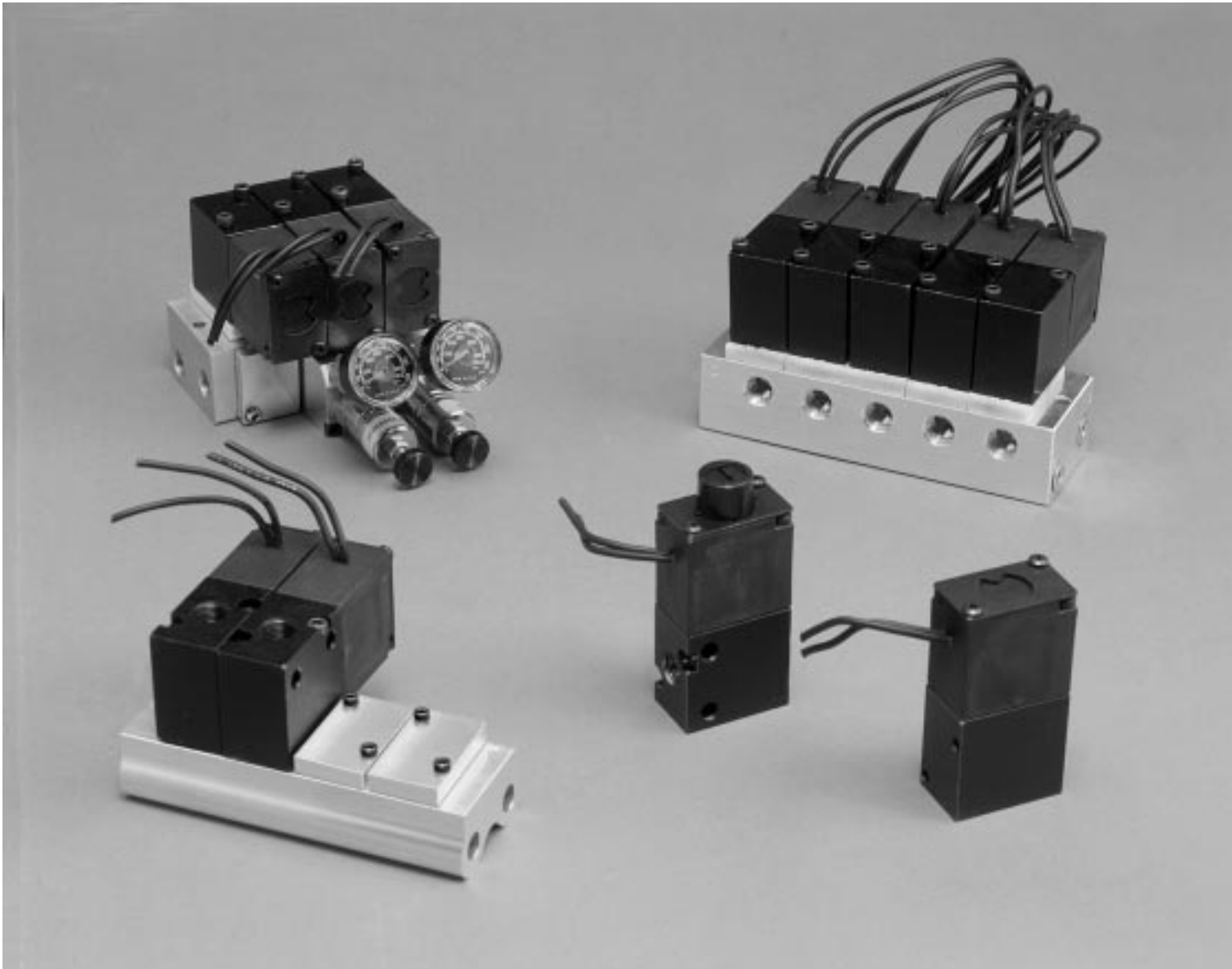




# *MicroKing*

*Air Control Valves  
3-Way Direct Acting  
.19 Cv - M5, 1/8" Port*

*Catalog 0614/USA*



---

 **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.

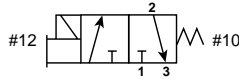
**Offer of Sale**

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".

© Copyright 2000, Parker Hannifin Corporation. All Rights Reserved

Basic Valve Functions ..... 2  
Basic Valve Features ..... 3  
Common Part Numbers ..... 4  
Model Number Index ..... 5  
IEM Bar Manifolds ..... 6  
Subbase Bar Manifolds ..... 7  
Accessories  
    Sandwich Regulator ..... 8  
Technical Information ..... 9  
Dimensions ..... 10-11  
Offer of Sale ..... 13

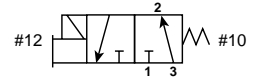
### 3-Way, 2-Position, Normally Closed



*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.

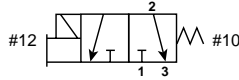
### 3-Way, 2-Position, Normally Open



*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.

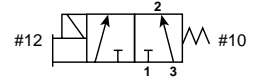
### 3-Way, 2-Position, Diverter



*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.

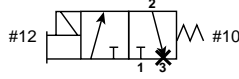
### 3-Way, 2-Position, Selector



*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

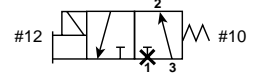


*De-energized position* – Solenoid #12 de-energized.  
 Pressure at inlet port 1 blocked, port 2 is connected to port 3, which is plugged.

*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.

MicroKing Subbase Valve on 3-Port Subbase Bar Manifold is available as 3-Way NC and 3-Way NO. When choosing either an NC or NO valve, the valve is the same but the selector gasket is different to give the desired function.

**Flow Characteristics**

- MK 3-Way: .19 Cv

**Operating Pressure**

- Vacuum to 125 PSIG

**Ports**

- 1/8" NPT, BSPP 'G'
- M5
- 1/4 Inch Tube

**Mounting**

- Inline – Universal Function
  - NC, NO
  - Selector, Diverter
- IEM Bar Manifold
- Subbase Valve
  - NC, NO, Selector
- 3-Port Subbase Aluminum Bar Manifold

**Solenoids**

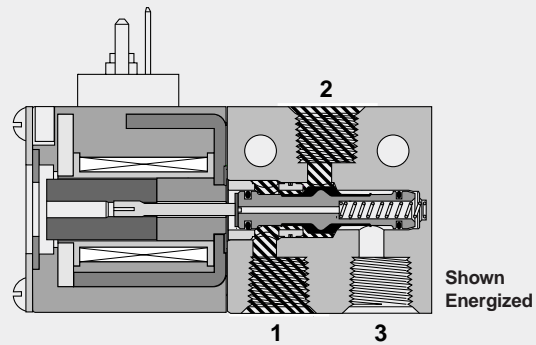
- 4.8 Watt
- Continuous Duty Rated
- 24" Grommet, 15mm 3-Pin DIN 43650C
- 12VDC to 240VAC

**Balanced Poppet**

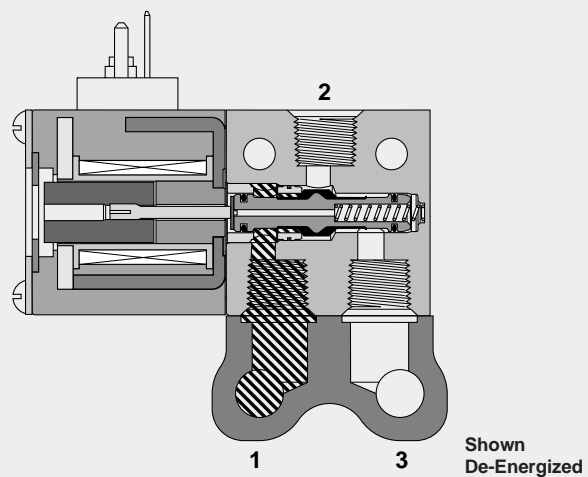
- Buna-N
- Fluorocarbon

**Certification/Approval**

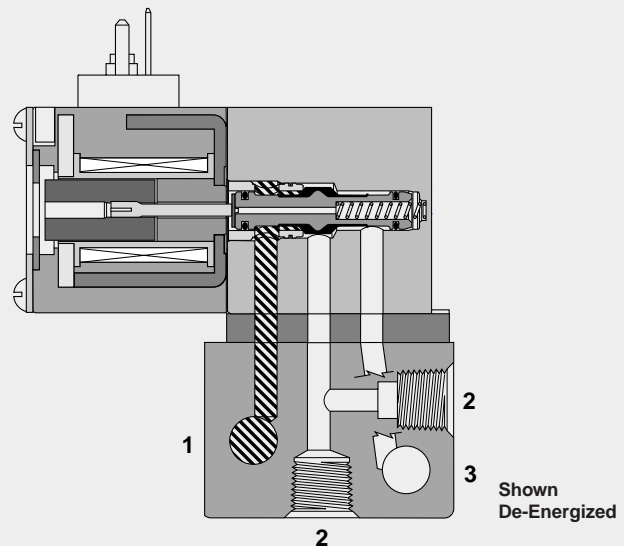
- Approved to be CE marked



**Inline Valve**



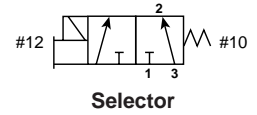
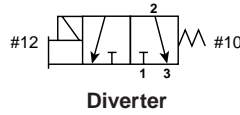
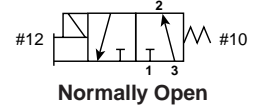
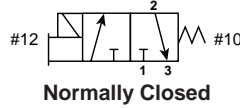
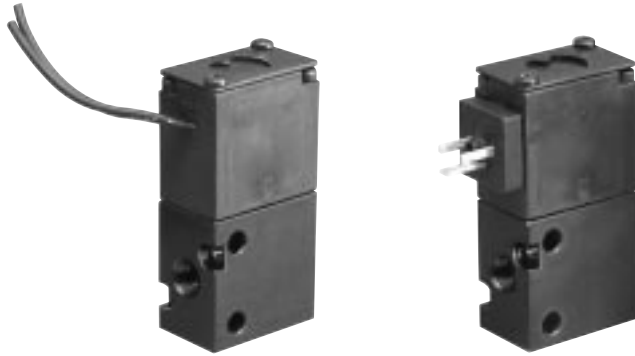
**Inline Valve with IEM Bar Manifold**



**Subbase Valve on 3-Ported Subbase Bar Manifold**



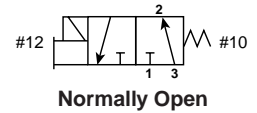
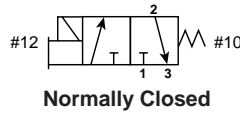
**3-Way Universal Inline**



	24" Grommet	3-Pin 15mm DIN 43650C	Voltage	Port Size
<b>MK</b>	<b>MKH0NBG45A</b>	<b>MKH0NB545A</b>	12VDC	1/8" NPT
	<b>MKH0NBG49A</b>	<b>MKH0NB549A</b>	24VDC	
	<b>MKH0NBG53A</b>	<b>MKH0NB553A</b>	120VAC	
	<b>MKHFNBG45A</b>	<b>MKHFNB545A</b>	12VDC	1/4" Tube Port #2
	<b>MKHFNBG49A</b>	<b>MKHFNB549A</b>	24VDC	1/8" NPT
	<b>MKHFNBG53A</b>	<b>MKHFNB553A</b>	120VAC	Port #1 & #3

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

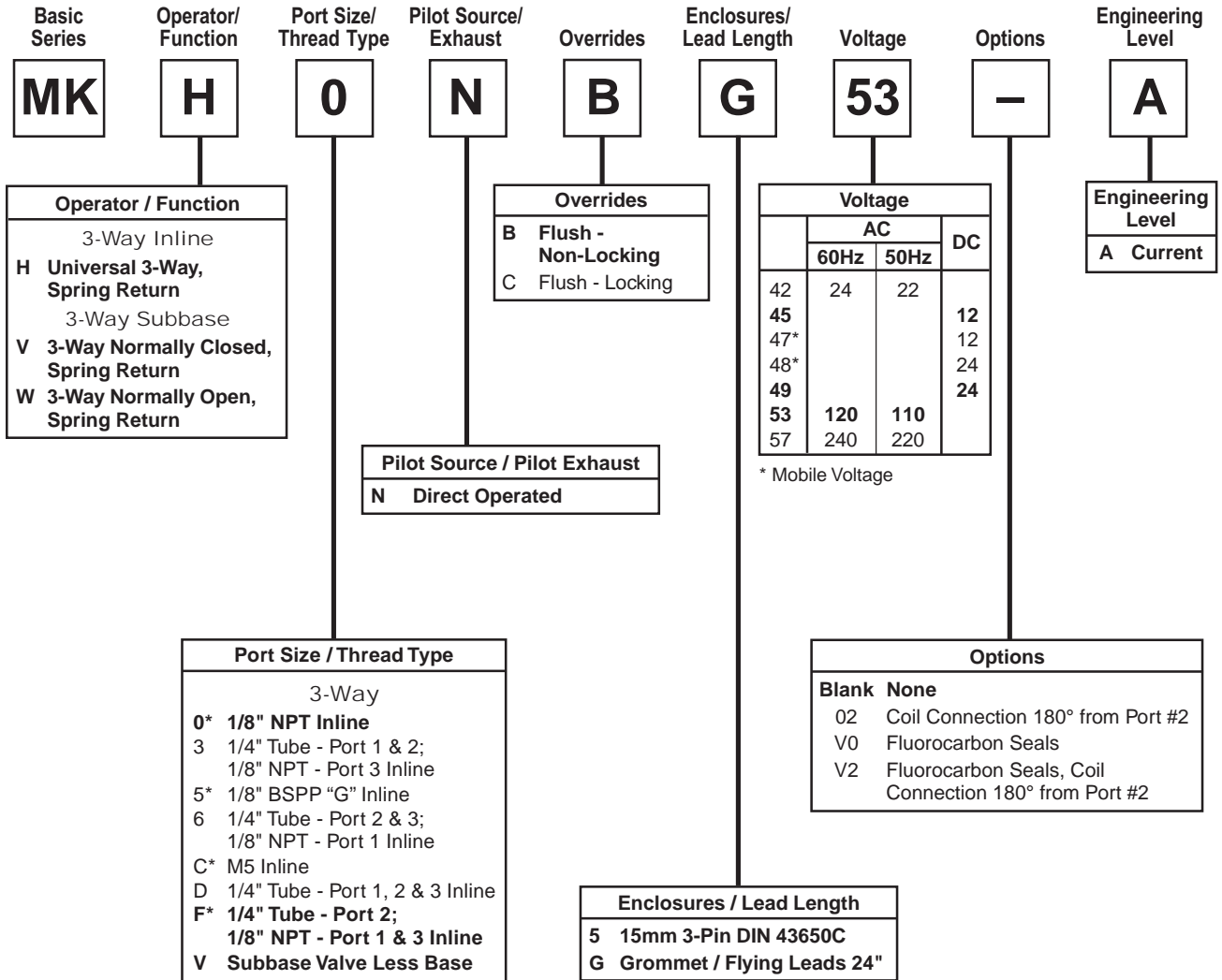
**3-Way Subbase Mount**



	24" Grommet	3-Pin 15mm DIN 43650C	Voltage	Function
<b>MK</b>	<b>MKVVBG45A</b>	<b>MKVVB545A</b>	12VDC	Normally Closed
	<b>MKVVBG49A</b>	<b>MKVVB549A</b>	24VDC	
	<b>MKVVBG53A</b>	<b>MKVVB553A</b>	120VAC	
	<b>MKWVBG45A</b>	<b>MKWVB545A</b>	12VDC	Normally Open
	<b>MKWVBG49A</b>	<b>MKWVB549A</b>	24VDC	
	<b>MKWVBG53A</b>	<b>MKWVB553A</b>	120VAC	

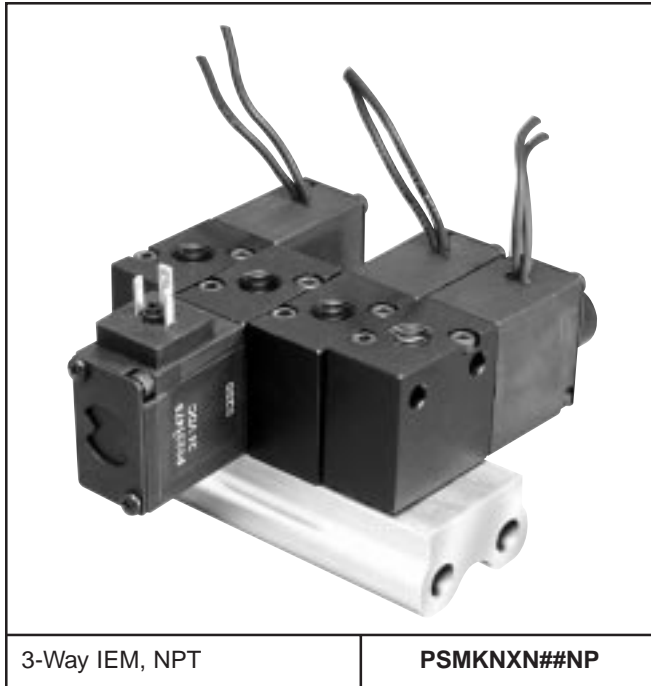
**Note:** All units with non-locking flush override. Valve includes mounting bolts & appropriate NC or NO selector gasket.  
 Subbase valves must be used on PSEK & PSFK Bar Manifolds (Page 7).

**MicroKing** BOLD OPTIONS ARE STANDARD



\* Available on IEM Manifold

Subbase valves with option '02' or 'V2' will not mount on Subbase Manifolds with the Regulator Option.  
 Inline valves with option '02' or 'V2' will not mount on IEM Manifolds with Sandwich Regulators when the valve is configured for Normally Closed function.



3-Way IEM, NPT

**PSMKNXN##NP**

## – stations 02 to 20

- IEM Bar Manifold uses standard Universal Inline MicroKing Valves.
- Standard Manifold allows mounting of Normally Closed and Normally Open Valves simultaneously by rotating valve mounting as shown in picture.
- Manifolds available in all station lengths 2 thru 20.
- Manifold Kit includes o-rings and bolts.

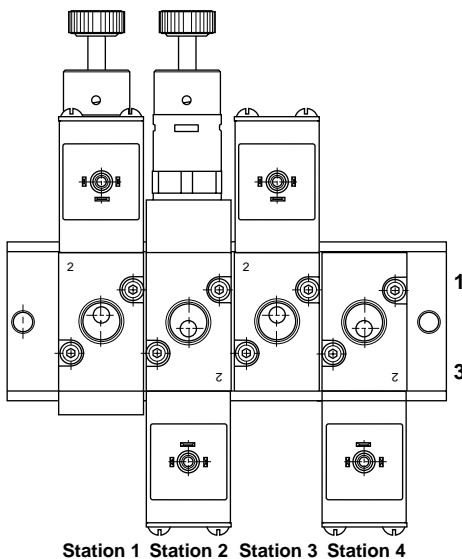
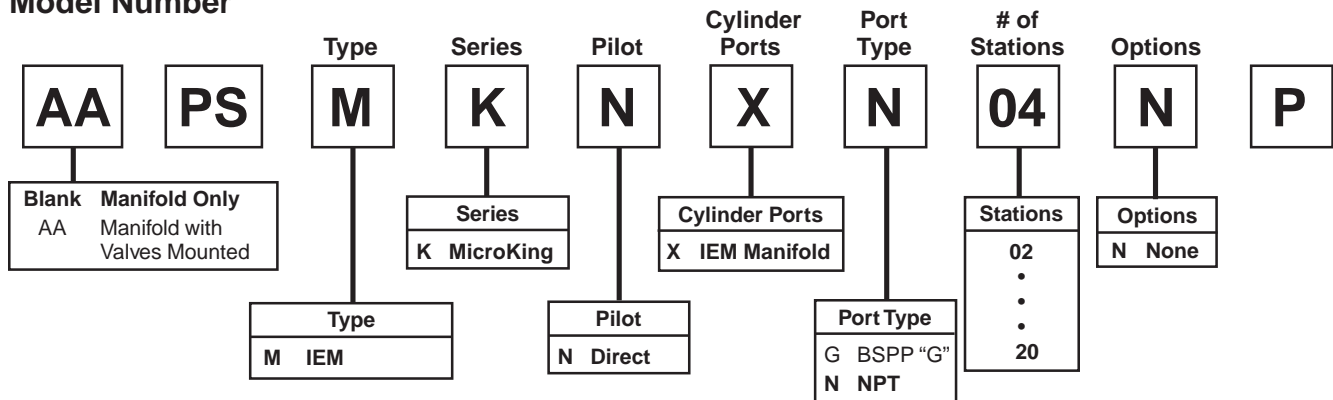
**Accessories**

- Blank Plate - Universal 1/8" NPT ..... PS2166P
- Blank Plate - Universal 1/8" BSPP "G" ..... PS2167P
- Blank Plate ..... PS2169P
- DIN Rail Clip - IEM / Subbase (2) ..... PS2190P

**Replacement Kits**

- IEM Valve/Manifold O-ring Kit (10) ..... PS2184P
- IEM Valve/Manifold Bolt Kit (10) ..... PS2187P

**Model Number**

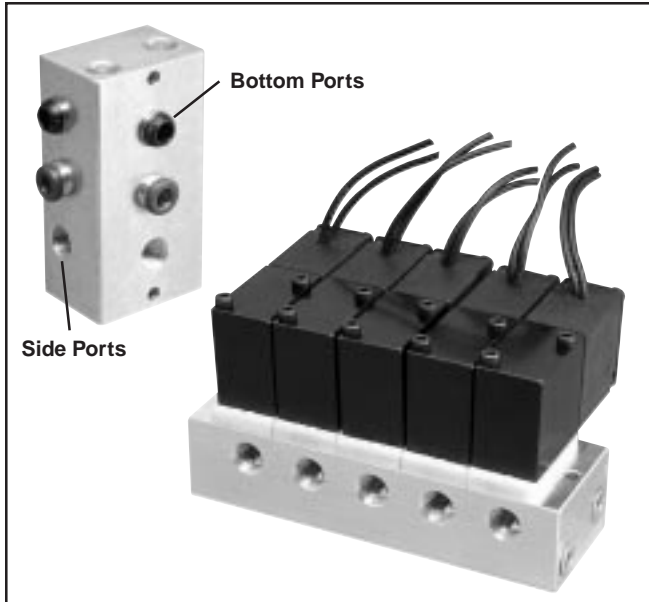


**How to Order an Add-A-Fold Assembly**

Item	Qty	Part Number
001	1	AAPSMKNXN04NP
002	4	MKH0NB549A - Station 1, 3 - Normally Closed - Station 2, 4 - Normally Open
003	2	PS2130166P* - Station 1, 2

\* Regulator Gauges included but not assembled.  
 When ordering Add-A-Folds, list valves left to right when looking at the Port #3 side of the manifold.  
 Valve Function NC or NO and Regulator / Blank Plate location must be specified.





3-Way, Subbase, NPT	<b>PSFKN1N##NP</b>
3-Way, Subbase, 1/4" Tube Port #2	<b>PSFKNBN##NP</b>

## – stations 02 to 20

- 3-Ported Subbase Bar Manifold uses Subbase mount MicroKing Valves.
- Standard Manifold allows mounting of Normally Closed and Normally Open Valves simultaneously by use of selector gaskets.
- Bar Manifold Regulator Option is available with Option Code 'R'.

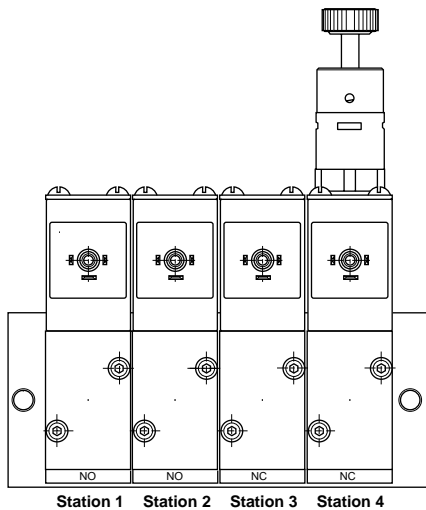
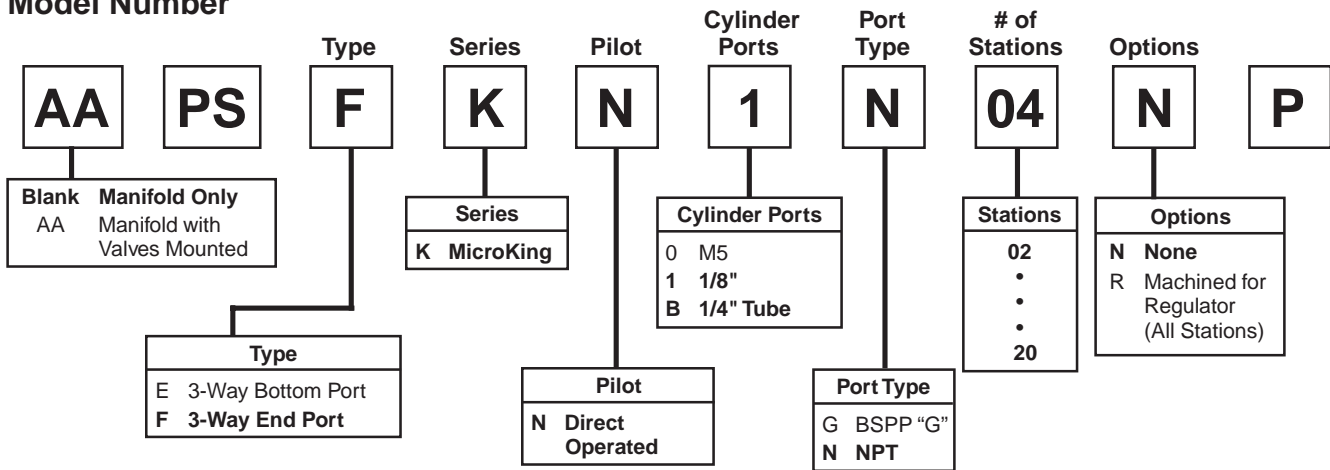
**Accessories**

Regulator Cover Plate .....	PS2109P
DIN Rail Clip - IEM / Subbase (2) .....	PS2190P
Blank Plate (Includes PS2106P) .....	PS2194P

**Replacement Kits**

Selector Gasket NC .....	PS2105P
Selector Gasket NO .....	PS2106P
Subbase Valve / Manifold Bolt Kit (10) .....	PS2188P

**Model Number**



**How to Order an Add-A-Fold Assembly**

Item	Qty	Part Number
001	1	AAPSFKN1N04RP
002	2	MKVVNB549A - Station 1, 2
003	2	MKVVNB549A - Station 3, 4
004	3	PS2109P - Station 1, 2 & 3
005	1	PS2131166P* - Station 4

\* Regulator gauges included but not assembled.  
 When ordering Add-A-Folds, list valves left to right when looking at the Port 2 side of the manifold.  
 Regulator / Cover Plate / Blank Plate location must be specified.

## IEM Sandwich Regulator

- Pressure regulation for individual valves mounted on IEM Bar Manifold.
- Same Sandwich Regulator used for Normally Closed and Normally Open Valves.

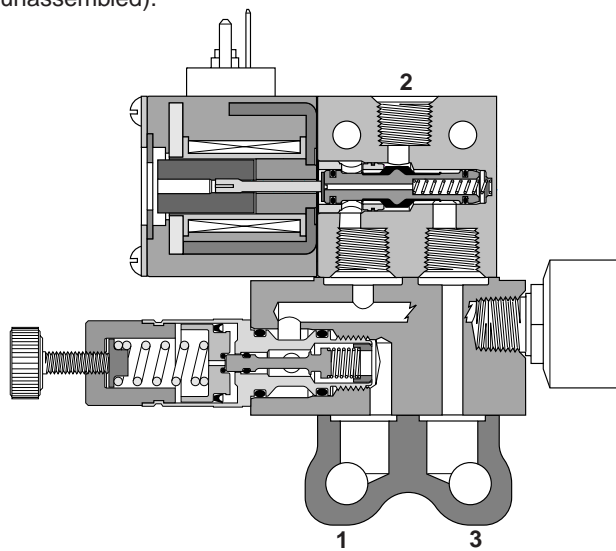
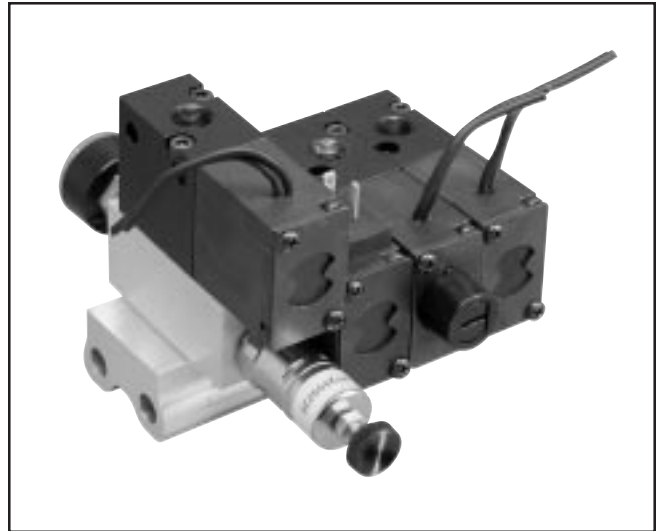
	Common Port with Gauge *	Common Port without Gauge	Cv
60 PSI	PS2130155P	PS2130122P	.11
125 PSI	PS2130166P	PS2130133P	

\* Gauge is 60 PSI or 160 PSI, depending on pressure range.

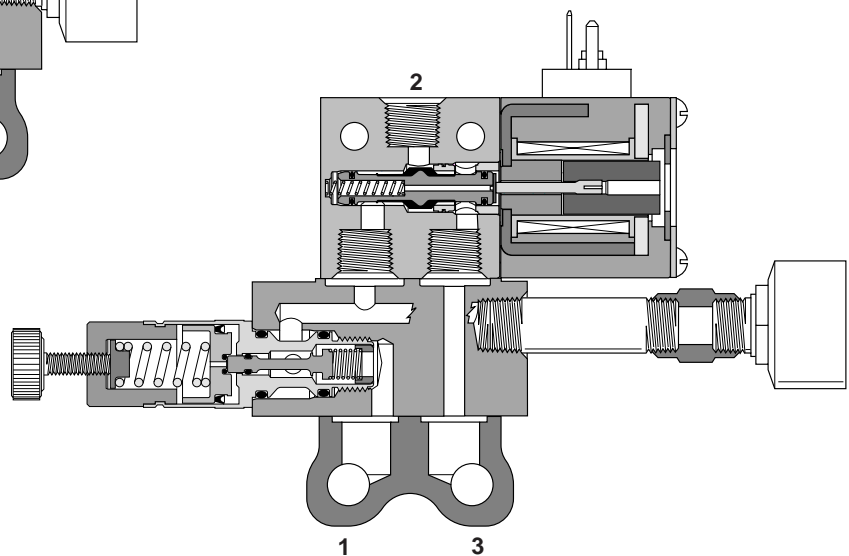
When mounting Regulators side-by-side or with Normally Open valves, gauges must be staggered. Brass adapters are listed at the bottom of the page.

Regulator without gauge includes 1/8" gauge plug.

Regulator with gauge includes 1/8" gauge plug & gauge (unassembled).



**Normally Closed**



**Normally Open**

**Brass Adapters for Gauge –**

1/8" to 1/8" Female Coupling ..... 207P-2  
 1/8" Male Pipe Nippled 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 3/4" Face (.91" OD) –**

0-60 PSI ..... PS3451060P  
 0-160 PSI ..... PS3451160P

## Subbase Manifold Regulator

- Pressure regulation for individual valves mounted on 3-Port Subbase Bar Manifold.
- Use Manifold with Option Code 'R' – all stations prepared to accept Regulator Kits or Cover Kits.
- Regulator Kits and Cover Kits ordered separately.

	Common Port with Gauge *	Common Port without Gauge	Cv
60 PSI	PS2131155P	PS2131122P	.11
125 PSI	PS2131166P	PS2131133P	

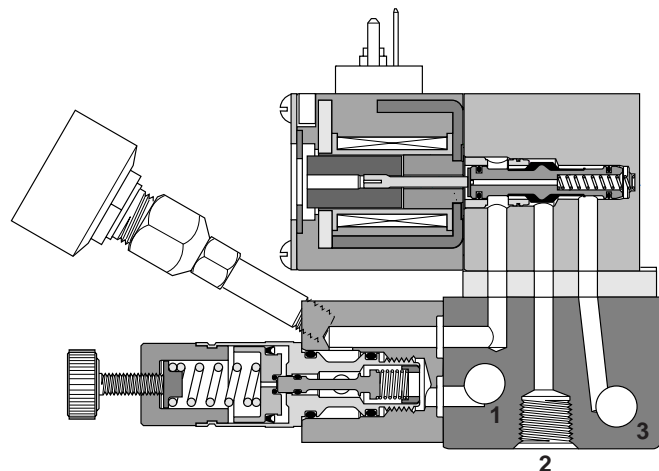
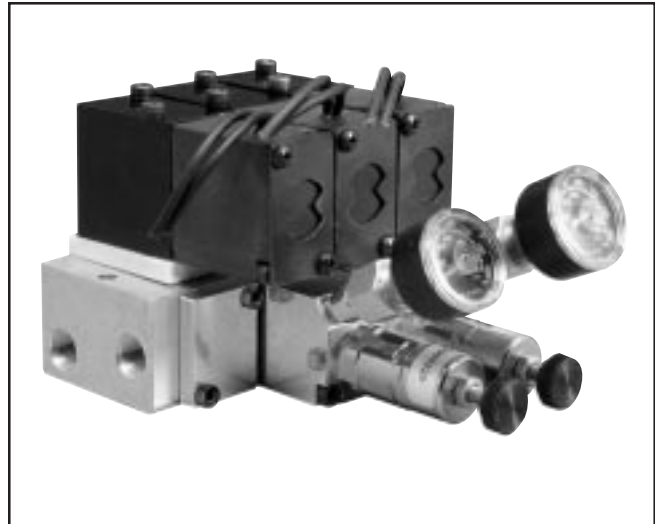
\* Gauge is 60 PSI or 160 PSI, depending on pressure range.

When mounting Regulators side-by-side, gauges must be staggered. Brass adapters are listed at the bottom of the page.

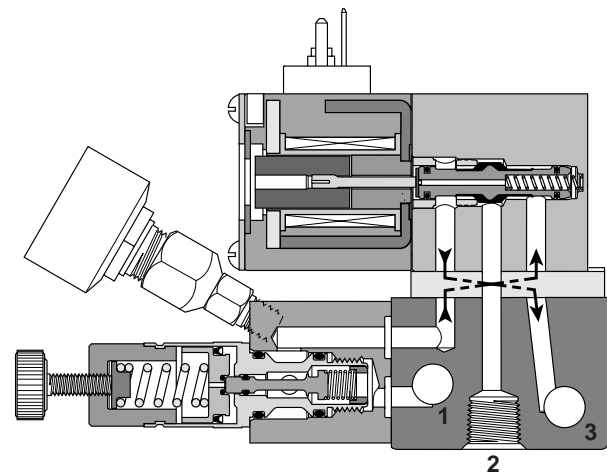
Regulator without gauge includes M5 gauge plug.

Regulator with gauge includes M5 gauge plug, 10-32x1/8" swivel fitting & gauge (unassembled).

Regulator Cover Plate ..... PS2109P



**Normally Closed**



**Normally Open**

**Note:** Valve with Locking Override Option 'C' not available when Regulator Gauge is used.

**Brass Adapters for Gauge –**

- #10-32 Male to #10-32 Female Extender (Qty. 10) ..... PS2195P
- #10-32 Male to 1/8" Female Straight Swivel (Qty. 5) ..... PS2196P

**Gauge 3/4" Face (.91" OD) –**

- 0-60 PSI ..... PS3451060P
- 0-160 PSI ..... PS3451160P

## Solenoid Information

Code	Voltage			Power Consumption (W / VA)	Holding Current (Amps)	Cv Chart - Buna-N (Fluorocarbon)			
	AC		DC			Inline		Subbase	
	60Hz	50Hz				M5	1/8", 1/4" Tube	M5	1/8", 1/4" Tube
42	24	22	—	5.4VA	.228	.15	.19 (.15)	.11	.15 (.15)
45	—	—	12	4.8W	.401				
47*	—	—	12	4.3W	.402	.15	.15 (.15)	.11	.15 (.15)
48*	—	—	24	4.9W	.204				
49	—	—	24	4.9W	.203	.15	.19 (.15)	.11	.15 (.15)
53	120	110	—	5.4VA	.045				
57	240	230	—	6.0VA	.025				

**Note:** Voltage Tolerance: +10 / -15%  
 Cv tested per ANSI / (NFPA) T3.21.3

\* For mobile voltage applications: +25 / -30%

## Response Time

Code	Voltage	0 Cu. In. Test Chamber		12* Cu. In. Test Chamber	
		Fill	Exhaust	Fill	Exhaust
49	24VDC	.025	.018	.335	.374
53	120VAC	.021	.029	.309	.389

**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

Vacuum to 125 PSIG

## Temperature Rating

Buna-N

5°F to 120°F (-15°C to 49°C)

Fluorocarbon

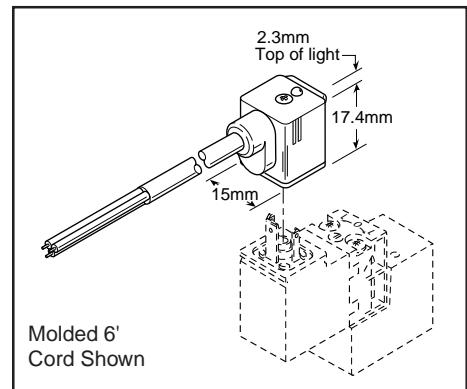
5°F to 140°F (-15°C to 60°C)

## 15mm 3-Pin DIN 43650C

Connector	Connector with 6' (2m) Cord	Description
PS2932P	PS2932JP	Unlighted
PS294675P	PS2946J75P*	Light – 12VAC or DC
PS294679P	PS2946J79P*	Light – 24VAC or DC
PS294683P	PS2946J83P*	Light – 110/120VAC
PS294687P	N/A	Light – 240/230VAC

\* LED with surge suppression.

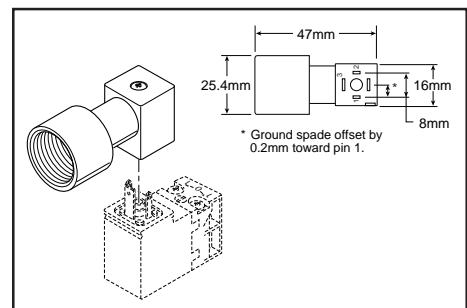
**Note:** Max ø6.5mm cable size required for connector w/o 6' (2m) cord.

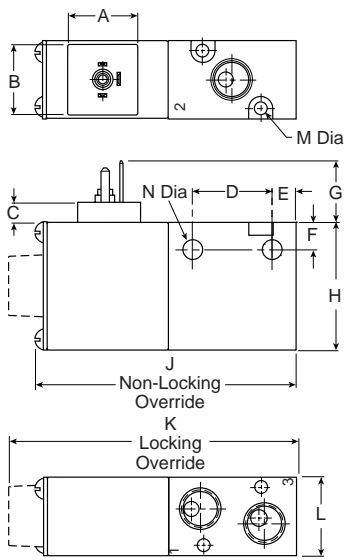


## 15mm 3-Pin DIN 43650C to 1/2" Conduit

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

**Note:** Rated up to 250VAC or VDC; 6 Amps





Max. Hex Size (Across Flats)  
 For Inlet / Exhaust Ports = 9/16" (14mm)

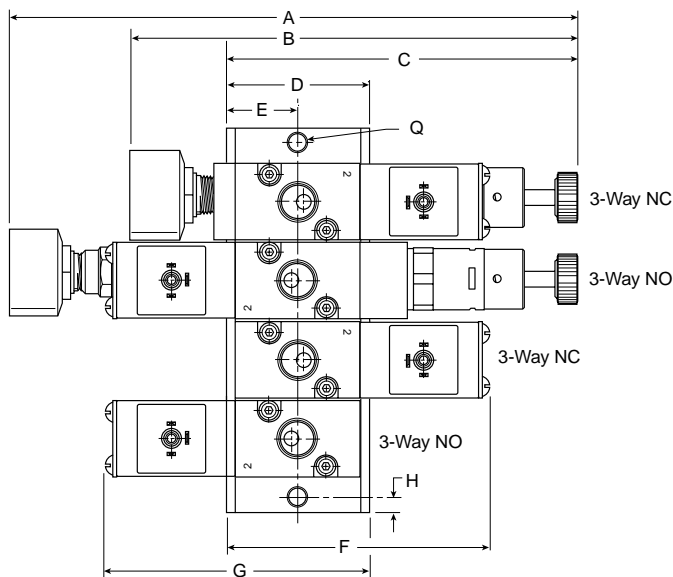
**MicroKing 3-Way Inline**

A	B	C*	D	E
.71 (18)	.71 (18)	.20 (5)	.79 (20)	.24 (6)
F	G*	H	J	K
.28 (7)	.63 (16)	1.30 (33)	2.60 (66)	2.87 (73)
L	M	N		
.79 (20)	.13 (3.3)	.20 (5)		

Inches (mm)

\* Dimensions C & G not applicable to grommet version.

Weight ..... 4.5 oz (.12 Kg)



Max. Hex Size (Across Flats)  
 For Inlet / Exhaust Ports = 3/4" (18mm)

**MicroKing IEM Manifold**

A	B	C	D	E
5.99 (152) <sup>§</sup>	4.53 (115)	3.70 (94)	1.48 (38)	.74 (19)
F	G	H	J	K
2.68 (68)	2.68 (68)	.16 (4)	3.03 (77)	2.13 (54)
L	M	N	P	Q
.83 (21)	.81 (20.5)	.40 (10.3)	.72 (18.3)	Ø .18 Ø 4.5

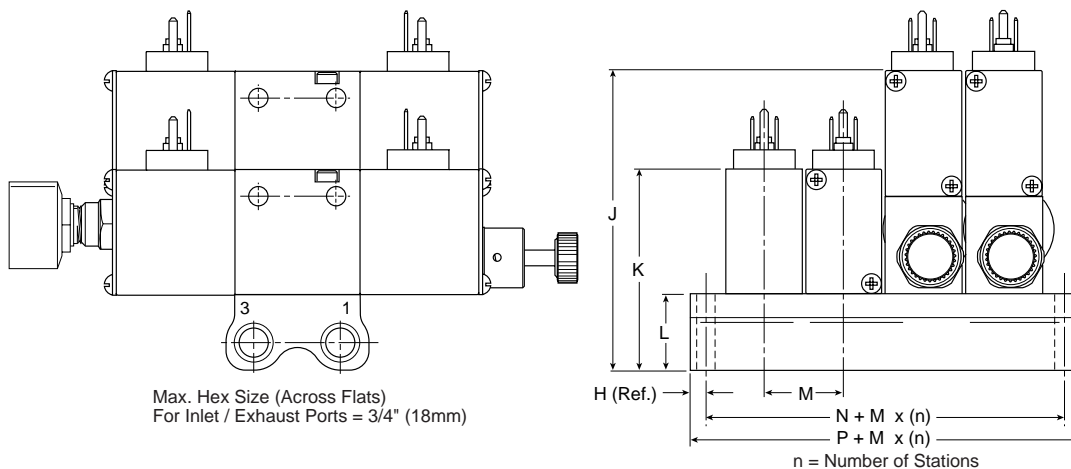
§ - 3mm

Weight

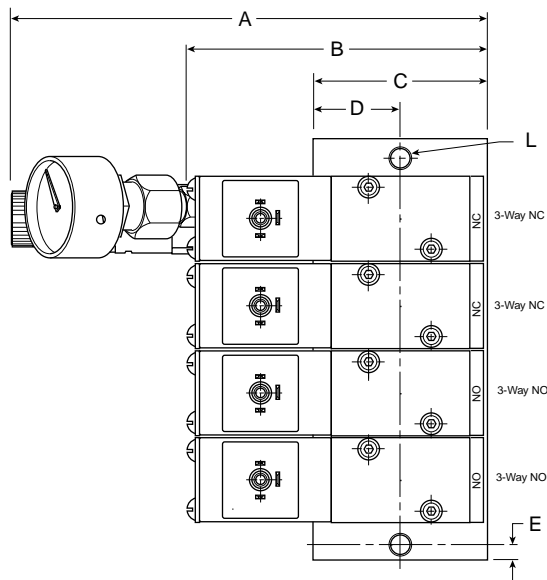
2 Station ..... 2.5 oz (.07 Kg)

Each Additional ..... 1 oz (.03 Kg)

Regulator w/Gauge .. 4.5 oz (.12 Kg)



n = Number of Stations



**MicroKing 3-Way Subbase**

<b>A</b> 4.33 (110) <sup>†</sup>	<b>B</b> 2.74 (70) <sup>‡</sup>	<b>C</b> 1.57 (40) <sup>§</sup>	<b>D</b> .79 (20)	<b>E</b> .16 (4)
<b>F</b> 2.58 (66)	<b>G</b> 1.10 (28)	<b>H</b> .81 (20,5)	<b>J</b> .33 (8,7)	<b>K</b> .65 (16,7)
<b>L</b> Ø .18 Ø (4.5)				

Inches (mm)

<sup>†</sup> ± 5mm

<sup>‡</sup> ± 3mm

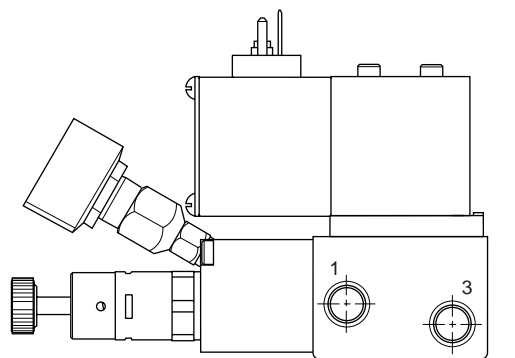
<sup>§</sup> - 3mm

Weight

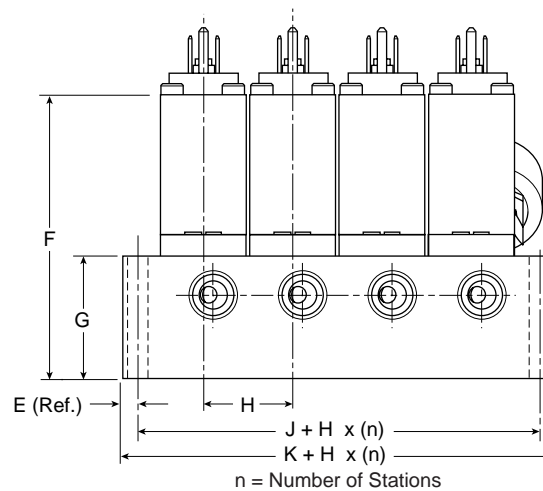
2 Station ..... 5.0 oz (.14 Kg)

Each Additional ..... 1.8 oz (.05 Kg)

Regulator w/Gauge .... 3.5 oz (.1 Kg)



Max. Hex Size (Across Flats)  
 For Inlet / Exhaust Ports = 13/16" (20mm)



**Note:** Valve options '02' & 'V2' - Solenoid Rotated 180° -  
 NOT available with regulator option.

## Offer Of Sale

The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors, are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such item, when communicated to Parker Hannifin Corporation, its subsidiaries or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

**1. Terms and Conditions of Sale:** All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

**2. Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

**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.

NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGN OR SPECIFICATIONS.

**5. Limitation of Remedy:** SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

**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.



**Parker Hannifin Corporation**  
Pneumatic Division North America  
8676 E. M89  
P.O. Box 901  
Richland, MI 49083 USA  
Tel: (616) 629-5000  
Fax: (616) 629-5385

Customer/Technical Service

Tel: (616) 629-5575  
Fax: (800) 648-5480  
Fax: (800) 426-3259  
Web site: [www.parker.com/pneumatic](http://www.parker.com/pneumatic)  
E-mail: [PDNMKTG@parker.com](mailto:PDNMKTG@parker.com)