	B
2.91 (74)	3.94 (100)	4.25 (108)	.24 (6)	2.35 (60)
B1	**B2**	**C**	**C1**	**C2**
.96 (25)	.75 (19)	.65 (17)	.30 (8)	.53 (14)
D	**E**	**E1**	**F**	**G**
.89 (23)	1.38 (35)	.20 (5)	.57 (15)	1.77 (45)
H	**J**	**J1**	**K**	**L**
.08 (28)	.45 (11.5)	.51 (13)	.39 (10)	Ø .13 Ø (3.2)
M				
.45 (12)				

Inches (mm)

A12P Single & Double Operators – Subbase



A12P – Subbase

A	A1	A2	A3	B
3.68 (94)	4.69 (119)	5.12 (130)	.24 (6)	2.41 (61)
B1	**B2**	**C**	**D**	**E**
.87 (22)	.75 (19)	.37 (10)	1.10 (28)	1.89 (48)
E1	**G**	**H**	**J**	**J1**
.16 (4)	2.20 (56)	1.59 (41)	.57 (14.5)	.87 (22)
K	**L**	**M**		
.59 (15)	Ø .17 Ø (4.3)	.71 (18)		

Inches (mm)

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Pneumatic Division
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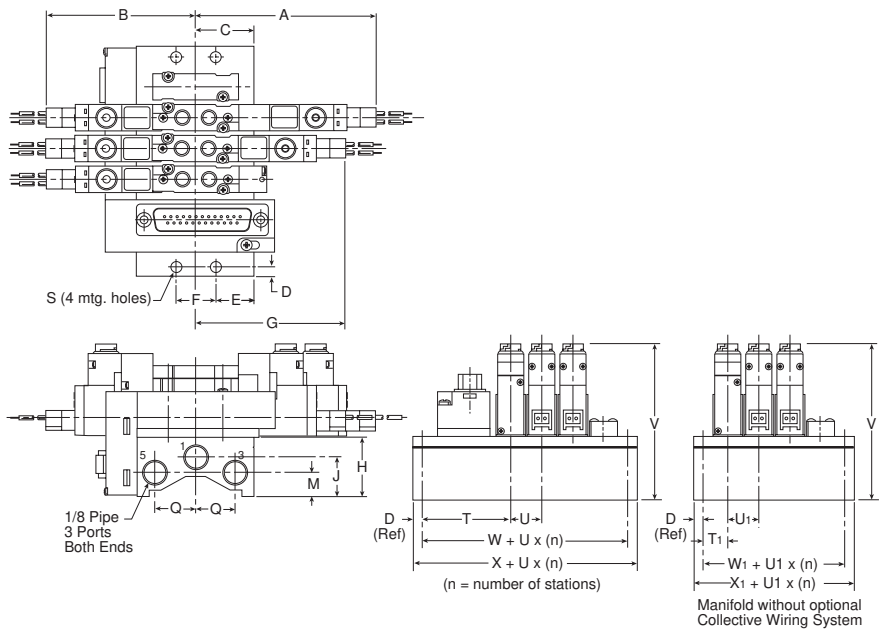
A05R Manifold – Valve Inline

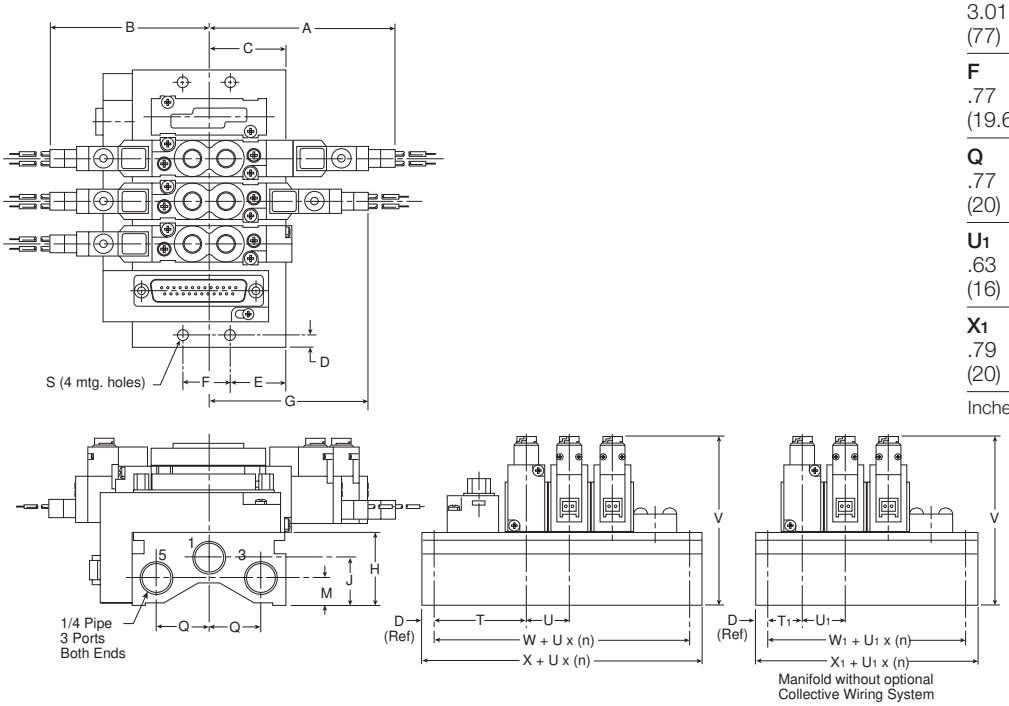


A05R - Manifold, Valve Inline

A	B	C	D	E
2.52 (64)	2.21 (56)	.94 (24)	.16 (4)	.61 (16)
F	**G**	**H**	**J**	**M**
.63 (16)	2.21 (56)	.94 (24)	.61 (16)	.37 (10)
Q	**S**	**T**	**T1**	**U**
.63 (16)	Ø .18 Ø (4.5)	1.34 (34)	.51 (13)	.49 (12.5)
U1	**V**	**W**	**W1**	**X**
.41 (10.5)	2.32 (59)	1.36 (35)	.37 (9.5)	167 (43)
X1				
.68 (17.5)				

Inches (mm)

A12R Manifold – Valve Inline



A12R - Manifold, Valve Inline

A	B	C	D	E
3.01 (77)	2.58 (66)	1.14 (29)	.20 (5)	.76 (19)
F	**G**	**H**	**J**	**M**
.77 (19.6)	2.58 (66)	1.08 (28)	.71 (18)	.41 (11)
Q	**S**	**T**	**T1**	**U**
.77 (20)	Ø .18 Ø (4.5)	1.48 (38)	.51 (13)	.69 (17.5)
U1	**V**	**W**	**W1**	**X**
.63 (16)	2.74 (70)	1.34 (34)	.39 (10)	1.73 (44)
X1				
.79 (20)				

Inches (mm)

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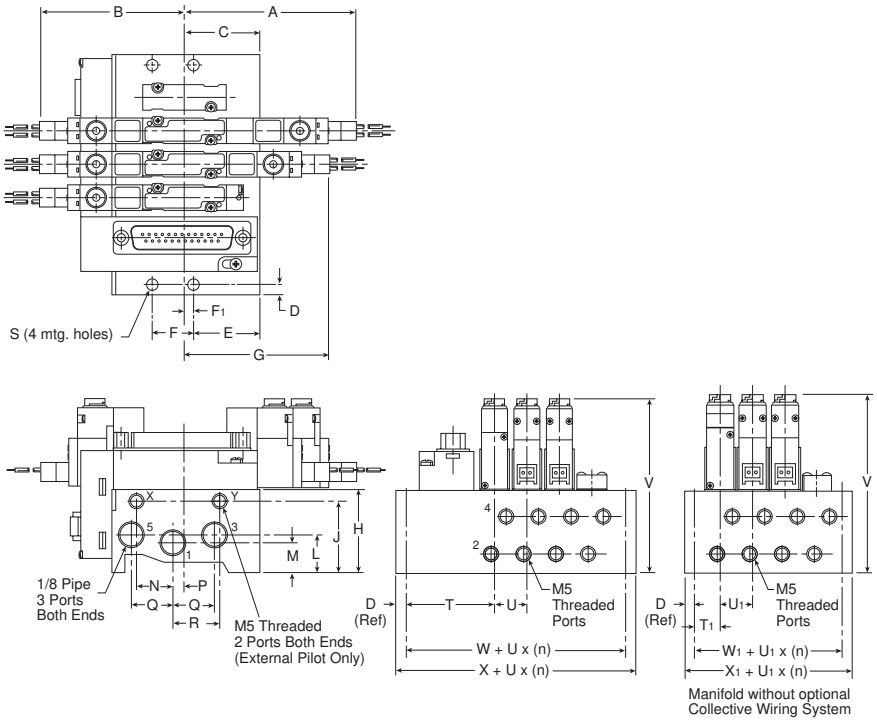
A05P Manifold – Side Ports

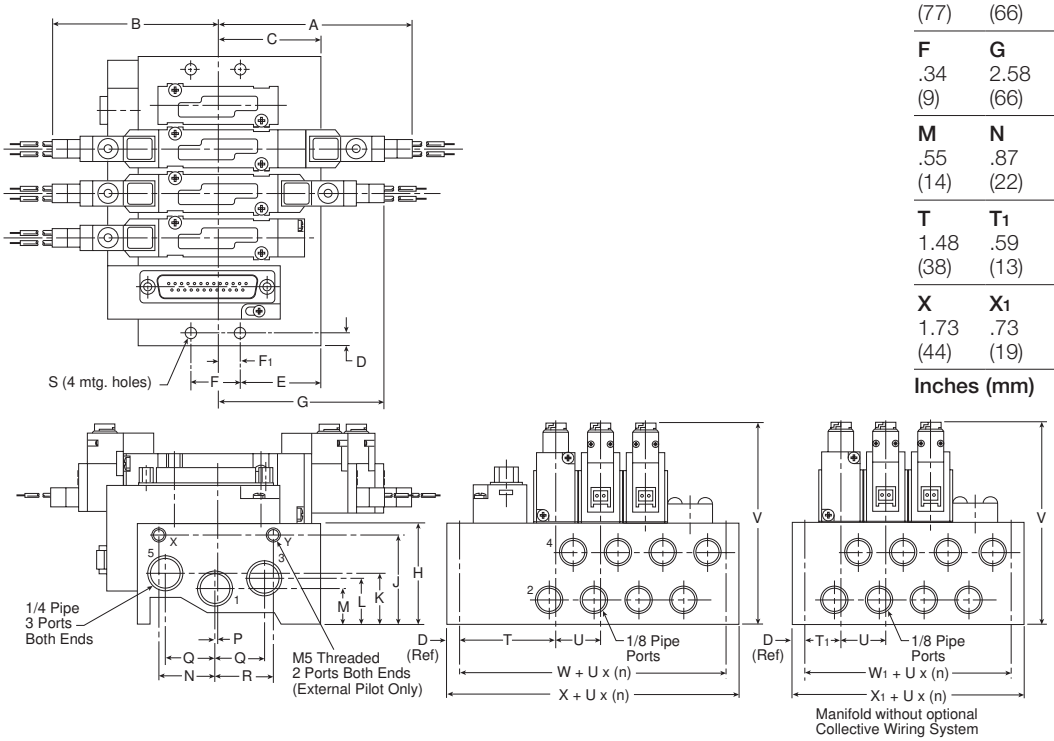


A05P – Manifold, Side Ports

A	B	C	D	E
2.52 (64)	2.21 (56)	1.12 (29)	.16 (4)	1.00 (26)
F	**F1**	**G**	**H**	**J**
.63 (16)	.19 (5)	2.21 (56)	1.26 (32)	1.08 (28)
L	**M**	**N**	**P**	**Q**
.59 (15)	.45 (11.5)	.55 (14)	.13 (3)	.63 (16)
R	**S**	**T**	**T1**	**U**
.71 (18)	Ø .18 Ø (4.5)	1.34 (34)	.39 (10)	.49 (12.5)
U1	**V**	**W**	**W1**	**X**
.41 (10.5)	2.64 (67)	1.32 (34)	.37 (10)	1.65 (42)
X1				
.67 (18)				

Inches (mm)

A12P Manifold – Side Ports



A12P – Manifold, Side Ports

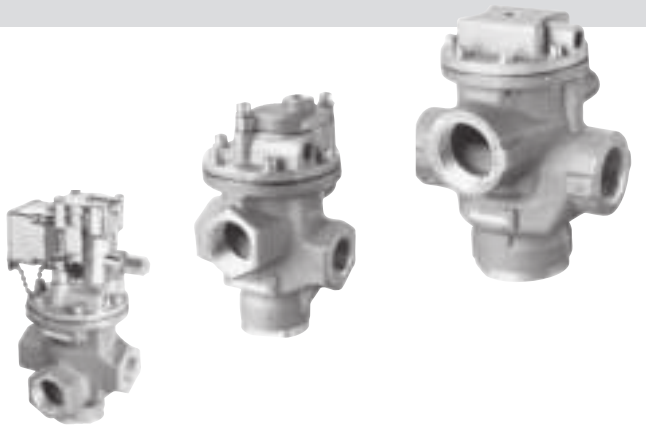
A	B	C	D	E	F
3.01 (77)	2.58 (66)	1.59 (40)	.20 (5)	1.25 (32)	.77 (20)
F	**G**	**H**	**J**	**K**	**L**
.34 (9)	2.58 (66)	1.57 (40)	1.38 (35)	.79 (20)	.71 (18)
M	**N**	**P**	**Q**	**R**	**S**
.55 (14)	.87 (22)	.04 (1)	.77 (20)	.91 (23)	Ø .18 Ø (4.5)
T	**T1**	**U**	**V**	**W**	**W1**
1.48 (38)	.59 (13)	.69 (17.5)	3.09 (79)	1.34 (34)	.33 (9)
X	**X1**				
1.73 (44)	.73 (19)				

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

N Series

For decades Parker Pneumatics and Heavy Industrial have been synonymous with durability and long life. High flow-speed N Series poppet valves have been operating in foundries, steel mills, and automotive casting & stamping plants without fail.



Features
- Continuous duty rated option
- Non-lube service
- Hi-flow, short stroke poppet
- Indicator lights available

Specifications
- 2-way NC
- 3-way NO & NC
- Selector function

Ports
- 3/8" Body – 3/8", 1/2" NPT; 3.0 to 4.4 Cv
- 3/4" Body – 1/2", 3/4", 1" NPT; 9.0 to 11.0 Cv
- 1-1/4" Body – 1", 1-1/4", 1-1/2" NPT; 20.0 to 30.0 Cv
- BSPP "G" threads available

Certification / approval
- Approved to be CE marked (Standard L-Pilot & P-Pilot)
- NEMA 4 Option
- Hazardous Duty Option IP65 Rating / NEMA 4

Material specifications

Valve body	Cast aluminum
Poppet assembly	Aluminum and stainless steel
Pilot Valve	Zinc, stainless steel, brass, copper, zinc plated steel
Seals	Nitrile

Lubrication

The high speed poppet valves are pre-lubricated to permit use with non-lubricated air. However, air should be lubricated to assure maximum seal life.

F442 lubricating oil is recommended. This oil is specially formulated to provide peak performance and maximum service life from air-operated equipment.

Installation

CAUTION: **DO NOT RESTRICT THE INLET TO POPPET VALVES**

Restriction of the inlet can starve the air supply to the pilot section of internally piloted poppet valves and result in slow shifting or failure of the valve to shift properly. Always connect the supply line directly to the inlet of the valve using the full pipe size of the valve inlet. Never use a quick coupling to connect a poppet valve to the air supply. On valves with a small inlet port, use of an upstream surge tank may be required at lower operating pressures to insure an adequate air supply and proper operation.

Operating information

Operating pressure:

Solenoid valves - internal pilot supply

3/8" Basic	3/4" Basic	1-1/4" Basic
20 to 140 PSIG (standard)	25 to 140 PSIG (200 PSIG option available)	25 to 140 PSIG (200 PSIG option available)

Solenoid valves - external pilot supply

Air pressure thru valve (PSI)	External pilot pressure required (PSI)*	
	3/8" Basic	3/4" Basic
25 PSI	35-200	35-200
50 PSI	45-200	40-200
75 PSI	55-200	50-200
100 PSI	65-200	65-200

Vacuum up to 1" HG, less than a perfect vacuum.

* With 200 PSI option. Do not exceed 140 PSI with standard pilots.

Internal pilot - remote pilot valve

Air pressure thru valve (PSI)	Remote pilot pressure (PSI)		
	3/8" Basic	3/4" Basic	1-1/4" Basic
25 PSI	30-250	30-250	30-250
50 PSI	50-250	50-250	50-250
75 PSI	70-250	75-250	70-250
100 PSI	95-250	95-250	90-250
150 PSI	140-250	145-250	130-250
200 PSI	175-250	185-250	175-250
250 PSI	215-250	230-250	205-250

Operating temperature:

Operator type	Duty cycle*	Minimum ambient temperature	Maximum ambient temperature
Standard service	Intermittent	0°F (-18°C)	125°F (52°C)
Solenoid	Continuous	0°F (-18°C)	100°F (38°C)
Special service	Intermittent	0°F (-18°C)	125°F (52°C)
Solenoid	Continuous	0°F (-18°C)	125°F (52°C)
Remote pilot	Not applicable	0°F (-18°C)	200°F (93°C)

* Applications with pilot valves energized for ten (10) minutes or longer with a duty cycle greater than 70% are considered to be continuously energized.

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

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Single Solenoid, Non-locking manual override, internal "L" pilot 140 PSI, standard service, junction box w/ light.

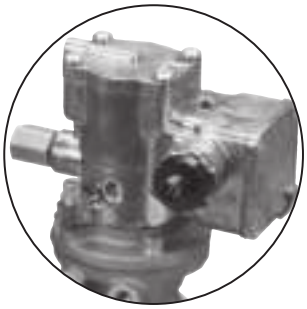
Normally Closed Normally Open

Body size	Cv	In / cyl ports	Exhaust port	Voltage	2-way, 2-position normally closed	3-way, 2-position normally closed	3-way, 2-position normally open
3/8"	3.6 to 3.9	3/8"	1/2"	120VAC	**N3153904553**	**N3553904553**	**N3753904553**
				24VDC	**N3153904549**	**N3553904549**	**N3753904549**
		1/2"	1/2"	120VAC	**N3154904553**	**N3554904553**	**N3754904553**
				24VDC	**N3154904549**	**N3554904549**	**N3754904549**
3/4"	7.7 to 9.6	1/2"	3/4"	120VAC	**N3155904553**	**N3555904553**	**N3755904553**
				24VDC	**N3155904549**	**N3555904549**	**N3755904549**
		3/4"	1"	120VAC	**N3156904553**	**N3556904553**	**N3756904553**
				24VDC	**N3156904549**	**N3556904549**	**N3756904549**
		1"	1"	120VAC	**N3157904553**	**N3557904553**	**N3757904553**
				24VDC	**N3157904549**	**N3557904549**	**N3757904549**

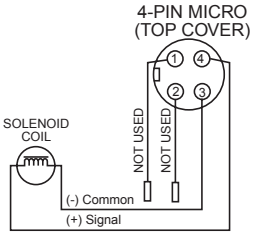
Single Solenoid, Non-locking manual override, internal "L" pilot 140 PSI, standard service, junction box w/ light, 4-pin M12.

Normally Closed

Body size	Cv	In / cyl ports	Exhaust port	Voltage	2-way, 2-position normally closed	3-way, 2-position normally closed	3-way, 2-position normally open
3/8"	3.6 to 3.9	3/8"	1/2"	24VDC	**N3153J04549F**	**N3553J04549F**	**N3753J04549F**
		1/2"	1/2"	24VDC	**N3154J04549F**	**N3554J04549F**	**N3754J04549F**
3/4"	7.7 to 9.6	1/2"	3/4"	24VDC	**N3155J04549F**	**N3555J04549F**	**N3755J04549F**
		3/4"	1"	24VDC	**N3156J04549F**	**N3556J04549F**	**N3756J04549F**
		1"	1"	24VDC	**N3157J04549F**	**N3557J04549F**	**N3757J04549F**



4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option F)
(Per ISO 202/01)



Most popular.

"N" Series 3/8", 3/4" & 1-1/4" Body Sizes - Solenoid 'L' Pilot

N	315	3	9	0	45	53	

Valve function - solenoid	
3/8" & 3/4" Body	
2-way, normally closed	**315**
3-way, normally closed	**355**
3-way, normally open	**375**
1-1/4" Body	
2-way, normally closed	**325**
3-way, normally closed	**365**
3-way, normally open	**385**

Port size / thread type	
3/8" body size	
3/8" Inlet & cyl - 1/2" exhaust - NPT	3
1/2" inlet & cyl - 1/2" exhaust - NPT	**4**
1/2" inlet & cyl - 1/2" exhaust - BSPP	N
3/4" body size	
1/2" inlet & cyl - 3/4" exhaust - NPT	5
3/4" inlet & cyl - 1" exhaust - NPT	**6**
3/4" inlet & cyl - 1" exhaust - BSPP	Q
1" inlet & cyl - 1" exhaust - NPT	7
1-1/4" body size	
1" inlet & cyl - 1 1/4" exhaust - NPT	7
1-1/4" inlet & cyl – 1-1/2" exhaust - NPT	**8**
1-1/4" inlet & cyl – 1-1/2" exhaust - BSPP	S*
1-1/2" inlet & cyl – 1-1/2" exhaust - NPT	**9**
1-1/2" inlet & cyl – 1-1/2" exhaust - BSPP	T*

* Not available with valve function 325.

Note: BSPP is to the ISO 228 standard, and requires an R-BSPT male fitting.

Solenoid enclosure / override	
Basic pilot	**1**
Basic pilot NLMO	2
Basic pilot LMO	3
Junction box NLMO	5
Junction box LMO	6
Junction box NLMO w/ light	**8**
Junction box LMO w/ light	**9**
Basic pilot ext. LMO	W
JIC NLMO w/ light - 3-pin Automotive	E
JIC NLMO w/ light - 4-pin M12	**J**
JIC NLMO w/ light - 5-pin Automotive	N

Solenoid type	
0	**Standard**
5*	Hazardous duty
8*	NEMA 4 solenoid

* Available with enclosure 2 & 3, 'L', pilot configuration 04 & 48, and voltage 49 & 53 ONLY.

"L" pilot configuration	
45	**Internal pilot, std service, 140 PSI**
46	Internal pilot, std service, 200 PSI
48	**Internal pilot, cont duty, 140 PSI**

* Not available with valve function 325, 365, and 385 (1-1/4" body).

"L" pilot configuration	
Blank	**None**
C	Chrysler wiring - enclosure 'J' & 'N'
F	**Ford wiring - enclosure 'E', 'J' & 'N'**
G	GM wiring - enclosure 'J' & 'N'

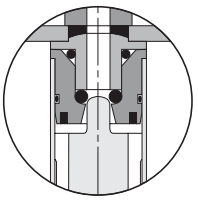
"L" pilot code						
	Voltage			Solenoid enclosure options		
Code	AC 60hz	AC 50hz	DC	Standard duty (01, 45)	Cont. duty (04, 48)	200 PSI (46)
42	24	24	6	5, 6	6	
45			12	1, 5, 6		
49			**24**	**1, 2, 3, 5, 6, 8, 9, W**	**6, 8, 9**	**9**
51			48	1		
53	**120**	**110**		**1, 2, 3, 5, 6, 8, 9, E, N, W**	**1, 6, 8, 9, N**	**8, 9, E**
57	240	220		1, 3, W		
61			120	5, 6		
79			**24**	**E, J**	**E, J**	**E, J**

Continuous Duty Pilots

Continuous duty 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 shutdown circuits where the pilot is to be energized and the valve open as long as the main control is "live" in order to shut off air to equipment in the event of power failure.

The Continuous duty 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-proven design features of the standard L-Pilot, the continuous duty pilot utilizes a bullet-shaped stem on the upper end of the plunger. This bullet-shaped stem, seating in a high-temperature rubber o-ring, provides both a bubble-tight seal and positive release.



Continuous Duty Pilot

☐ Most popular.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Single Solenoid, Non-locking manual override, internal "P" pilot 125 PSI, standard service, P-pilot junction box w/ light.


Normally Closed


Normally Open

Body size	Cv	In / cyl ports	Exhaust port	Voltage	2-way, 2-position normally closed	3-way, 2-position normally closed	3-way, 2-position normally open
1-1/4"	19.5 to 26.7	1"	1-1/4"	120VAC	**N3257904753**	**N3657904753**	**N3857904753**
		1-1/4"	1-1/2"	120VAC	**N3258904753**	**N3658904753**	**N3858904753**
		1-1/2"	1-1/2"	120VAC	**N3259904753**	**N3659904753**	**N3859904753**

"N" Series 1-1/4" Body Sizes - Solenoid Hi-Flow 'P' Pilot

N 365 8 9 0 47 53

Valve function - solenoid

1-1/4" body	
2-Way, normally closed	325
3-Way, normally closed	365
3-Way, normally open	385

Port size / thread type

1-1/4" body size	
1" inlet & cyl - 1 1/4" exhaust - NPT	**7**
1-1/4" inlet & cyl – 1-1/2" exhaust - NPT	**8**
1-1/4" inlet & cyl – 1-1/2" exhaust - BSPP	S
1-1/2" inlet & cyl – 1-1/2" exhaust - NPT	**9**
1-1/2" inlet & cyl – 1-1/2" exhaust - BSPP	T

Note: BSPP is to the ISO 228 standard, and requires an R-BSPT male fitting.

Solenoid enclosure / override

5	Junction box NLMO
6	Junction box LMO
8	**Junction box NLMO w/ light**
9	**Junction box LMO w/ light**

Solenoid type

0	**Standard**

"P" pilot configuration

02	External pilot, std service, 125 PSI
47	**Internal pilot, std service, 125 PSI**

"P" pilot code

Code	Voltage: AC 60hz	Voltage: AC 50hz	Voltage: DC	Enclosure options: Standard duty
49			24	5, 6
53	120	110		5, 6, 8, 9

Most popular.

Single Remote Pilot, 1/4" NPT remote pilot port with internal pilot return.


Normally Closed


Normally Open

Body size	Cv	In / cyl ports	Exhaust port	2-way, 2-position normally closed	3-way, 2-position normally closed	3-way, 2-position normally open
3/8"	3.6 to 3.9	3/8"	1/2"	**N31431091**	**N35431091**	**N37431091**
		1/2"	1/2"	**N31441091**	**N35441091**	**N37441091**
3/4"	7.7 to 9.6	1/2"	3/4"	**N31451091**	**N35451091**	**N37451091**
		3/4"	1"	**N31461091**	**N35461091**	**N37461091**
		1"	1"	**N31471091**	**N35471091**	**N37471091**

Single Remote Pilot, 1/4" NPT remote pilot port with internal pilot return.


Normally Closed


Normally Open

Body size	Cv	In / cyl ports	Exhaust port	2-way, 2-position normally closed	3-way, 2-position normally closed	3-way, 2-position normally open
1-1/4"	19.5 to 26.7	1"	1-1/4"	**N32471091**	**N36471091**	**N38471091**
		1-1/4"	1-1/2"	**N32481091**	**N36481091**	**N38481091**
		1-1/2"	1-1/2"	**N32491091**	**N36491091**	**N38491091**

"N" Series 3/8", 3/4" & 1-1/4" Body Sizes - Remote Pilot

N 314 3 1 091

Valve Function - Solenoid	
3/8" & 3/4" Body	
2-Way, Normally Closed	**314**
3-Way, Normally Closed	**354**
3-Way, Normally Open	**374**
1-1/4" Body	
2-Way, Normally Closed	**324**
3-Way, Normally Closed	**364**
3-Way, Normally Open	**384**

Port Size / Thread Type	
3/8" Body Size	
3/8" Inlet & Cyl - 1/2" Exhaust - NPT	3
1/2" Inlet & Cyl - 1/2" Exhaust - NPT	**4**
1/2" Inlet & Cyl - 1/2" Exhaust - BSPP	N
3/4" Body Size	
1/2" Inlet & Cyl - 3/4" Exhaust - NPT	**5**
1/2" Inlet & Cyl - 3/4" Exhaust - BSPP	P
3/4" Inlet & Cyl - 1" Exhaust - NPT	**6**
3/4" Inlet & Cyl - 1" Exhaust - BSPP	Q
1" Inlet & Cyl - 1" Exhaust - NPT	7
1-1/4" Body Size	
1" Inlet & Cyl - 1 1/4"Exhaust - NPT	**7**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - NPT	**8**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - BSPP	S*
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - NPT	**9**
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - BSPP	T*

* Not available with Valve Function 325.

Note: BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.

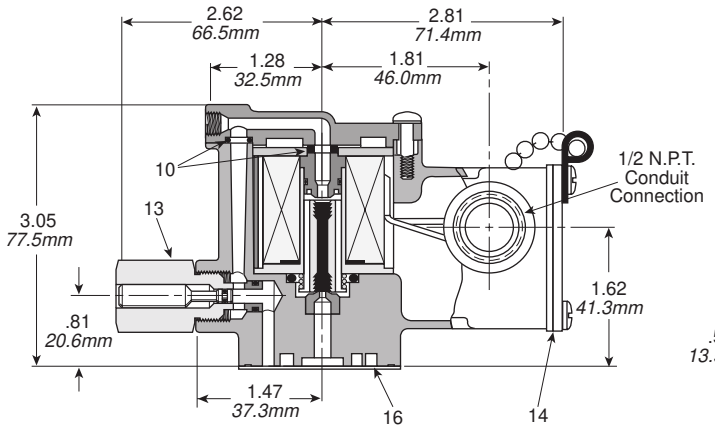
Pilot Configuration	
089	External Pilot Return
091	**Internal Pilot Return**

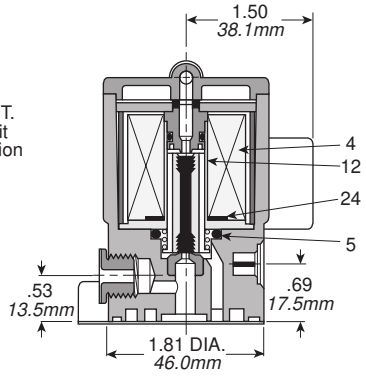
☐ Most popular.

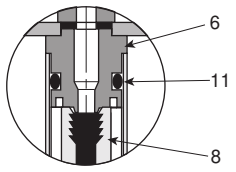
Replacement Pilots

Description	Standard L-pilot		Continuous duty L-pilot	
Override type	**Locking**	**Non-locking**	**Locking**	**Non-locking**
Basic with override	**K0653035****	**K0652035****	**K0853025****	**K0852025****
JIC with junction box & override	**K0656035****	**K0655035****	**K0856025****	**K0855025****
JIC pilot with junction box & override & indicator lights (120VAC only)	**K0659035****	**K0658035****	**K0859025****	**K0858025****

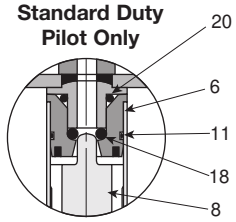
** Voltage code - (reference model index for availability)







Standard Duty Pilot Only



Continuous Duty Pilot Only

Parts List

Item no.	Part number	Description
4	**K593025**	Coil 120V 60Hz / 110V 50Hz
	K593035	Coil 240V 60Hz / 220V 50Hz
	K593003	Coil 6VDC / 24V 60Hz
	K593010	Coil 12VDC
	K593014	Coil 24VDC
	K593041	Coil 120VDC
5	**H14213**	Seal
6	**K423006**	Top Seat
	K423010	Top Seat (Continuous Duty)
8	**K343002**	Plunger (STD. Service)
	K343001	Plunger (Continuous Duty)
10*	**H14201**	Seal
11*	**K41RB72011**	O-Ring (STD. Service)
	H24969	O-Ring (Continuous Duty)

Item no.	Part number	Description
12	**K272004**	Plunger Guide
13	**K152003**	Override Assembly
14	**K183047**	Cover Gasket
16*	**K183001**	Gasket
18*	**H13473**	O-Ring
20*	**H13413**	O-Ring
22	**H19102**	120 AC Only – Indicator Light
24	**K183108**	Gasket

Coil leads are 19" long.
* Parts included in Service Kit.
Continuous Duty Kit K352366
Standard Service Kit K352166

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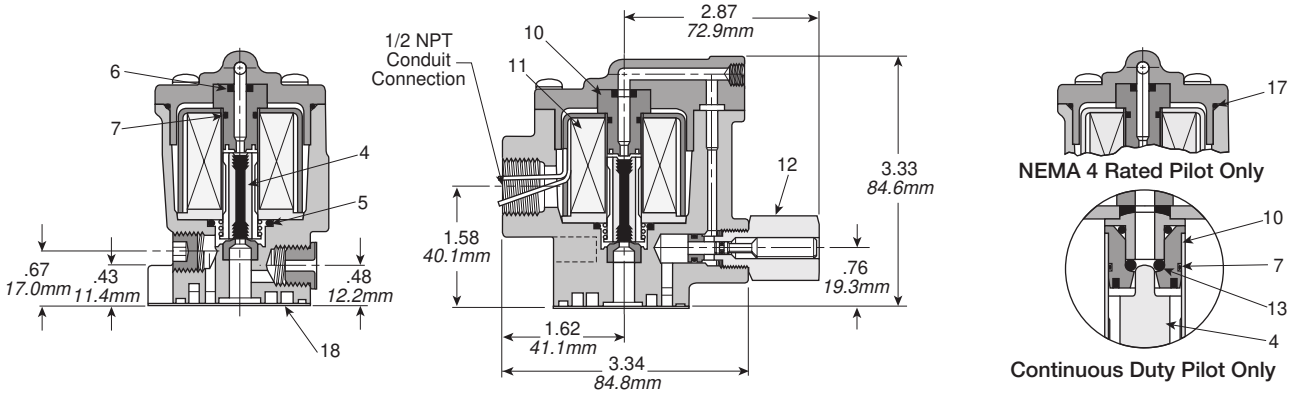
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Replacement Pilots

Description	Hazardous duty L-pilot		NEMA 4 L-pilot	
Hazardous duty L-pilot - UL & CSA	**K0451025****	N/A		
Override type	**Locking**	**Non-Locking**	**Locking**	**Non-Locking**
Hazardous duty with override	**K0453025****	**K0452025****		
NEMA 4 with override			**K2553025****	**K255202549**

** Voltage code - 49 & 53



Parts List

Item no.	Part number	Description
4*	**K343002**	Plunger (STD. Service)
	K343001	Plunger (Continuous Duty)
5*	**K14213**	Seal
6*	**K41RB72009**	O-Ring
	K41RB72008	O-Ring (STD. Service)
7*	**K41RB72011**	O-Ring (STD. Service)
	H24969	O-Ring (Continuous Duty)
10	**K423001**	Top Seat
	K423002	Top Seat (Continuous Duty)
11	**K593025**	Coil 120V 60Hz / 110V 50Hz
	K593035	Coil 240V 60Hz / 220V 50Hz
	K593003	Coil 6VDC / 24V 60Hz
	K593010	Coil 12VDC
	K593014	Coil 24VDC
	K593041	Coil 120VDC

Item no.	Part number	Description
12	**K152003**	Override Assembly
13*	**H13473**	O-Ring
17*	**H13716**	Gasket (NEMA 4 Rated Pilot Only)
18*	**K183001**	Gasket

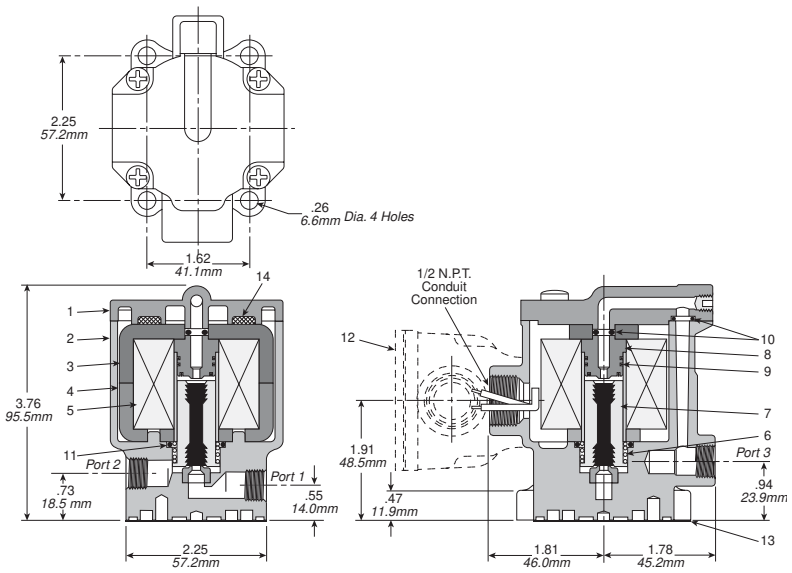
Coil leads are 19" long.

* Parts included in Service Kit.
Continuous Duty Kit **K352366**
Standard Service Kit **K352166**

Replacement Pilots

Description	Heavy duty P-Pilot		
Override type	**No override**	**Non-locking**	**Locking**
Basic with override	**K1351045****	N/A	N/A
JIC with junction box & override	N/A	**K1355045****	**K1356045****
JIC Pilot with junction box & override & indicator lights (120VAC only)	N/A	**K135804553**	**K135904553**

** Voltage code - 49 & 53



Parts List

Item no.	Part number	Description
1	**K062005**	Cover Assy
2	**K112045**	Body, Man. Mtd. (1/8" Bottom Seal)
	K112046	Body, Man. Mtd. (3/16" Bottom Seal)
3	**K013001**	Magnet Bar
4	**K272002**	Sleeve Sub Assy
5*	**K593108**	Coil (115V 60Hz)
	K593112	Coil (230V 60Hz)
	K593097	Coil 24VDC
	K593107	Coil 115VDC

Item no.	Part number	Description
6	**K473010**	Spring N.O. Valve
	K473011	Spring N.C. Valve
7 •	**K343042**	Plunger
8	**K423020**	Top Seat (1/8" Orifice)
	K423022	Top Seat (3/16" Orifice)
9 •	**H13436**	Seal
10 •	**H14202**	Seal
11 •	**H14215**	Seal
12	**K322004**	Junction Box Kit
13 •	**K183012**	Gasket

* Coil leads are 19" long.
• Parts included in Seal Kit K352064.

Coils for Pilot Operated Valves

The voltage code of the valve can be identified in the 10th and 11th digit of the valve part number.

1 2 3 4 5 6 7 8 8 10 11
N □□□ □□ □□□ * *
Voltage Code

L-Pilot Valves

Voltage Code **	Voltage 60Hz	50Hz	DC	Coil 19" Leads	72" Leads
40	12	—	—	**K593007**	—
41,42	24	—	6	**K593003**	—
45*	—	—	12	**K593010**	—
49*	—	—	24 (Standard)	**K593014**	—
79	—	—	24 (Arc Suppressed)	**K593271**	—
51*	—	—	48	—	**K593185**
53*	120	110	—	**K593025**	—
57*	240	240	—	**K593035**	—
60	240	220	—	**K593035**	—
61	—	—	120	**K593041**	—

* Indicates voltages approved for solenoid operators designed for use in hazardous locations.

P-Pilot Valves

Voltage Code **	Voltage 60Hz	50Hz	DC	Coil 19" Leads	72" Leads
43	—	24	—	**K593098**	—
45	—	—	12	**K593094**	—
49	—	—	24	**K593097**	—
51	—	—	48	—	**K593254**
53	115	—	—	**K593108**	—
58	—	230	—	**K593111**	—

Solenoid Characteristics Chart

Voltage Range +10/-15% of Nominal

3/8" & 3/4" Basic – L-Pilot

Voltage/ Cycles	Amps Inrush	Amps Holding	Resistance Ohms	Watts	Insulation Class
120/60VAC	.29	.18	122	12	B
110/50VAC	.21	.14	122	12	B
240/60VAC	.18	.12	610	12	B
24/50VAC	1.2	.75	6.4	9.5	B
6VDC	–	1.4	4.5	7.6	B
12VDC	–	.66	17.7	9	B
24VDC	–	.32	71	9	B
48VDC	–	.22	216	11	B

NOTE: Continuous duty type service is for applications where pilot valve is energized more than ten (10) minutes.

Solenoid Characteristics Chart

Voltage Range +10/-15% of Nominal

1-1/4" Basic – P-Pilot

Voltage/ Cycles	Amps Inrush	Amps Holding	Resistance Ohms	Watts	Insulation Class
120/60VAC	.46	.25	35	18.5	B
110/50VAC	.36	.19	48	12	B
230/60VAC	.26	.15	125	19.5	B
220/50VAC	.20	.11	191	15	B
24/60VAC	2.3	1.4	1.3	20	B
24/50VAC	1.6	.9	2.1	12	B
12VDC	–	.7	17	8	B
24VDC	–	.33	68	8	B
48VDC	–	.16	275	7.5	B

NOTE: Continuous duty type service is for applications where pilot valve is energized more than ten (10) minutes.

Hazardous Duty Solenoid Listing

Valves with solenoid operators designed for hazardous locations are UL & CSA Approved as follows:

National Electric Code	Ambient Conditions	NEMA Classification
Class I Div. 1, Group C	Ethyl, Ether, Etc. Gases & Vapors	VII (7)
Class I Div. 1, Group D	Gasoline, Etc. Gases & Vapors	VII (7)
Class I Div. 2, Group B	Butadiene, Etc., Liquid, Fluid or Vapor Normally Contained, or Atmosphere Ventilated	VII (7)
Class II Div. 1, Group E	Metal Dust	IX (9)
Class II Div. 1, Group F	Coal, Coke, Carbon Black Dust	IX (9)
Class II Div. 1, Group G	Flour, Starch, Grain Dust	IX (9)

See Article 500 – Hazardous (Classified) Locations, National Electric Code.

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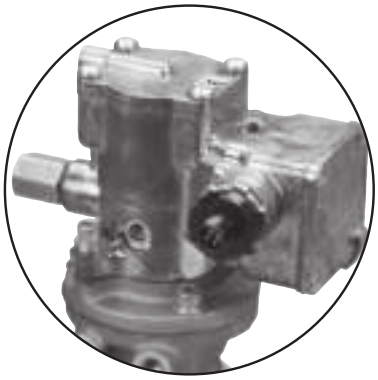
Flow

Basic Valve Size	Inlet Port Size	Exhaust Port Size	Cv Inlet to Cylinder	Cv Cylinder to Exhaust
3/8" 3-Way, Normally Closed	3/8" Pipe	1/2" Pipe	3.6	4.2
	1/2" Pipe	1/2" Pipe	3.8	4.3
3/8" 3-Way, Normally Open	3/8" Pipe	1/2" Pipe	3.6	4.1
	1/2" Pipe	1/2" Pipe	3.9	4.5
3/4" 3-Way, Normally Closed	1/2" Pipe	3/4" Pipe	8.2	9.2
	3/4" Pipe	1" Pipe	9.3	10.8
3/4" 3-Way, Normally Open	1/2" Pipe	3/4" Pipe	7.7	6.6
	3/4" Pipe	1" Pipe	9.6	11.4
1-1/4" 3-Way, Normally Closed	1" Pipe	1-1/4" Pipe	19.5	23.5
	1-1/4" Pipe	1-1/2" Pipe	23.3	26.9
	1-1/2" Pipe	1-1/2" Pipe	23.3	26.9
1-1/4" 3-Way, Normally Open	1" Pipe	1-1/4" Pipe	20.4	24.8
	1-1/4" Pipe	1-1/2" Pipe	25.0	29.1
	1-1/2" Pipe	1-1/2" Pipe	26.7	29.9

Wiring Connections

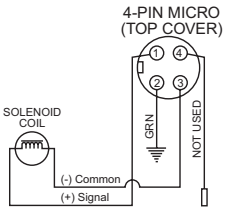


Automotive Connections
- 3-Pin & 5-Pin “Mini” (7/8 UNF Thread)
- 4-Pin “Micro” (M12 Thread)

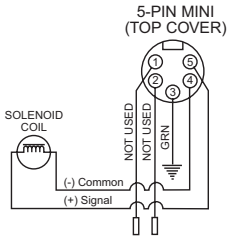
Solenoid Configurations
“E”, “J”, “N”

Chrysler Connection

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option C)

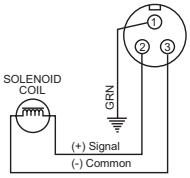


5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option C)

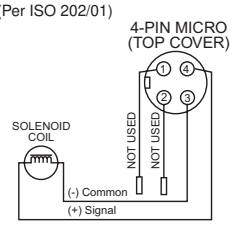


Ford Connection

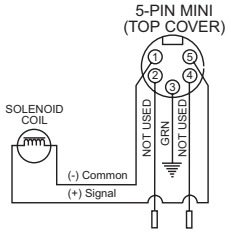
3-Pin Male/Single Solenoid
(Encl. Option E, Wiring Option F)



4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option F)
(Per ISO 202/01)

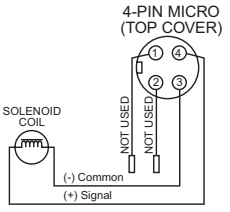


5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option F)

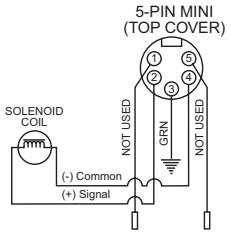


GM Connection

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option G)



5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option G)



Selection
Although reasonable safety factors are designed into each speed poppet valve, it is important that application requirements do not exceed the rated limitation of the valve. This precaution insures a sufficient safety factor.

Life Expectancy
Normal multimillion cycle life expectancy of high speed poppet series valves is based on the use of properly filtered and lubricated air at room temperature. In actual laboratory tests, the high speed poppet valves provide maintenance-free service life in excess of 20,000,000 cycles.

Lubrication
The high speed poppet valves are pre-lubricated to permit use with non-lubricated air. However, air should be lubricated to assure maximum seal life.

F442 lubricating oil is recommended. This oil is specially formulated to provide peak performance and maximum service life from air-operated equipment.

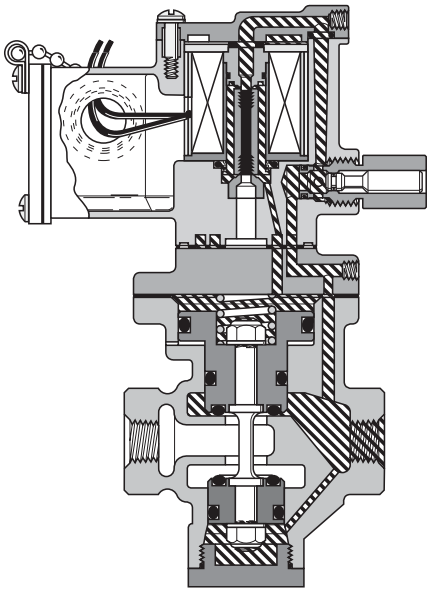
Other good air line lubricating oils may be used provided they atomize readily and are of the medium aniline type. Aniline point range must be between 180°F - 220°F. Viscosity SUS @ 100°F of 140-170. High aniline oils will shrink seals; low aniline oils will swell seals, reducing operating life and expectancy.

Installation
Valves should be installed with reasonable accessibility for service whenever possible. Care should be taken to hold piping length to a minimum and to protect valves from exposure to extreme heat, dirt and moisture. Piping should be clean and clear of dirt and chips. Threads should be the correct size and undamaged. Pipe joint compound should be used sparingly and only on pipe threads, never in the valve body. Care should be taken in installation to avoid undue strain on valve.

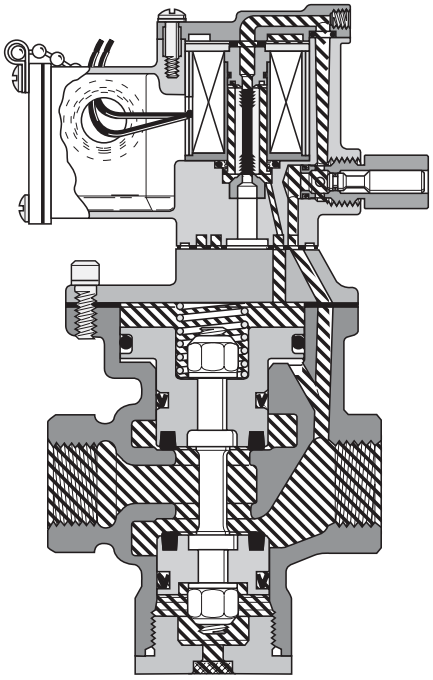
For the small port size options, it is recommended that an air reservoir is located close to the valve inlet as to not starve the valve of air pressure.

⚠ ***CAUTION:*** **DO NOT RESTRICT THE INLET TO POPPET VALVES**

Restriction of the inlet can starve the air supply to the pilot section of internally piloted poppet valves and result in slow shifting or failure of the valve to shift properly. Always connect the supply line directly to the inlet of the valve using the full pipe size of the valve inlet. Never use a quick coupling to connect a poppet valve to the air supply. On valves with a small inlet port, use of an upstream surge tank may be required at lower operating pressures to insure an adequate air supply and proper operation.



3/8" Solenoid Pilot De-Energized
Normally Closed



1-1/4" Solenoid Pilot De-Energized
Normally Open

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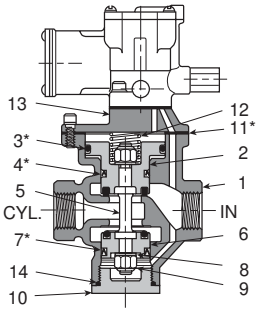
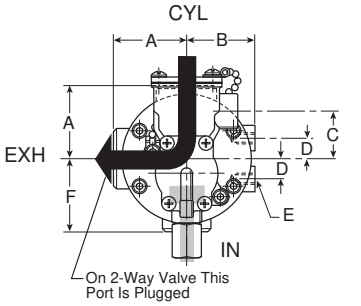
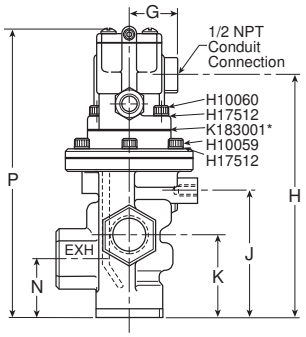
Internal Pilot - 3/8" & 3/4" Basic Body

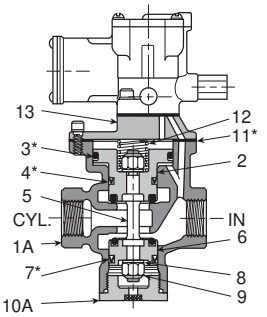
Normally Closed

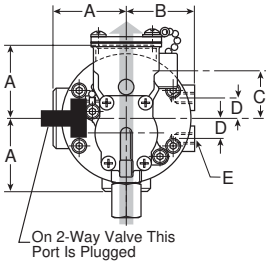


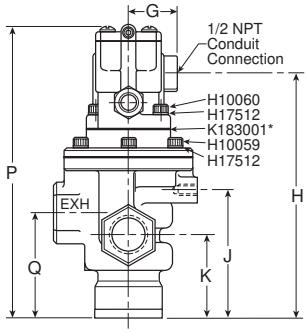




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Internal Pilot - 3/8" & 3/4" Basic Body

	3/8" Body		3/4" Body	
Key	Inch	mm	Inch	mm
A	1.56	40	2.13	54
B	1.50	38	1.94	49
C	1.81	46	1.34	34
D	.56	14	.56	14
E	3/8-16UNC 7/16" deep		3/8-16UNC 9/16" deep	
F	1.75	44	2.25	57
G	1.50	38	1.50	38
H	5.92	150	7.14	181
J	3.19	81	3.75	95
K	1.88	47	2.44	62
N	1.44	37	1.78	45
P	7.36	196	8.58	218
Q	2.31	59	3.09	84

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic valve with standard service L-Pilots.....**K352076**

3/8" Basic valve with continuous duty L-Pilots.....**K352276**

3/4" Basic valve with standard service L-Pilots.....**K352077**

3/4" Basic valve with continuous duty L-Pilots.....**K352277**

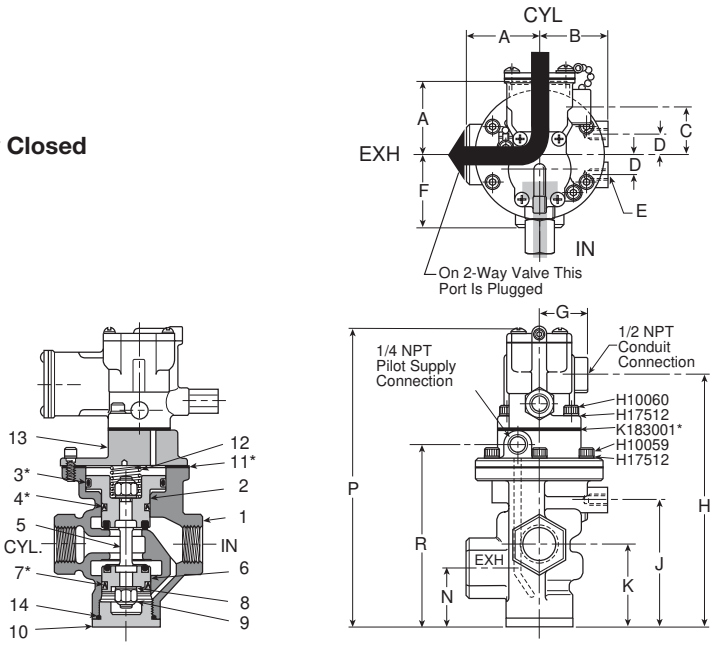
Key	3/8" Valve	3/4" Valve	Description
1	—	1/2" Tap **K053075**	Body (N.C.)
	3/8" Tap **K053022**	3/4" Tap **K053076**	
	1/2" Tap **K053023**	1" Tap **K053220**	
1A	—	3/4" Tap **K053077**	Body (N.O.)
	3/8" Tap **K053025**	3/4" Tap **K053078**	
	1/2" Tap **K053026**	1" Tap **K053218**	
2	**K212001**	**K212002**	Upper piston assy
3*	**H13648**	**H13728**	Seal

Key	3/8" Valve	3/4" Valve	Description
4*	**H14510**	**H13676**	U-cup (3/8), o-ring (3/4)
5	**K493002**	**K493009**	Stem
6	**K202001**	**K202002**	Lower piston assy.
7*	**H14509**	**H13676**	U-cup (3/8), o-ring (3/4)
8	**H17811**	**H17813**	Washer (2)
9	**H06326**	**H06332**	Stop nut (2)
10	**K103035**	**K103053**	Bottom cap (N.C.)
10A	**K092020**	**K092034**	Bottom cap assy. (N.O.)
11*	**K183049**	**K183057**	Gasket
12	**K473014**	**K473015**	Spring
13	**K563015**	**K563017**	Adapter
14*	**K41RB72121**	**K41RB72221**	O-ring

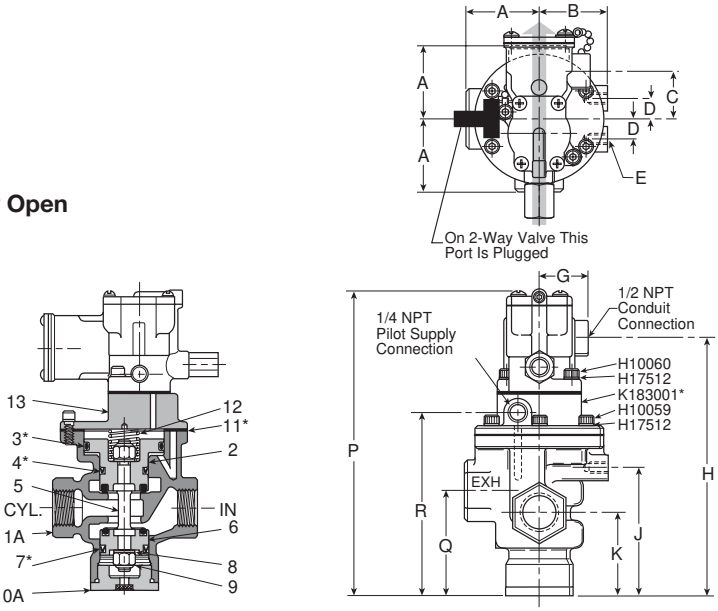
*** Parts included in seal kit**

External Pilot - 3/8" & 3/4" Basic Body

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

External Pilot - 3/8" & 3/4" Basic Body

Key	3/8" Body		3/4" Body	
	Inch	mm	Inch	mm
A	1.56	40	2.13	54
B	1.50	38	1.94	49
C	1.81	46	1.34	34
D	.56	14	.56	14
E	3/8-16UNC 7/16" deep		3/8-16UNC 9/16" deep	
F	1.75	44	2.25	57
G	1.50	38	1.50	38
H	6.42	163	7.45	189
J	3.19	81	3.75	95
K	1.88	47	2.44	62
N	1.44	37	1.78	45
P	7.86	200	8.89	226
Q	2.31	59	3.09	84
R	4.34	110	5.38	137

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic valve with standard service L-Pilots.....**K352076**

3/8" Basic valve with continuous duty L-Pilots.....**K352276**

3/4" Basic valve with standard service L-Pilots.....**K352077**

3/4" Basic valve with continuous duty L-Pilots.....**K352277**

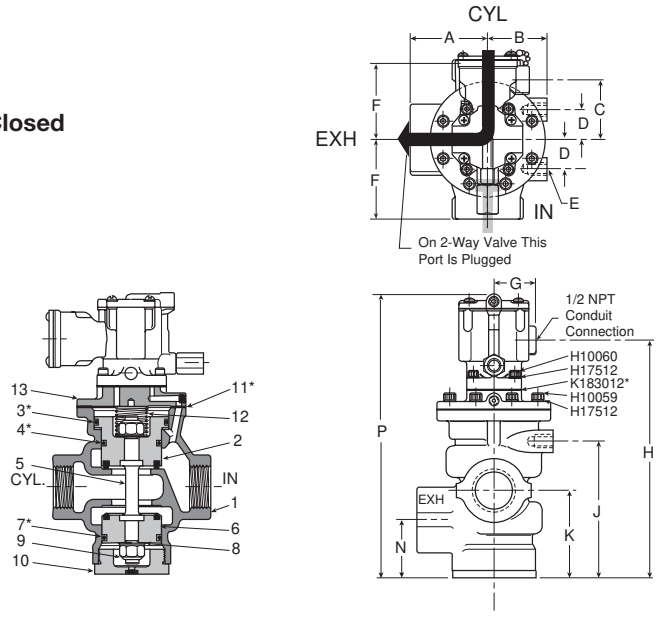
Key	3/8" Valve	3/4" Valve	Description
1	—	1/2" Tap **K053067**	Body (N.C.)
	3/8" Tap **K053019**	3/4" Tap **K053069**	
	1/2" Tap **K053157**	1" Tap **K053221**	
1A	—	3/4" Tap **K053065**	Body (N.O.)
	3/8" Tap **K053018**	3/4" Tap **K053070**	
	1/2" Tap **K053064**	1" Tap **K053219**	
2	**K212001**	**K212002**	Upper piston assy
3*	**H13648**	**H13728**	Seal
4*	**K41RB72211**	**H13676**	O-ring
5	**K493002**	**K493009**	Stem
6	**K202001**	**K202002**	Lower piston assy.
7*	**K41RB72210**	**H13676**	O-ring
8	**H17811**	**H17813**	Washer (2)
9	**H06326**	**H06332**	Stop nut (2)
10	**K103035**	**K103053**	Bottom cap (N.C.)
10A	**K092020**	**K092034**	Bottom cap assy. (N.O.)
11	**K473014**	**K473015**	Spring
12*	**K183049**	**K183057**	Gasket
13	**K563016**	**K563021**	Adapter
14*	**K41RB72121**	**K41RB72221**	O-ring

*** Parts included in seal kit**

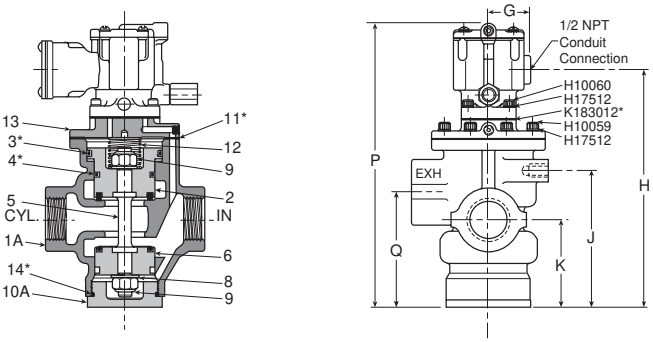
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Internal Pilot - 1-1/4" Basic Body

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Internal Pilot - 1-1/4" Basic Body

	1-14" Body	
Key	**Inch**	**mm**
A	3.00	76
B	2.25	57
C	1.34	34
D	1.19	30
E	1/2-13 UNC	3/4 Deep
F	3.13	80
G	1.50	38
H	9.30	236
J	5.34	136
K	3.44	87
N	2.31	59
P	11.14	283
Q	4.56	116

Service Kits

Include all parts normally required for in-service maintenance:

1-1/4" Basic valve with standard service P-Pilots **K352078**

Key	1-1/4" Valve	Description
1	1" Tap **K053111**	Body (N.C.)
	1-1/4" Tap **K053112**	
	1-1/2" Tap **K053113**	
1A	1" Tap **K053114**	Body (N.O.)
	1-1/4" Tap **K053115**	
	1-1/2" Tap **K053116**	
2	**K313029**	Upper piston assy
3*	**H13752**	O-ring
4*	**H13728**	Seal
5	**K493016**	Stem
6	**K313028**	Lower piston
7*	**H13728**	Seal
8	**H17817**	Washer
9	**H06338**	Stop nut
10	**K092046**	Bottom cap (N.C.)
10A	**K103061**	Bottom cap (N.O.)
11*	**K183058**	Gasket
12	**K473016**	Spring
13	**K012003**	Adapter
14*	**K41RB72143**	O-ring

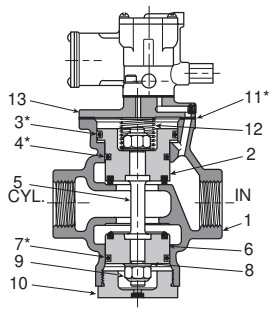
*** Parts included in seal kit**

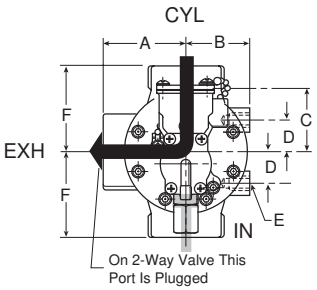
For inventory, lead time, and kit lookup, visit www.pdnplu.com

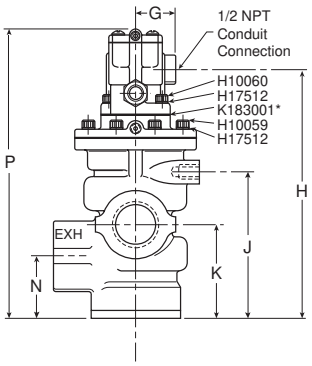
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Continuous Duty Pilot - 1-1/4" Basic Body

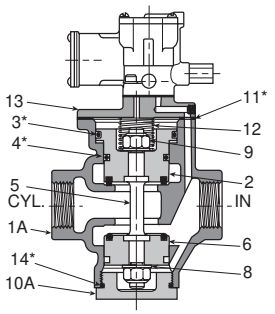
Normally Closed

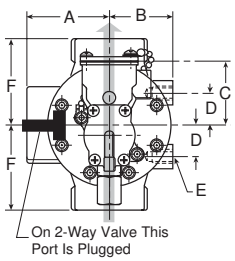


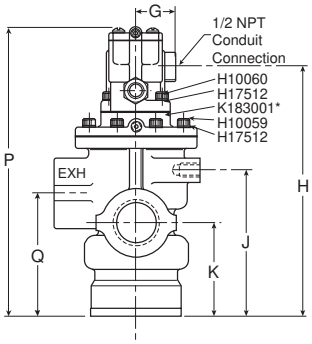




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Continuous Duty Pilot - 1-1/4" Basic Body

	1-1/4" Body	
Key	**Inch**	**mm**
A	3.00	76
B	2.25	57
C	1.34	34
D	1.19	30
E	1/2-13 UNC	3/4 Deep
F	3.13	80
G	1.50	38
H	9.02	229
J	5.34	136
K	3.44	87
N	2.31	59
P	10.45	265
Q	4.56	116

Service Kits

Include all parts normally required for in-service maintenance:

1-1/4" Basic valve with continuous duty L-Pilot.....**K352080**

Key	1-1/4" Valve	Description
1	1" Tap **K053111**	Body (N.C.)
	1-1/4" Tap **K053112**	
	1-1/2" Tap **K053113**	
1A	1" Tap **K053114**	Body (N.O.)
	1-1/4" Tap **K053115**	
	1-1/2" Tap **K053116**	
2	**K313029**	Upper piston assy
3*	**H13752**	O-Ring

Key	1-1/4" Valve	Description
4*	**H13728**	Seal
5	**K493016**	Stem
6	**K313028**	Lower piston
7*	**H13728**	Seal
8	**H17817**	Washer
9	**H06338**	Stop nut
10	**K092046**	Bottom cap (N.C.)
10A	**K103061**	Bottom cap (N.O.)
11*	**K183058**	Gasket
12	**K473016**	Spring
13	**K012003**	Adapter
14*	**K41RB72143**	O-ring

*** Parts included in seal kit**

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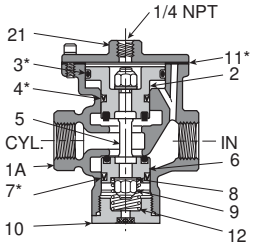
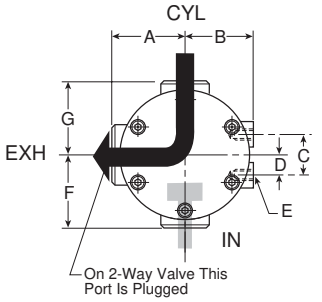
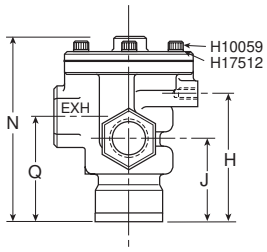
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Internal Return - 3/8", 3/4", 1-1/4" Basic Body

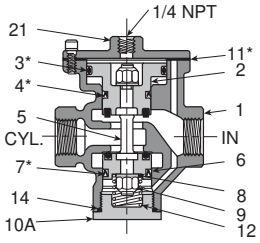
Normally Closed

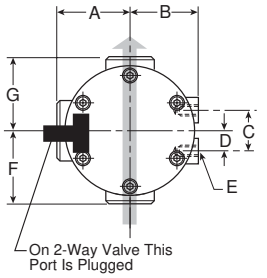


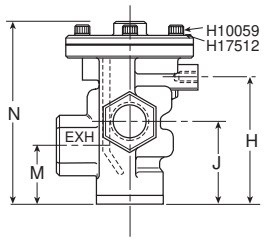




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Internal Return - 3/8", 3/4", 1-1/4" Basic Body

Key	3/8" Body		3/4" Body		1-1/4" Body	
	Inch	mm	Inch	mm	Inch	mm
A	1.56	40	2.13	54	3.00	76
B	1.50	38	1.94	49	2.25	57
C	1.13	29	1.13	29	2.38	60
D	.56	14	.56	14	1.19	30
E	3/8–16UNC 7/16" deep		3/8–16UNC 9/16" deep		1/2–13UNC 3/4" deep	
F	1.75	44	2.25	57	3.13	79
G	1.56	40	2.13	54	3.13	79
H	3.19	81	3.75	95	5.34	136
J	1.88	48	2.44	62	3.44	87
M	1.44	37	1.78	45	2.66	67
N	4.22	107	5.31	135	7.19	183
Q	2.31	59	3.09	78	4.56	116

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic valve.....**K352073**
3/4" Basic valve.....**K352074**
1-1/4" Basic valve **K352075**

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
1	—	1/2" Tap **K053075**	1" Tap **K053111**	Body (N.O.)
	3/8" Tap **K053022**	3/4" Tap **K053076**	1-1/4" Tap **K053112**	
	1/2" Tap **K053023**	1" Tap **K053220**	1-1/2" Tap **K053113**	
1A	—	1/2" Tap **K053077**	1" Tap **K053114**	Body (N.C.)
	3/8" Tap **K053025**	3/4" Tap **K053078**	1-1/4" Tap **K053115**	
	1/2" Tap **K053026**	1" Tap **K053218**	1-1/2" Tap **K053116**	
2	**K212001**	**K212002**	**K313029**	Upper piston assy
3*	**H13648**	**H13728**	**H13752**	Seal
4*	**H14510**	**H13676**	**H13728**	Seal

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
5	**K493002**	**K493009**	**K493016**	Stem
6	**K202001**	**K202002**	**K313028**	Lower piston assy.
7*	**H13499**	**H13676**	**H13728**	Seal
8	**H17811**	**H17813**	**H17817**	Washer (2)
9	**H06326**	**H06332**	**H06338**	Stop nut (2)
10	**K092020**	**K092034**	**K092046**	Bottom cap (N.C.)
10A	**K103035**	**K103053**	**K103061**	Bottom cap (N.O.)
11*	**K183049**	**K183057**	**K183058**	Gasket
12	**K473014**	**K473015**	**K473016**	Spring
14*	**K41RB72121**	**K41RB72221**	**K41RB72143**	O-ring
21	**K123018**	**K123021**	**K123024**	Cover

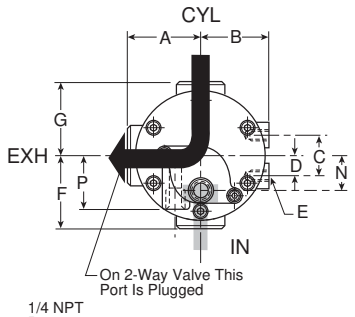
*** Parts included in seal kit**

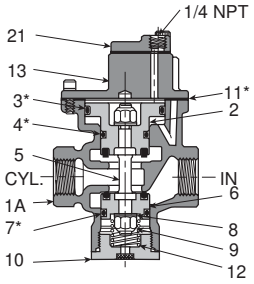
For inventory, lead time, and kit lookup, visit www.pdnplu.com

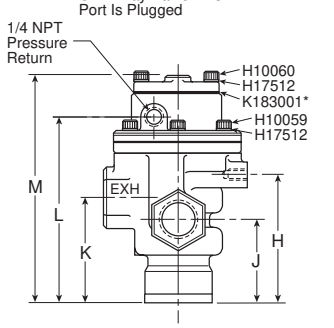
Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

External Return - 3/8", 3/4", 1-1/4" Basic Body

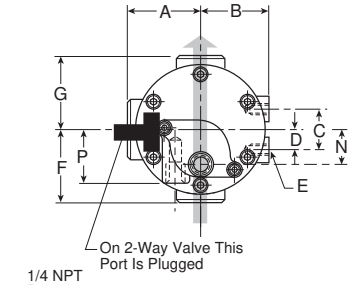
Normally Closed

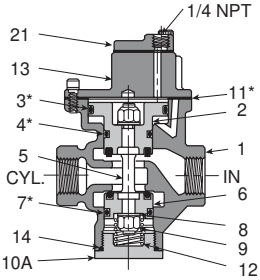


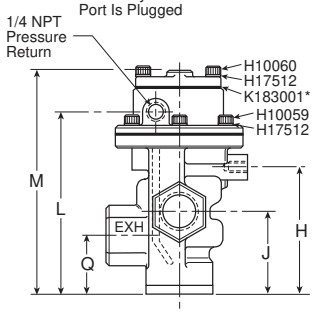




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Internal Return - 3/8", 3/4", 1-1/4" Basic Body

Key	3/8" Body		3/4" Body		1-1/4" Body	
	Inch	mm	Inch	mm	Inch	mm
A	1.56	40	2.13	54	3.00	76
B	1.50	38	1.94	49	2.25	57
C	1.13	29	1.13	29	2.38	60
D	.56	14	.56	14	1.19	30
E	3/8–16UNC 7/16" deep		3/8– 16UNC 9/16" deep		1/2–13UNC 3/4" deep	
F	1.75	44	2.25	57	3.13	79
G	1.56	40	2.13	54	3.13	79
H	3.19	81	3.75	95	5.34	136
J	1.88	48	2.44	62	3.44	87
K	2.31	59	3.09	78	4.56	116
L	4.34	110	5.38	137	7.31	186
M	5.31	135	6.34	161	7.88	200
N	Left of center .53	13	1.00	25	On center	
Q	1.44	37	1.78	45	2.31	59

Service Kits

Include all parts normally required for in-service maintenance:

3/4" Basic valve.....**K352056**

1-1/4" Basic valve **K352083**

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
1	1/4" Tap **K053011**	1/2" Tap **K053067**	1" Tap **K053143**	Body (N.O.)
	—	3/4" Tap **K053069**	—	
	1/2" Tap **K053157**	1" Tap **K053221**	1-1/2" Tap **K053146**	
1A	1/4" Tap **K053010**	1/2" Tap **K053065**	1" Tap **K053159**	Body (N.C.)
	—	3/4" Tap **K053070**	1-1/4" Tap **K053144**	
	1/2" Tap **K053064**	1" Tap **K053219**	1-1/2" Tap **K053145**	
2	**K212001**	**K212002**	**K313029**	Upper piston assy
3*	**H13648**	**H13728**	**H13752**	Seal
4*	**H13529**	**H13676**	**H13728**	Seal

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
5	**K493002**	**K493009**	**K493016**	Stem
6	**K202001**	**K202002**	**K313028**	Lower piston assy.
7*	**H13499**	**H13676**	**H13728**	Seal
8	**H17811**	**H17813**	**H17817**	Washer (2)
9	**H06326**	**H06332**	**H06338**	Stop nut (2)
10	**K092020**	**K092034**	**K092046**	Bottom cap assy. (N.C.)
10A	**K103035**	**K103053**	**K103061**	Bottom cap (N.O.)
11*	**K183049**	**K183057**	**K183058**	Gasket
12	**K473014**	**K473015**	**K473016**	Spring
13	**K563016**	**K563021**	**K563027**	Adapter
14*	**K41RB72121**	**K41RB72221**	**K41RB72143**	O-ring
21	**K323027**	**K323027**	Not used	Cover

*** Parts included in seal kit**

For inventory, lead times, and kit lookup, visit www.pdnplu.com

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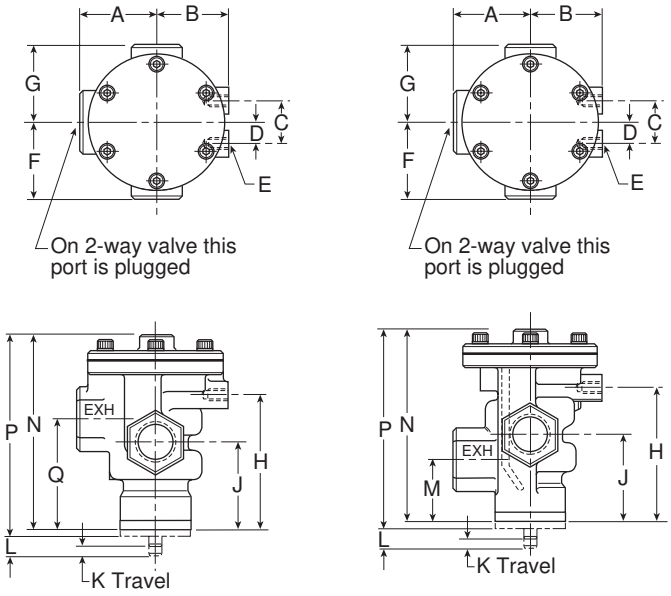
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

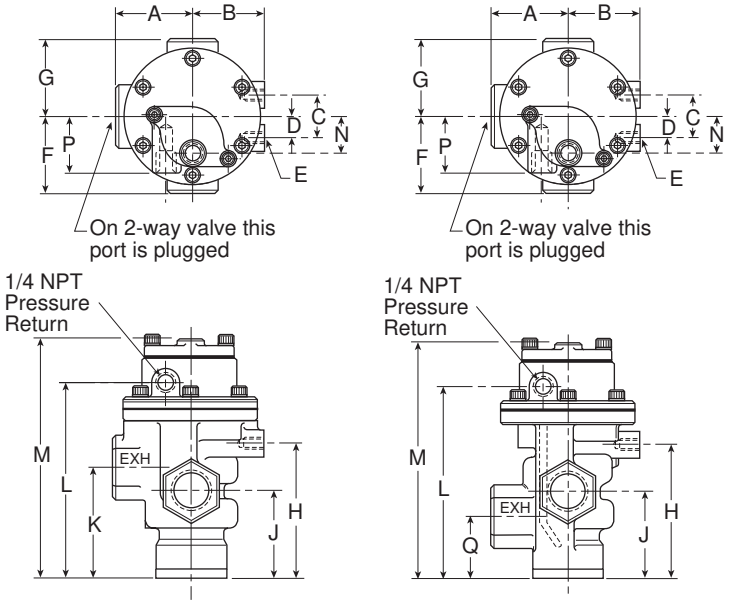
Internal Return - 3/8", 3/4" & 1-1/4" Basic Body



Internal Return - 3/8", 3/4" & 1-1/4" Basic Body

Key	3/8" Body		3/4" Body		1-1/4" Body	
	Inch	mm	Inch	mm	Inch	mm
A	1.56	40	2.13	54	3.00	76
B	1.50	38	1.94	49	2.25	57
C	1.13	29	1.13	29	2.38	60
D	.56	14	.56	14	1.19	30
E	3/8–16UNC 7/16" deep		3/8–16UNC 9/16" deep		1/2–13UNC 3/4" deep	
F	1.75	44	2.25	57	3.13	79
G	1.56	40	2.13	54	3.13	79
H	3.19	81	3.75	95	5.34	136
J	1.88	48	2.44	62	3.44	87
K	.50	13	.50	13	.50	13
L	.11	3	.16	4	.25	6
M	1.44	37	1.78	45	2.66	67
N	4.22	107	5.31	135	7.19	183
P	4.78	121	5.56	141	7.53	191
Q	2.31	59	3.09	78	4.56	116

External Return - 3/8", 3/4" & 1-1/4" Basic Body



External Return - 3/8", 3/4" & 1-1/4" Basic Body

	3/8" Body		3/4" Body		1-1/4" Body	
Key	Inch	mm	Inch	mm	Inch	mm
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J	1.88	48	2.44	62	3.44	87
K	2.31	59	3.09	78	4.56	116
L	4.34	110	5.38	137	7.31	186
M	5.31	135	6.34	161	7.88	200
N	Left of center .53	13	1.00	25	On center	
Q	1.44	37	1.78	45	2.31	59

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

⚠ WARNING:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.

1.3 Relevant International Standards: For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See www.iso.org for ordering information.

1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
- Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
- Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
- Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:

- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
- Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
- Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.

- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.9.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.

4.3. Lockout / Tagout Procedures: Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:

- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:

- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:

- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:

- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.

PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. Definitions. As used herein, the following terms have the meanings indicated.

Buyer:	means any customer receiving a Quote for Products from Seller.
Goods:	means any tangible part, system or component to be supplied by the Seller.
Products:	means the Goods, Services and/or Software as described in a Quote provided by the Seller.
Quote:	means the offer or proposal made by Seller to Buyer for the supply of Products.
Seller:	means Parker-Hannifin Corporation, including all divisions and businesses thereof.
Services:	means any services to be supplied by the Seller.
Software:	means any software related to the Products, whether embedded or separately downloaded.
Terms:	means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electronically at www.parker.com/saleterms.

2. Terms. All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic date interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. Price; Payment. The Products set forth in Seller's Quote are offered for sale at the prices indicated in Seller's Quote. Unless otherwise specifically stated in Seller's Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). All sales are contingent upon credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller's facility. Unless otherwise agreed, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective indicated shipping date will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

5. Warranty. The warranty related to the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. BUYER AGREES AND ACKNOWLEDGES THAT UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".

6. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. **IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, NON-COMPLETION OF SERVICES, USE, LOSS OF USE OF, OR INABILITY TO USE THE PRODUCTS OR ANY PART THEREOF, LOSS OF DATA, IDENTITY, PRIVACY, OR CONFIDENTIALITY, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.**

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which are or become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products 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. Special Tooling. Special Tooling includes but is not limited to tooling, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Products. A tooling charge may be imposed for any Special Tooling. 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 Special Tooling belonging to Seller that is utilized in the manufacture of the Products, even if such Special Tooling has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property in its sole discretion at any time.

10. Security Interest. To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. User Responsibility. The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and other technical information provided with the Product. If Seller provides Product options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. Use of Products, Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications provided by Seller with the Products. **Unauthorized Uses**. If Buyer uses or resells the Products for any uses prohibited in Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tooling, equipment, plans, drawings, designs or specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing or tampering with the Products for any reason; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

13. Cancellations and Changes. Buyer may not cancel or modify any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller, at any time, may change Product features, specifications, designs and availability.

14. Limitation on Assignment. Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control ("Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

16. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of these Terms by legislation or other rule of law shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

17. Termination. Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

18. Ownership of Software. Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

19. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. 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 a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by the Seller to the Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for such claims of infringement of Intellectual Property Rights.

20. Governing Law. These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. Entire Agreement. These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Product from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws.