



"B" Series

Air Control Valves

- B3 – .75 Cv 1/8" 1/4" Port
- B5 – 1.40 Cv 1/4" 3/8" Port
- B6 – 2.70 Cv 3/8" Port
- B7 – 5.90 Cv 1/2" Port
- B8 – 7.00 Cv 3/4" Port

Producción CNC, SA de CV
 Av. Pie de la Cuesta No. 1440
 Local 2 Col. Amalia Solorzano
 Querétaro, Qro. CP 76130
 Tel. (442) 253 7834
 Fax. (442) 253 7997
www.parkerenc.com.mx

Section G

www.parker.com/pneu/b

G

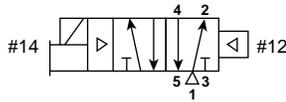


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BOLD ITEMS ARE MOST POPULAR.



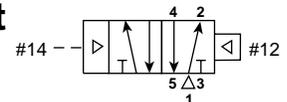
Single Solenoid
4-Way, 2-Position



De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

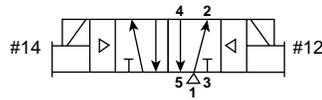
Single Remote Pilot
4-Way, 2-Position



Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

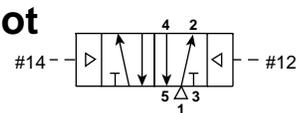
Double Solenoid
4-Way, 2-Position



Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

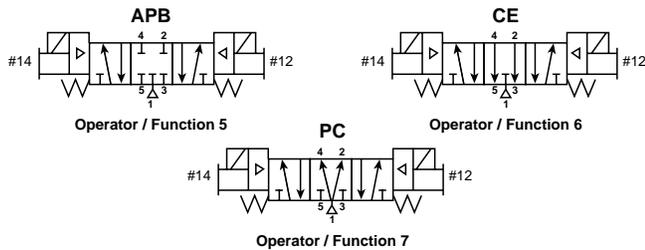
Double Remote Pilot
4-Way, 2-Position



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Solenoid
4-Way, 3-Position



With #12 operator energized – inlet port 1 connected to cylinder port 2. cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4. cylinder port 2 connected to exhaust port 3.

Function 5: All Ports Blocked

All ports blocked in the center position.

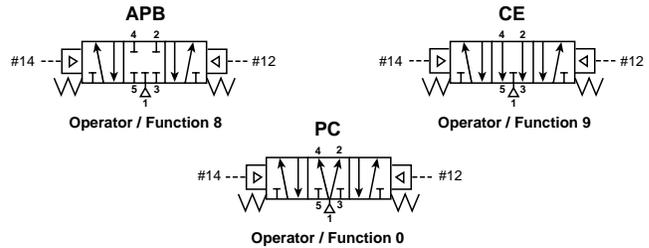
Function 6: Center Exhaust

Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 7: Pressure Center

Pressure port 1 connected to cylinder ports 2 and 4. and exhaust ports 3 and 5 blocked in center position.

Double Remote Pilot
4-Way, 3-Position



With #12 operator signaled – inlet port 1 connected to cylinder port 2. cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4. cylinder port 2 connected to exhaust port 3.

Function 8: All Ports Blocked

All ports blocked in the center position.

Function 9: Center Exhaust

Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 0: Pressure Center

Pressure port 1 connected to cylinder ports 2 and 4. and exhaust ports 3 and 5 blocked in center position.

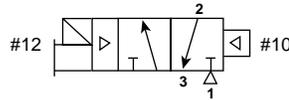
Dual Pressure:

May be used for dual pressure service with pressure at ports 3 & 5. (Use either external pilot source option "K", "W" or "X". or dual pressure pilot source option "D" or "E".) If pilot source "D" or "E" is selected, the high pressure must be at port #3. If pilot source "K", "W" or "X" is selected, the external pilot must be plumbed to port #14 or "X" respectively. NOTE: The "B6" valve is also available with dual pressure using Port 5 for high pressure (Option "G" & "H"). This is only to be used if converting from a "42" ("CM") Series traditional valve.

In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore, care should be used when selecting a 3-Position valve.



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

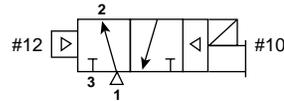


Normally Closed:

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)

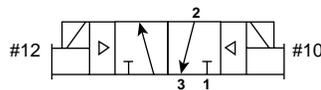


Normally Open:

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.

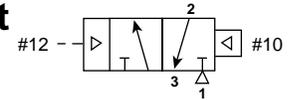
Double Solenoid
3-Way. 2-Position



Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Single Remote Pilot
3-Way. 2-Position
NC (NNP)

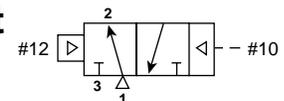


Normally Closed:

Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single Remote Pilot
3-Way. 2-Position
NO (NP)

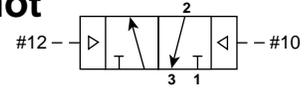


Normally Open:

Normal position – Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Operated position – Maintained air signal at port 10. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Double Remote Pilot
3-Way. 2-Position



Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.



3-Way Configuration

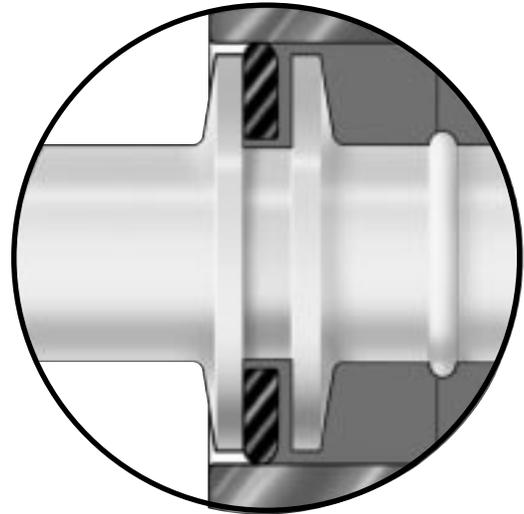
B6. B7. B8:
 Looking at the #1 and #3 ports, the solenoid (or remote operator) is always on the #3 port end. Different spools are used for NO and NC functions.

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.

WCS

Wear Compensation System

- **Maximum Performance**
 - Low Friction
 - Lower Operating Pressures
 - 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. including vacuum.



Refer to www.parker.com/pneu/b
Click on Catalog B Series-E/USA

G

“B” Series

Flow Characteristics

- B3: .75 Cv
- B5: 1.40 Cv
- B6: 2.70 Cv
- B7: 5.90 Cv
- B8: 7.00 Cv

Operating Pressure

- Vacuum to 145 PSIG

Ports

- B3: 1/8, 1/4 Inch
- B5: 1/4, 3/8 Inch
- B6: 3/8 Inch
- B7: 1/2 Inch
- B8: 3/4 Inch

Mounting

- Inline
- Subbase
- IEM Stackable Base
- IEM Aluminum Bar
- 5-Port Subbase Aluminum Bar

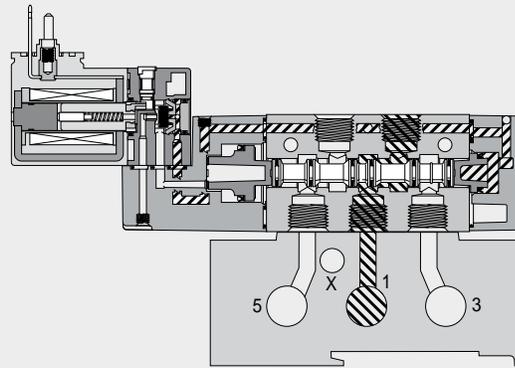
Solenoids

- 1.2 Watt – 15mm 3-Pin (DIN 43650C)
- 2.5 to 7.3 Watt – Conduit, Grommet, 22mm & 30mm 3-Pin DIN (43650)
- 12VDC to 240VAC
- Female DIN Electrical Connectors

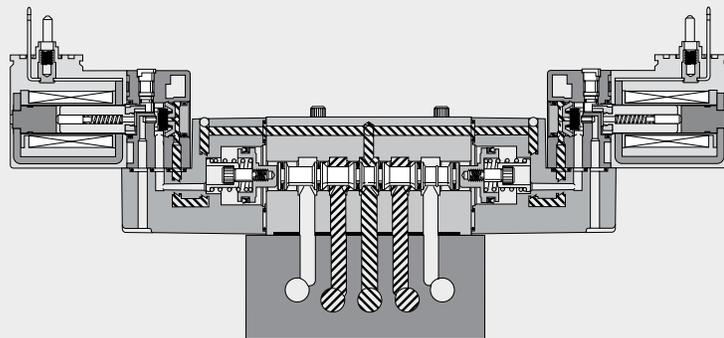
Certification / Approval

- Approved to be CE marked
- IP65 Rated
- CSA / NRTL-C*

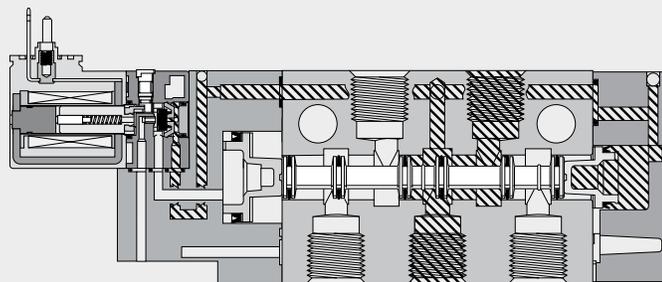
* See catalog technical section for more information.



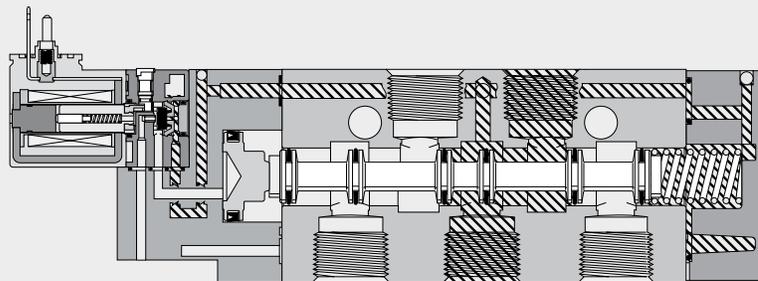
B3 Single Solenoid IEM Aluminum Bar Manifold
 Shown De-Energized



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



B5 Single Solenoid Inline - Air Return
 Shown De-Energized

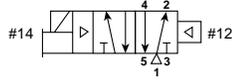


B6, B7 & B8 Single Solenoid Inline - Spring / Air Return
 Shown De-Energized



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**Single Solenoid
4-Way, 2-Position**



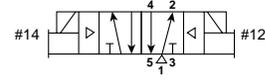
Inline

B3	B310BB553C B310BB549C	120VAC 24VDC	1/8"	0.75 Cv
B5	B511BB553C B511BB549C	120VAC 24VDC	1/4"	1.4 Cv
	B512BB553C B512BB549C	120VAC 24VDC	3/8"	
	B6	B612BB553A B612BB549A	120VAC 24VDC	
B7	B713BB553A B713BB549A	120VAC 24VDC	1/2"	5.9 Cv
B8	B814BB553A B814BB549A	120VAC 24VDC	3/4"	7.0 Cv

Subbase

B3	B31VBB553C B31VBB549C	120VAC 24VDC	Less Base	0.65 Cv
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**Double Solenoid
4-Way, 2-Position**



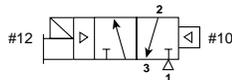
Inline

B3	B320BB553C B320BB549C	120VAC 24VDC	1/8"	0.75 Cv
B5	B521BB553C B521BB549C	120VAC 24VDC	1/4"	1.4 Cv
	B522BB553C B522BB549C	120VAC 24VDC	3/8"	
	B6	B622BB553A B622BB549A	120VAC 24VDC	
B7	B723BB553A B723BB549A	120VAC 24VDC	1/2"	5.9 Cv
B8	B824BB553A B824BB549A	120VAC 24VDC	3/4"	7.0 Cv

Subbase

B3	B32VBB553C B32VBB549C	120VAC 24VDC	Less Base	0.65 Cv
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**Single Solenoid
3-Way, 2-Position. NC**

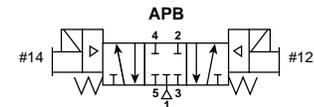


Inline

B3	B3G0BB553C B3G0BB549C	120VAC 24VDC	1/8"	0.75 Cv
B5	B5G1BB553C B5G1BB549C	120VAC 24VDC	1/4"	1.4 Cv
	B5G2BB553C B5G2BB549C	120VAC 24VDC	3/8"	
	B6	B6V2BB553A B6V2BB549A	120VAC 24VDC	
B7	B7V3BB553A B7V3BB549A	120VAC 24VDC	1/2"	5.9 Cv
B8	B8V4BB553A B8V4BB549A	120VAC 24VDC	3/4"	7.0 Cv

3-Pin DIN 43650C Electrical Connection.
Non-Locking Flush Override.

**Double Solenoid
4-Way, 3-Position. APB**



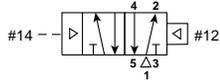
Inline

B3	B350BB553C B350BB549C	120VAC 24VDC	1/8"	0.60 Cv
B5	B551BB553C B551BB549C	120VAC 24VDC	1/4"	1.1 Cv
	B552BB553C B552BB549C	120VAC 24VDC	3/8"	
	B6	B652BB553A B652BB549A	120VAC 24VDC	
B7	B753BB553A B753BB549A	120VAC 24VDC	1/2"	5.7 Cv
B8	B854BB553A B854BB549A	120VAC 24VDC	3/4"	6.6 Cv

Subbase

B3	B35VBB553C B35VBB549C	120VAC 24VDC	Less Base	0.50 Cv
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Single Remote Pilot
4-Way, 2-Position



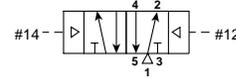
Inline

B3	B330000XXC	1/8"	0.75 Cv
B5	B531000XXC	1/4"	1.4 Cv
	B532000XXC	3/8"	
B6	B632000XXA	3/8"	2.7 Cv
B7	B733000XXA	1/2"	5.9 Cv
B8	B834000XXA	3/4"	7.0 Cv

Subbase

B3	B33V000XXC	Less Base	0.65 Cv
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Double Remote Pilot
4-Way, 2-Position



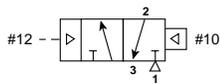
Inline

B3	B340000XXC	1/8"	0.75 Cv
B5	B541000XXC	1/4"	1.4 Cv
	B542000XXC	3/8"	
B6	B642000XXA	3/8"	2.7 Cv
B7	B743000XXA	1/2"	5.9 Cv
B8	B844000XXA	3/4"	7.0 Cv

Subbase

B3	B34V000XXC	Less Base	0.65 Cv
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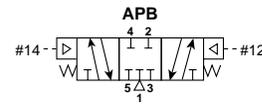
Single Remote Pilot
3-Way, 2-Position. NC



Inline

B3	B3K0000XXC	1/8"	0.75 Cv
B5	B5K1000XXC	1/4"	1.4 Cv
	B5K2000XXC	3/8"	
B6	B6K2000XXA	3/8"	2.7 Cv
B7	B7K3000XXA	1/2"	5.9 Cv
B8	B8K4000XXA	3/4"	7.0 Cv

Double Remote Pilot
4-Way, 3-Position. APB



Inline

B3	B380000XXC	1/8"	0.60 Cv
B5	B581000XXC	1/4"	1.1 Cv
	B582000XXC	3/8"	
B6	B682000XXA	3/8"	2.1 Cv
B7	B783000XXA	1/2"	5.7 Cv
B8	B884000XXA	3/4"	6.6 Cv

Subbase

B3	B38V000XXC	Less Base	0.50 Cv
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B3 Series

BOLD OPTIONS ARE MOST POPULAR.

B3 1 0 B B 5 49 - C

Basic Series	
B3 Series	B3

Engineering Level	
C	Current

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 NC - 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

Options	
Blank	None
02	Solenoid Rotated 180° - Pins Down

	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	

Enclosure / Lead Length	
0	None. Remote Pilot Valve
5	15mm 3-Pin DIN 43650C (Male Only)
X	Valve Less 15mm Solenoid

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

Port Size / Thread Type	
3-Way	
1/8" NPT Inline	0*
1/8" BSPP "G" Inline	5*
Dual 3-Way & 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‡

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

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

Voltage Code	Override Code			
	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	-	-

* Available for use on IEM Manifolds.
** 4-Way only.
‡ Subbase valves available for 4-Way valves only.

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.
‡ See Pilot Source Note below.

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 thru the manifold for low pressure / vacuum applications OR when used with Sandwich Regulators.



B5 Series

BOLD OPTIONS ARE MOST POPULAR.

B5 1 1 B B 5 49 - C

Basic Series	
B5 Series	B5

Engineering Level	
C	Current

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 NC - 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

Options	
Blank	None
02	Solenoid Rotated 180° - Pins Down
MD*††	Manual Detent
V0†	Fluorocarbon Seals

* Only Available with Mobile Voltages "47" & "48", or Enclosures "N" or "X".

† Not available with Enclosure "0", "5", "X", "E" or "F".

†† Only Available with Operator Function 1 & 3.

	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	

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 - NPT	V‡
1/4" BSPP "G" NAMUR Mount	W††

Pilot Source / Pilot Exhaust	
Enclosures "0, 5 & X"	
None, Remote Pilot Valve	0
Internal - Port #1 / Tapped M5	A†
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†

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.

* Available for use on IEM Manifolds.
 † 4-Way only.
 ‡ Available with pilot source "0", "A", and "B" only.

* Not available for 3-Way Valves.
 † Not available for Remote Pilot Valves.
 ‡ See Pilot Source Note below.

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 thru the manifold for low pressure / vacuum applications.

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".

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

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



B6 Series

BOLD OPTIONS ARE MOST POPULAR.

B6 1 2 B B 5 49 - A

Basic Series	
B6 Series	B6

Engineering Level	
A	Current

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 NC - 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

Options	
Blank	None
02	Solenoid Rotated 180° - Pins Down
42*	Series Cylinder Mount Replacement

* Only Available with Port Size "T" and "O", "A", "B", and "L" Pilot Source.

	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	

Port Size / Thread Type	
3-Way / 4-Way	
3/8" NPT Inline	2*
3/8" BSPG "G" Inline	7*
1/4" NPT NAMUR Mount	T†

* Available for use on IEM Manifolds.

† 4-Way only. Available with pilot source "O", "A", "B" and "L" only.

Pilot Source / Pilot Exhaust	
Enclosures "O, 5 & X"	
None, Remote Pilot Valve	O
Internal - Port #1 / Tapped M5	A†
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	O
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".

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.

§ Enclosure '5' - Override / Voltage Availability

S - Standard

O - Option

Voltage Code	Override Code Standard				Voltage Code	Override Code "02" Option			
	B	C	D	E		B	C	D	E
42	O	O	-	-	42	O	O	-	-
45	O	O	-	-	45	O	O	-	-
49	S	S	O	O	49	S	S	O	O
53	S	S	O	O	53	S	S	O	O
57	O	O	-	-	57	O	O	-	-

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



"B7 & B8" Model Number Index

B7 & B8 Series

BOLD OPTIONS ARE MOST POPULAR.

B7 1 3 A B G 53 - A

Basic Series	
B7 Series	B7
B8 Series	B8

Engineering Level	
A	Current

Options	
Blank	None

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 NC - 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

	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	

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.

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.

Pilot Source / Pilot Exhaust	
Enclosures "0, 5 & X"	
None, Remote Pilot Valve	0
Internal - Port #1 / Tapped M5	A†
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".

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

Voltage Code	Override Code			
	B	C	D	E
42	O	O	-	-
45	O	O	-	-
49	S	S	O	O
53	S	S	O	O
57	O	O	-	-

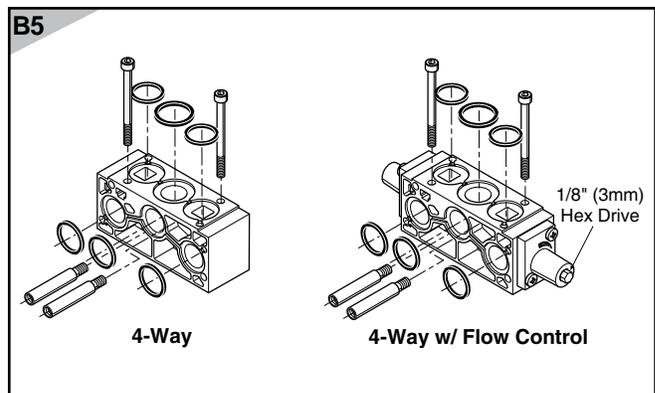
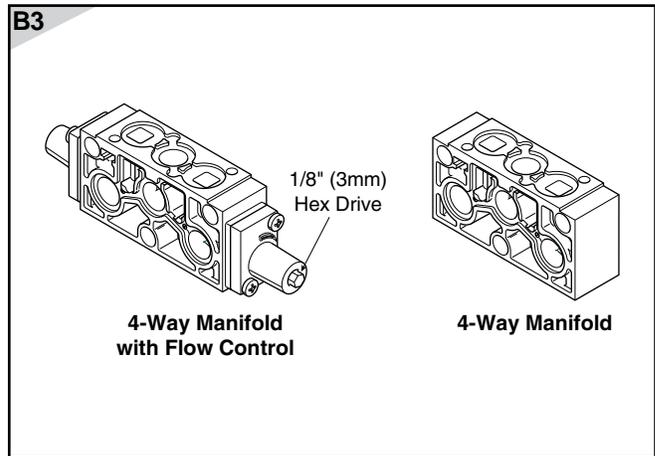
INLINE Valves -
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

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IEM Stackable Manifolds

Series	Type	Kit Number	
		Standard	Flow Control
B3	4-Way	PS2917P	PS2918P
B5	4-Way	PS2817P	PS2818P

- 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.
- Kit includes: (1) Manifold Base, (2) Hold-down Bolts, Tie-rods, Gaskets and O-rings.

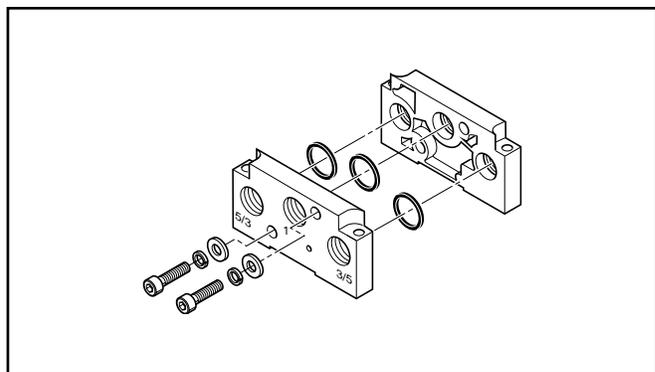


End Plate Kits

Series	Type	Kit Number
		NPT
B3	4-Way	PS2915P
B5	4-Way	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.



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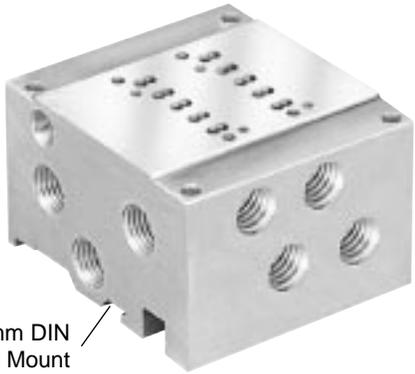


B3 Series



4-Way, 1/8" NPT	AAPSJ3B1N##NP	## – stations 02 to 12
-----------------	----------------------	------------------------

B3 Series



35mm DIN Rail Mount

4-Way, 1/8" NPT	PSJ3B1N##NP	## – stations 02 to 12
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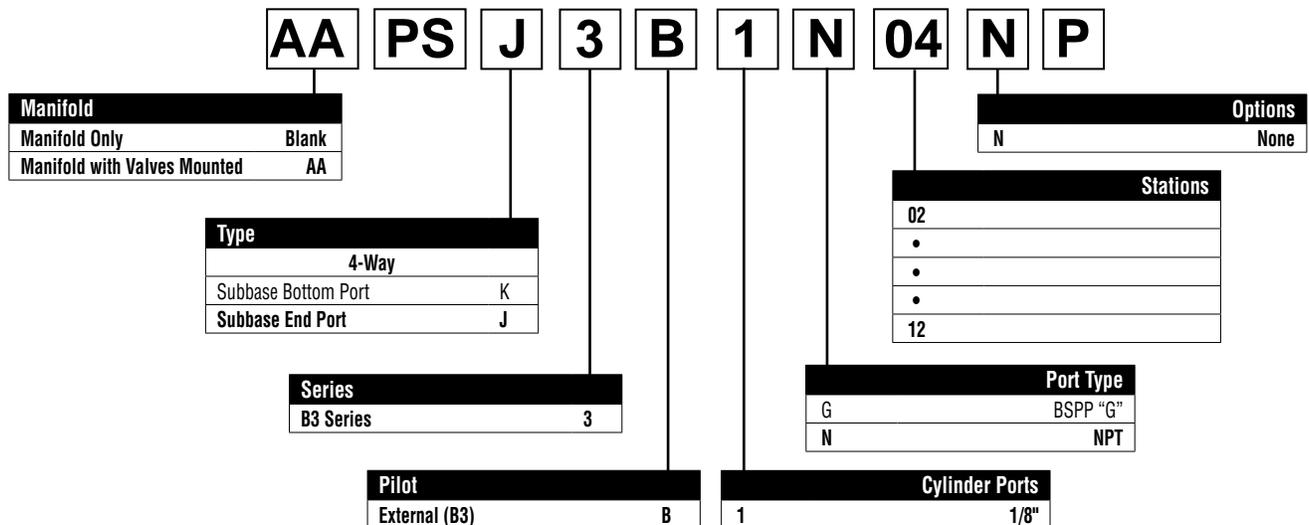
G

- 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" or "W", must have Common External Galley pressurized.

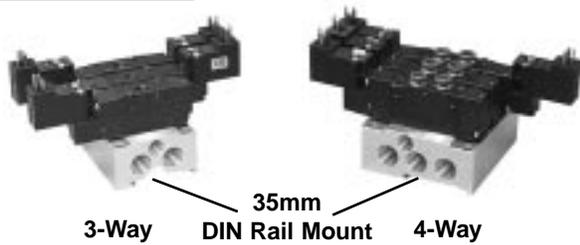
Kit includes:

Subbase – (1) Manifold (bolts & gasket come with subbase valve).

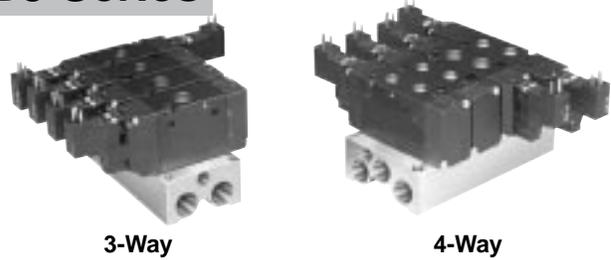
Assembly Model Number



B3 Series



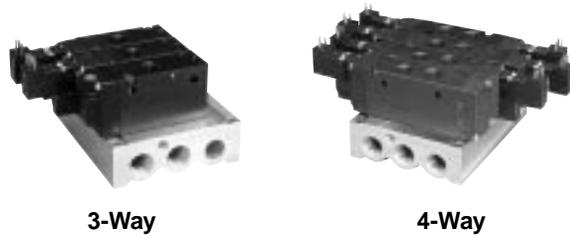
B5 Series



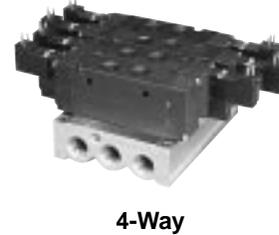
3-Way, NPT	AAPSG3BXN##NP	## – stations 02 to 12
4-Way, NPT	AAPSM3BXN##NP	

3-Way, NPT	AAPSG5BXN##NP	## – stations 02 to 12
4-Way, NPT	AAPSM5BXN##NP	

B6 Series



B7 & B8 Series



3-Way, NPT	AAPSG6BXN##NP	## – stations 02 to 12
4-Way, NPT	AAPSM6BXN##NP	

4-Way, NPT	AAPSM7BXN##NP	## – stations 02 to 12
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- Utilizes Inline mount "B" Series valves.
- Different manifold for 3-Way & 4-Way valves (B7 and B8 use common manifolds).
- Common External Pilot galley is standard. Standard Internal Pilot valves need not use this galley. This galley does not require a plug for internally piloted valves.
- External Pilot Valves – "X" or "W", must have Common External Galley pressurized.
- **Kits (PS....) include:** (1) Manifold, Valve Hold Down Bolts, Gaskets.

IEM Bar Manifold Model Number

AA PS M 5 B X N 04 N P

Manifold	
Manifold Only	Blank
Manifold with Valves Mounted	AA

Options	
N	None

Type	
IEM 3-Way	G*
IEM 4-Way	M

* Not available with B7. or B8.

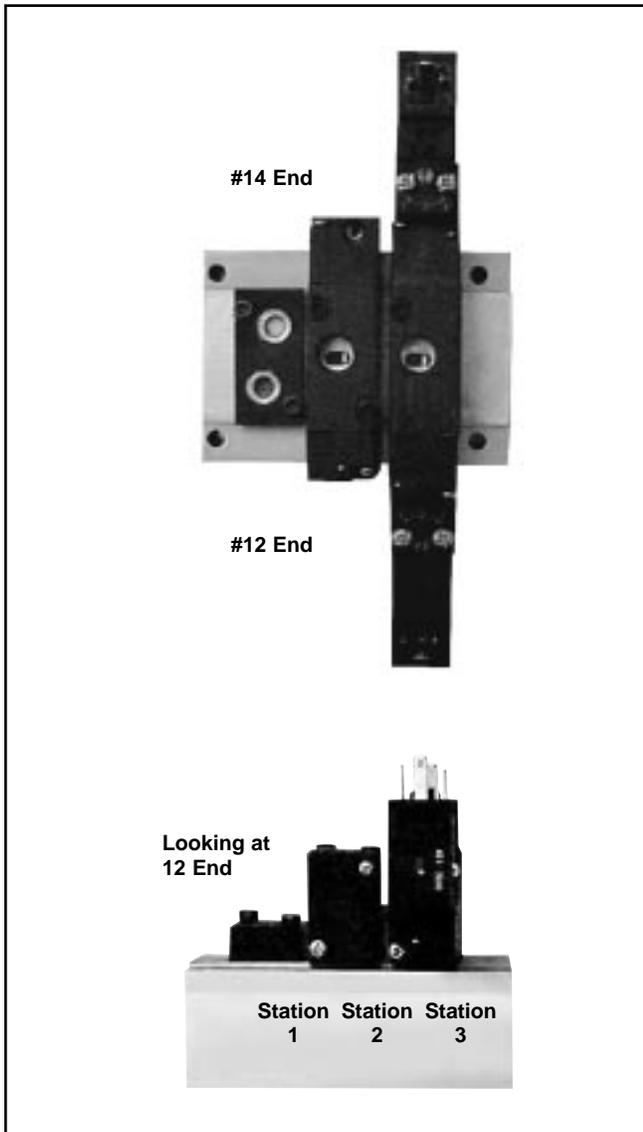
Series	
B3 Series	3
B5 Series	5
B6 Series	6
B7 / B8 Series	7

Stations	
02	•
•	•
•	•
12	•

Port Type	
G	BSPP "G"
N	NPT

Pilot	
External	B

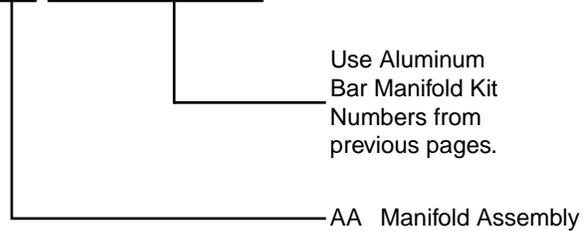
Cylinder Ports	
X	IEM Manifold



How To Order Aluminum Bar Manifold Assemblies

1. List Manifold Assembly call out. Use AA + the part number of the aluminum bar manifold. This automatically includes the aluminum bar manifold and assembly.
2. List complete valve model number, listing left to right, **LOOKING AT THE #12 END** of the manifold. The left most station is station 1.
 (If a blank station is needed, list the blanking plate part number at the desired station.)

AA PS***##P**



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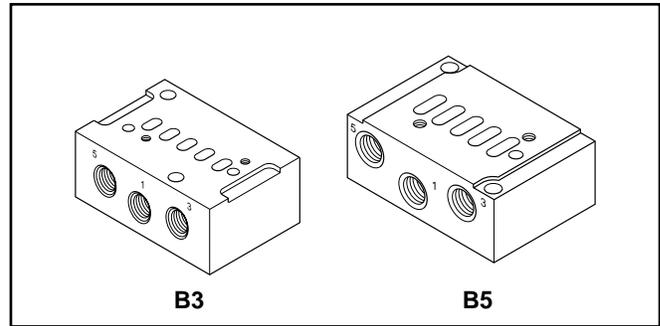
Example: Application requires a 3-station “B3” 3-Way manifold with station #1 blanked off with valves assembled.

<u>Qty.</u>	<u>Part No.</u>	<u>Comment</u>
1	AASG3BXN03NP	
1	PS2966P	Station 1
1	B3K0000XXC	Station 2
1	B3J0BB553C	Station 3

Subbase

Type	Size	Kit Number
		NPT
B3 4-Way	1/4"	PS2934P
B5 4-Way	3/8"	PS2834P

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

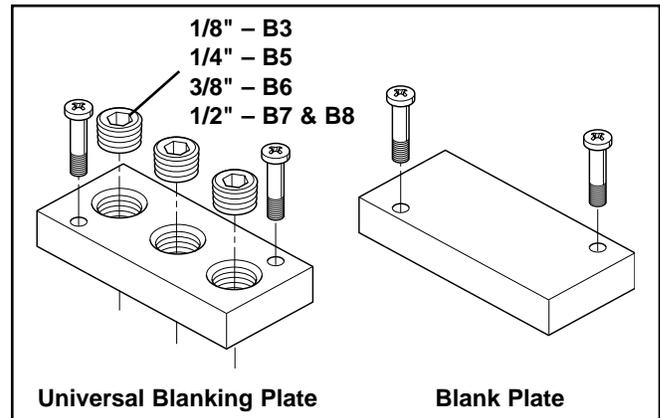


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Blanking Plate

Type	Kit Number	Kit Number			
		IEM Universal		IEM	Subbase
		NPT	BSPP "G"	Blank	Blank
B3 3-Way	PS2966P	PS2967P	PS2968P	—	
	PS2920P	PS2921P	PS2969P	PS2994P	
B5 3-Way	PS2866P	PS2867P	PS2868P	—	
	PS2820P	PS2821P	PS2869P	—	
B6 3-Way	PS2620P	PS2621P	PS2669P	—	
	PS2620P	PS2621P	PS2669P	—	
B7 4-Way	PS2520P	PS2521P	PS2569P	—	
B8 4-Way	PS2520P	PS2521P	PS2569P	—	

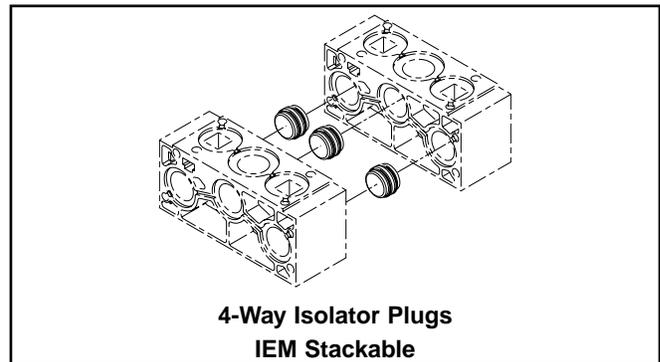
Kit includes:
(1) Plate, (2) Screws, Seal / Gaskets



Isolator Plugs

Series	Kit Number
	4-Way
B3	PS2919P
B5	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



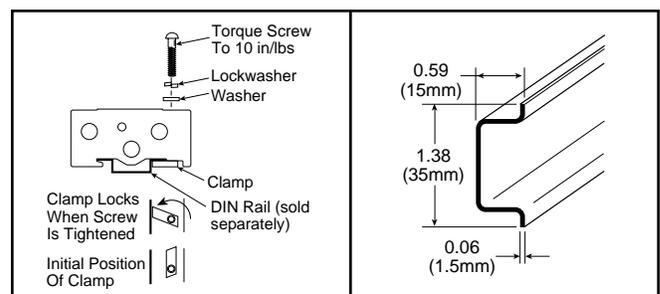
DIN Rail

Series	Length	Part Number
B3	6 Feet	AM1DE200

DIN Rail Hardware Kit

Series	IEM Bar	5-Port Subbase Bar
B3	PS2990P	PS2991P

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





B3 Series

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.

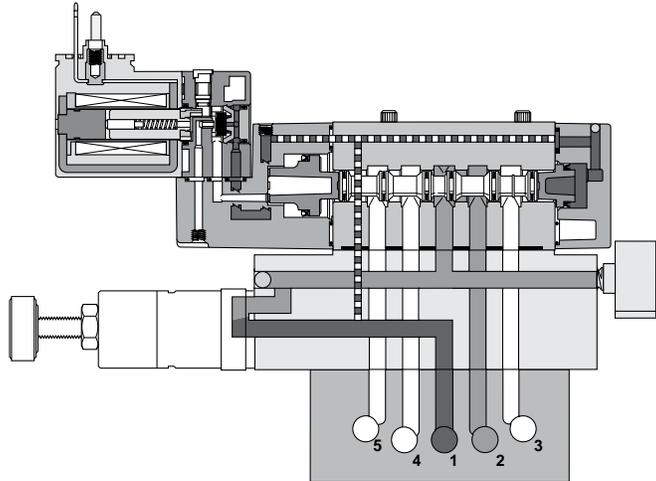


	Common Port with Gauge *	Dual Port without Gauge	Cv
B3 5-125 PSI	PS2930166P	PS2930233P	.33

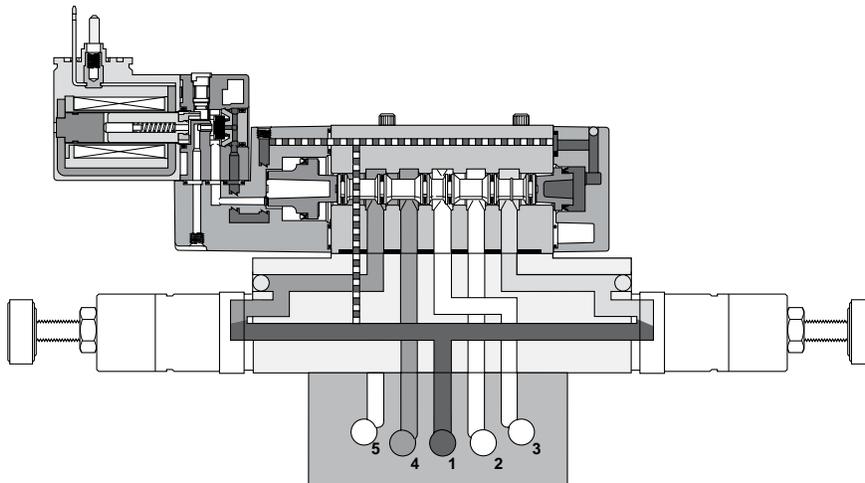
* Gauge is 160 PSI. Gauge shipped unassembled. For different gauge mounting configuration, use brass adapters listed at bottom of page.

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Common Port



Dual Port



Brass Adapters for Gauge –

1/8" to 1/8" Female Coupling..... 207P-2
 1/8" Male Pipe Nipped 1.5"..... 215PNL-2-15
 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

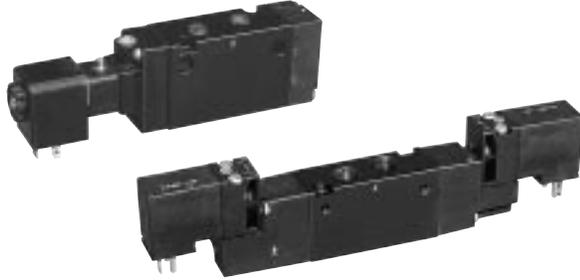
Gauge 1" Face –

0-160 PSI.....PS4051160BP

Solenoid Rotated 180° - Pins Down

B3 B5 B6 B7 B8

- 1.8W (2.4VA) solenoids – Enclosure "5".
- Override on top for easy access.
- "02" in the Options code.



Valve Less Solenoid

B3 B5 B6 B7 B8

- Valve ordered & shipped without solenoid.
- Efficient method in place of valve repair, fully tested at factory.



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Alternate Solenoid Enclosures

B5 B6 B7 B8

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



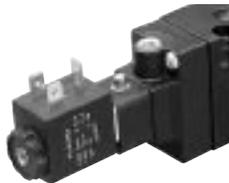
"A" 30mm 3-Pin



"C" 3-Pin Mini



"G". "Q" Grommet



"B" 22mm 3-Pin



"D" 5-Pin Mini

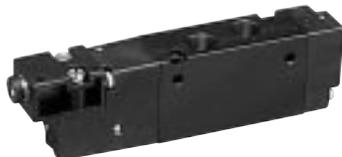


"F". "H". "R" 1/2" Conduit

Tube Fitting Remote Pilot

B3 B5 B6 B7 B8

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



Intrinsically Safe Solenoid Valves ("E" Option)

Hazardous Location Class:

Class I; Groups A. B. C & D

Class II; Groups E. F. & G

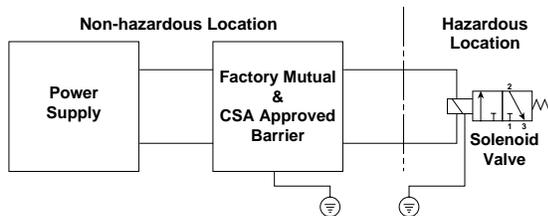
Class III; Div. I

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

Comes standard with non-lighted solenoid connector.

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

Part Number	Description
P2FS13N1AE49	24VDC

Hazardous Duty Solenoid Valves ("F" Option)

Hazardous Location Class:

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

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

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

Comes standard with non-lighted solenoid connector.

Voltage Range = +10° +/- 10%

Ambient Temp. Range = -20°C (-4°F) to 60°C (140°F)

Duty Factor = 100%

IP65 Rated (with Connected Conduit Connector)

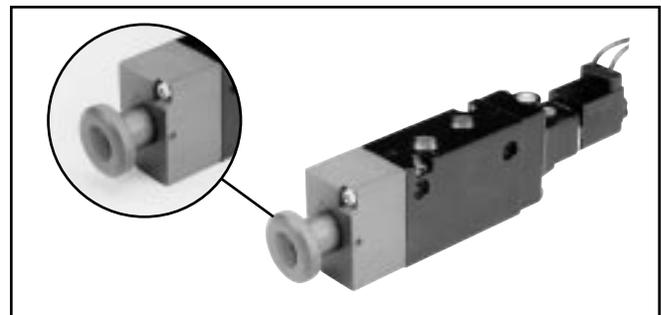
Notes:

1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Connect per Barrier Manufacturers instructions.
3. Factory Mutual requires connections per ISA RP 12.6 instructions.
4. CSA requires "Installation to be in accordance with the Canadian Electrical Code, Part I."



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.



**15mm 3-Pin DIN 43650C
 (Use with Enclosure “5”)**

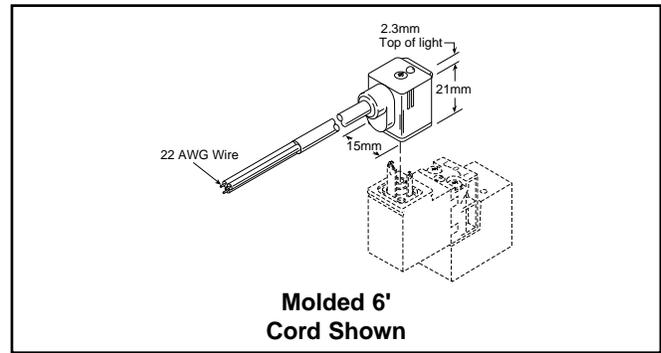
Connector	Connector with Cord	Description
PS2932BP	PS2932HBP 18 Inches	Unlighted
PS2932BP	PS2932JBP 6 Feet	Unlighted
PS294675BP	PS2946J75BP* 6 Feet	Light – 12VAC or DC
PS294679BP	PS2946J79BP* 6 Feet	Light – 24VAC or DC
PS294683BP	PS2946J83BP* 6 Feet	Light – 110/120VAC
PS294687BP	N/A	Light – 240/230VAC

* 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:

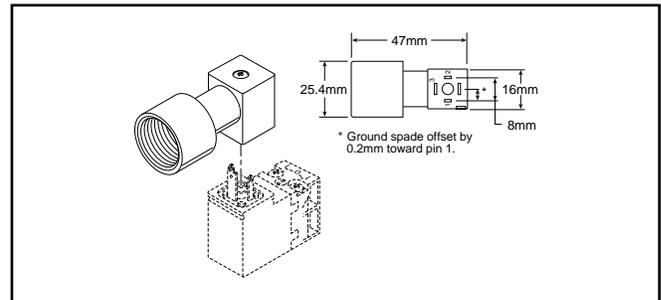
- Conductors: 2 Poles Plus Ground
- Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
- Contact Spacing: 8mm



**15mm 3-Pin DIN 43650C to 1/2" Conduit
 (Use with Enclosure “5”)**

Connector	Description
PS2998P	1/2" NPTF Conduit – Unlighted with 3' (1m) Leads 20 AWG Wire

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

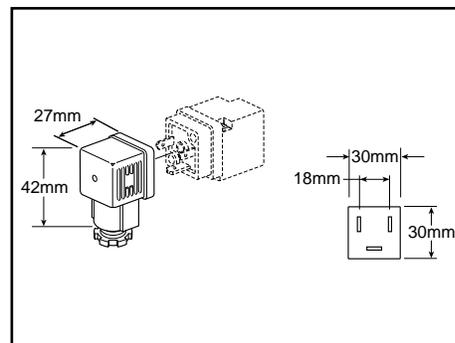


Female Electrical Connectors / Accessories

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

(Use with Enclosure “A”)

Connector	Connector with 6' (2m) Cord	Description
PS2028BP	PS2028JBP	Unlighted
PS203279BP	PS2032J79BP*	Light – 6-48V. 50/60Hz. 6-48VDC
PS203283BP	PS2032J83BP*	Light – 120V/60Hz
PS203283BP	N/A	Light – 240V/60Hz



* LED with surge suppression.

Note: Max ϕ 6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

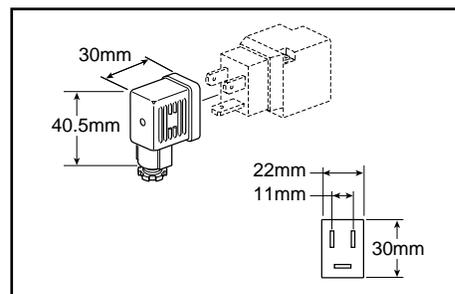
Engineering Data:

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”)

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



* LED with surge suppression.

Note: Max ϕ 6.5mm 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

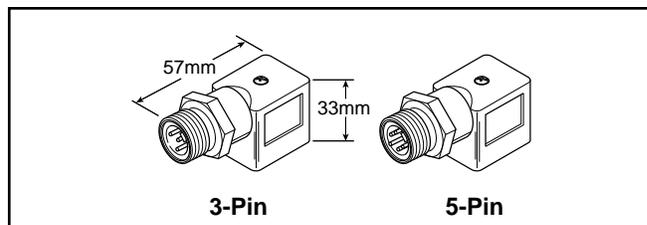
3-Pin / 5-Pin Male Automotive Connectors

(Use on 22mm Rectangular 3-Pin Solenoid)

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

— 79 = 6 to 48VAC/VDC

83 = 100 to 240VAC/48 to 120 VDC



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



Flow Rating (Cv)

Size	Port Size	Mounting Style	2-Position	3-Position
B3	1/8" Ports	Inline	.75	.60
	1/4" Tube	Inline	.45	.45
	1/8" Ports	Subbase	.65	.45
	1/4" Ports	Subbase	.65	.50
B5	1/4" Ports	Inline	1.4	1.1
	3/8" Ports	Inline	1.4	1.1
	1/4" Ports	Subbase	1.4	1.1
	3/8" Ports	Subbase	1.4	1.1
B6	3/8" Ports	Inline	2.7	2.1
B7	1/2" Ports	Inline	5.9	5.7
B8	3/4" Ports	Inline	7.0	6.6

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

Temperature Rating

5°F to 120°F (-15°C to 49°C) ambient.
 (Buna-N and Fluorocarbon)

G

Operating Pressure

Maximum: 145 PSIG (1000 kPa)

Minimum:

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				
N. P. Q	Double Solenoid - Dual 3/2	40 (275)	—	—	—	—
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).

† External Pilot Not Available with B3 Dual 3/2.

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

- B3: Maximum pressure - 120 PSI
- B5: Maximum pressure - 145 PSI*§
- B6: Maximum pressure - 145 PSI*§
- B7: Maximum pressure - 145 PSI*†
- B8: Maximum pressure - 145 PSI*†

* 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

Solenoid Information (Solenoids are rated for continuous duty.)

Voltage				Enclosure "5"		Voltage				B5	B6	B7	B8	B5	B6	B7	B8
Code	AC		DC	Power Consumption	Holding (Amps)	Code	AC		DC	Enclosure "A"				Enclosure "B" to "R"			
	60Hz	50Hz					Power Consumption	Holding (Amps)		Power Consumption	Holding (Amps)	Power Consumption	Holding (Amps)	Power Consumption	Holding (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

Valve Size	Port Size	Enclosure "5"				Enclosure "A, B, C, D, G, H, Q & R"			
		0 Cu. In. Test Chamber		25* Cu. In. Test Chamber		0 Cu. In. Test Chamber		25* Cu. In. Test Chamber	
		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

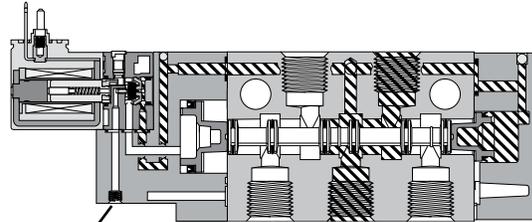
Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 120V/60Hz solenoid. Times shown are average.

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



G

A - Internal - Port #1 / Tapped M5

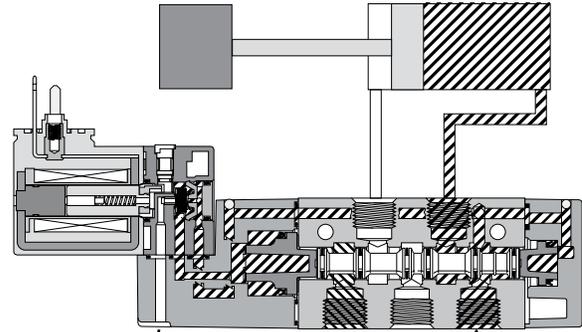


Tapped M5
Pilot Exhaust

B5 Shown

E - Dual Pressure - Port #3 / Vented

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

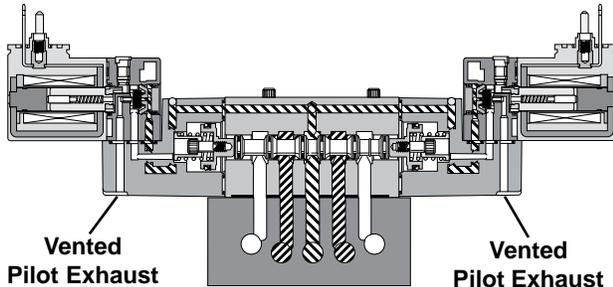


Vented
Pilot Exhaust

Port #3

B3 Shown

B - Internal - Port #1 / Vented

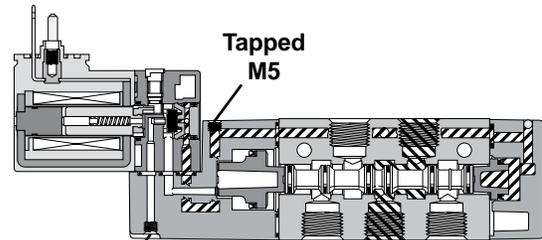


Vented
Pilot Exhaust

Vented
Pilot Exhaust

B3 Shown

K - External - Body / Tapped M5

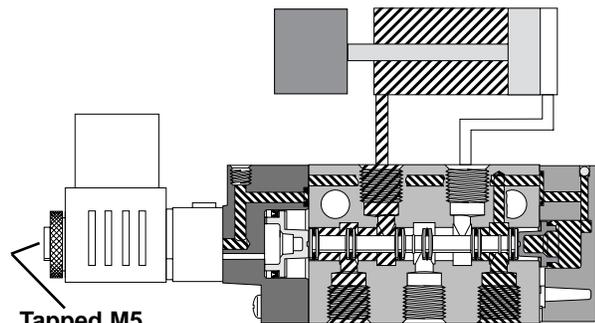


Tapped M5
Pilot Exhaust

B3 Shown

D - Dual Pressure - Port #3 / Tapped M5

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

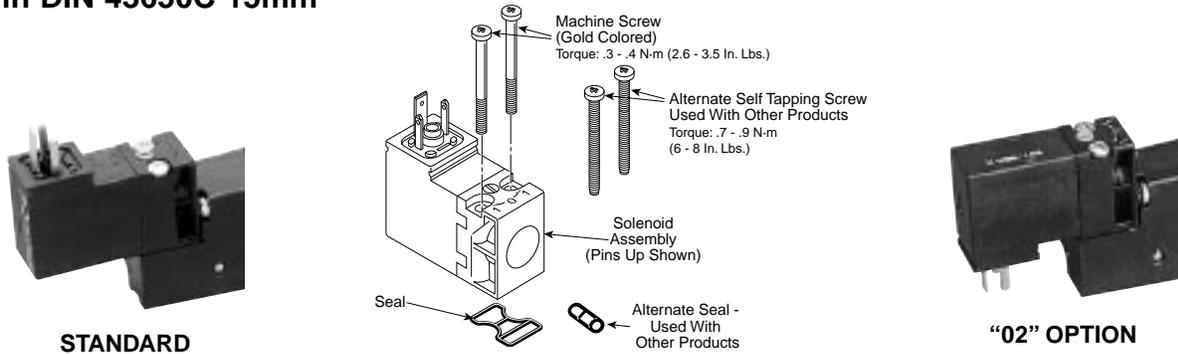


Tapped M5
Pilot Exhaust

Port #3

B5 Shown

Solenoid Kits – B3 'C', B5 'C', B6 'A', B7 'A', B8 'A'
3-Pin DIN 43650C 15mm



**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	–

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

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

S - Standard; O - Option

* Mobile Voltage

Kit Includes: Solenoid, (2) Machine Screws, (2) Self Threading Screws, (1) Gasket, (1) 3-cell Gasket.



Solenoid Kits Alternate Enclosures

P2F C A 4 49

Type	Solenoid Kit
	C

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

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".



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



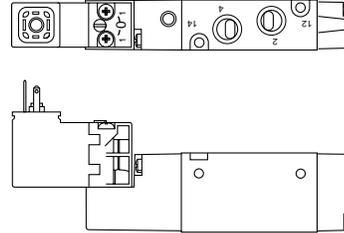
B3 Series

Spool / Body Service Kits

		<i>Kit Includes:</i>
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

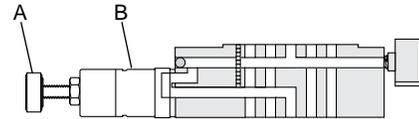


Manifold to Manifold Kit

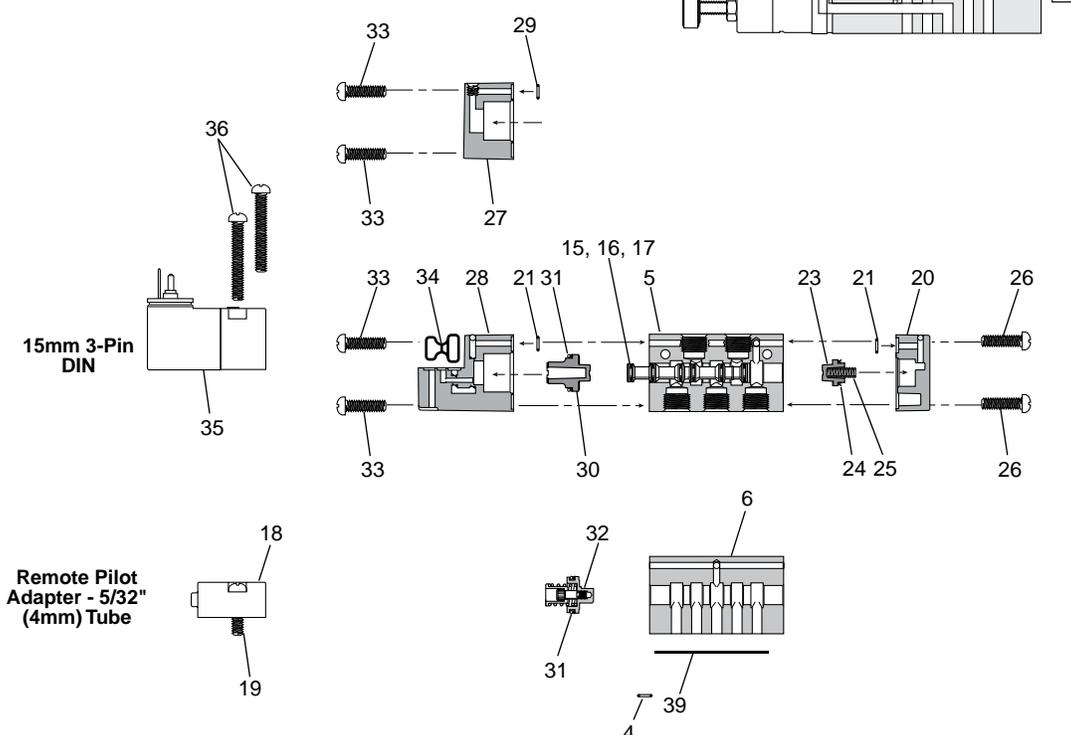
PS2995P	O-ring (10), Sleeves (10), Tie Rods (10) - 3-Way Manifold
PS2996P	Gasket (10), Tie Rods (10) - 4-Way Manifold

Sandwich Regulator Cartridge Kit

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



G



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 (see Page 27)
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	36*	Machine Screw - Solenoid (Jan 96 - May 99)
18	Remote Pilot Adapter (PVAP111)	28c	Solenoid Adapter - Ext Pilot. Tapped Exhaust	39*	Gasket - Subbase Valve to Base
19	Screw - Remote Pilot Adapter	28d	Solenoid Adapter - Tapped Exhaust	40*	Mounting Screws - Subbase Valve
20	Return Operator	29	O-ring - Remote Pilot		
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.



B5 Series

Spool / Body Service Kits

- | | | |
|----------|------------------|---|
| PS2801*P | 4-Way, 2-Pos | <i>Kit Includes:</i> |
| PS2802*P | 4-Way, 3-Pos APB | Item 2, 10 (2), 14, 15, 116, 6 (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)

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 |

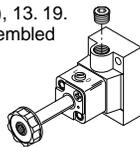
Manifold to Manifold Kit

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

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 |



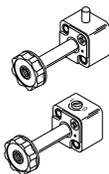
Armature / Override Kit

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

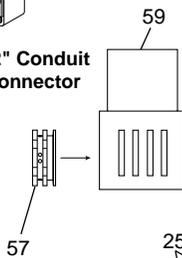
- | | |
|------------|-------------|
| P2FP13N4D* | Non-Locking |
|------------|-------------|

- | | |
|------------|---------|
| P2FP13N4C* | Locking |
|------------|---------|

* Comes with a Thru Nut and A Diffuser Nut.

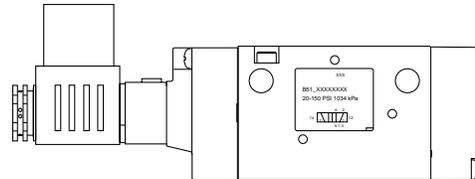
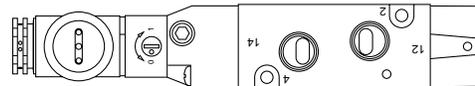
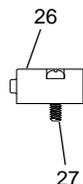


1/2" Conduit Connector

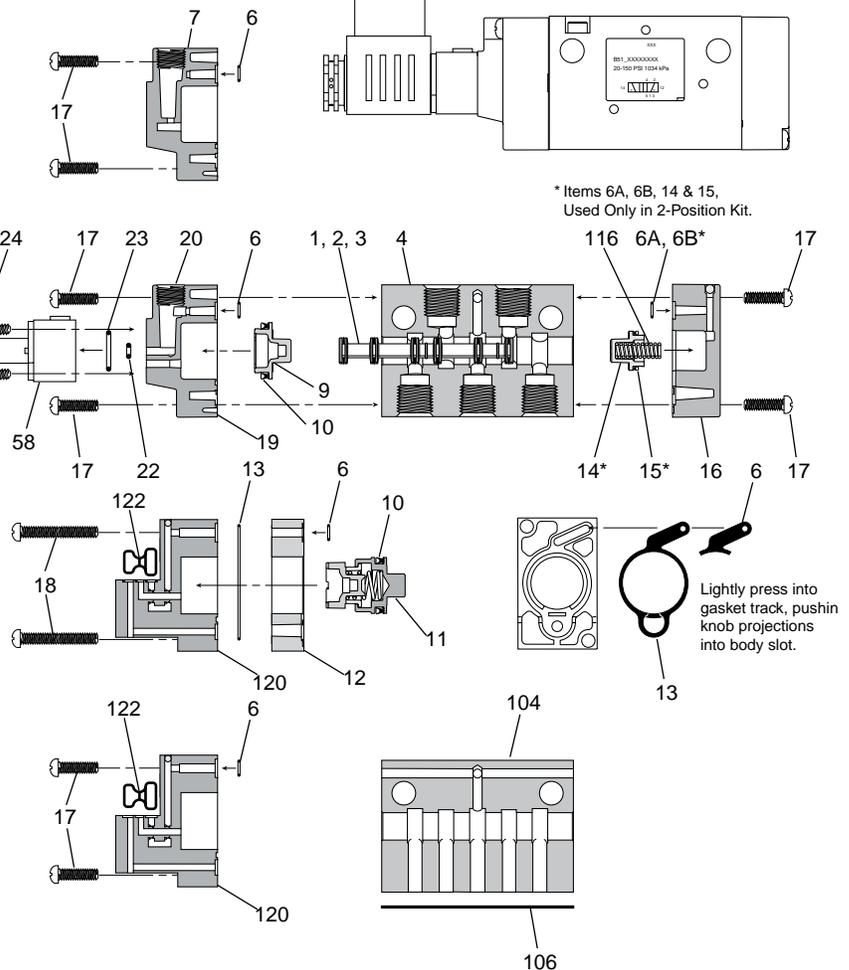


15mm 3-Pin DIN

Remote Pilot Adapter - 5/32" (4mm) Tube



* Items 6A, 6B, 14 & 15, Used Only in 2-Position Kit.



Item List – Parts not sold separately.

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

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



B6 Series

Spool / Body Service Kits

- PS2601*P 4-Way, 2-Pos
- PS2602*P 4-Way, 3-Pos APB
- PS2603*P 4-Way, 3-Pos CE
- PS2604*P 4-Way, 3-Pos PC
- PS267101*P 3-Way, 2-Pos. NC
- PS267102*P 3-Way, 2-Pos. NO
- * Viton Seal Kit (i.e. PS2801VP)

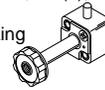
Kit Includes:

- Item 2, 6 (2), 9 (2), 11, 14. grease packet
- Item 3, 6 (2), 9 (2), 13 (2), grease packet
- Item 3, 6 (2), 9 (2), 13 (2), grease packet
- Item 3, 6 (2), 9 (2), 13 (2), grease packet
- Item 2, 6, 9, 14. grease packet
- Item 2, 6, 9, 14. grease packet

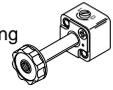
Armature / Override Kit –

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

P2FP13N4D* Non-Locking



P2FP13N4C* Locking



* Comes with a Thru Nut and A Diffuser Nut.

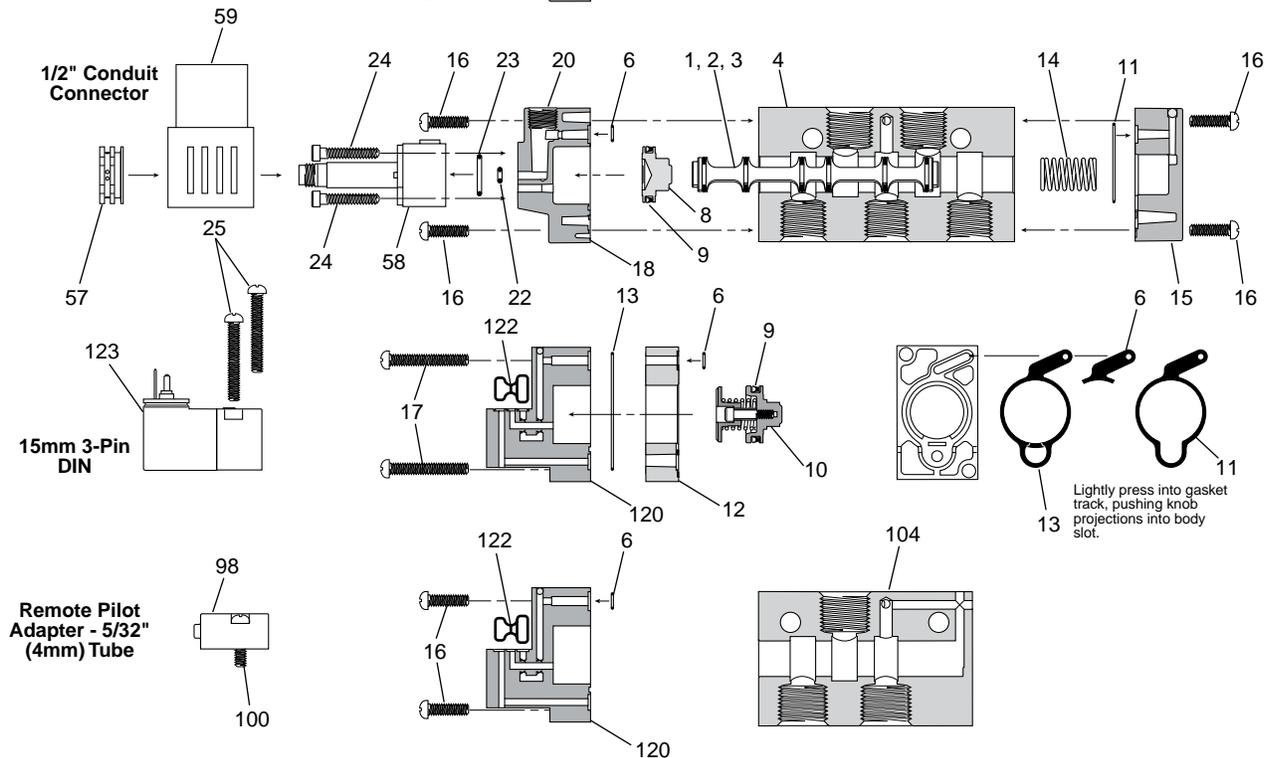
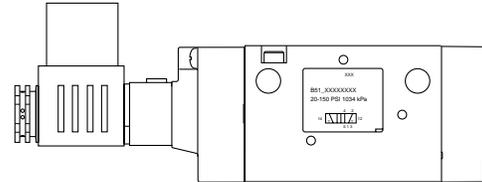
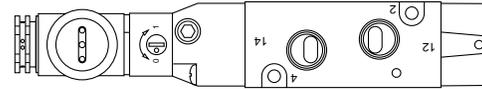
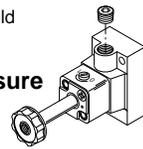
Valve to Manifold Kits

- 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



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)	15b	Return Operator - CSA Option	59*	Coil - Alternate Enclosure (see Page 27)
3*	Spool - 3-Position (Seals Assembled)	16*	Screws - Operator Adapter - 2-Position	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
4	Inline Body - 4-Way	17*	Screws - Operator Adapter - 3-Position	100	Screws - Remote Pilot Adapter
6*	Gasket - Body to Operator	18*	Operator Adapter - Alt Enclosure	104	Inline Body - 3-Way
7	Remote Pilot Operator	20*	1/8" NPT Pipe Plug	120a	Solenoid Adapter - Vent Exhaust
8	Operator Piston - 2-Position	22*	O-ring - Small - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
9*	Lip Seal - Operator Piston	23*	O-ring - Large - Solenoid Base	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
10	Operator Piston Mechanism - 3-Position	24*	Bolts - Solenoid Base	120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
11*	Gasket - Body to Return Cap	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	122*	Gasket - Solenoid to Adapter
12	Adapter - 3-Position	57*	Solenoid Nut	123*	15mm Solenoid (see Page 27)
13	Gasket - 3-Position Adapter to Body	58a*	Solenoid Base Assembly - Locking		
14*	Spring, Return Assist				

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



B7 & B8 Series

Spool / Body Service Kits

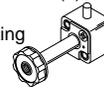
PS2501P	4-Way, 2-Pos	Item 2. 6 (2). 9 (2). 11. 14. grease packet
PS2502P	4-Way, 3-Pos APB	Item 3. 6 (2). 9 (2). 13 (2). grease packet
PS2503P	4-Way, 3-Pos CE	Item 3. 6 (2). 9 (2). 13 (2). grease packet
PS2504P	4-Way, 3-Pos PC	Item 3. 6 (2). 9 (2). 13 (2). grease packet
PS257101P	3-Way, 2-Pos. NC	Item 2. 6. 9. 14. grease packet
PS257102P	3-Way, 2-Pos. NO	Item 2. 6. 9. 14. grease packet

Kit Includes:

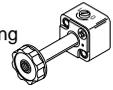
Armature / Override Kit –

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

P2FP13N4D* Non-Locking



P2FP13N4C* Locking



* Comes with a Thru Nut and A Diffuser Nut.

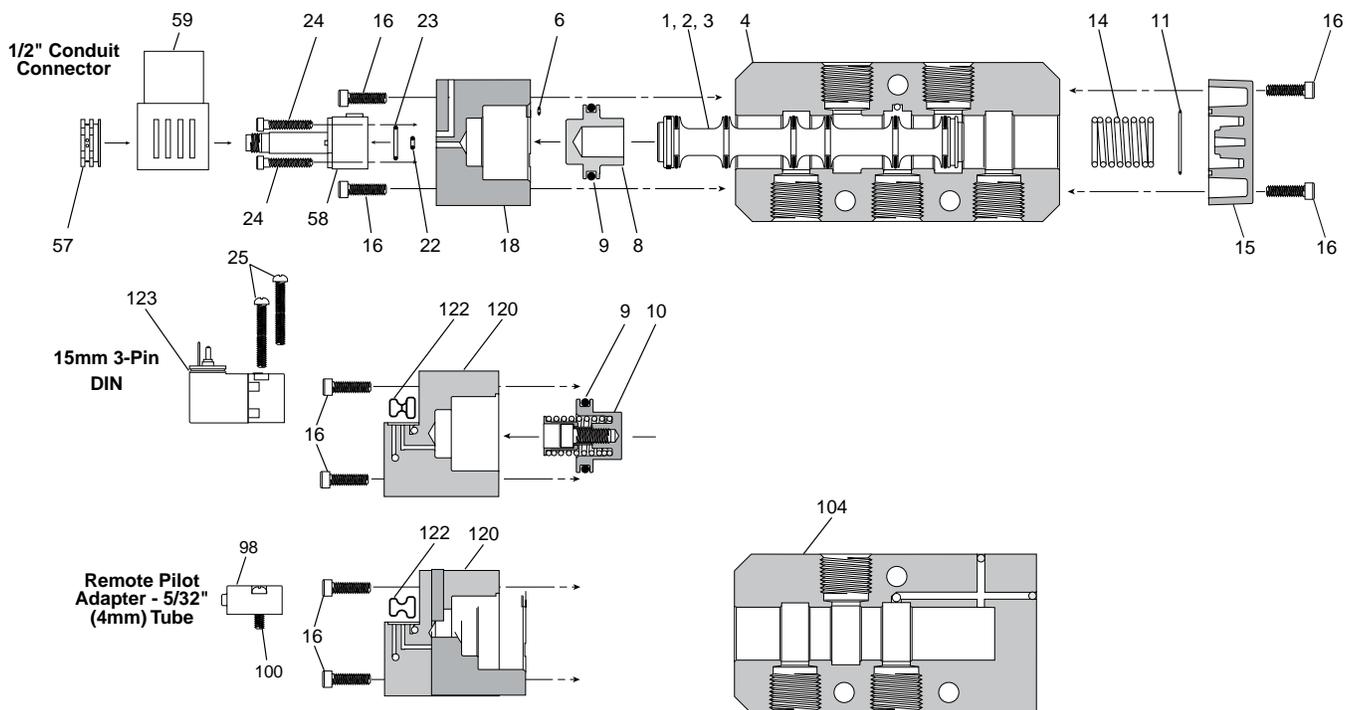
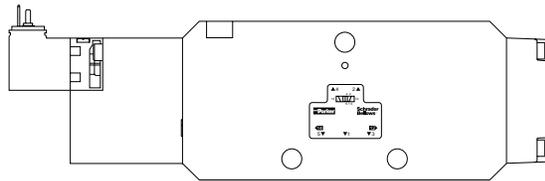
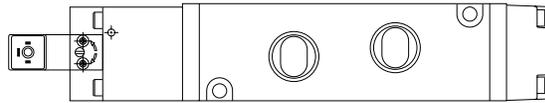
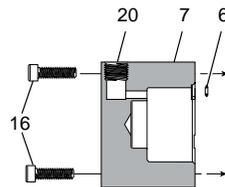
Valve to Manifold Kits

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



Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	16*	Screws - Operator Adapter	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
2*	Spool - 2-Position (Seals Assembled)	8*	Operator Adapter - Alt Enclosure	100	Screws - Remote Pilot Adapter
3*	Spool - 3-Position (Seals Assembled)	20*	1/8" NPT Pipe Plug	104	Inline Body - 3-Way
4	Inline Body - 4-Way	22*	O-ring - Small - Solenoid Base	120a	Solenoid Adapter - Vent Exhaust
6*	Gasket - Body to Operator	23*	O-ring - Large - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
7	Remote Pilot Operator	24*	Bolts - Solenoid Base	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
8	Operator Piston - 2-Position	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
9*	Lip Seal - Operator Piston	57*	Solenoid Nut	122*	Gasket - Solenoid to Adapter
10	Operator Piston Mechanism - 3-Position	58a*	Solenoid Base Assembly - Locking		
11*	Gasket - Body to Return Cap	58b*	Solenoid Base Assembly - Non Locking		
14*	Spring, Return Assist	59*	Coil - Alternate Enclosure (see Page 26)		
15a	Return Operator				

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

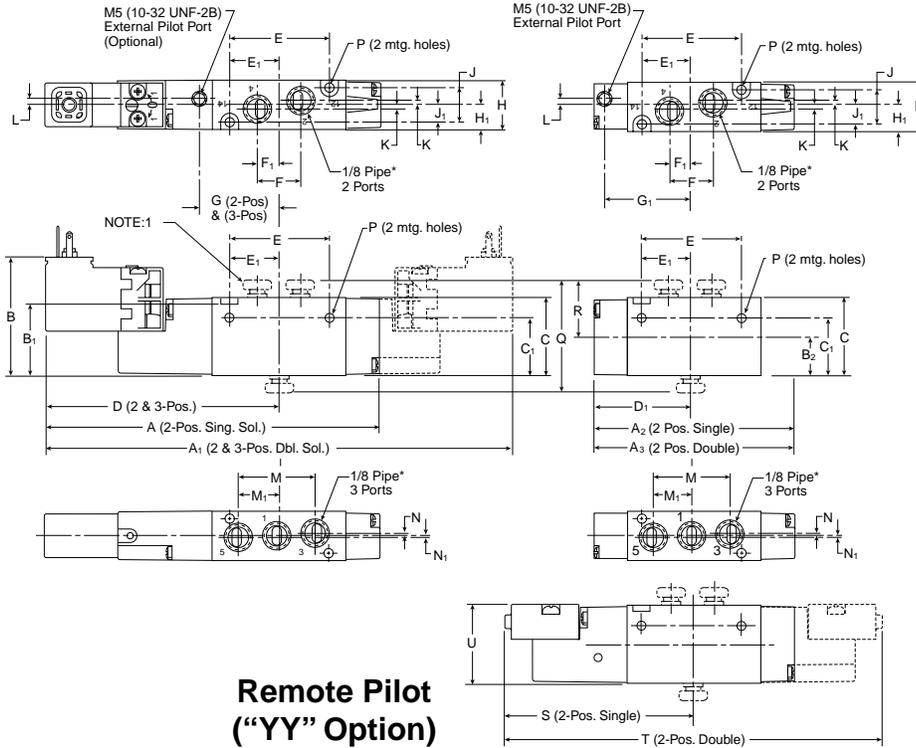




B3 Single & Double Operators – 4-Way Inline

Solenoid

Remote Pilot



B3 4-Way Inline

A 4.67 (119)	A₁ 6.44 (164)	A₂ 3.12 (79)	A₃ 3.33 (85)	B 1.66 (42)
B₁ 1.05 (27)	B₂ .57 (14)	C 1.13 (39)	C₁ .84 (21)	D 3.22 (82)
D₁ 1.66 (42)	E 1.47 (37)	E₁ .732 (19)	F .63 (16)	F₁ .32 (8)
G 1.13 (29)	G₁ 1.50 (38)	H .71 (18)	H₁ .36 (9)	J .51 (13)
J₁ .26 (7)	K .06 (2)	L .11 (3)	M 1.12 (28)	M₁ .56 (14)
N .05 (1)	N₁ .05 (1)	P ∅ .13 ∅ (3.3)	Q 5/32 Prestolok 1.54 (39)	Q 1/4 Prestolok 1.58 (40)
Q 1/4 Prestolok .77 (20)	R 1/4 Prestolok .79 (20)	S 2.69 (68)	T 5.37 (136)	U 1.16 (29)

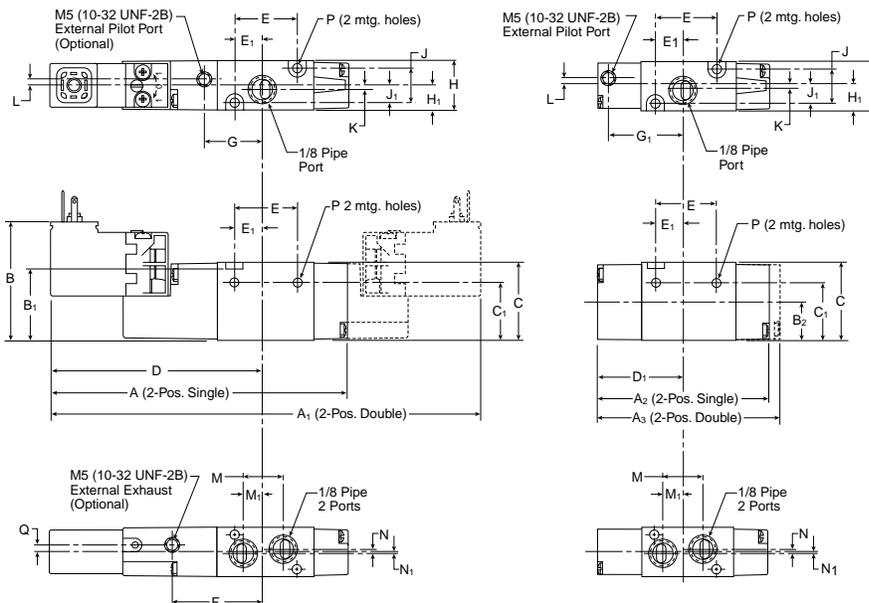
Inches (mm)

NOTE 1: Series B3 valves with integral PRESTOLOK ports must use Parker PARFLEX tubing, which has the required O.D. tolerances for use. Be sure to use the tube support (part no. 63PTU) when using the series U polyurethane tubing. All applications should be carefully tested through the range of conditions which may be encountered prior to use.

B3 Single & Double Operators – 3-Way Inline

Solenoid

Remote Pilot



B3 3-Way Inline

A 4.20 (107)	A₁ 5.96 (151)	A₂ 2.65 (67)	A₃ 2.86 (73)	B 1.66 (42)
B₁ 1.05 (27)	B₂ .57 (14)	C 1.13 (29)	C₁ .84 (21)	D 2.93 (74)
D₁ 1.38 (35)	E .98 (25)	E₁ .44 (11)	F 1.32 (34)	G .85 (22)
G₁ 1.22 (31)	H .71 (18)	H₁ .36 (9)	J .51 (13)	J₁ .26 (7)
K .06 (2)	L .11 (3)	M .63 (16)	M₁ .27 (7)	N .12 (3)
N₁ .06 (2)	P ∅ .13 ∅ (3.3)	Q .08 (2)		

Inches (mm)



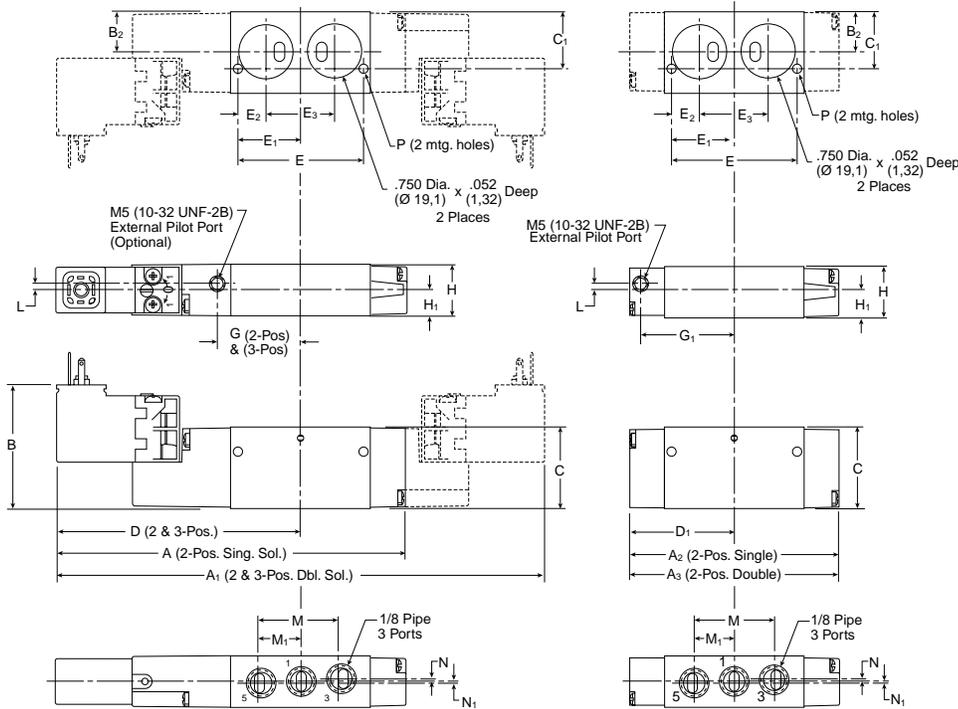
B3

Single & Double Operators – 4-Way Face Mount

Solenoid

Remote Pilot

B3 4-Way Face Mount



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

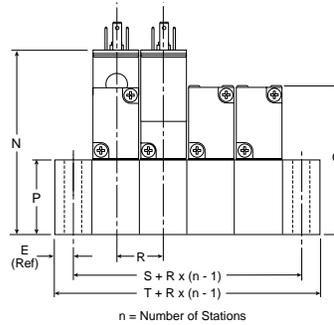
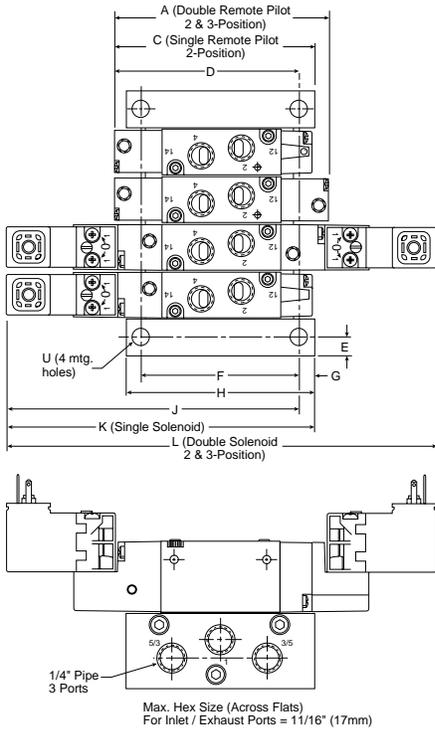
Inches (mm)

G



B3

Single & Double Operators – 4-Way IEM Stackable



B3 4-Way IEM Stackable

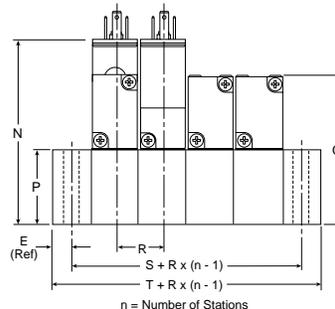
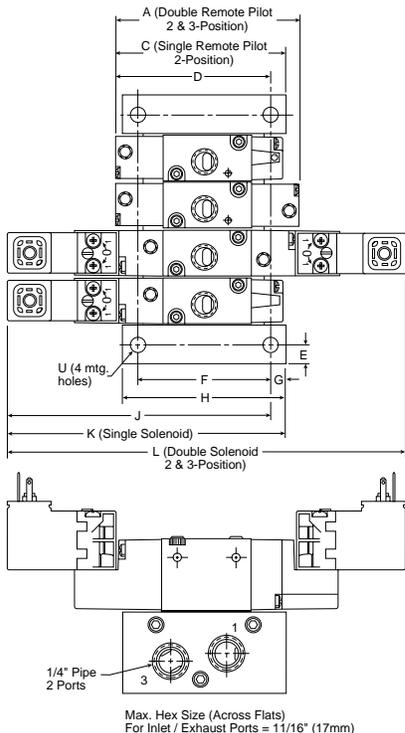
A 3.33 (84.6)	C 3.12 (79.2)	D 2.91 (73.9)	E .30 (7.6)	F 2.49 (63.3)
G .25 (6.4)	H 3.00 (76.2)	J 4.46 (113.3)	K 4.67 (118.6)	L 6.43 (163.3)
N 2.91 (73.9)	P 1.25 (31.8)	Q 2.38 (60.5)	R .74 ± .01 (18.8) ± .3	
S 1.34 (34.0)	T 1.94 (49.3)	U Ø .28 Ø (7.1)		

Inches (mm)

G

B3

Single & Double Operators – 3-Way IEM Stackable



B3 3-Way IEM Stackable

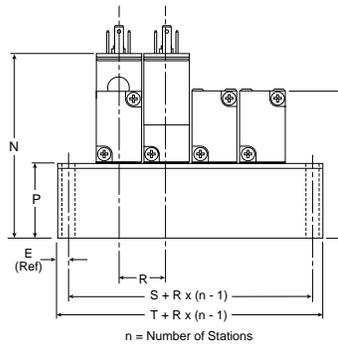
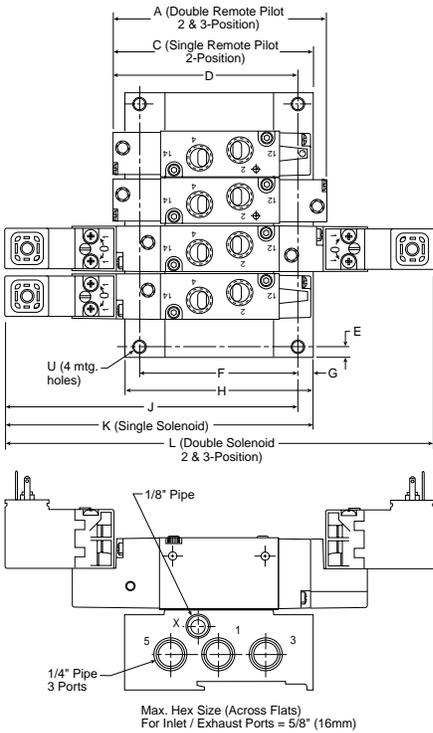
A 2.86 (72.6)	C 2.65 (67.3)	D 2.45 (62.2)	E .30 (7.6)	F 2.05 (52.0)
G .24 (6.0)	H 2.52 (64.0)	J 4.00 (101.7)	K 4.20 (106.7)	L 5.96 (151.4)
N 2.91 (73.9)	P 1.25 (31.8)	Q 2.38 (60.5)	R .74 ± .01 (18.8) ± .3	
S 1.34 (34.0)	T 1.94 (49.3)	U Ø .28 Ø (7.1)		

Inches (mm)



B3

Single & Double Operators – 4-Way IEM Aluminum Bar



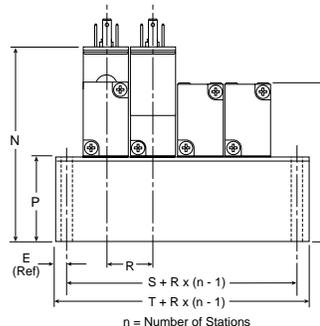
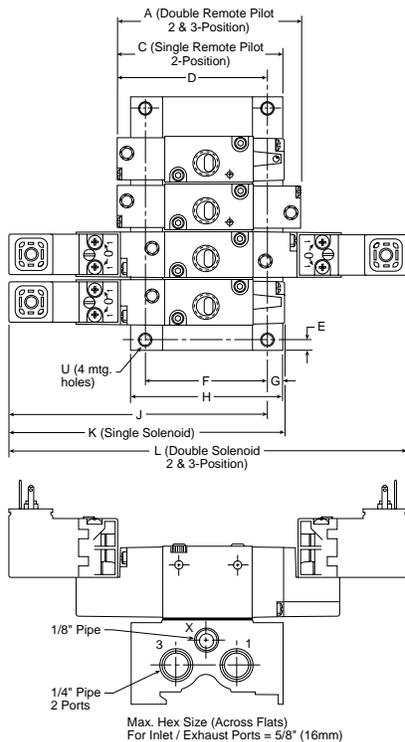
B3 4-Way IEM Aluminum Bar Manifold

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

Inches (mm)

B3

Single & Double Operators – 3-Way IEM Aluminum Bar



B3 4-Way IEM Aluminum Bar Manifold

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

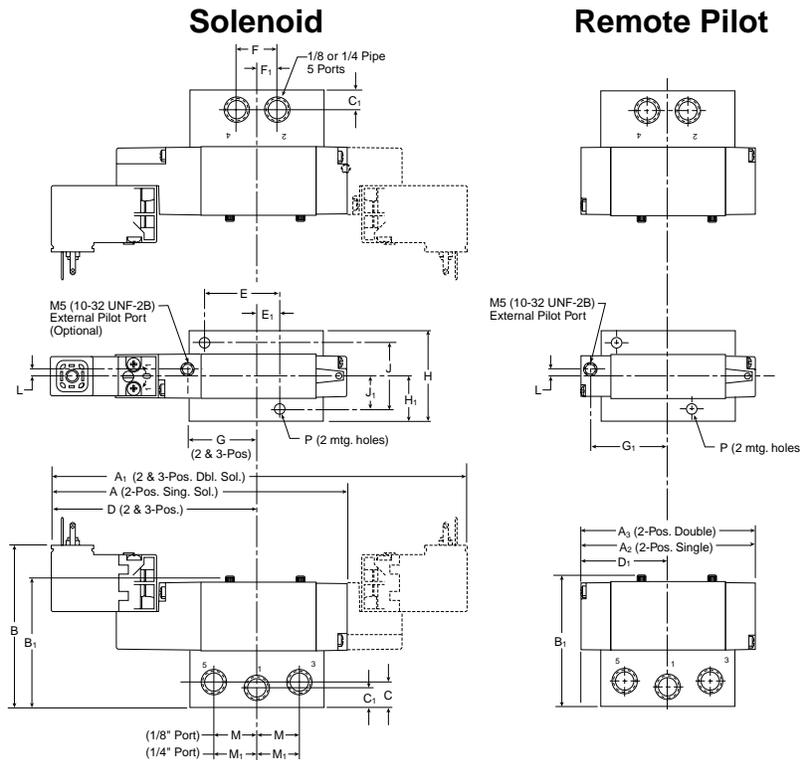
Inches (mm)





B3

Single & Double Operators – 4-Way Single Subbase



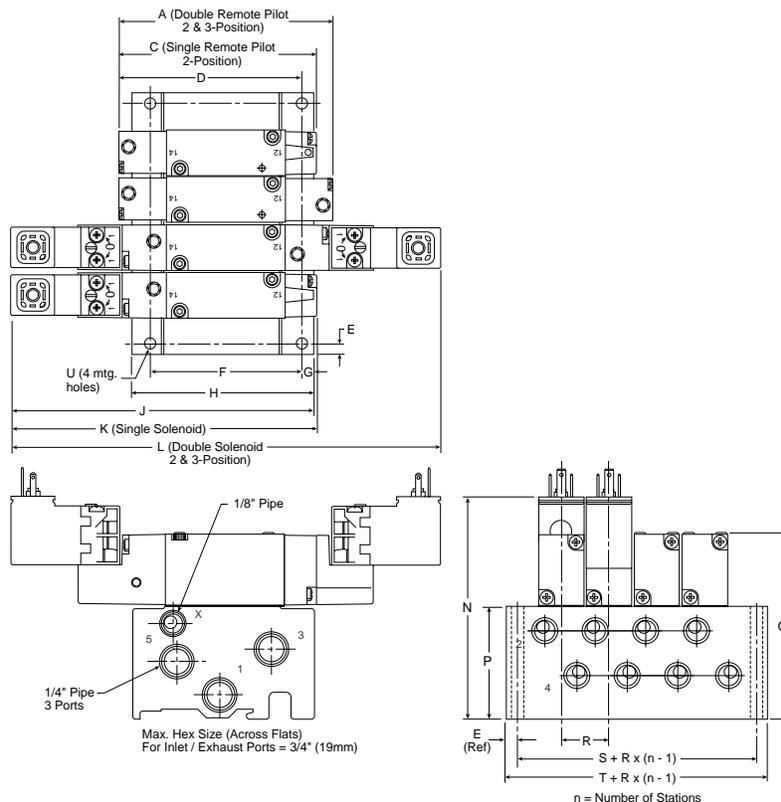
B3 4-Way Single Subbase

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

Inches (mm)

B3

Single & Double Operators – 5-Port Subbase Bar Manifold



B3 5-Port Subbase Bar Manifold

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

Inches (mm)

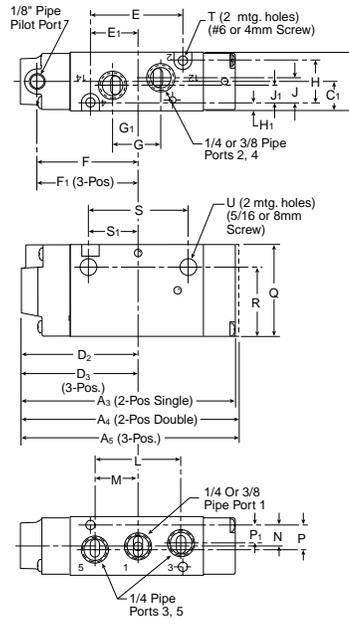
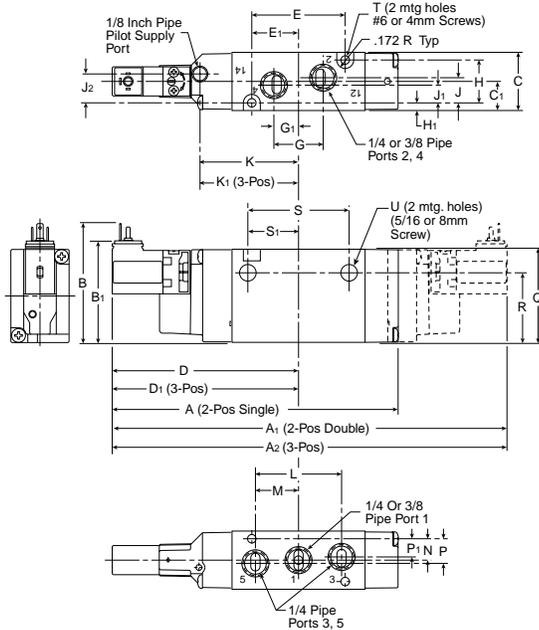
B5

Single & Double Operators – 4-Way Inline

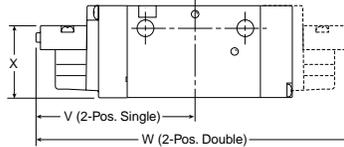
Solenoid

Remote Pilot

B5 4-Way Inline



Remote Pilot ("YY" Option)



A 5.78 (147)	A₁ 7.51 (191)	A₂ 8.45 (215)	A₃ 4.37 (110)	A₄ 4.70 (119)
A₅ 5.64 (143)	B 2.41 (61)	B₁ 2.06 (52)	C 1.18 (30)	C₁ .59 (15)
D 3.76 (96)	D₁ 4.23 (107)	D₂ 2.35 (60)	D₃ 2.82 (72)	E 1.89 (48)
E₁ .95 (24)	F 2.01 (51)	F₁ 2.47 (63)	G 1.00 (25)	G₁ .50 (13)
H .87 (22)	H₁ .16 (4)	J .51 (13)	J₁ .36 (9)	J .58 (15)
K 2.00 (51)	K₁ 2.47 (63)	L 1.75 (44)	M .88 (22)	N .43 (48)
P .50 (13)	P₁ .37 (92)	Q 1.89 (48)	R 1.41 (36)	S 2.05 (52)
S₁ 1.03 (26)	T Ø .177 Ø (4.5)	U Ø .34 Ø (9)	V 3.24 (82)	W 6.48 (165)
X 1.50 (383)				

Inches (mm)



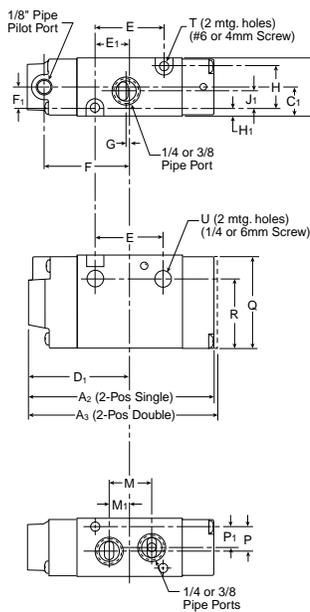
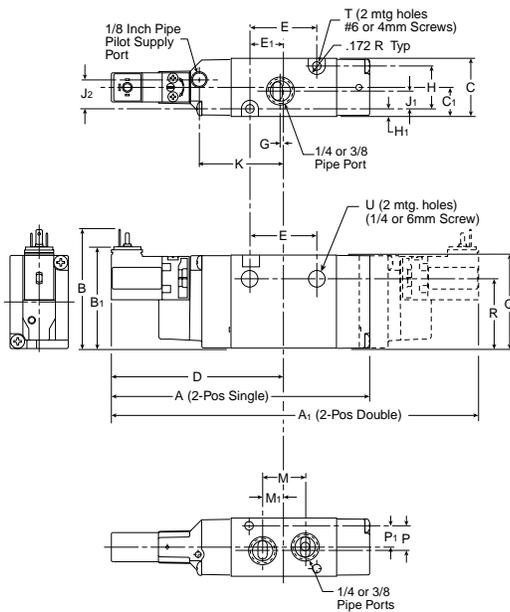
B5

Single & Double Operators – 3-Way Inline

Solenoid

Remote Pilot

B5 3-Way Inline



A 5.29 (134)	A₁ 7.03 (179)	A₂ 3.88 (99)	A₃ 4.21 (107)	B 2.41 (61)
B₁ 2.06 (52)	C 1.18 (30)	C₁ .59 (15)	D 3.43 (87)	D₁ 2.11 (54)
E 1.40 (36)	E₁ .70 (18)	F 1.77 (45)	F₁ .43 (11)	G .06 (2)
H .87 (22)	H₁ .16 (4)	J₁ .36 (9)	J₂ .58 (15)	K 1.67 (42)
M .88 (22)	M₁ .44 (11)	P .50 (13)	P₁ .37 (9)	Q 1.89 (48)
R 1.41 (36)	T Ø .177 Ø (4.5)	U Ø .26 Ø (6.6)		

Inches (mm)

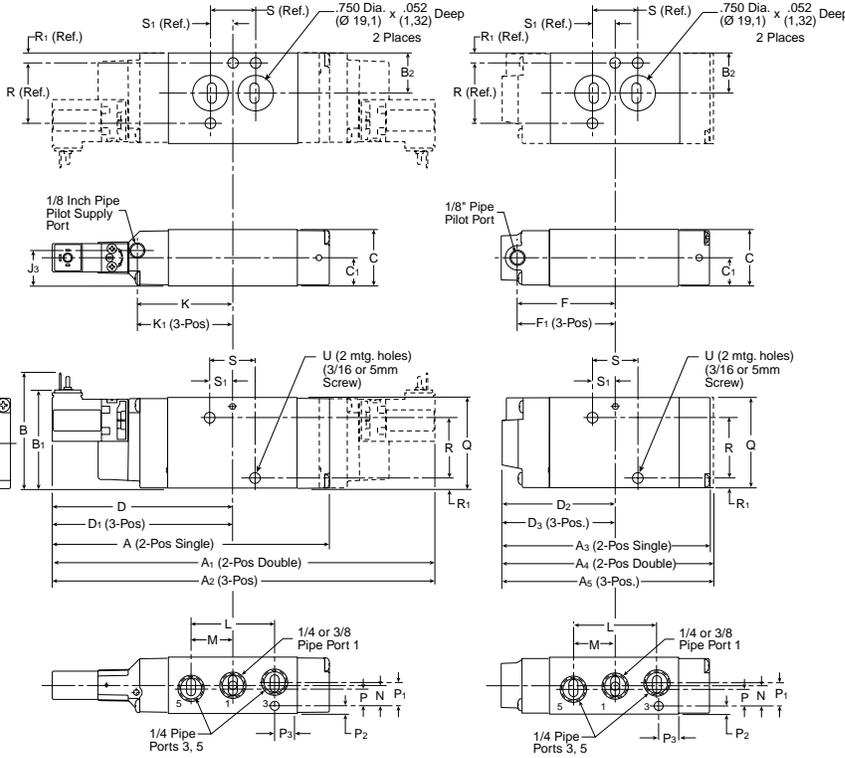
B5

Single & Double Operators – 4-Way NAMUR Mount

Solenoid

Remote Pilot

B5 4-Way NAMUR Mount

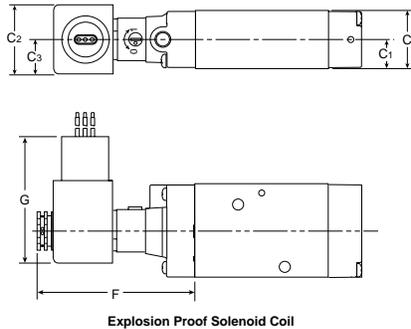


A 5.78 (147)	A₁ 7.51 (191)	A₂ 8.45 (215)	A₃ 4.37 (110)	A₄ 4.70 (119)
A₅ 5.64 (143)	B 2.41 (61)	B₁ 2.06 (52)	B₂ .84 (21)	C 1.18 (30)
C₁ .59 (15)	D 3.76 (96)	D₁ 4.23 (107)	D₂ 2.35 (60)	D₃ 2.82 (72)
F 2.01 (51)	F₁ 2.47 (63)	J₃ .74 (19)	K 2.00 (51)	K₁ 2.47 (63)
L 1.75 (44)	M .88 (22)	N .44 (11)	P .37 (9.4)	P₁ .50 (13)
P₂ .16 (4)	P₃ .40 (10)	Q 1.89 (48)	R 1.26 (32)	R₁ .21 (5)
S .94 (24)	S₁ .47 (12)	U Ø .224 Ø (5.7)		

Inches (mm)

B5

Alternative Electrical Enclosure Option F



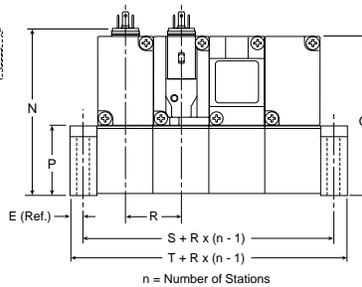
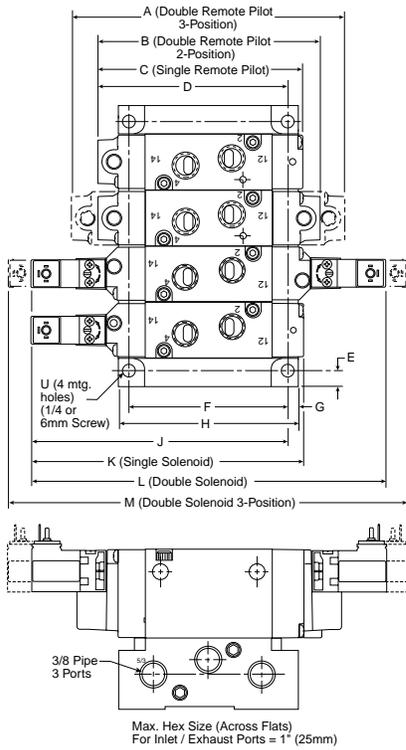
B5 4-Way NAMUR Mount with Option F Enclosure

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

Inches (mm)

B5

Single & Double Operators – 4-Way IEM Stackable



B5 4-Way IEM Stackable

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

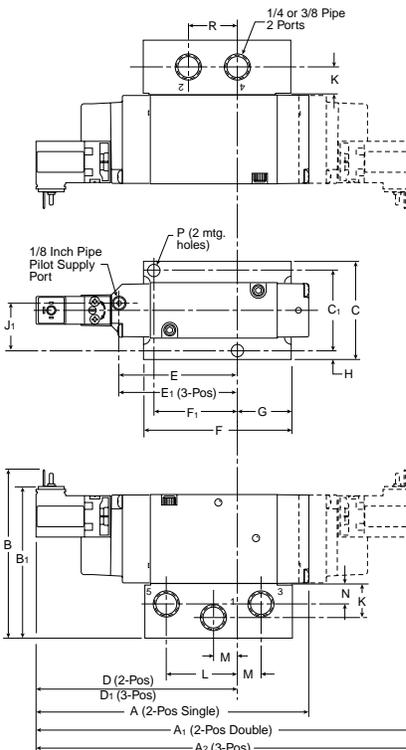
Inches (mm)

G

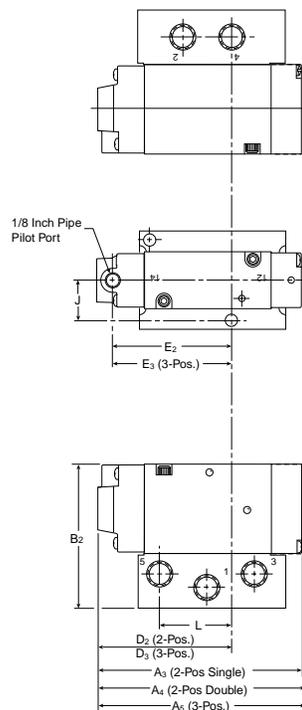
B5

Single & Double Operators – 4-Way Single Subbase

Solenoid



Remote Pilot

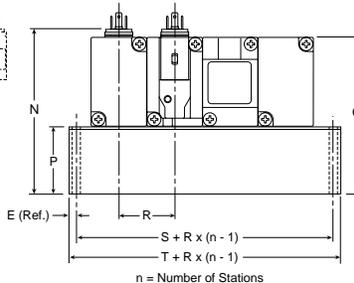
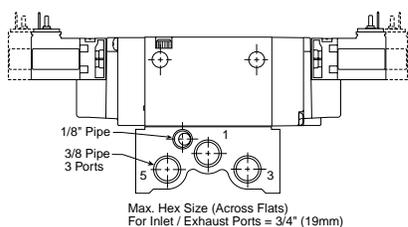
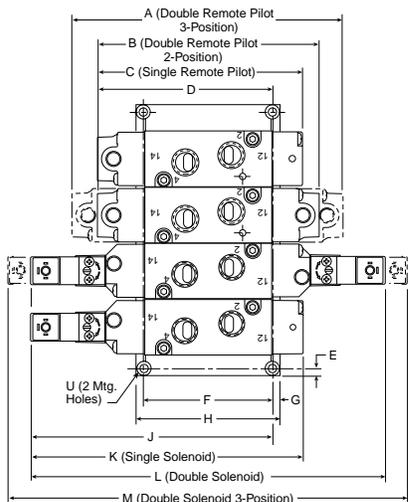


B5 4-Way Subbase

A 5.78 (147)	A₁ 7.52 (191)	A₂ 8.46 (215)	A₃ 4.37 (110)	A₄ 4.70 (119)
A₅ 5.64 (143)	B 3.56 (90)	B₁ 3.21 (82)	B₂ 3.03 (77)	C 2.12 (54)
C₁ 1.69 (43)	D 4.26 (108)	D₁ 4.73 (120)	D₂ 2.85 (72)	D₃ 3.32 (40)
E 2.51 (65)	E₁ 2.98 (76)	E₂ 2.60 (66)	E₃ 3.07 (80)	F 2.90 (74)
F₁ 1.69 (43)	G .95 (24)	H .22 (5)	J .84 (21)	J₁ .99 (25)
K .71 (18)	L 1.50 (38)	M .50 (13)	N .46 (12)	P Ø .27 Ø (7)
R 1.00 (25)				

Inches (mm)

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



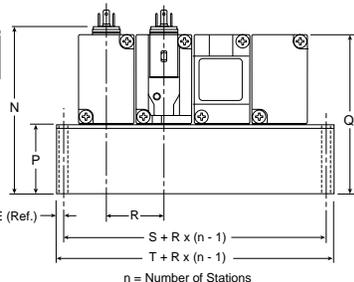
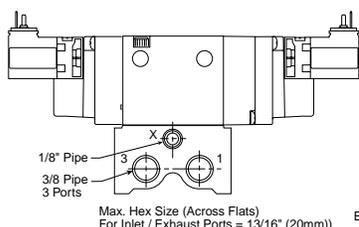
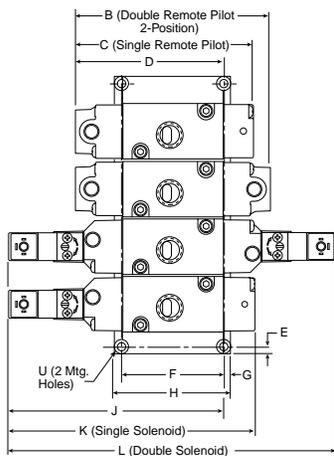
B5 4-Way IEM Aluminum Bar Manifold

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

Inches (mm)

G

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



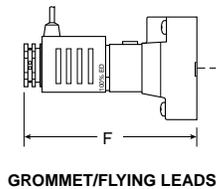
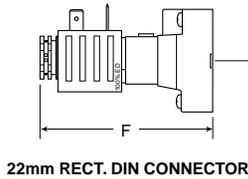
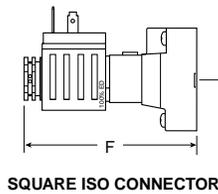
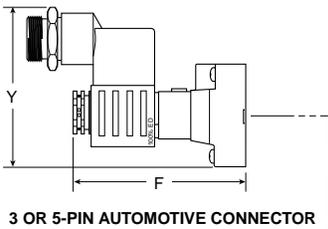
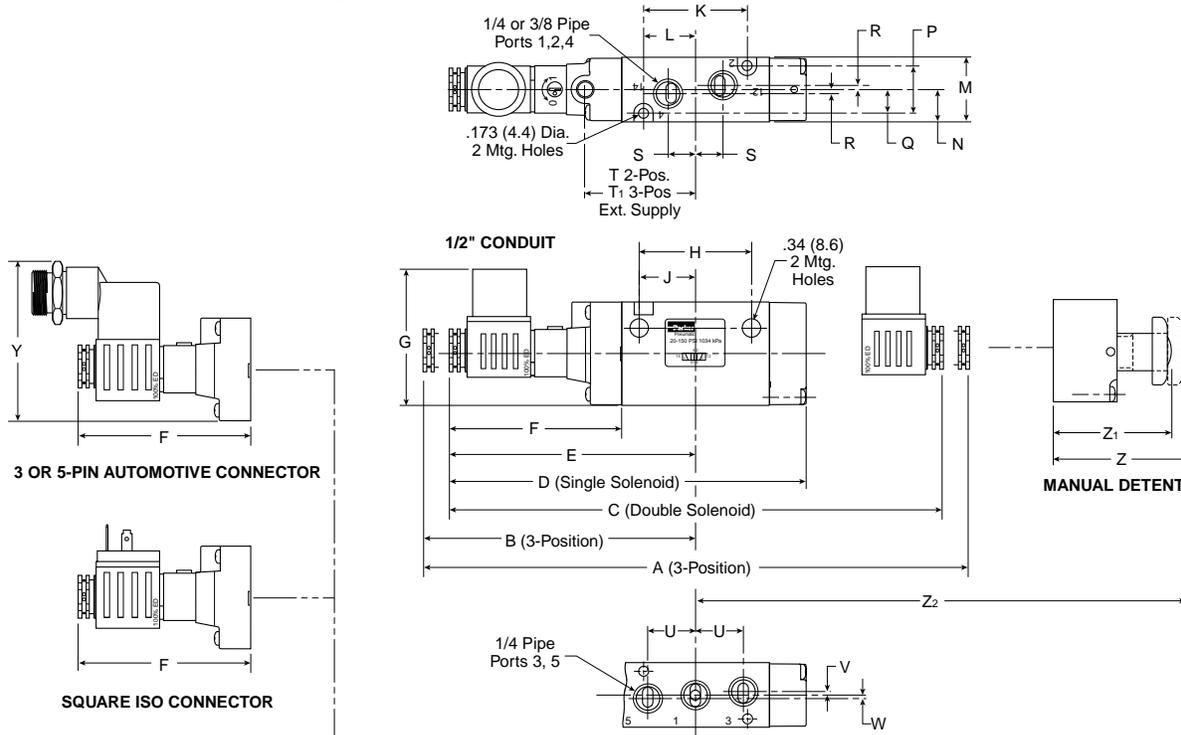
B5 3-Way IEM Aluminum Bar Manifold

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

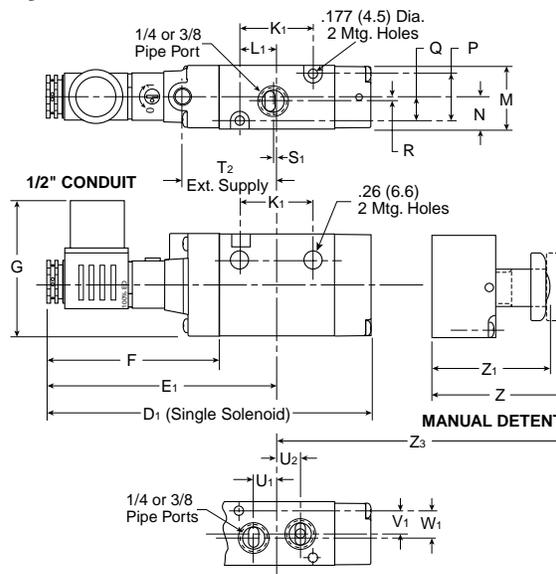
Inches (mm)

B5

4-Way Alternative Electrical Enclosures



3-Way Alternative Electrical Enclosures



B5 Alternative – Electrical Enclosures Inches (mm)

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

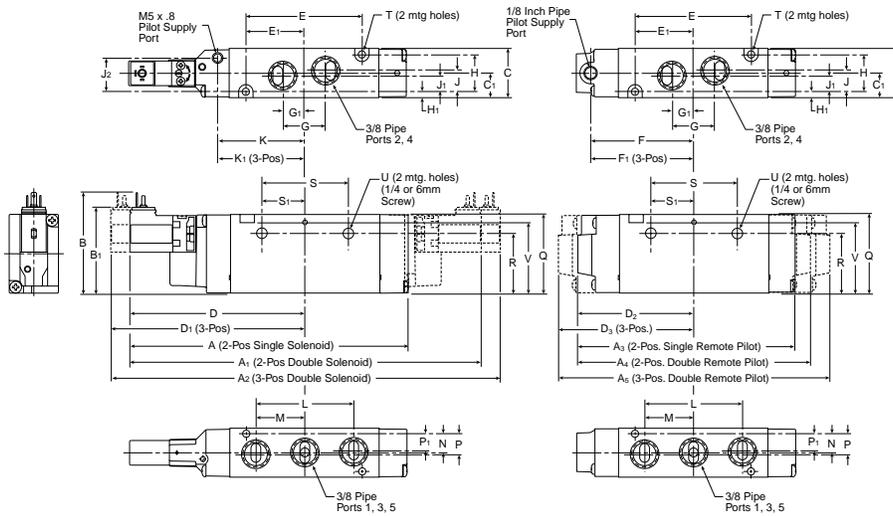


B6

Single & Double Operators – 4-Way Inline

Solenoid

Remote Pilot



B6 4-Way Inline

A 6.67 (169.5)	A₁ 8.41 (213.7)	A₂ 9.35 (237.6)	A₃ 5.26 (133.7)	A₄ 5.59 (142.1)
A₅ 6.54 (166.0)	B 2.41 (61.3)	B₁ 2.06 (52.3)	C 1.18 (30.0)	C₁ .59 (15.0)
D 4.21 (106.8)	D₁ 4.68 (118.8)	D₂ 2.80 (71.0)	D₃ 3.27 (83.0)	E 2.79 (70.8)
E₁ 1.39 (35.4)	F 2.45 (62.3)	F₁ 2.92 (74.3)	G 1.03 (26.1)	G₁ .51 (13.1)
H .91 (23.0)	H₁ .14 (3.5)	J .51 (13.1)	J₁ .39 (10.0)	J₂ .81 (20.6)
K 2.09 (53.0)	K₁ 2.56 (64.9)	L 2.34 (59.4)	M 1.17 (29.7)	N .45 (11.5)
P .49 (12.5)	P₁ .41 (10.5)	Q 1.89 (48.0)	R 1.45 (36.8)	S 2.09 (53.0)
S₁ 1.04 (26.5)	T Ø .17 (4.4)	U Ø .27 (6.9)	V 1.69 (43.0)	

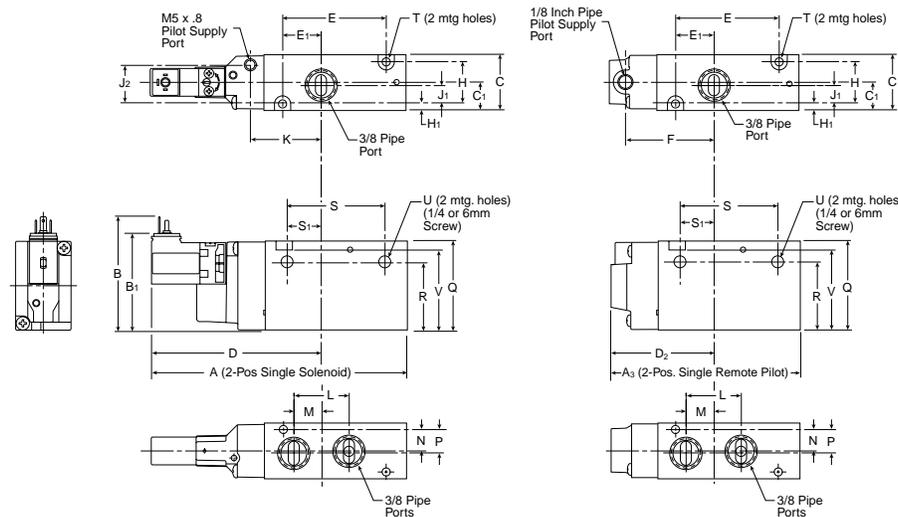
Inches (mm)

B6

Single Operators – 3-Way Inline

Solenoid

Remote Pilot



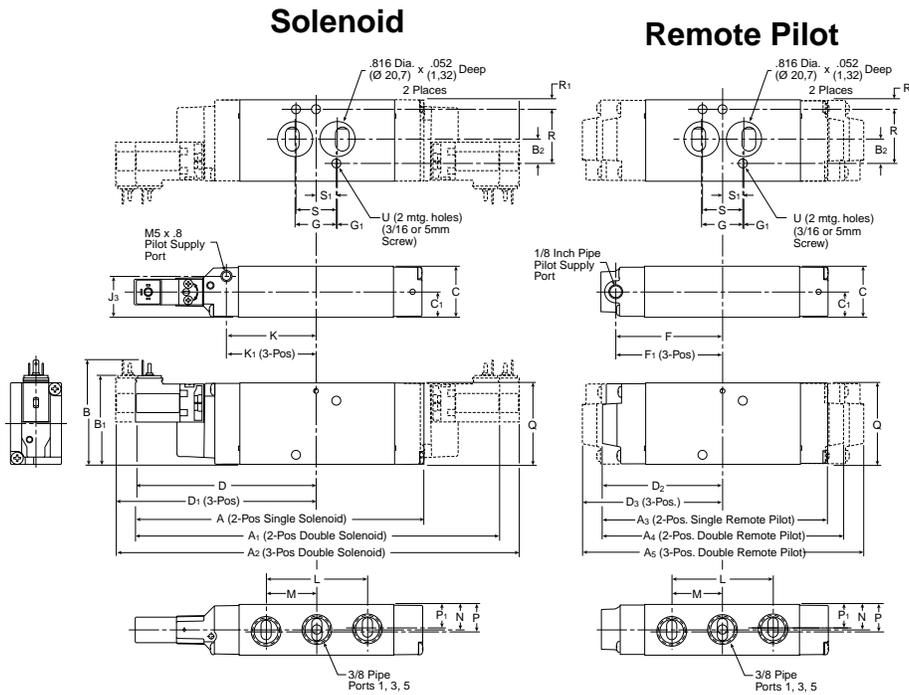
B6 3-Way Inline

A 5.42 (137.7)	A₃ 4.01 (101.9)	B 2.41 (61.3)	B₁ 2.06 (52.3)	C 1.18 (30.0)
C₁ .59 (15.0)	D 3.63 (92.1)	D₂ 2.22 (56.3)	E 2.19 (55.6)	E₁ 0.82 (20.7)
F 1.87 (47.6)	H .91 (23.0)	H₁ .14 (3.5)	J₁ .39 (10.0)	J₂ .81 (20.6)
K 1.51 (38.3)	L 1.17 (29.7)	M .59 (15.0)	N .45 (11.5)	P .49 (12.5)
Q 1.89 (48.0)	R 1.45 (36.8)	S 2.09 (53.0)	S₁ 0.76 (19.4)	T Ø .17 (4.4)
U Ø .27 (6.9)	V 1.69 (43.0)			

Inches (mm)

B6

Single & Double Operators – 4-Way NAMUR Mount



B6 4-Way NAMUR Mount

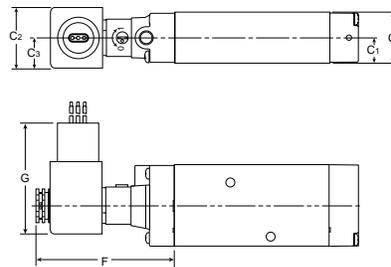
A 6.67 (169.5)	A₁ 8.41 (213.7)	A₂ 9.35 (237.6)	A₃ 5.26 (133.7)	A₄ 5.59 (142.1)
A₅ 6.54 (166.0)	B 2.41 (61.3)	B₁ 2.06 (52.3)	B₂ .57 (14.4)	C 1.18 (30.0)
C₁ .59 (15)	D 4.21 (106.8)	D₁ 4.68 (118.8)	D₂ 2.80 (71.0)	D₃ 3.27 (83.0)
F 2.45 (62.3)	F₁ 2.92 (74.3)	G .95 (24.2)	G₁ .02 (0.53)	J₃ .95 (24.1)
K 2.09 (53.0)	K₁ 2.56 (64.9)	L 2.34 (59.4)	M 1.17 (29.7)	N .59 (15)
P .63 (16)	P₁ .55 (14)	Q 1.89 (48.0)	R 1.26 (32)	R₁ .22 (5.5)
S .94 (24)	S₁ .47 (12)	T Ø .17 Ø (4.4)	U Ø .27 Ø (6.9)	

Inches (mm)

G

B6

Alternative Electrical Enclosure Option F



Hazardous Duty Solenoid Coil

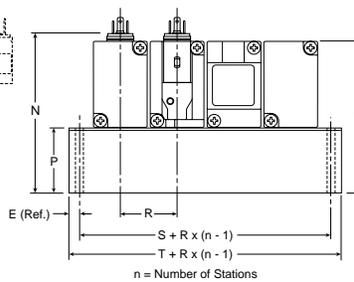
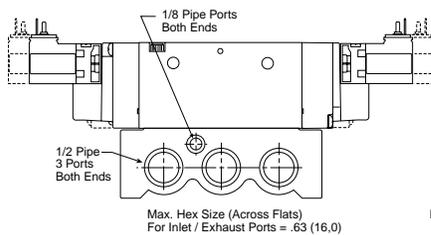
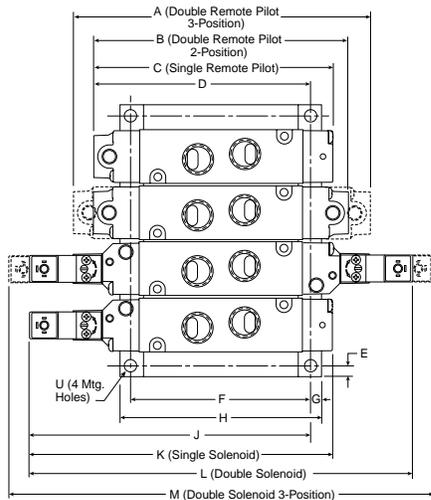
B6 4-Way NAMUR Mount with Option F Enclosure

C 1.18 (30)	C₁ .59 (15)	C₂ 1.42 (36)	C₃ .71 (18)	F 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

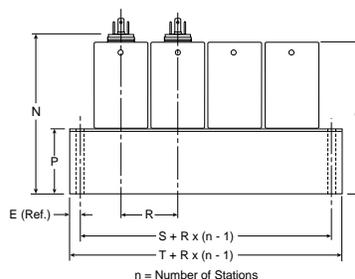
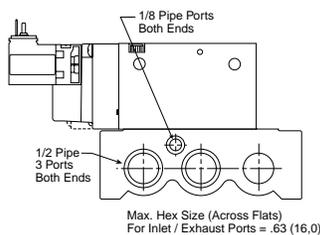
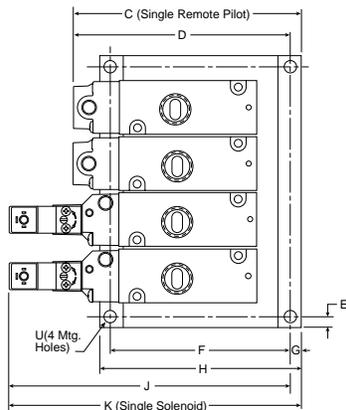
A 6.54 (166.0)	B 5.59 (142.1)	C 5.26 (133.7)	D 4.76 (121.0)	E .24 (6.0)
F 3.94 (100.0)	G .24 (6.0)	H 4.41 (112.0)	J 6.17 (156.8)	K 6.67 (169.5)
L 8.41 (213.7)	M 9.35 (237.6)	N 3.60 (91.3)	P 1.54 (39.0)	Q 3.43 (87.0)
R 1.24 (31.5)	S 1.77 (45.0)	T 2.24 (57.0)	U ∅ .26 ∅ (6.5)	

Inches (mm)

G

B6

Single Operators – 3-Way IEM Aluminum Bar



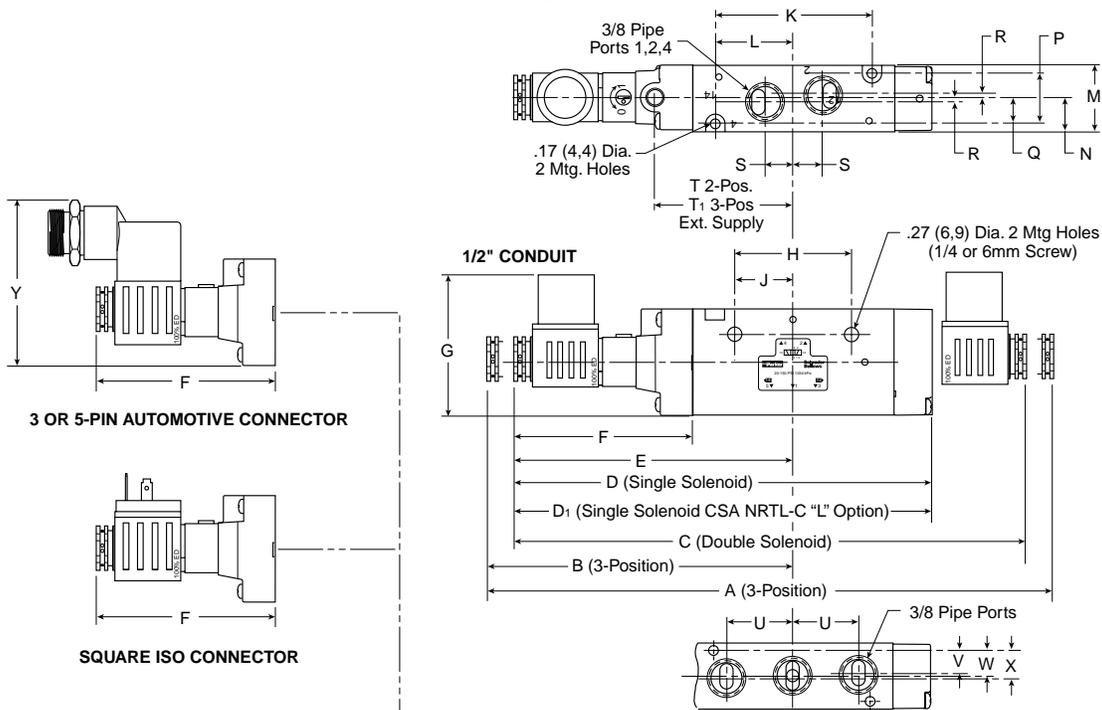
B6 3-Way IEM Aluminum Bar Manifold

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

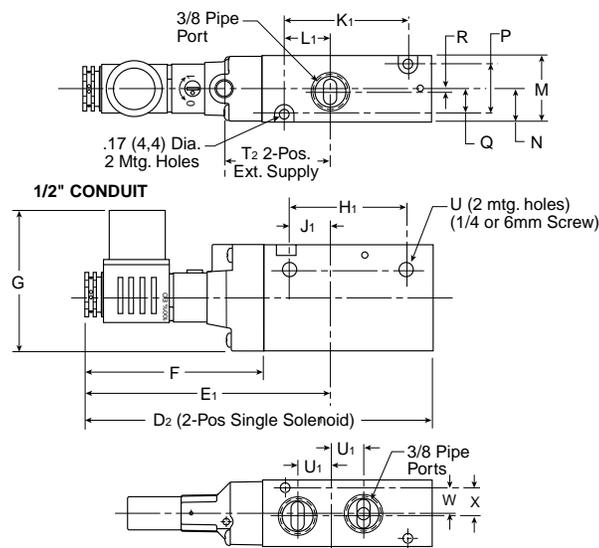
Inches (mm)

B6

4-Way Alternative Electrical Enclosures



3-Way Alternative Electrical Enclosures



B6 Alternative – Electrical Enclosures Inches (mm)

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



B7

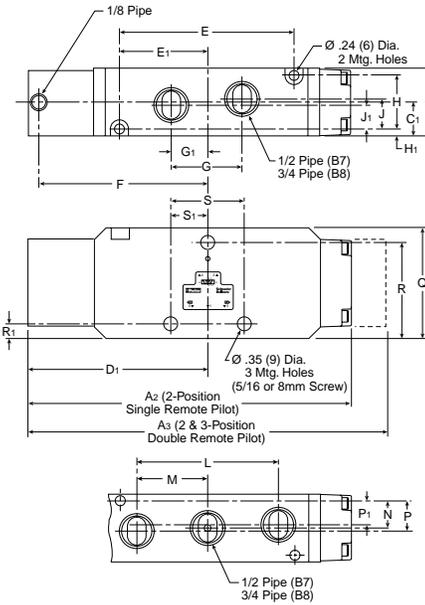
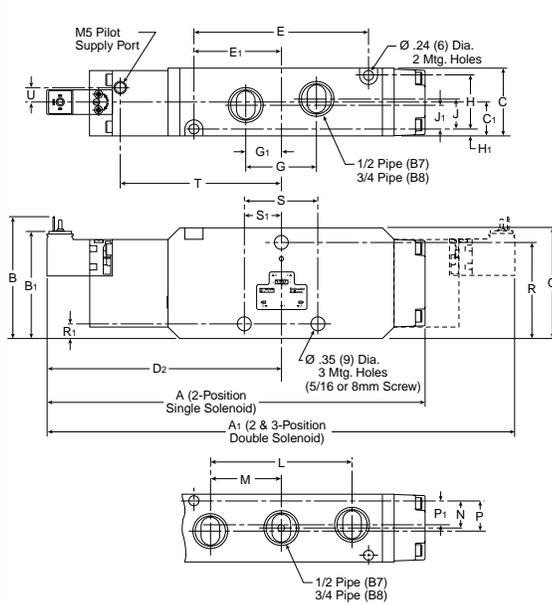
Single & Double Operators – 4-Way Inline

B8

Solenoid

Remote Pilot

B7 & B8 4-Way Inline



A 9.13 (232)	A₁ 11.29 (287)	A₂ 7.79 (198)	A₃ 8.62 (219)
B 2.95 (75)	B₁ 2.59 (66)	C 1.65 (42)	C₁ .83 (21)
D₁ 4.29 (109)	D₂ 5.63 (143)	E 4.21 (107)	E₁ 2.13 (54)
F 4.06 (103)	G 1.73 (44)	G₁ .87 (22)	H 1.29 (33)
H₁ .16 (4)	J .75 (19)	J₁ .59 (15)	L 3.39 (86)
M 1.69 (43)	N .67 (17)	P .75 (19)	P₁ .59 (15)
Q 2.68 (68)	R 2.32 (59)	R₁ .35 (9)	S 1.81 (46)
S₁ .90 (23)	T 3.94 (100)	U .35 (9)	

Inches (mm)

B7

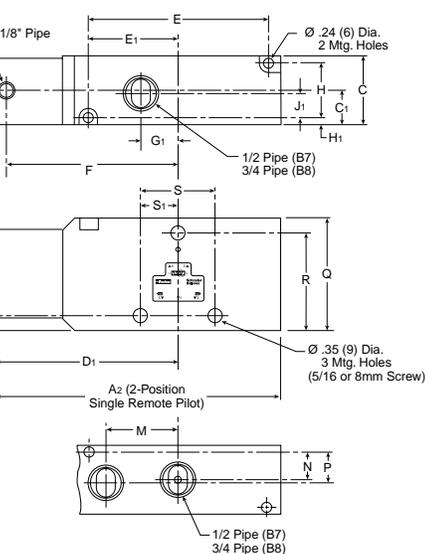
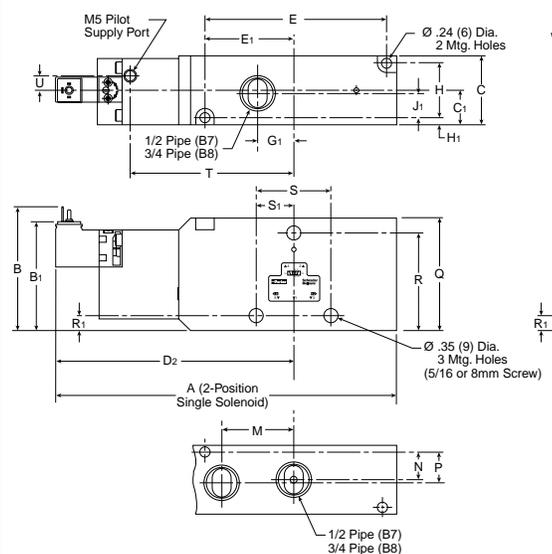
Single Operators – 3-Way Inline

B8

Solenoid

Remote Pilot

B7 & B8 3-Way Inline



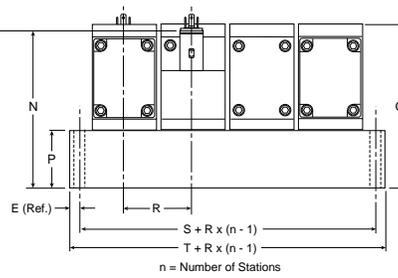
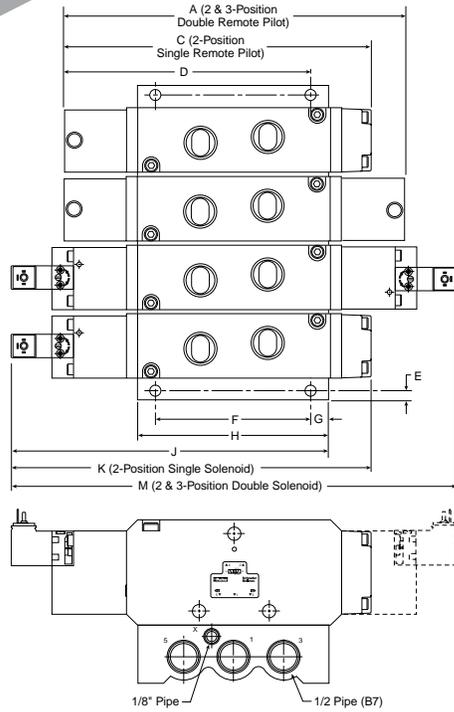
A 7.99 (203)	A₂ 6.65 (169)	B 2.95 (75)	B₁ 2.59 (66)
C 1.65 (42)	C₁ .83 (21)	D₁ 4.29 (109)	D₂ 5.63 (143)
E 4.21 (107)	E₁ 2.13 (54)	F 4.06 (103)	G₁ .86 (22)
H 1.29 (33)	H₁ .16 (4)	J₁ .59 (15)	M 1.69 (43)
N .67 (17)	P .75 (19)	Q 2.68 (68)	R 2.32 (59)
R₁ .35 (9)	S 1.81 (46)	S₁ .90 (23)	T 3.94 (100)
U .35 (9)			

Inches (mm)

G

B7 **Single & Double Operators – 4-Way IEM Aluminum Bar**

B8



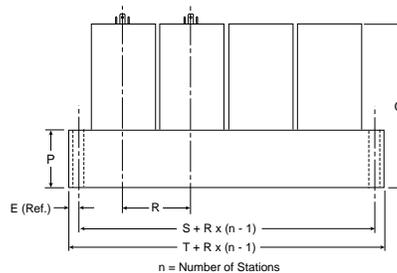
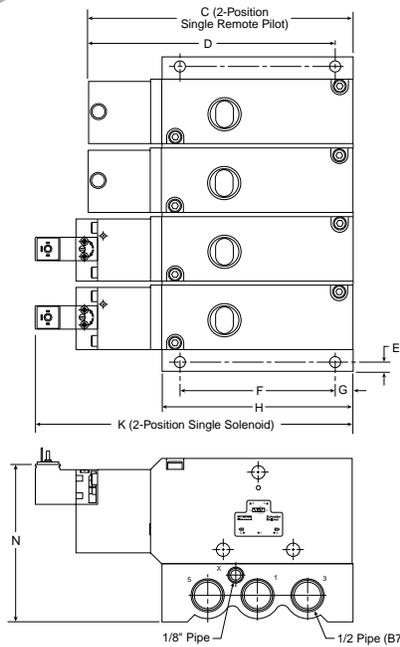
**B7 & B8 4-Way
IEM Aluminum Bar
Manifold**

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

Inches (mm)

B7 **Single Operators – 3-Way IEM Aluminum Bar**

B8



**B7 & B8 3-Way
IEM Aluminum Bar
Manifold**

C 6.65 (169)	D 4.92 (124.9)	E .24 (6)	F 3.94 (100)
G .45 (11.5)	H 4.84 (123)	K 7.99 (203)	N 4.00 (101.5)
P 1.48 (37.5)	Q 4.15 (105.5)	R 1.77 (45)	S 2.24 (57)
T 2.72 (69)			

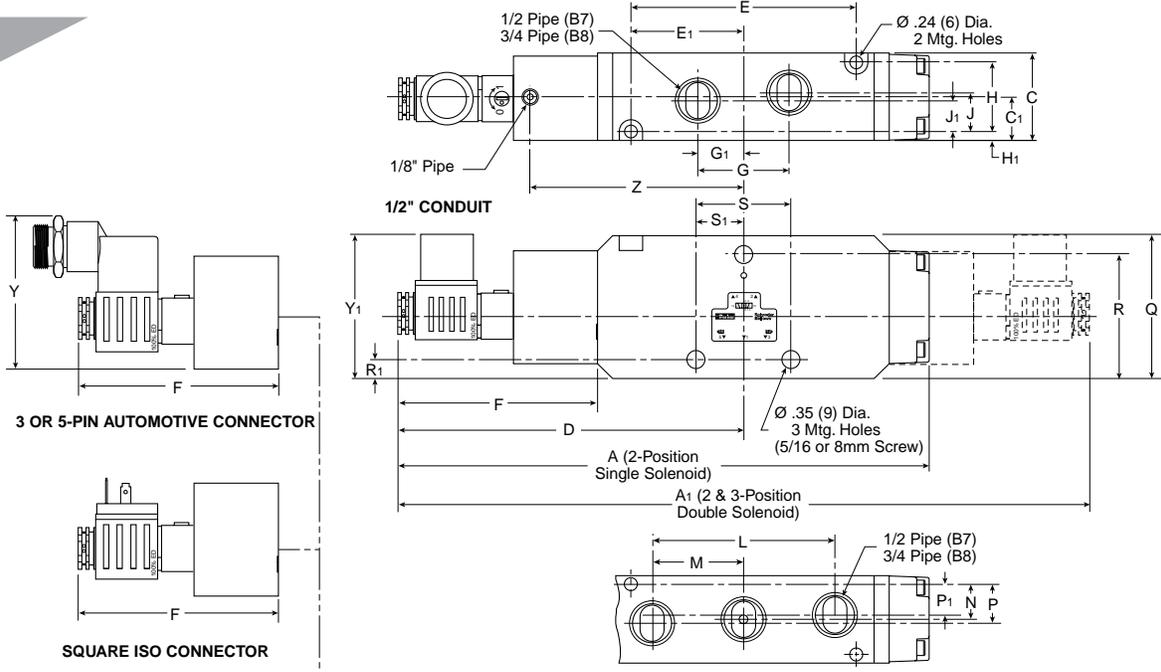
Inches (mm)



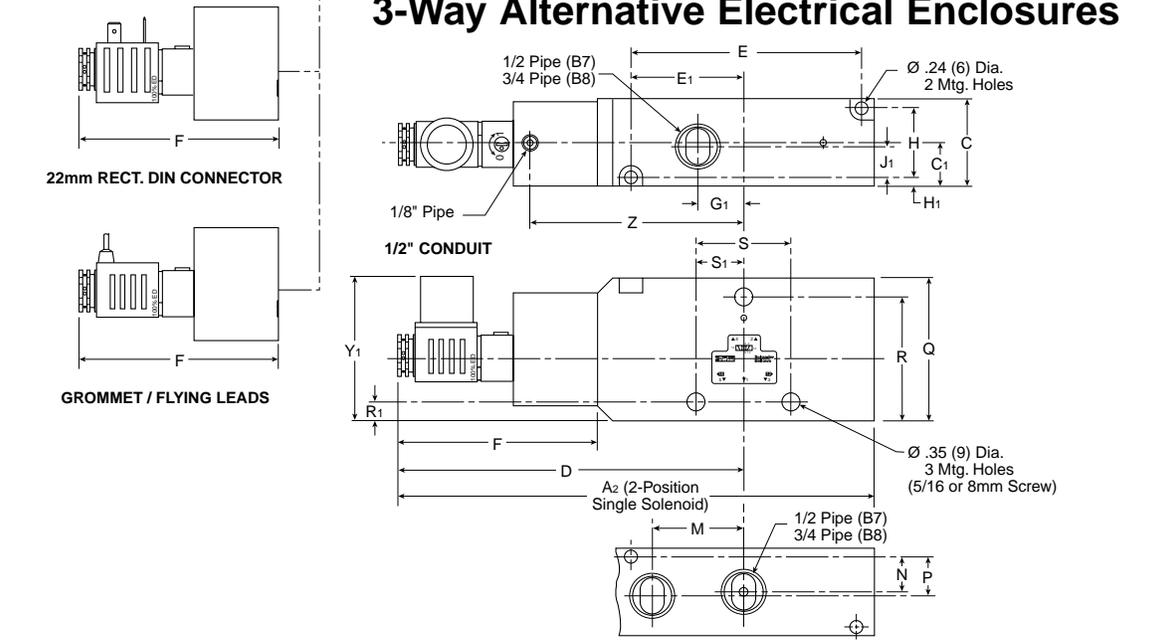
B7

B8

4-Way Alternative Electrical Enclosures



3-Way Alternative Electrical Enclosures



B7 & B8 3 & 4-Way Alternative – Electrical Enclosures Inches (mm)

A 9.92 (252)	A₁ 12.91 (328)	A₂ 8.78 (223)	C 1.65 (42)	C₁ .83 (21)	D 6.46 (164)	E 4.21 (107)	E₁ 2.13 (54)	F 3.74 (95)	G 1.73 (44)	G₁ .86 (22)	H 1.29 (33)	H₁ .16 (4)
J .75 (19)	J₁ .59 (15)	L 3.39 (86)	M 1.69 (43)	N .67 (17)	P .75 (19)	P₁ .59 (15)	Q 2.68 (68)	R 2.32 (59)	R₁ .35 (9)	S 1.81 (46)	S₁ .90 (23)	Y 2.87 (73)
Y₁ 2.71 (69)	Z 3.98 (101)											

G

Definitions

- CSA NRTL-C** Canadian Standards Association and UL Applicable.
- IP65** International classification system for sealing effectiveness for enclosures of electrical equipment. IP stands for "Ingress Protection" and the two digits XY stand for: X - protection from solid objects and Y - protection from moisture. IP 65 is protection from dust and water washdown.
- NEMA 4** National standard for electrical enclosure protection. NEMA 4 provides protection against dirt, dust, water hosedown and rain. (Similar to IP 65)
- DIN 43650C** International standard for the 15mm 3-Pin connector. The pin spacing is 8mm.
- 3-WAY** Valve has three ways for air to flow. Also designated as 3/2.
- 4-WAY** Valve has four ways for air to flow. Also designated as 5/2 for 2-Position and 5/3 for 3-Position.
- NC** Normally Closed. Pressure is blocked when in neutral position. (Normally Non-Passing)
- NO** Normally Open. Pressure passes thru when in neutral position. (Normally Passing)
- IEM** Inlet / Exhaust manifold. The inlet and exhaust ports are located in the manifold. The cylinder ports are accessed in the valve.
- 5-Port Subbase Bar Manifold**
 Manifold that includes the inlet and outlet ports as well as the #2 & #4 cylinder ports. Utilizes a subbase valve less base.
- NLMOR** Non-Locking Manual Override. A constant actuation must be maintained for the valve to remain shifted.
- LMOR** Locking Manual Override. Valve remains shifted without constant end user override actuation.
- Surge Suppression**
 Nullifies reverse EMF generated when a solenoid is de-energized.
- SCFM** Measure of air flow. Standard Cubic Feet per Minute at 68°F and 36% humidity at sea level.
- PSIG** Pounds per Square Inch measured with a gage. (Catalog pressure reflects PSIG)
- PSIA** Pounds per Square Inch atmospheric.
- kPa** Kilopascals. International measure of pressure. 145 PSIG = 1000 kPa
- PSIG = 0 → PSIA = 14.7 → In. of Hg = 29.92 → kPa = 0

Product Shipping Weights

Series	Single Solenoid	3-Position Solenoid	Manifold Stackable	Subbase	End Plate
B3	.25	.35	.20	.60	.50
B5	.70	.80	.20	.80	.70
B6	1.8	2.4	—	—	—
B7	2.5	2.9	—	—	—
B8	2.5	2.9	—	—	—

Weights are in pounds and are approximate.

Cv Calculations

Cv Measure of calculating flow of a valve (or other pneumatic device) that takes into effect the temperature, pressure, pressure drop, and flow. As a rule of thumb, a Cv of 1.0 is 25 SCFM with a 5 PSIG pressure drop.

$$Cv = \frac{\text{Cylinder Area (Sq. In.)} \times \text{Stroke (In.)} \times \text{Compression Factor (Table 1)}}{\text{Stroke Time (sec.)} \times 28.8} \times \text{"A" (Table 1)}$$

Table 1
Compression Factors and "A" Constants

Inlet Pressure (PSIG)	Compression Factor	"A" Constants for Various Pressure Drop*		
		2 PSI Δ P	5 PSI Δ P	10 PSI Δ P
10	1.6	.152	.103	
20	2.3	.126	.084	.065
30	3.0	.111	.073	.055
40	3.7	.100	.065	.048
50	4.4	.091	.059	.044
60	5.1	.085	.055	.040
70	5.7	.079	.051	.037
80	6.4	.075	.048	.035
90	7.1	.071	.046	.033
100	7.8	.068	.044	.032
110	8.5	.065	.042	.030
120	9.2	.063	.040	.029
130	9.9	.061	.039	.028
140	10.6	.058	.037	.027
150	11.2	.057	.036	.026
160	11.9	.055	.035	.025
170	12.6	.053	.034	.024
180	13.3	.052	.033	.024
190	14.0	.051	.032	.023
200	14.7	.050	.032	.023

Note: Use "A" constant at 5 PSI Δ P for most applications. On very critical applications, use "A" at 2 PSI Δ P. You will find in many cases, a 10 PSI Δ P is not detrimental, and can save money and mounting space.

* Tabulated values are the solution of $\frac{1}{22.48} \sqrt{\frac{GT}{(P_1 - P_2) P_2}}$ where T is for 68°F and G = 1 for Air.

Table 2
Effective Square-Inch Areas for Standard-Bore-Size Cylinders

Bore Size	Cylinder Area (Sq. In.)	Bore Size	Cylinder Area (Sq. In.)
3/4"	.44	4"	12.57
1"	.79	4-1/2"	15.90
1-1/8"	.99	5"	19.64
1-1/4"	1.23	6"	28.27
1-1/2"	1.77	7"	38.48
1-3/4"	2.41	8"	50.27
2"	3.14	10"	78.54
2-1/2"	4.91	12"	113.10
3-1/4"	8.30	14"	153.94
3-5/8"	10.32		

Notes

G



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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, ketones, 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 4.10.

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.

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3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.

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6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

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

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

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

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

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

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgements resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

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

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

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