



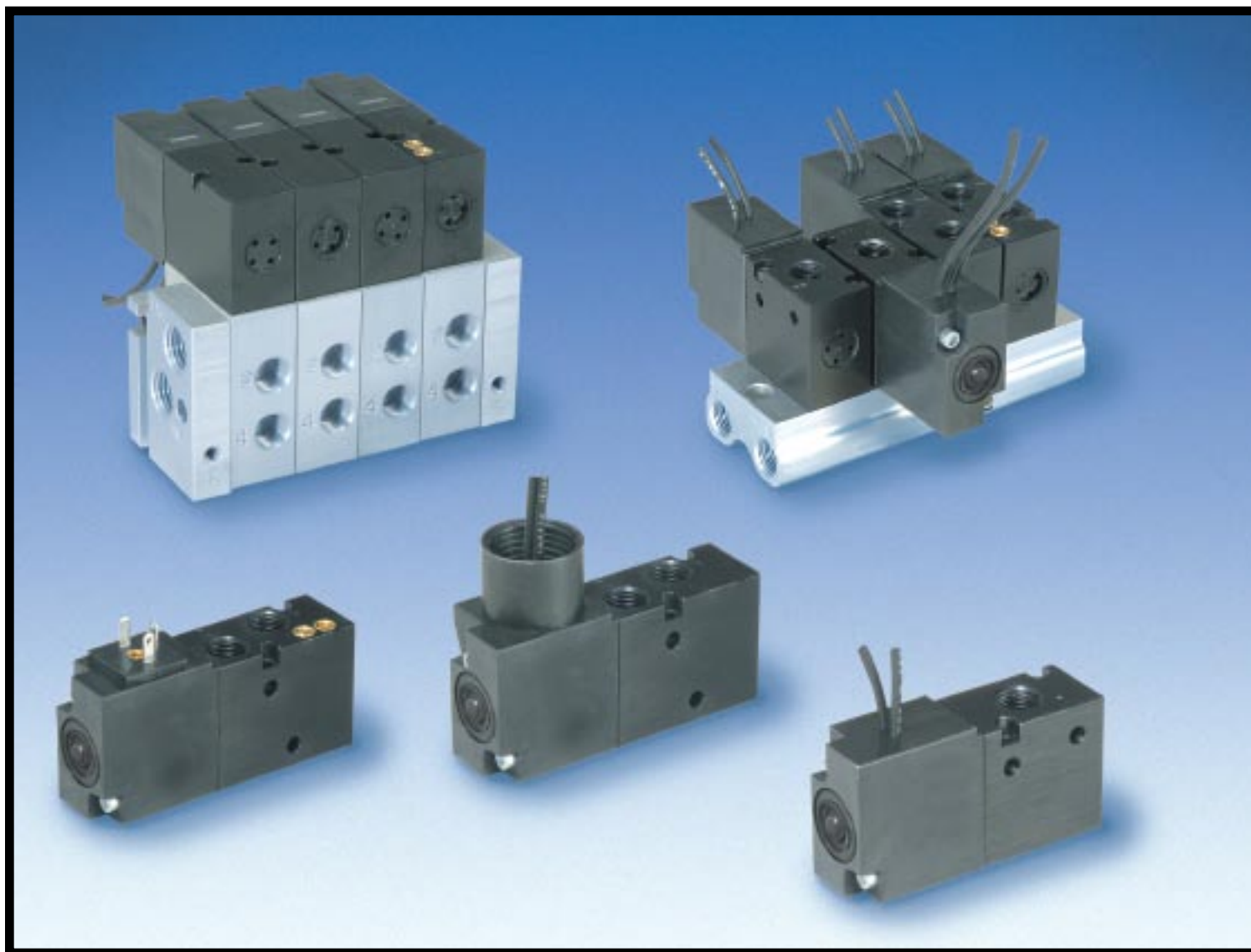
# ***XM Valve***

*Air Control Valves*

*Direct Acting, 1/8" Port*

*3-Way & 4-Way: .15 Cv*

*Catalog 0661/USA*



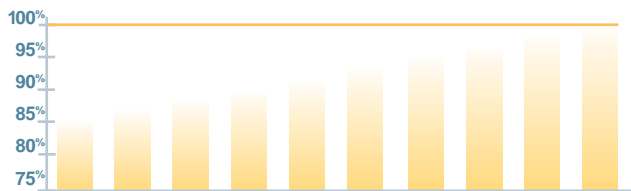
# Parker Hannifin Corporation

A global, Fortune 300 company with sales of \$8 billion and over 400,000 customers in 46 countries, Parker Hannifin is the world's leading supplier of motion control components and system solutions serving the industrial, mobile, and aerospace markets.

Excellence is imprinted on our corporate DNA. We are the only manufacturer offering customers a choice of hydraulic, pneumatic, electromechanical, or computer motion control.

## Total Systems Solutions

Parker's team of highly qualified applications engineers, product development engineers, and system specialists can turn pneumatic, structural extrusion, and electromechanical products into an integrated system solution. And our Selectable Levels of Integration™ program provides the components, subsystems, and controlled motion systems for the level of integration you choose.



Parker consistently raises the bar for its manufacturing plants and distributors, measuring its delivery to customer request date.

## 1st in Delivery, Field Sales and Distribution

Parker boasts the industry's largest global distribution network, with more than 8,600 distributors worldwide. With factories located strategically on five continents, we can maintain matchless on-time delivery rates.

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Parker Pneumatic Distribution offers the next level in premier customer service. Each location has significant on-hand inventory to keep your down time to a minimum. And many distributors have in-house design capability to support your system and subsystem requirements.



Parker world headquarters in Cleveland



## Training

Parker's best-in-class technology training includes hands-on classes, Web-based training, and comprehensive texts for employees, distributors, and customers. Parker also provides

computer based training, PowerPoint presentations, exams, drafting and simulation software, and trainer stands.

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Our standard 18-month warranty on pneumatic products is extended to 60 months when used with a properly installed and maintained Parker air preparation system.

## www.parker.com/pneumatics

Industry's most comprehensive Web site is your single source for:

- Product information
- Downloadable catalogs
- 3D design files
- Training materials
- Product configuration software
- RFQ capabilities



## 24/7 Emergency Breakdown Referrals

The Parker product information center is available any time of the day or night at 1-800-C-Parker. Our operators will connect you with on-call representatives who will identify replacement parts or services for all motion technologies. Talk to a real person!



Basic Valve Functions .....	2
XM Series Basic Features.....	3
Common Part Numbers.....	4
Model Number Index .....	5
IEM Bar Manifolds & Subbase Manifolds.....	6
Manifold Ordering Information.....	7
Technical Information .....	8
Kits & Accessories .....	9
Dimensions.....	10-13
Safety Guide.....	14-15
Offer of Sale .....	16

### **WARNING**

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

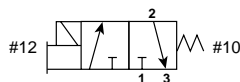
This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

### **Offer of Sale**

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document entitled "Offer of Sale".

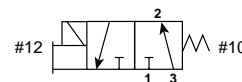
### 3-Way, 2-Position, Normally Closed



*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 is connected to outlet port 2, exhaust port 3 is blocked.

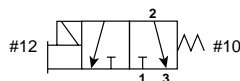
### 3-Way, 2-Position, Normally Open



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

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

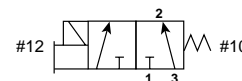
### 3-Way, 2-Position, Diverter



*De-energized position* – Solenoid #12 de-energized.  
 Pressure at inlet port 2 connected to outlet port 3. Port 1 is blocked.

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

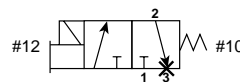
### 3-Way, 2-Position, Selector



*De-energized position* – Solenoid #12 de-energized.  
 Pressure at inlet port 1 is blocked. Pressure at inlet port 3 is connected to outlet port 2.

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

### 2-Way, 2-Position, Normally Closed

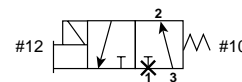


*De-energized position* – Solenoid #12 de-energized.  
 Pressure at inlet port 1 blocked, port 2 is connected to port 3, which is plugged.

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

\* Plug port 3.

### 2-Way, 2-Position, Normally Open

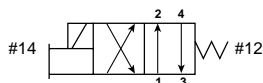


*De-energized position* – Solenoid #12 de-energized.  
 Pressure at inlet port 3 is connected to outlet port 2. Port 1 is blocked.

*Energized position* – Solenoid #12 energized.  
 Pressure at inlet port 3 is blocked. Port 2 is connected to port 1, which is plugged.

\* Plug port 1.

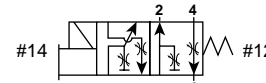
### 4-Way, 2-Position



*De-energized position* – Solenoid #14 de-energized.  
 Pressure at inlet port 1 connected outlet port 2. Outlet port 4 connected to exhaust port 3.

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

### 4-Way, 2-Position with Flow Controls



*De-energized position* – Solenoid #14 de-energized.  
 Pressure at inlet port 1 connected outlet port 2. Outlet port 4 connected to exhaust port 3.

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

Flow Controls meter exhaust from ports 2 and 4 separately into port 3.

## **Flow Characteristics**

- 3-Way: .15 Cv
- 4-Way: .15 Cv

## **3-Way Operating Pressure**

- 0 to 125 PSIG
- 0 to -14.7 PSIG

## **4-Way Operating Pressure**

- -14.7 to 125 PSIG

## **Ports**

- 1/8" NPT

## **Mounting**

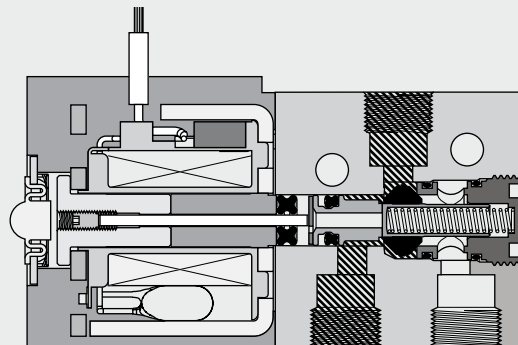
- Inline
- IEM Bar Manifold
- Subbase Valve Manifold

## **Solenoids**

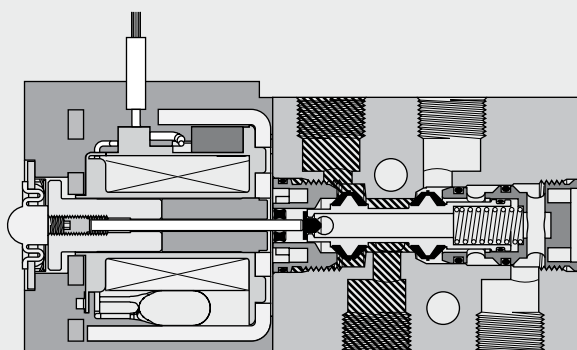
- Continuous Duty Rated
- 24" Grommet
- 15mm 3-Pin (9.4 mm Pin Spacing)
- 1/2" Conduit
- 12VDC to 240VAC

## **Balanced Poppet**



- 3-Way N.O. & N.C.
- Diverter
- Selector
- Vacuum Option



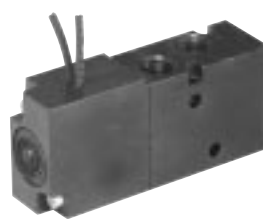
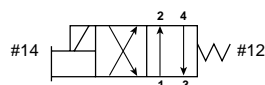
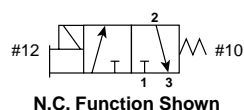
**3-Way Inline Valve**  
Shown Energized



**4-Way Inline Valve**  
Shown De-Energized

 Pressure  Exhaust

## Inline Valves



### 3-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	1/2" Conduit / 24" Leads	Voltage
XM30NBG49A	XM30NB549A	XM30NBH49A	24VDC
XM30NBG53A	XM30NB553A	XM30NBH53A	120VAC

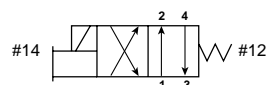
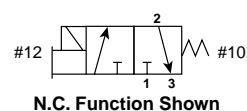
**Note:** All units with non-locking flush override.  
 Can be used as N.O. / N.C. / Diverter / Selector function.

### 4-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	1/2" Conduit / 24" Leads	Voltage
XM40NBG49A	XM40NB549A	XM40NBH49A	24VDC
XM40NBG53A	XM40NB553A	XM40NBH53A	120VAC

**Note:** All units with non-locking flush override.

## Subbase Mount



### 3-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	Voltage
XM3VNBG49A	XM3VNB549A	24VDC
XM3VNBG53A	XM3VNB553A	120VAC

**Note:** All units with non-locking flush override.  
 Can be used as N.O. / N.C. / Diverter / Selector function.

### 4-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	Voltage
XM4VNBG49A	XM4VNB549A	24VDC
XM4VNBG53A	XM4VNB553A	120VAC

**Note:** All units with non-locking flush override.

**BOLD OPTIONS ARE STANDARD**

<b>Operator / Function</b>		<b>Engineering Level</b>	
3-Way, Direct Operated, Single Solenoid, Spring Return	3	A	Current
4-Way, Direct Operated, Single Solenoid, Spring Return	4		

<b>Port Size / Thread Type</b>		<b>Options</b>	
1/8" NPT Inline	0*	Blank	None
Subbase Valve Less Base	V	F0*	Flow Control

\* Available on IEM manifolds.  
 \* 4-Way Valves Only.

<b>Pilot Source / Exhaust</b>		<b>Enclosures / Lead Length</b>		
		Voltage		
		AC		DC
		60Hz	50Hz	
Direct Operated / Standard Pressure	N*			
Direct Operated / Vacuum Service	V**			

\* 3-Way Valve Positive Pressure,  
 4-Way Valve Vacuum or Positive Pressure  
 \*\* 3-Way Valve Vacuum Pressure.

<b>Overrides</b>	
Flush - Non-Locking	B

		Voltage		
		AC		DC
		60Hz	50Hz	
542	15mm 3-Pin DIN 9.4mm	24	22	
545*	15mm 3-Pin DIN 9.4mm			12
549*	15mm 3-Pin DIN 9.4mm			24
553	15mm 3-Pin DIN 9.4mm	120	110	
G42	Grommet / Flying Leads 24"	24	22	
G45*	Grommet / Flying Leads 24"			12
G49*	Grommet / Flying Leads 24"			24
G53	Grommet / Flying Leads 24"	120	110	
G57	Grommet / Flying Leads 24"	240	220	
H42†	1/2" Conduit / Flying Leads 24"	24	22	
H45*†	1/2" Conduit / Flying Leads 24"			12
H49*†	1/2" Conduit / Flying Leads 24"			24
H53†	1/2" Conduit / Flying Leads 24"	120	110	

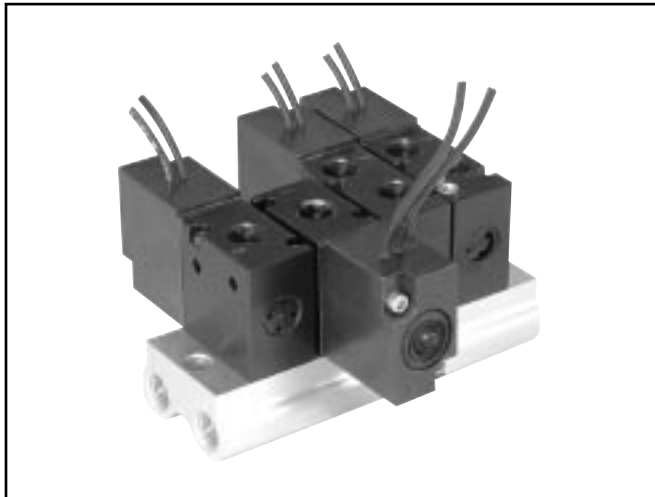
\* Mobile Voltage Rated.  
 † Inline Version Only.

**Notes:**

**Inline Valves**

Conduit Inline valves cannot be mounted to IEM or Subbase Manifolds.

## IEM Bar Manifold Assembly

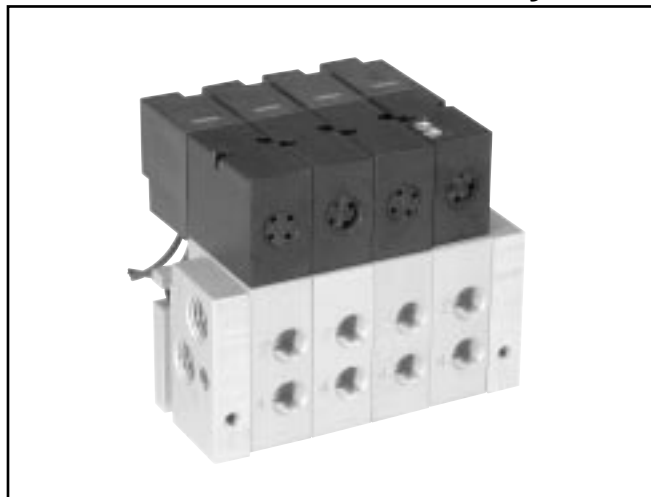


### IEM Bar Manifold

Allows for mounting of 3-Way and 4-Way Inline valves on the same manifold. 3-Way Valves can be mounted on the same manifold to provide a Normally Closed or Normally Open function by rotating the valves 180°. 4-Way valves can be mounted with or without Flow Controls.

IEM Bar Manifold Assemblies consist of valves and an IEM Manifold. Valves and IEM Manifold can be ordered separately.

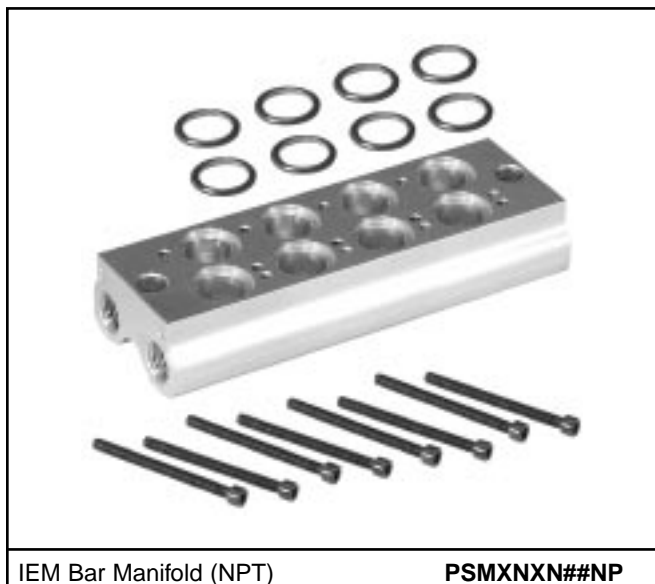
## Subbase Manifold Assembly



### Subbase Manifold

Allows for mounting of 3-Way and 4-Way Subbase Valves can be mounted on the same manifold. 3-Way Valves can be mounted on the same manifold to provide a Normally Closed or Normally Open function through the use of port isolation kits. 4-Way valves can be mounted with or without Flow Controls.

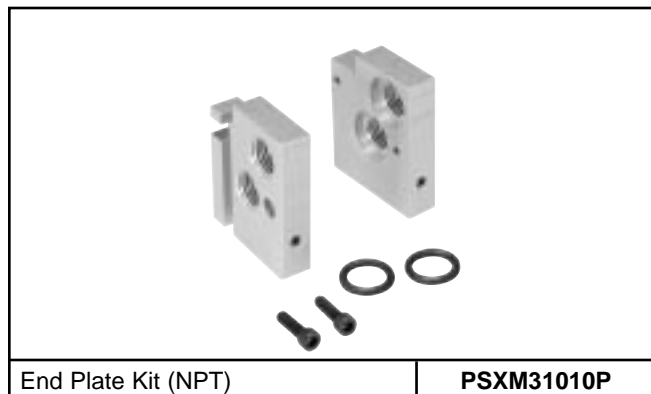
Subbase Manifold Assemblies consist of Valves, End Plate Kit and Manifold Subbase Kits. Valves, End Plate Kit and Manifold Subbase Kits can be ordered separately.



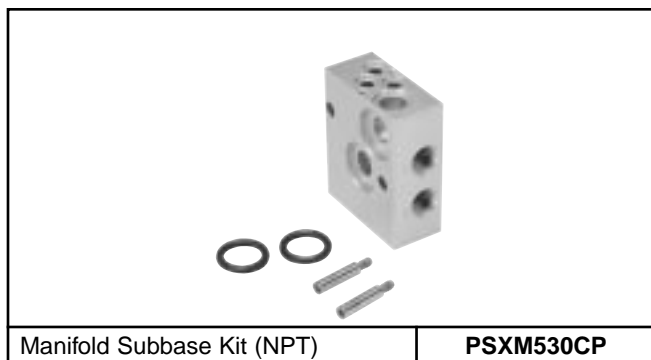
IEM Bar Manifold (NPT)

**PSMXNXN##NP**

## – stations 02 to 12



End Plate Kit (NPT)

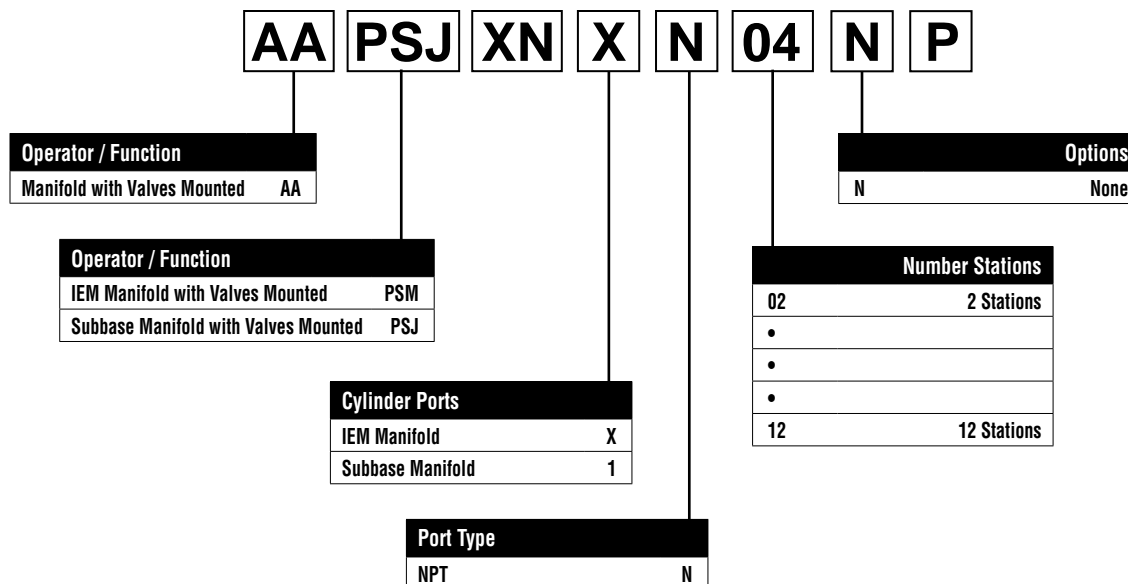
**PSXM31010P**

Manifold Subbase Kit (NPT)

**PSXM530CP**



## How to Order Manifold Assemblies



### IEM Bar Manifold Assembly

First line item describes IEM Assembly. Subsequent line items listed identify each station in the Manifold starting with Station Number 1.

### Subbase Manifold Assembly

First line item describes Subbase Assembly. Subsequent line items listed identify each station in the Manifold starting with Station Number 1.

### Manifold Assembly Ordering Example

Item	Qty	Part Number
001	1	AAPSMXNXN04NP
002	2	XM30NBG49A - Station 1, 2 - Normally Closed
003	1	XM40NBG49A - Station 3
004	1	XM40NBG49F0A - Station 4

**Notes:** When ordering Add-A-Folds, list valves left to right when looking at the Port 1/3 side of the manifold. All 3-Way valves will be assembled as 3-Way N.C. valves.

### Subbase Manifold Ordering Example

Item	Qty	Part Number
001	1	AAPSJXN1N04NP
002	2	XM3VNBG49A - Station 1, 2 - Normally Closed
003	1	XM4VNBG49A - Station 3
004	1	XM4VNBG49F0A - Station 4

**Notes:** When ordering Add-A-Folds, list valves left to right when looking at the Port 2/4 side of the manifold. All 3-Way valves will be assembled as 3-Way N.C. valves. Isolator Discs are required for N.O. functions

### Component Ordering Example

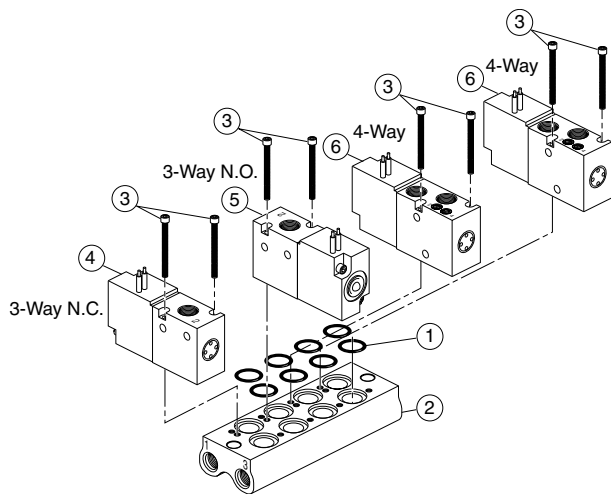
Item	Qty	Part Number
001	1	PSMXNXN04NP (IEM Kit)
002	2	XM30NBG49A (Valve)
003	1	XM40NBG49A (Valve)
004	1	XM40NBG49F0A (Valve)

### Component Ordering Example

Item	Qty	Part Number
001	1	PSXM31010P (End Plate Kit)
002	4	PSXM530CP (Subbase Kit)
003	2	XM3VNBG49A (Valve)
004	1	XM4VNBG49A (Valve)
005	1	XM4VNBG49F0A (Valve)

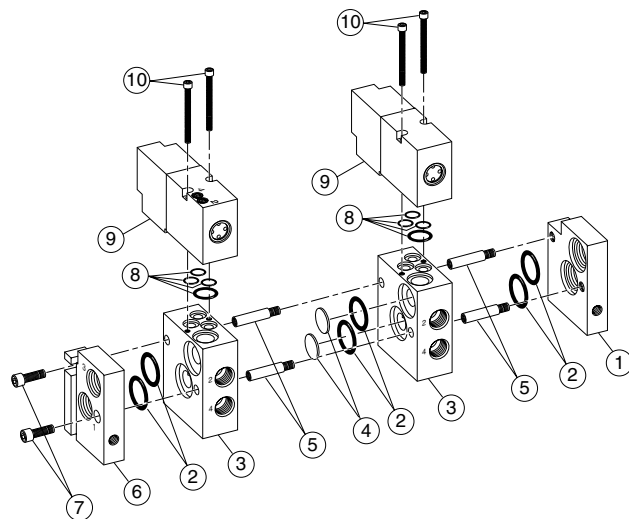
## Inline Valve on IEM Bar Manifold Assembly

IEM Bar Manifold Assembly's are assembled by adding Inline Valves to an IEM Bar Manifold. O-rings are installed at each valve station in the counterbore on the top of the manifold. Valves are installed with 2 mounting screws. For 3-Way N.C. valve operation, line up the solenoid end of the Valve with Port 1 on the Manifold. For 3-Way N.O. operation, line up the solenoid end of the valve with Port 3 on the manifold. For 4-Way valve operation, line up the Solenoid end of the valve with Port 1 on the manifold. If manifolds are factory assembled, all 3-Way valves are N.C. To convert from N.C. to N.O. operation, remove valve from the base and place valve 180° from the original position with the solenoid end lined up with the 3-Port on the manifold.



## Subbase Valve and Manifold Assembly

Subbase Manifold Assembly's are assembled by adding tie rods and manifold bases to the end plate kit of the subbase end plate kit as shown below. Valves are added to each subbase per manifold design. 4-Way and 3-Way valves are mounted with Solenoids Coils facing away from subbase delivery ports 2 and 4. For 3-Way N.O. Functions, valves must be isolated from the other 3-Way N.C. and 4-Way valves on the manifold. This is achieved by placing port isolator discs in between the subbase of the first 3-Way N.O. Valve and the subbase of the last 3-Way N.C. or 4-Way valve in the Subbase Manifold. Inlet pressure is connected to Port 3 of the manifold for the 3-Way N.O. valves. Inlet pressure is connected to the Port 1 of the manifold for the 3-Way N.C. and 4-Way valves. Separate Inlet Pressure Ports and Exhaust Ports are required for N.O. and N.C. 3-way function valves.



## Performance Information

Electrical						Flow		Seals
Code	Voltage			Power Consumption	Holding Current	Cv Chart		
	AC		DC			3-Way	4-Way	
	60Hz	50Hz		(W / VA)	(Amps)			
42	24	22	—	4.8VA	.200	.15	.15	Buna N
45*	—	—	12	4.5W	.375	.15	.15	
49*	—	—	24	4.5W	.188	.15	.15	
53	120	110	—	4.32VA	.036	.15	.15	
57	240	220	—	4.32VA	.018	.15	.15	
Note: Voltage Tolerance: +10 / -15%						Cv tested per ANSI / (NFPA) T3.21.3		

\* Mobile Voltage, +25/-30%

## Response Time

Code	Voltage	0 Cu. In. Test Chamber		12 Cu. In. Test Chamber	
		Fill	Exhaust	Fill	Exhaust
49	24VDC	.011	.007	.240	.384
53	120VAC	.011	.020	.240	.384

**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 solenoid. Times shown are average.

Tested per ANSI / (NFPA) T3.21.8.

## Operating Pressure

Function / Pilot Source	Minimum	Maximum
3-Way, N	0 PSIG	125 PSIG
3-Way, V	Vacuum	25 PSIG
4-Way, N	Vacuum	125 PSIG

## Temperature Rating

32°F to 125°F (0°C to 50°C)

## Blanking Plate



Kit Number	
IEM Universal NPT	Subbase Blank
PSXM2194P	PSXM8310P

IEM Universal Kit includes: (1) Plate, (2) Screws, (2) Gaskets  
Subbase Kit includes: (1) Plate, (2) Screws, (4) Gaskets

## IEM Valve / Manifold O-ring Kit



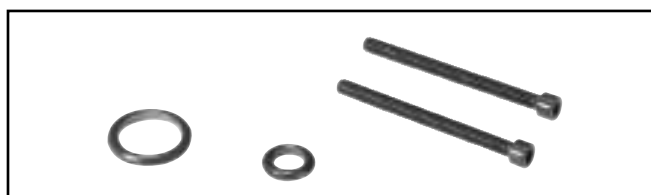
Part Number	Description
PSXM2186P	IEM Valve / Manifold O-ring Kit

## Mounting Bracket - Inline Valve



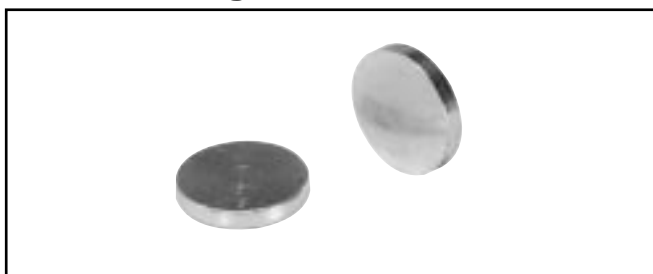
Part Number	Description
PSXM8288P	Mounting Bracket

## Subbase Valve / Manifold Bolt Kit



Part Number	Description
PSXM8100P	Subbase Valve / Manifold Bolt Kit

## Isolator Plugs - Subbase Manifold

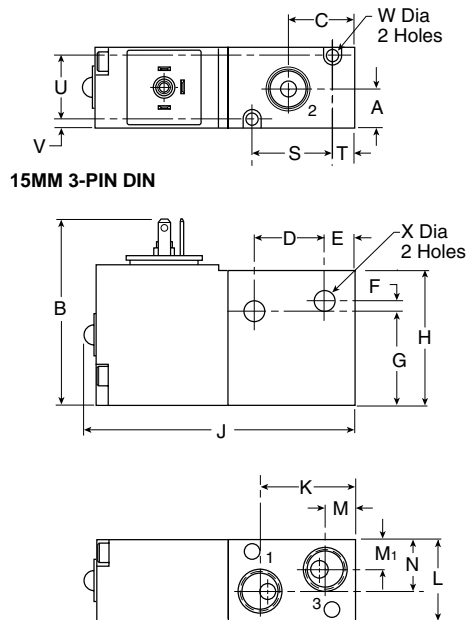
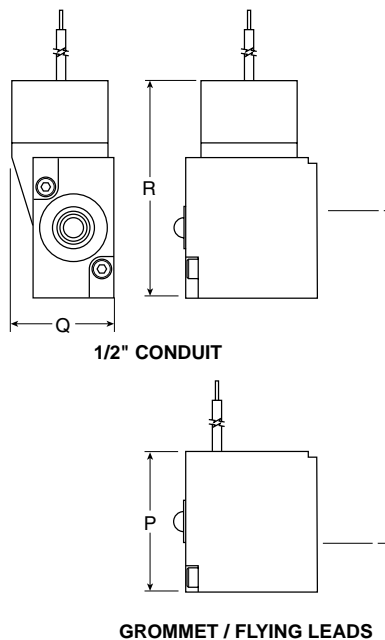


Part Number	Description
PSXM40900P	Isolation Plugs

## Plug-in Electrical Connectors - 9.4mm



Indication	Voltage	Unwired Plug	Plug with 6' Lead
None	N/A	PESC10	PESC12
LED & Suppression	12/24V	PESC2020B	PESC2220B
	120VAC	PESC2001F	PESC2201F



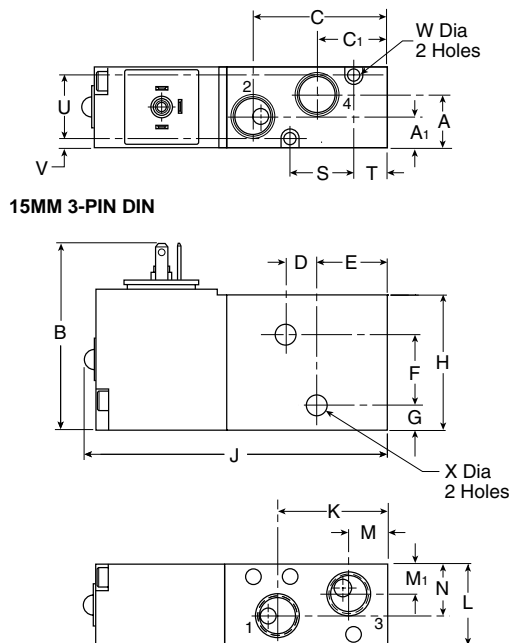
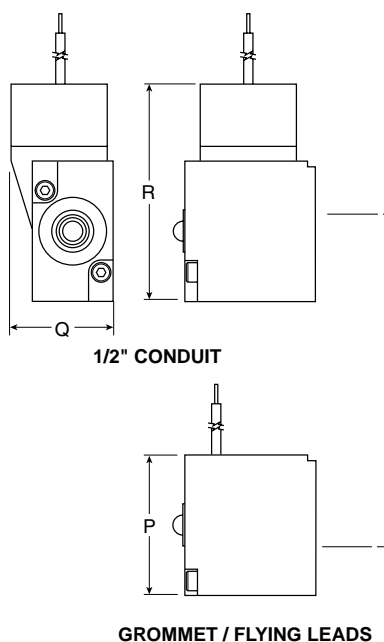
### XM 3-Way Inline

A	B	C	D	E
.38 (10)	1.69 (43)	.62 (16)	.66 (17)	.28 (7.0)
F	G	H	J	K
.10 (2.5)	.87 (22)	1.25 (32)	2.50 (64)	.87 (22)
L	M	M <sub>1</sub>	N	P
.75 (19)	.28 (7.0)	.28 (7.0)	.48 (12)	1.32 (34)
Q	R	S	T	U
.98 (24.9)	2.10 (53)	.75 (19)	.21 (5.4)	.59 (15)
V	W	X		
.08 (2.0)	.11 (2.9)	.16 (4.0)		

Inches (mm)

Valve Weight

Grommet..... 4 oz (.11 Kg)  
 DIN ..... 4 oz (.11 Kg)  
 Conduit ..... 5 oz (.14 Kg)



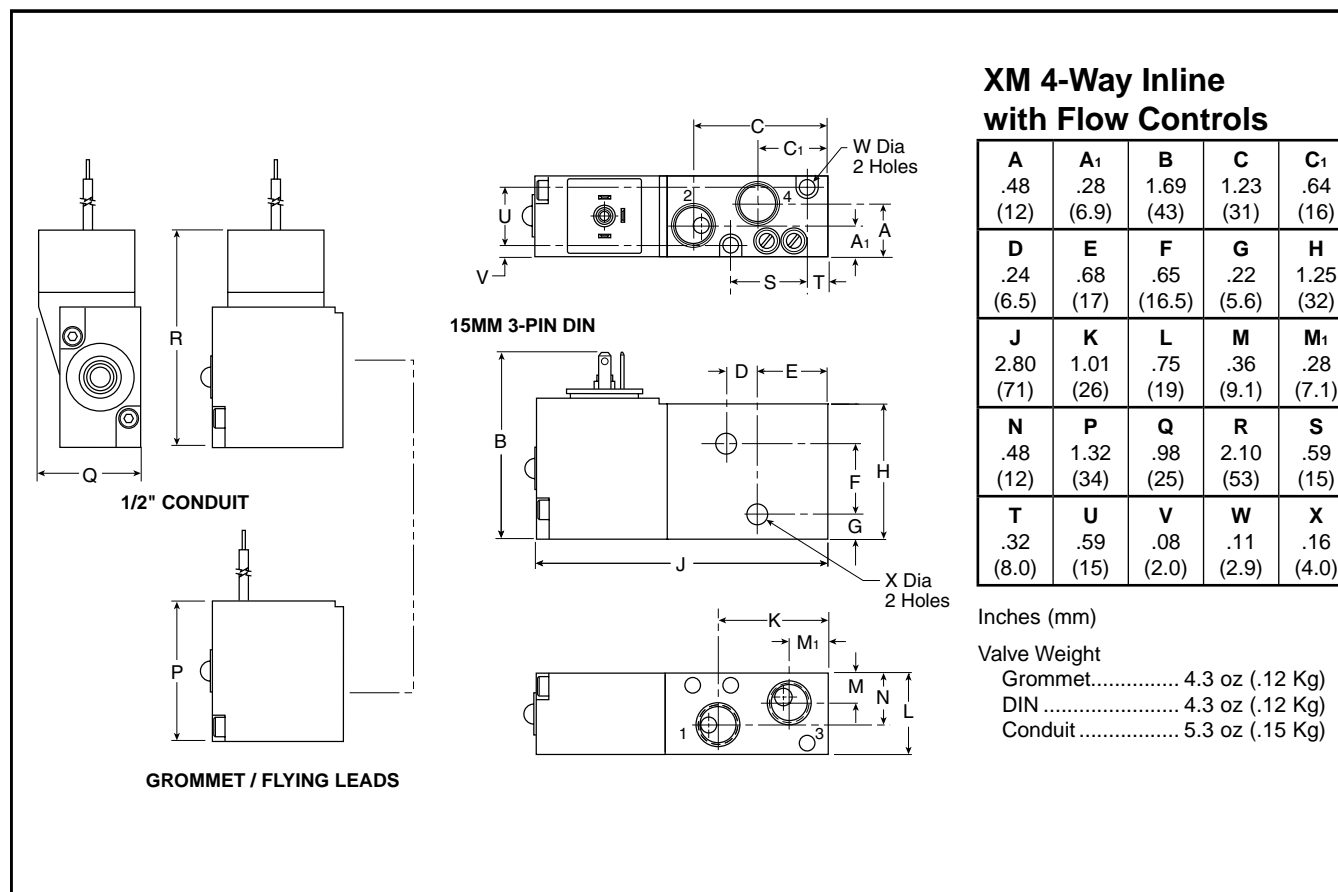
### XM 4-Way Inline

A	A <sub>1</sub>	B	C	C <sub>1</sub>
.48 (12)	.28 (6.9)	1.69 (43)	1.23 (31)	.64 (16)
D	E	F	G	H
.24 (6.5)	.68 (17)	.65 (16.5)	.22 (5.6)	1.25 (32)
J	K	L	M	M <sub>1</sub>
2.80 (71)	1.01 (26)	.75 (19)	.36 (9.1)	.28 (7.1)
N	P	Q	R	S
.48 (12)	1.32 (34)	.98 (25)	2.10 (53)	.59 (15)
T	U	V	W	X
.32 (8.0)	.59 (15)	.08 (2.0)	.11 (2.9)	.16 (4.0)

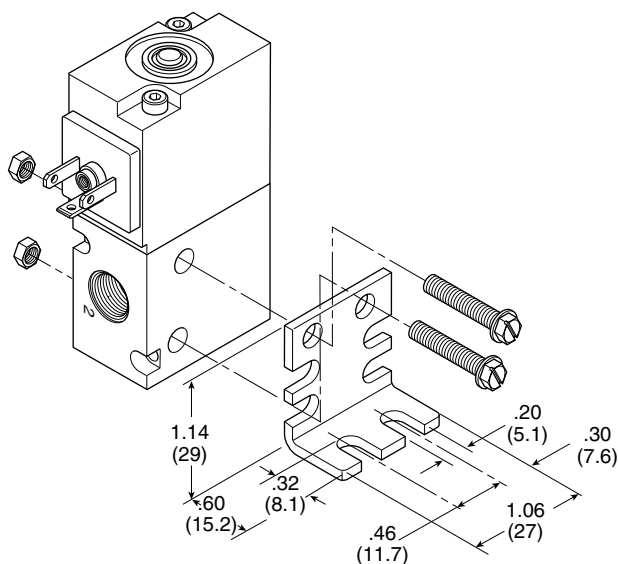
Inches (mm)

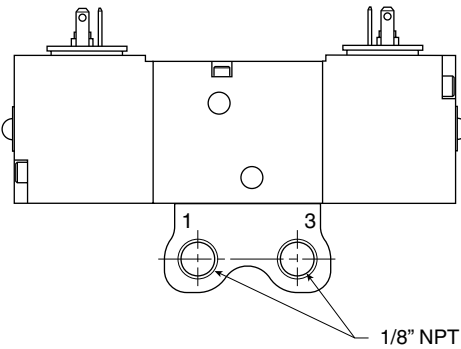
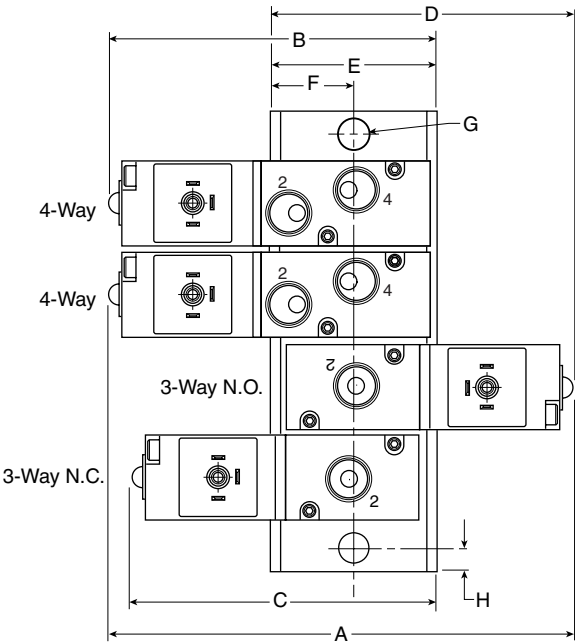
Valve Weight

Grommet..... 4.3 oz (.12 Kg)  
 DIN ..... 4.3 oz (.12 Kg)  
 Conduit ..... 5.3 oz (.15 Kg)



## Mounting Bracket Dimensions





**XM IEM Manifold**

A	B	C	D	E
4.04 (103)	2.86 (73)	2.67 (68)	2.67 (68)	1.47 (37)
F	G	H	J	L
.74 (19)	Ø .28 Ø (7.0)	.20 (5.0)	2.11 (54)	.79 (20)
M	N	P	Q	
.80 (20.5)	.48 (12)	.88 (22)	.44 (11)	

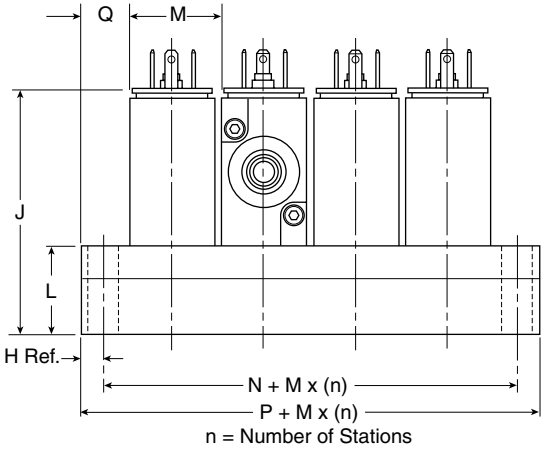
Inches (mm)

Manifold Weight

2 Station ..... 2.5 oz (.07 Kg)  
Each Additional ..... 1 oz (.03 Kg)

Valve Weight

3-Way ..... 4 oz (.11 Kg)  
4-Way ..... 4.3 oz (.12 Kg)



**Dimensions****XM Series Air Control Valves****Subbase****XM Subbase**

A	B	C	D	E
1.62 (41)	2.00 (51)	1.58 (40)	.92 (23)	.85 (22)
F	G	H	J	K
1.19 (30)	.61 (16)	1.26 (32)	1.70 (43)	3.25 (83)
L	M	N	P	Q
2.85 (72)	.75 (19)	.44 (11)	.28 (7.0)	1.25 (32)
R	S	T	U	
.22 (5.6)	.44 (11)	.88 (22)	.51 (13)	

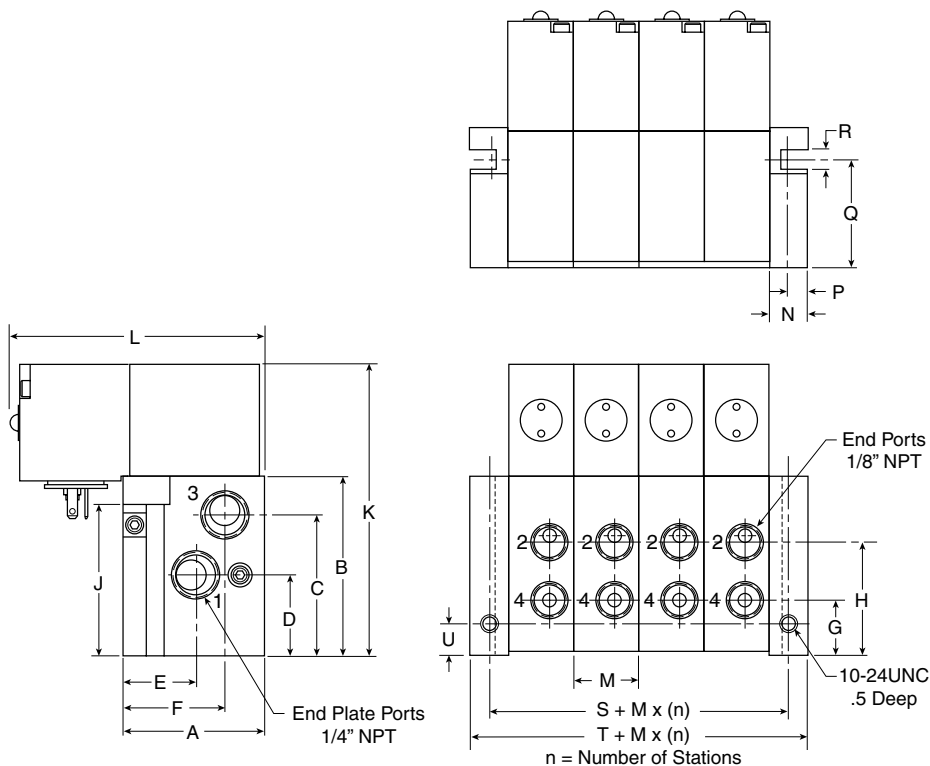
Inches (mm)

**Subbase Weight**

Single Subbase .... 3.2 oz (.09 Kg)  
End Plates ..... 3.2 oz (.09 Kg)

**Valve Weight**

3-Way ..... 3.7 oz (.10 Kg)  
4-Way ..... 4.6 oz (.13 Kg)



# 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](http://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](http://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.



## Safety Guide

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**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](http://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](http://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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