KIP Solenoid Valves

KIP is proud to offer a complete line of liquid level controls and flow switches to complement our extensive valve line. You'll find the same KIP engineered quality and applications expertise in our level and flow controls as you have in our valves.

KIP Reliability - KIP valves, level controls, and flow switches are the engineer's choice for critical applications, from the complexity of medical diagnostic equipment to the harshest environmental conditions. In most applications, KIP controls will see millions of cycles before retrofit or replacement is required.

KIP Design Flexibility - From high-end CAD to automated taping, special machining and assembly, KIP can engineer controls for your valve, level, or flow requirements. Our valves, manifolds, level controls and flow switches are constructed from standard, modular components. We can manufacture a nearly unlimited number of differently configured controls to meet your deadlines. Our design flexibility applies not only to the standard units described in this catalog, but also to a wide variety of "specials"... including one for your application. We can design a control product with your choice of material, electrical connection, mounting, porting, or any variety of options.

KIP Service - After quality, service is the single most important facet on which KIP has been built. You'll get on-time deliveries with lead times that are the shortest in the industry. That includes delivery flexibility to coincide with your inquiries for specials and prototypes, including technical assistance to help you apply our capabilities to your applications. SERVICE, at a price that makes you glad you selected KIP.

Our nationwide network of representatives is ready to help solve your solenoid valve, level, and flow control applications now. CALL US TODAY!

1-800-722-5547

Solenoid Valves to Meet Your Design

Design Considerations

When the operation of your system or process requires the remote control of liquid, air, gases or vacuum, the proper selection of a solenoid valve can make a significant difference in the final performance of the machine or process. KIP solenoid valves, operators and manifolds have the versatility and design features to fulfill all types of applications. Some consideration should be given to the following design parameters to help you with the selection process:

- Valve Type
- Media
  - Temperature
  - Lubrication
  - Cleanliness
  - Isolation
- Flow Rate
- Pressure
- Power Consumption
- Duty Cycle
- Material of Construction
- Electrical Termination
- Porting
- Mounting

Design Flexibility

The KIP family of standard solenoid valves, solenoid valve operators and manifolds provide a broad selection of solutions for most applications. KIP's manufacturing and design flexibility lets you customize the products in this catalog and tailor the product to your exact requirements rather than tailor your requirements to a standard valve. Even if you don't find what you need in the catalog, that doesn't mean that we can't do it. Many of our standard products started out as specialty items for our OEM customers.

Commitment

While the operation of solenoid valves from one company to another is similar, KIP Incorporated distinguishes itself with total customer service. From design support in the earliest phases of your project, to just-in-time deliveries to meet your production schedule, KIP works with you as part of your team. So, when making that critical decision, don't just select a valve, select the valve company that will become your partner. Select KIP!

Direct Porting Solenoid Valves

KIP offers a complete line of direct acting 2-way and 3-way solenoid valves. Ideally suited for the remote control of liquid, air, or vacuum.
Valves are available with a broad variety of materials of construction, port sizes, seal selections, termination styles, mounting brackets, pressure and flow capabilities to meet your most stringent application requirements.
Our standard valves dimensionally meet the industry standards from mounting holes and ports, to valve sizes and configurations. KIP offers a wide selection of coil construction and meets virtually any voltage requirements.
KIP is eager to install your fittings, attach your specific terminations to the lead wire or accommodate your unique mounting or installation requirements.

KIP Isolation Valves

KIP Series 1, 2, 6 and the KIP Jr. valves can be supplied as a diaphragm seal isolated valve. The models can be supplied as a complete valve, or an operator to be mounted in your own cavity, or as a manifold. The diaphragm seal provides a dry isolated barrier for all the metal parts of the solenoid valve, maintaining only the seal and valve body (usually plastic), as the only wetted parts.
The diaphragm isolated valve models are available as a 2-way normally closed valve only. However, if your application requires a 3-way, we can adapt two valves on a manifold block to act as a 3-way.

Operators

KIP offers a complete line of solenoid operators for applications where it is practical to incorporate the cavity orifice into your system. Use of solenoid operators facilitates system design, simplifies installation and replacement, and lowers overall costs. Operators are typically used for:

- Pilot operation of larger valves
- 4-Way valves
- Hydraulic and pneumatic cylinders
- Manifolds Operators are available for any valve series and any valve configuration in the KIP product line. For cavity details and ordering number, consult KIP.

Manifolds

KIP manifold assemblies simplify complex solenoid valve installations into an easy to install complete manifold assembly.
Manifolding allows you to eliminate fittings, tubing and other potential leak points, in addition to saving valuable manufacturing and test time. Additionally, by integrating other components such as regulators, pressure switches, gauges, and check valves into the assembly, you can save size and weight. Manifolding also facilitates troubleshooting, and valve replacement without disconnecting lines from the manifold base. This minimizes downtime. KIP provides engineering and design recommendations for the most difficult applications.

Capabilities

Vacuum Service

KIP valves and manifolds are ideal for vacuum service and for those special 3-way valve applications that require vacuum on one port and pressure on another port. Valve construction is compatible with vacuum systems as high as 10-6 TORR.

Oxygen Service

KIP valves can be processed for oxygen service; for use in the medical industry, spectro-analysis or other applications requiring O2. These valves are specially cleaned and packaged to be contamination-free. All hydrocarbons are removed. When ordering use the prefix “Y” in the PIN system.

Extended Flow Capabilities

KIP can increase the flow (Cv) capability of any of its valves by modifying the mechanical and electrical components of the valve. In many cases the pressure ratings (MOPD) of the valve must be reduced to achieve the higher flow rate (Cv). When your flow requirements exceed the catalog ratings, consult KIP for application engineering assistance.

Extended Pressure Ratings

Solenoid valves can be modified to increase pressure ratings (MOPD) above the standard ratings listed in the catalog. If agency approvals are necessary, consultation with UL and/or CSA is required. Consult KIP with all your design parameters to determine the feasibility of extending the pressure ratings.

Quiet Valves

Solenoid valves have a distinct click that is inherent to their design when the two metal parts make contact. KIP offers a bumper or special plunger design for OEM’s that will provide a metal to elastomer contact, thus muffling the sound. In addition to providing quiet operation, this feature also extends the life of the moving parts. Quiet valves are available on 2-way and 3-way valves, DC voltage only. Contact KIP for additional information on our quiet valve option.

Agency Approvals

KIP products conform to agency approvals such as UL, cURus, CSA and NSF International. All standard products are RoHS compliant. The approvals are restricted to certain products and specific applications. When any agency endorsement is dictated for an operation, refer to the application inquiry sheets for each product specified. The sheets are located in the back of the catalog. If additional information is needed, please contact KIP.

Low Wattage Operators, Valves and Manifolds

KIP offers the option of low wattage coils, as low as 1.5 watts, on many of our standard valves. These coils offer high pressure (MOPD) operation at low current levels.

- Available in both 2-Way and 3-Way models in Series 1, Series 2, and Series 3.
- Orifice sizes from 1/32" to 5/32".
- Available in 12VDC and 24VDC.
- Refer to KIP solenoid valve charts for wattage, pressure ratings and Cv factors.

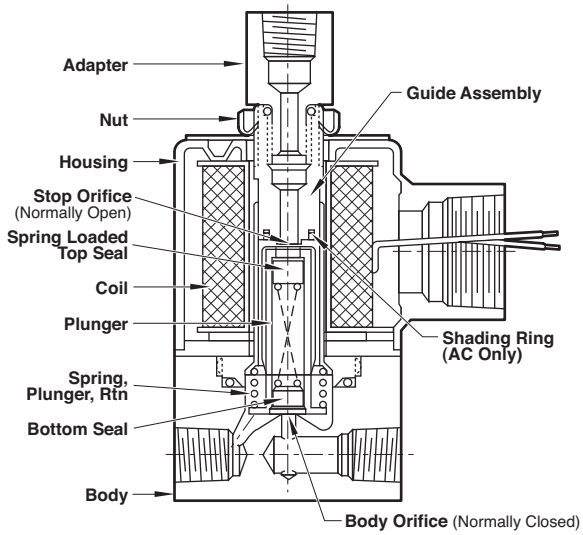
KIP Series 1, 2 and 3 offer selective models with wattage ratings from 1.5 watts to 3 watts. After reviewing the pressure rating (MOPD) of your particular valve in the part number section, you may add an (A) - 1.5 watts, (B) - 2.0 watts, (C) - 2.5 watts, or a (D) - 3.0 watts as a prefix to the part number. **It is important to note that there is a reduced pressure rating from the standard when a reduced wattage coil is used.**

For the OEM, KIP can design and manufacture a custom coil to meet your specific flow and pressure requirements at close to standard pricing.

When 1.5 watts is not low enough, you can select a valve from the KIP Jr. product line which goes as low as .65 watts while still maintaining significant flow and pressure specifications.

Solenoid Selection

1/2" NPT Conduit



Selecting the Best Solenoid Operator for Your Application

FEATURE	KIP Jr. (Series 9)	Series 1	Series 2	Series 3	Series 6
Size - Diameter (inches)	0.80	1	1	1-3/16	1-5/8
Maximum MOPD (psi)	100	800	1000	1000	1200
Vacuum Service	✓	✓	✓	✓	✓
Max. Cv - Body	0.050	0.305	0.305	0.490	0.610
Min. Cv - Body	0.035	0.030	0.030	0.030	0.035
Max. Cv - Stop	0.025	0.125	0.140	0.140	0.270
Min. Cv - Stop	0.015	0.025	0.025	0.025	0.024
Power Rating	.65 watts	6 watts	7 watts	7 watts	10 watts
Lead Wire Gauge	24 AWG	20 AWG/18 AWG	20 AWG/18 AWG	18 AWG	18 AWG
Low Wattage Operators to 1.5 Watt	Available	Available	Available	Available	N/A
1/8" NPTF Ports - Body	✓	✓	✓	✓	✓
1/4" NPTF Ports - Body				✓	✓
3/8" NPTF Ports - Body					4
#10 - 32 UNF Ports - Body	✓	✓	✓	✓	✓
1/8" NPT or 1/4" NPT Male Bottom Port		✓	✓	✓	
UL Recognized		✓	✓	✓	✓
CSA Approved		✓	✓	4	✓
Grommet Style Housing	✓	✓	✓	✓	✓
Conduit Style Housing		✓	✓	✓	✓
Spade Terminal Style - (Standard)			1/4"	1/4"	1/4"
Spade Terminal Style - (Options)			3/16"	3/16"	
Yoke Style (Open Frame)		✓	✓		
Side Metering				✓	✓
Bottom Metering		✓	✓		
Extended Flow Capabilities	✓	✓	✓	✓	✓
Operator Mount Manifolds	✓	✓	✓		✓
Valve Mount Manifolds	✓	✓	✓		✓
Diaphragm Isolated Version	✓	✓	✓		✓

Coils

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

All standard KIP valves are supplied with a Class “B” dry tape wound coil construction with 24" black leads, P/N (01) in the ordering system, unless otherwise specified.

When using this chart below note the available housing styles and the series in which coils are available.

The following chart shows all coil options readily available, for other options in OEM quantities consult KIP. Non-standard voltages, leadwire lengths, other lead wire types and colors, may require minimum quantities.

KIP standard voltages:
12VDC, 24VDC, 24/60, 120/60, 110/50, 220/50, 240/60.

Lead wire type -
AWG 20 on Series 1 and 2
AWG 18 on Series 1 and 2 with free standing molded coil
AWG 18 on Series 3 and 6

Coil classification -
Class B = 130° C or 266° F
Class F = 155° C or 311° F
Class H = 180° C or 356° F

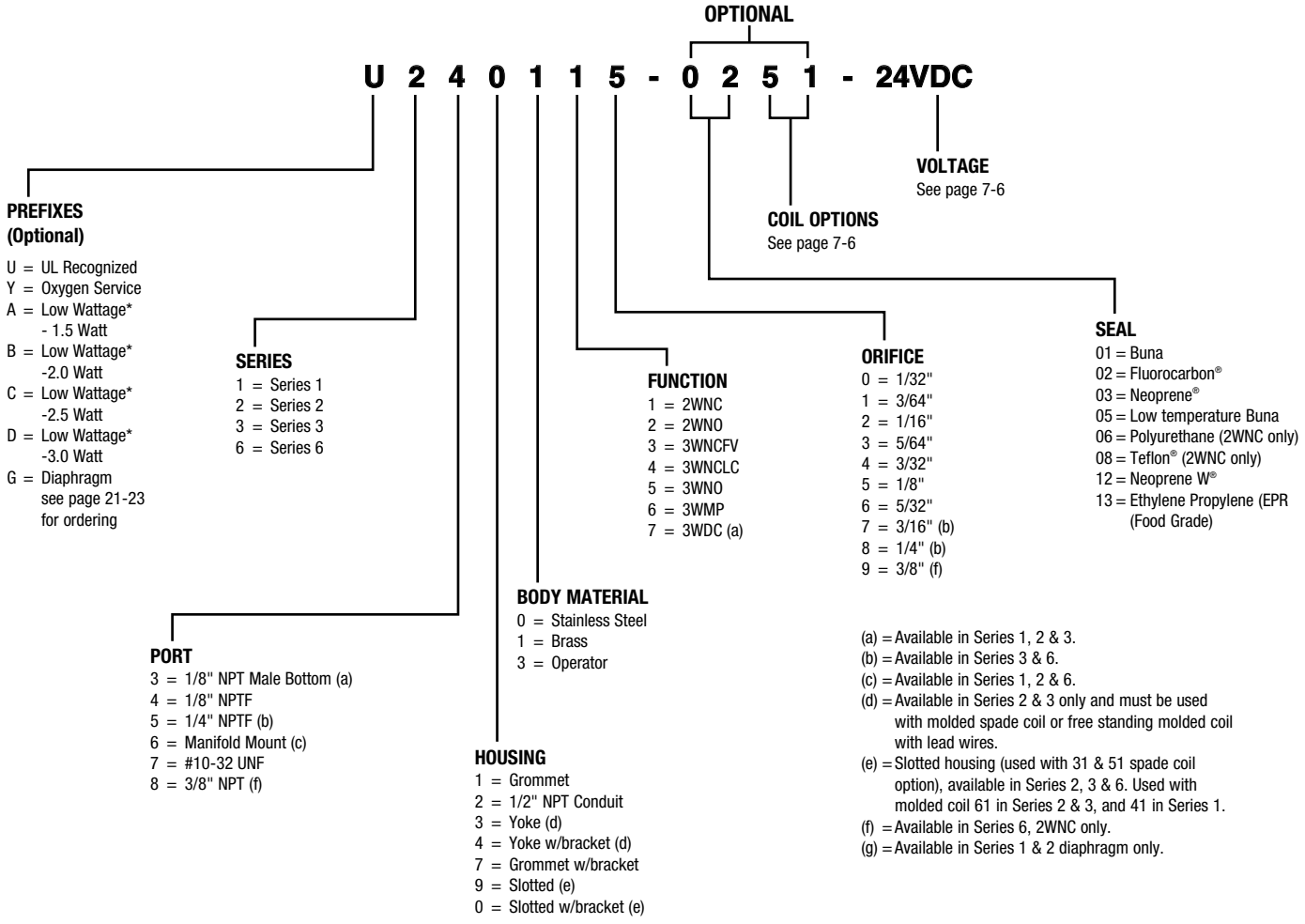
Number	Housing	Series	Type	Class
01	1 - Grommet	1, 2, 3, 6	Standard - dry tape wrapped with leads	B**
01	2 - Conduit	1, 2, 3, 6	Standard - dry tape wrapped with leads	B**
41	9 - Slotted	1	Free standing molded with leads	B**
61	9 - Slotted	2, 3,	Free standing molded with leads	B**
61	3 - Yoke	2, 3	Free standing molded with leads	B**
41	2 - Conduit	1, 2, 3	Potted with leads	B**
31	9 - Slotted	2, 3	3/16" Vertical spade	B**
51	9 - Slotted	2, 3	1/4" Vertical spade	B**
51	3 - Yoke	2, 3	1/4" Top spade (Available with FWR option***)	B**
41	1 - Grommet	6	Free standing molded with leads	B**
41	2 - Conduit	6	Free standing molded with leads	B**
51	9 - Slotted	6	1/4" Vertical spade	B**

* For Class F coils change the second digit to a 2. Consult KIP for minimum order quantities.
** For Class H coils change the second digit to a 3. Consult KIP for minimum order quantities.
*** Full wave rectification

KIP Part Identification Numbering (PIN) System For Valves

The KIP part number provides information about every aspect of the product it represents. The first letter is an optional prefix which identifies UL recognized, oxygen or low wattage. The following numbers identify series, ports, housing style, material, valve function, orifice, seal, coil construction and coil temperature, in that order. The numerical value for each respective category represents one of multiple options. Where possible, the organization of this KIP catalog presents information in the order of the part identification number. You may use the number as a guide to finding information within the catalog.

The following chart is the key to understanding the KIP Part Identification Number.



® Teflon and Neoprene are registered trademarks of E.I. Dupont De Nemours Co.

*Available in Series 1, 2 & 3 for 2-Way Normally Closed, 3-Way Normally Closed and 3-Way Multi-Purpose functions.

Body Porting

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

When selecting port sizes, the adapter is automatically sized to match your body port selection. If you would like any other porting arrangements, contact your KIP representative for assistance.

KIP offers a wide selection of fittings for installation in your valve and manifolds. We can offer these pre-taped and installed in your valves or manifolds.

Side Porting – Standard 180° • 90° porting is available either right or left. • A third body port can be added as a gauge port or to accommodate sampling, switches and transducers, on Series 3 and Series 6.	**Type of Porting**	**Q2**	**Series 1**	**Series 2**	**Series 3**	**Series 6**	**Manifolds**
	1/8" NPTF		✓ - Std	✓ - Std	✓	✓	✓
	1/4" NPTF				✓	✓	✓
	3/8" NPTF					✓	✓
	7/16 - 20 UNF Male			✓			
	7/16 - 20 UNF Male w/ 1/8" NPTF Female			✓			
	#10 - 32 UNF	✓	✓	✓	✓	✓	✓
	1/16 NPTF	✓	✓	✓	✓	✓	✓

Bottom Porting	**Type of Porting**	**Series 1**	**Series 2**	**Series 3**	**Series 6**	**Manifolds**
	Inlet or Outlet	✓	✓	✓	✓	✓
	Female 1/8" NPTF	✓	✓	✓	✓	✓
	Female #10 - 32 UNF	✓	✓	✓	✓	✓
	Female 1/4" NPTF			✓	✓	✓
	"O" Ring Sealing	✓	✓	✓	✓	✓
	Dual #10 - 32 UNF	✓	✓	✓	✓	
	Male Port Manifold Mount	✓ with 5/16"-24 THD	✓ with 5/16"-24 THD		✓ with 1/2"-20 THD	
	Male 1/8" NPT w/ 1/8" NPTF -Side Port Brass ONLY	✓	✓	✓		
	Male 1/4" NPT w/ 1/8" NPTF -Side Port Brass ONLY	✓	✓	✓		

Adapter Porting

Type of Porting	**Series 1**	**Series 2**	**Series 3**	**Series 6**	**Manifolds**
1/8" NPTF	✓ - Std	✓ - Std	✓	✓	✓
1/4" NPTF			✓	✓	✓
Female #10 - 32 UNF	✓	✓	✓		✓

Housing Styles

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

Housings are supplied standard in low carbon steel with a RoHS compliant clear trivalent finish. Consult KIP for other plating or finish options.

Bracketed Yoke (4)

Grommet (1)

Grommet w/Bracket (7)

1/2" NPT Conduit (2)

Yoke (3)

Slotted w/Spade Coil (9)

Slotted w/Leadwire Coil (9)

Slotted w/Bracket (0)

Inverted With Leads

Inverted Potted Housing**

**** Non-standard item consult factory**

Other housing styles are available for OEM quantities. Consult KIP for availability and part numbering.

Manifold Mount Base Valves

KIP's standard manifold mount base valves offer a cost effective method of securing valves to manifolds, eliminating custom cavities or seat installations. Testing is simplified and manifold design and "O" Ring sealing provides quick installation, interchangeability, service and replacement, without removing a single supply line or fitting.

KIP manifold mount style valves are available in all Series from the KIP Jr. for low watt applications, to the Series 6 for high flow and high pressure requirements. Our complete line of manifold mount type valves allows you to mix and match different style valves on one manifold assembly to accommodate your application requirements.

Male Bottom Port

This option is available in Series 1, 2, & 3 with 1/8" NPT or 1/4" NPT male bottom port. The brass hex body has 1/8" NPT side ports for both the 1/8" and 1/4" models. Valves are available with a maximum orifice size of 1/8". When ordering a valve as a 2-way normally closed version, please indicate whether the male port is to be the inlet or outlet. The standard version has the side port as the inlet for both 2-way and 3-way valves.

This option is ideal as a 3-way operator for piloting a cylinder. Installation is fast and easy. Units also can be ordered with male thread Teflon tape to save you additional time. Available with any standard KIP electrical termination or housing style.

Bottom Port- "O" Ring Seal

KIP offers an option on Series 1, 2, 3, and 6 for bottom ported valves with an "O" Ring seal. This option utilizes one or two ports on the bottom of the valve body to have a counterbore pocket for a face sealing "O" Ring. The manifold surface is simply machined flat with matching hole locations and through holes matching up with the mounting holes of the valves. When a valve is installed with the mounting screws the "O" Ring provides a seal between the bottom of the valve body and the manifold surface. This feature is ideal for acrylic or other plastic manifolds where there is concern for thread life or cracking of the block by over torquing.

Available in 2-way and 3-way valves. When only one bottom port is used, the remaining valve porting can be any of the options available in each series. Installation is quick and secure; trouble shooting or valve replacement can be accommodated with minimum effort.

Non standard item - consult factory.

Metering

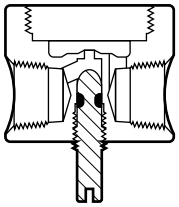
Provides adjustable flow for dispensing a specific rate or volume of fluid or gas. Permits controlled movement of a cylinder or actuator. Available in 2-Way and 3-Way valves. KIP's standard pressure ratings and Cv's apply.

Manifold Metering

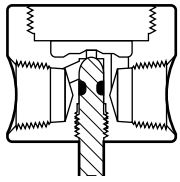
Manifold metering is available in side metering and bottom metering versions. Please consult factory with design specifications for additional data on metered manifolds and minimum order quantities. Yoke housing not available with top plate.

Bottom Metering

Available in Series 1 and Series 2 valves only. 1/8" NPTF ports only in stainless steel, brass and polypropylene. Maximum orifice size 3/32" (1/8" in polypropylene).



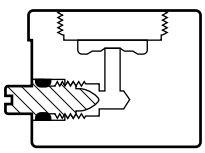
Full Flow



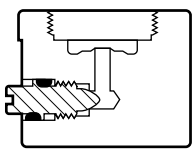
Shut Off

Side Metering - Body and Adapter

Available in Series 3 valves with 1/8" NPTF ports in stainless steel or brass. Series 3 with 1/4" NPTF ports available if mounting holes are not required. Series 6 valves with 1/8" or 1/4" NPTF ports in stainless steel or brass. Maximum orifice size 1/8". Metered adapters are available for 2-Way Normally Open or any 3-Way valves in Series 1, 2, or 3. Depending on the type of valve you select, this metered adapter can control the flow of the inlet, outlet or exhaust. When coupled with either side or bottom body metering, it allows you to control your media in two directions independently.



Full Flow



Shut Off

Body Material

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

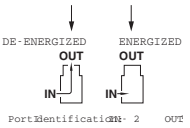
KIP offers valve bodies in two standard materials. Brass and 303 Stainless Steel. KIP also offers bodies manufactured in Aluminum, Delrin®, PVC or other materials for OEM applications.

Valve Types

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

(2WNO) 2-Way Normally Open

Valve with two ports, inlet and outlet. Valve is open in a de-energized state, and closes when energized. Valve has one orifice which is located in the end stop.



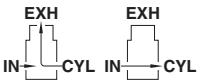
(2WNC) 2-Way Normally Closed

Valve with two ports, inlet and outlet. Valve is closed in a de-energized state, and opens when energized. Valve has one orifice which is located in the body.

Port Identification: IN - 2

(3WNCFV or 3WNCLC) 3-Way Normally Closed

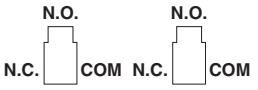
Valve with three ports, and two orifices. One orifice is located in the body and the other in the end stop. The three ports are the “IN”, “EXHAUST” and “CYLINDER”. When the valve is de-energized, the inlet is closed and the exhaust is open. When the valve is energized, the inlet is open allowing flow to the cylinder port and the exhaust orifice is blocked. 3-Way Normally Closed Valves are available in Line Connect style (with piping adapter), and Free Vent style for exhaust to atmosphere.



Port Identification: IN - 1 CYL -

(3WMP) 3-Way Multi-Purpose

Valve with three ports, and two orifices. One orifice is located in the body and the other in the end stop. The three ports are the “NORMALLY OPEN”, “NORMALLY CLOSED” and “COMMON”. When the valve is de-energized, the normally closed port is closed and the common port is open to the normally open port. When the valve is energized, the normally closed port is open allowing flow from the common port and the normally open orifice is blocked. 3-Way Multi-Purpose Valves can be used as a 3WNC, 3WNO, or a 3WDC valve. Additionally, valve can be used to pipe the alternate flow of two different media to one port.



Port Identification: NC - 1 COM -

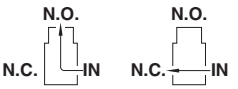
(3WNO) 3-Way Normally Open

Valve with three ports, and two orifices. One orifice is located in the body and the other in the end stop. The three ports are the “IN”, “EXHAUST” and “CYLINDER”. When the valve is de-energized, the inlet is open to the cylinder port and the exhaust is closed. When the valve is energized, the exhaust is open allowing flow from the cylinder port and the inlet orifice is blocked.

Port Identification: EXH - 1 CYL

(3WDC) 3-Way Directional Control

Valve with three ports, and two orifices. One orifice is located in the body and the other in the end stop. The three ports are the “NORMALLY OPEN”, “NORMALLY CLOSED” and “IN”. When the valve is de-energized, the inlet is open to the normally open port. When the valve is energized, the normally closed port is open allowing flow from the inlet port and the normally open orifice is blocked. 3-Way Directional Control valve can be used to divert flow from one port to another.



Port Identification: NC - 1 IN -

Orifice

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

KIP offers standard-sized body orifices from 1/32" to 5/32" for Series 1 through 6. Series 3 and 6 orifices are also available up to 1/4". We also offer a 3/8" body orifice in Series 6.

Standard end stop (top of valve) orifice sizes are available from 1/32" to 1/16" in Series 1.

Up to 5/64" in Series 2 and 3 valves and up to 1/8" in Series 6 valves. In addition, KIP offers larger end stop orifices on all Series 1, 2 & 3 to maximize flow. However, these orifices are application-sensitive. Please consult KIP for assistance.

All orifices are "Precision Machined" to guarantee sealing surface finish and height for improved repeatability and reliability.

Seals

U 2 4 0 1 1 5 - 0 2 5 1 - 24VDC*

All standard KIP valves are supplied with spring compensated Fluorocarbon upper seals, Buna-N lower seals and "O" Rings. Both upper and lower seals are also available in Fluorocarbon, EPR, or Neoprene. In addition, lower seals are offered in Teflon or polyurethane. Consult KIP for temperature limits, durometer ratings, minimum order quantities or requirements for special sealing materials.

SEAL MATERIALS

01 Buna - N
A general purpose, soft, synthetic rubber suitable for most air, non-potable water and light oil environments with temperatures to 200° F.

02 Fluorocarbon
A soft, fluorocarbon rubber used primarily with hydrocarbon liquids such as gasoline, aerospace fuels, solvents, etc., which can cause swelling and distortion to Buna. Fluorocarbon is also used for oxygen service. The material is appropriate for higher temperature ranges, and is more resistant to "dry" heat.

03 Standard Neoprene
A soft, synthetic rubber with excellent low temperature sealing and very good heat aging resistance.

05 Low Temperature Buna
Primarily used in low temperature applications down to -40° F/C. Suitable for most air, non-potable water, and light oil environments.

06 Polyurethane
Primarily used for high load applications involving non-corrosive gases & oils. Especially good for high pressure gases prone to absorption such as CO2. Not recommended for water, acids or chlorinated solvents.

08 Teflon
A synthetic material used in corrosive and semi-corrosive media. Teflon is virtually impervious to any fluid. Its ability to withstand high temperatures makes it especially suited for use with steam. However, it is not recommended for vacuum applications.

12 Neoprene W
A soft, synthetic rubber that is used primarily for refrigerants, especially R-12 and R-22 with oil. The material has excellent dynamic sealing capabilities. Also characteristic of this material is improved fluid resistance and lower swell.

13 Ethylene Propylene (EPR) Food Grade
A soft, synthetic rubber ideal for beverages, potable water and steam, (where steam pressure is below 50 PSI). Suitable for steam and hot water where temperatures are above Buna's tolerances. EPR is not appropriate for petroleum liquids or petroleum-contaminated air. It is compatible with automotive brake fluids and phosphate ester synthetic oil.

Coil Construction

U 2 4 0 1 1 5 - 0 2 5 1

Dry Coil

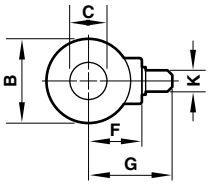
- Tape wound coil ideal for general purpose use in a clean dry environment
- Generally used with grommet and conduit style housings
- KIP standard coil -supplied when no suffixes are attached to valve part number or as designated on page 9

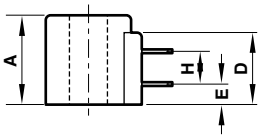
Free Standing Molded

- Supplied when application requires a more rugged, moisture resistant coil
- Used with slotted housings, or yoke in Series 2 & 3; grommet and conduit housing for Series 6

Spade

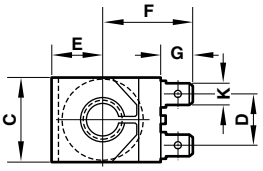
- Available with 3/16" standard spade terminals vertical style for Series 2 and 3, and 1/4" standard spade terminals vertical style for Series 2, 3 and 6 and top spade style for Series 2 and 3
- Utilize the slotted housing style for Series 2, 3 and 6 vertical spade construction, as well as yoke (open frame) for top spade
- Top spade, Series 2 and 3 is available with internal arc suppression diode or full wave rectification.





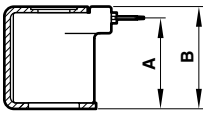
Vertical Spade Coil

	A	B	C	D	E	F	G	H	K
SERIES 2 & 3	1.05 (27)	.94 (24)	.44 (11)	.85 (22)	.25 (6)	.64 (16)	97 (25) 1.03 (26)	.38 (10)	.187 x .020 (5 x .5) .250 x .032 (6 x .8)
SERIES 6	1.25 (32)	1.41 (36)	.54 (14)	1.25 (32)	.37 (9)	.88 (22)	1.27 (32)	.52 (13)	.250 x .032 (6 x .8)



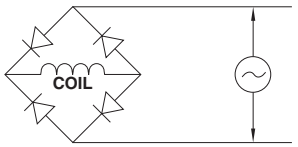
Top Spade Coil

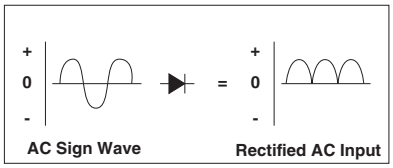
	A	B	C	D	E	F	G	K
SERIES 2 & 3	1.06 (27)	1.18 (30)	1.00 (25)	.60 (15)	.61 (15)	1.19 (30)	.38 (30)	.250 x .032 (6 x .8)



Rectified Coils and Coils with Arc Suppression Diodes

Rectified Coils

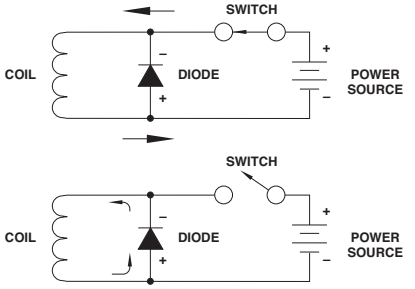




There may be times when you have a standard AC circuit but can't have the copper shading ring which is standard in this type of valve due to media compatibility. Or, the application may be in a dirty or dusty environment where particulate causes the valve to buzz. In either case, a rectified coil will solve this problem. By adding two diodes in the coil (for half-wave rectification), or four diodes (for full-wave rectification), the effective voltage to the coil is modified from AC to DC. These rectified coils do not need any shading ring and perform as a DC coil with your standard AC input. The actual coil construction is designed for this type of rectification so you must contact the factory for ordering information. Since the addition of the diodes can make the physical size of the coil larger, it is not available in all types of coil and valve series. However, the rectification can take place away from the coil, such as on the customer's electronics, within their equipment. Consult KIP for available options.

Arc Suppression

When DC voltage is disconnected from a solenoid valve, the coil reacts by generating its own voltage and sending a "spike" through the circuit. Depending on the size of the coil and the number of amp turns it contains, this generated voltage can be very high. In order to suppress this "spike" and protect other sensitive components in the electronic system, a diode is connected in parallel to the coils. Once the diode is placed in the coil it will now have a polarity. Since the diode only conducts in one direction the polarity of the coil must be maintained so as not to burn out the diode and eliminate the protection it is meant to provide. For ordering data and coil availability, contact KIP.



KIP – Customized solutions and solenoid valves for demanding applications

KIP engineers have a wealth of experience in designing and manufacturing customized solutions for OEMs with demanding industrial and life science applications. KIP also features an established range of machined solenoid valves. KIP's facility in Connecticut, USA is well equipped for quick turnaround of these solutions:

- In house machining capabilities
- In house model shop and test facilities
- Rapid prototyping capabilities

A specialised engineering and production team designs and manufactures custom manifolds from acrylic and other high-grade polymers. This is achieved through the use of a variety of hi-tech manufacturing techniques. Multi-layered acrylic manifolds as well as machined manifolds offer several benefits, including:

- Reduced size of fluidic system
- Reduced total cost of ownership
- Reduced number of fittings, tubing and connectors – fewer leak points

KIP Isolation Valves

Ideal for control of corrosive and aggressive media

Elastomer diaphragm provides protection from aggressive, corrosive, and gritty media

Isolation valves can be equipped with a low wattage coil (as low as 0.65 watts in the KIP Jr. series)

Valves can also be integrated into standard manifolds or intricate custom manifold assemblies

Isolation valves are available in a 2-way normally closed configuration

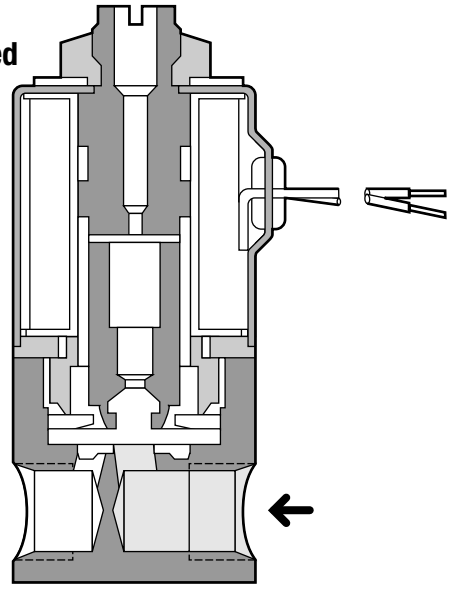
Two valves can be combined on a common base for 3-way operation

Isolation valves can be combined on a manifold block to simplify your pneumatic or liquid circuit

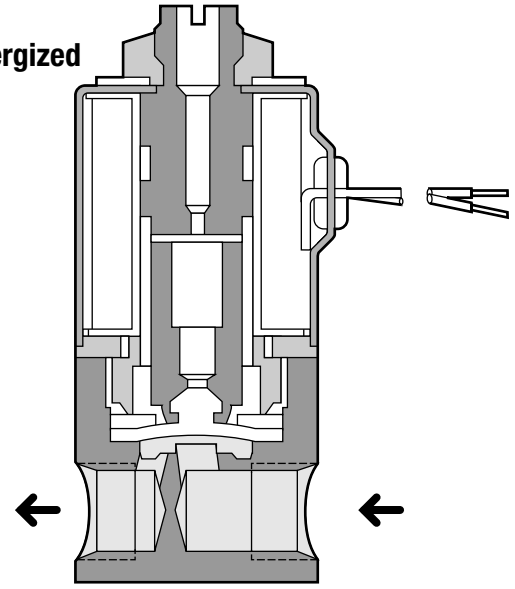
Complete line of standard manifold designs and materials

KIP offers custom designed manifolds complete with fittings, tubing and other accessories

De-Energized



Energized



Series 1, 2 & 6

G 2 7 9 6 1 2 - 0 2 6 1 - 12VDC

PREFIXES
G = Isolated

SERIES
1 = Series 1
2 = Series 2
6 = Series 6

PORT
4 = 1/8" NPT
5 = 1/4" NPT (Series 6* only)
7 = #10-32 UNF
8 = 1/4-28 UNF

HOUSING
1 = Grommet
2 = Conduit
3 = Yoke
9 = Slotted

BODY MATERIAL
3 = Operator
4 = Delrin
5 = PVC
6 = Kynar

FUNCTION
1 = 2WNC

ORIFICE
0 = 1/32"
1 = 3/64"
2 = 1/16"
3 = 5/64"
4 = 3/32"
5 = 1/8"
6 = 5/32"
7 = 3/16" (Series 6* only)
8 = 1/4" (Series 6* only)

SEAL
02 = Fluorocarbon
13 = EPR* (Series 1, 2)

COIL OPTIONS
See page 7-6

VOLTAGE
See page 7-6

* Series 6 is available with Fluorocarbon diaphragm only.

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Selection Criteria for Isolation Style Valves

Feature	Series 1	Series 2	Series 6	KIP Jr. (Series 9)
Size - (Diameter)	1"	1"	1-5/8"	0.80"
MOPD (psi)	95	120	130	30
Vacuum Service	✔	✔	✔	✔
Max. Cv - Body	0.250	0.250	0.545	0.06
Power Rating	6 watts	7 watts	10 watts	.65 watts
Lead Wire Gauge	20 AWG/18 AWG	20 AWG/18 AWG	18 AWG	24 AWG
Optional Low Wattage Coils	✔	✔		✔
1/8" NPTF Ports	✔	✔	✔	
#10 - 32 UNF Ports	✔	✔	✔	✔
1/4 - 28 UNF	✔	✔	✔	
Grommet Style Housing	✔	✔	✔	✔
Conduit Style Housing	✔	✔	✔	
Spade Coil	✔	✔	✔	
Manifolds	✔	✔	✔	✔

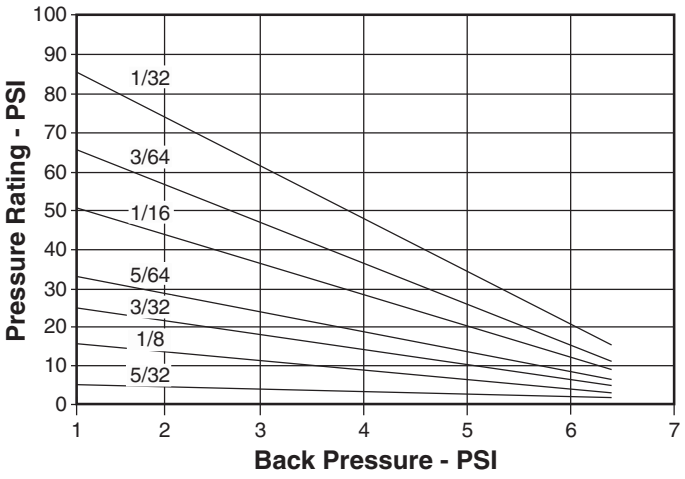
				Standard Valve Body		
	Orifice Diameter	Cv Factor	MOPD	Kynar	Delrin	PVC
Series 1	1/32"	0.025	95	G141610	G141410	G141510
	3/64"	0.045	75	G141611	G141411	G141511
	1/16"	0.075	55	G141612	G141412	G141512
	5/64"	0.115	35	G141613	G141413	G141513
	3/32"	0.155	25	G141614	G141414	G141514
	1/8"	0.210	15	G141615	G141415	G141515
	5/32"	0.250	10	G141616	G141416	G141516
Series 2	1/32"	0.025	120	G241610	G241410	G241510
	3/64"	0.045	100	G241611	G241411	G241511
	1/16"	0.075	75	G241612	G241412	G241512
	5/64"	0.115	55	G241613	G241413	G241513
	3/32"	0.155	45	G241614	G241414	G241514
	1/8"	0.210	30	G241615	G241415	G241515
	5/32"	0.250	20	G241616	G241416	G241516
Series 6	1/32"	0.031	130	G641610	G641410	G641510
	3/64"	0.058	110	G641611	G641411	G641511
	1/16"	0.078	95	G641612	G641412	G641512
	5/64"	0.117	70	G641613	G641413	G641513
	3/32"	0.167	60	G641614	G641414	G641514
	1/8"	0.241	50	G641615	G641415	G641515
	5/32"	0.316	40	G641616	G641416	G641516
	3/16"	0.398	30	G641617	G641417	G641517
	1/4"	0.545	20	G641618	G641418	G141518
KIP Jr. Series	**Orifice Diameter**	**Cv Factor**	**MOPD**	**Halar**	**Acrylic**	
Series 9	1/16"	0.06	30	G971812-13	G971912-13	

Isolation Valve Back Pressure De-rating Curves

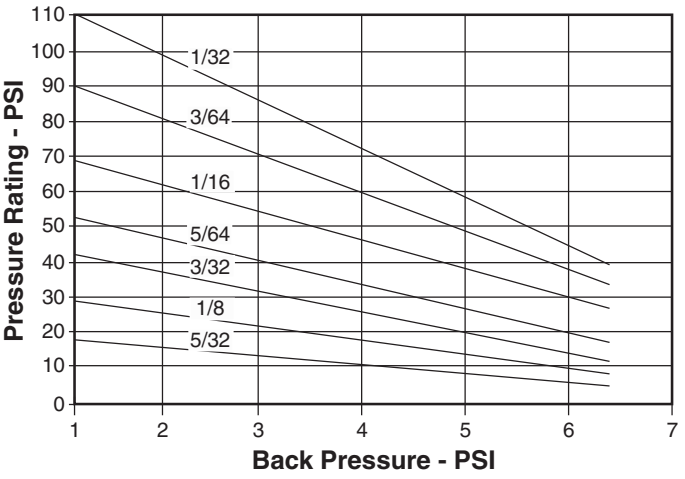
Diaphragm Isolation Valves have a large difference in pressure area between open and closed, creating a sensitivity to back pressure. Excessive back pressure can hinder the closing of the valve. Please use the back pressure charts below to deetermine the maximum operating pressure of the valve based on the maximum potential back pressure in the application. Choose the orifice size which meets a worst case condition.

Unless a preference for diaphragm body shape is specifically requested, valves may be shipped with either square or round bodies, at KIP's discretion, and depending on availability or size of order.

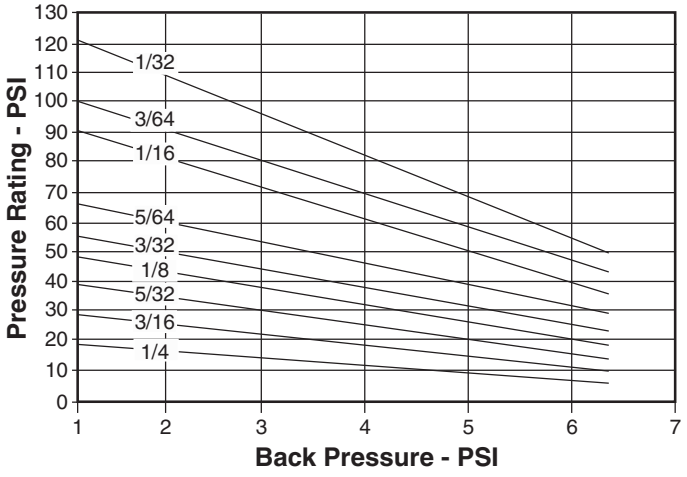
Series 1 Isolation Valves



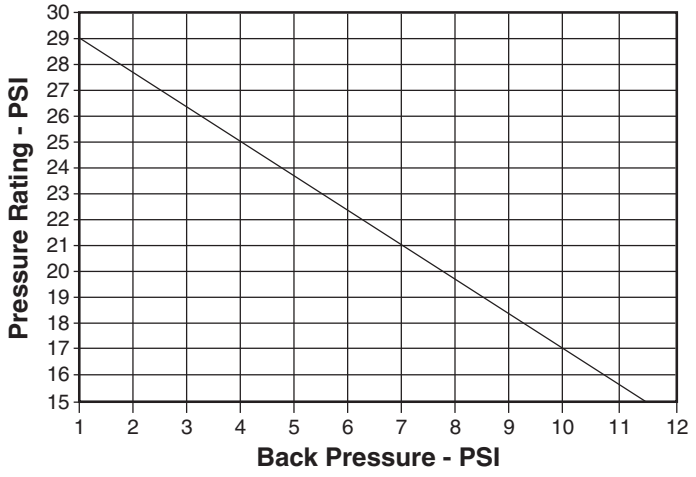
Series 2 Isolation Valves



Series 6 Isolation Valves



KIP Jr. (Series 9) Isolation Valves



Q2 Valve

Q2 Quick-Connect Plastic Body Valve
Durable, lightweight plastic body
Quick push-to-connect fittings
NSF and cURus (UL and CSA) Certified
Minimal Pressure drop

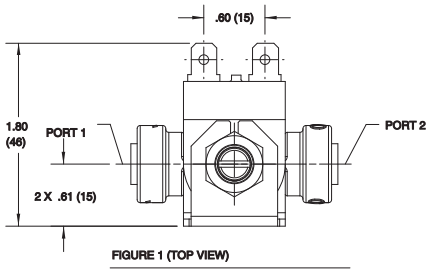
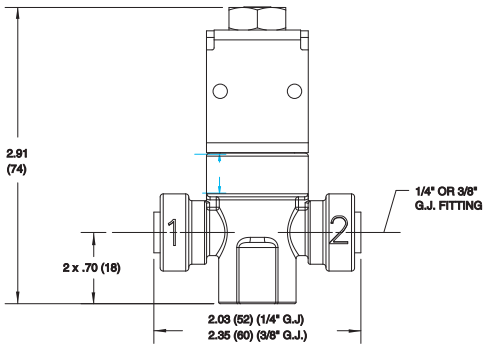
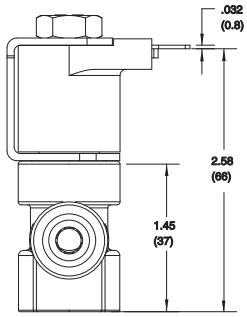
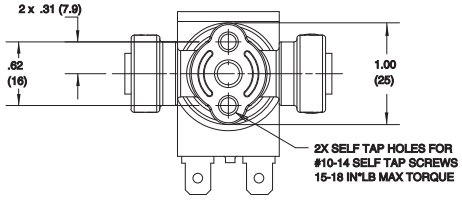


FIGURE 1 (TOP VIEW)







Specifications

Power Rating	10 Watt
Voltage	12, 24, 110 Volt DC 24/50-60, 120/50-60, 240/50-60 Volt AC*
Housing	Yoke
Coil	1/4" Top Spade
Temperature Rating	
Ambient and Media	-10°F to 100°F

*All AC valves are full wave rectified

Port Identification: IN - 2

Coil Orientation Options
A = Terminals over 2
B = 90° Counterclockwise from 2 (Standard – Figure 1)
C = 90° Clockwise from 2
D = Terminals over 1

Standard Valve Part Number	Orifice Diameter Body	Seal Material	Porting OD Tube Fitting	Cv Factor Body	MOPD (PSI)
Q212315-1351B-VOLTAGE	1/8"	Food-Grade EPR*	1/4"	0.228	120
Q212315-0151B-VOLTAGE	1/8"	Buna	1/4"	0.228	120
Q212316-1351B-VOLTAGE	5/32"	Food-Grade EPR*	1/4"	0.314	80
Q212316-0151B-VOLTAGE	5/32"	Buna	1/4"	0.314	80
Q212317-1351B-VOLTAGE	3/16"	Food-Grade EPR*	1/4"	0.367	40
Q212317-0151B-VOLTAGE	3/16"	Buna	1/4"	0.367	40
Q213318-1351B-VOLTAGE	1/4"	Food-Grade EPR*	3/8"	0.500	15
Q213318-0151B-VOLTAGE	1/4"	Buna	3/8"	0.500	15
Q213319-1351B-VOLTAGE	5/16"	Food-Grade EPR*	3/8"	1.000	5
Q213319-0151B-VOLTAGE	5/16"	Buna	3/8"	1.000	5

* Food-Grade EPR seals are NSF approved

Manifolds

Simplify solenoid valve installation with KIP manifold assemblies.
KIP manifolds provide an economical and effective means of gang mounting solenoid valves

Solenoid valve manifolds simplify the purchasing, installation, testing, and repair/replacement of solenoid valve components while enhancing system integrity. Integrating a group of solenoid valves, pressure switches, check valves, regulators or gauges into one assembly makes a complete package, eliminating tubing, fittings and potential leak points. Additionally, wire harness requirements are simplified.
Modular valves and other components can be replaced or maintained without disturbing plumbing thus reducing maintenance costs and downtime.

Operator Mounting Type Manifolds

- Series 1 and Series 2 operators are available for gang mounting on aluminum, brass or plastic sub-plates.
- Manifolds can be selected with 1/8" NPTF or 1/4" NPTF ports.
- Orifice sizes up to 3/16" with precision machined-in seats are standard.
- Both 2-Way and 3-Way operators may be combined on the same manifold.
- Manifolds with up to 16 stations are available as standard.
- An upper manifold plate can be ordered for common porting on 2-Way Normally Open and all 3-Way valves.

Isolation Style Manifold

- Provides a dry isolated valve operator for the control of corrosive and aggressive media.
- The diaphragm seal (Fluorocarbon®, Chemraz® or EPR), isolates all metal parts from the media.
- The manifold material is available in PVC, Delrin®, Kynar®, and acrylic.
- Operators are available as a 2-way normally closed valve only However, two valves can be combined for 3-way operation.
- Orifice sizes are available from 1/32" to 5/32" with Cv factors up to 0.545. Please refer to page 22 - 25 for specifications.

Manifold Mount Valve Type Manifolds

- Series 1, 2, 6 and KIP Jr. valves are available for gang mounting on aluminum, brass or plastic sub-plates.
- Manifolds can be selected with 10-32 UNF, 1/8" NPTF or 1/4" NPTF ports.
- Orifice sizes up to 1/8" in Series 1, 2, and orifice sizes up to 1/4" in Series 6 models are available, and 1/16" in KIP Jr.
- Pressure ratings are the same as those listed for the individual valves in this catalog except that the maximum operating pressure is limited to 400 PSI for UL recognition.
- 2-Way and 3-Way valves may be combined on the same manifold Up to 16 stations are available on Series 1 and 2 valves, and up to 6 stations are standard on Series 6 valves.
- An upper manifold plate can be ordered for common porting on 2-Way Normally Open and all 3-Way valves. This option is not available for KIP Jr.

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Manifolds

Acrylic Subplates

A great answer for simplified design and easy installation of complex media flow requirements. Use of an acrylic base permits the flow of various media through a single base using multiple inlets and outlets. Flow paths can also be varied and directed to meet design requirements. KIP application engineers can help you select the most effective design for easy installation, access, and the best product aesthetics. Acrylic subplates are supplied for OEM applications only.

Additional OEM Manifold Design Capabilities

KIP manifolds offer many additional options such as:

- Metering of valves for flow control.
- Sub-plates of many materials including brass, Delrin, 430 SS, aluminum, acrylic and Kynar .
- Unique configurations to accommodate pressure regulators, pressure gauges, transducers, and/or switches as well as flow paths to meet your specific requirements.
- Other port sizes and locations.
- Internal check valves.
- Teflon taped fittings.
- Test ports.
- Multi-media manifolds.
- Flow or no-flow monitoring.

Consult KIP for application engineering assistance.

KIP Jr. Manifolds

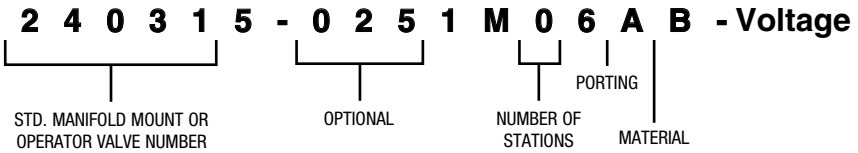
All of the manifold types described on these pages are also available in the KIP Jr. Series.

FEATURES:

- Operator Style manifolds for small profile, low cost OEM applications.
- Manifold mount style for ease of installation and service.
- Inert plastic bases with isolation solenoid operators and ethylene propylene diaphragms for aggressive or high purity media.
- Electronic/Pneumatic interface circuit cards for gang mounting multiple valves for a computer driven system.

Standard Manifold Ordering Information

It's easy to order your own standard KIP Manifold assembly using the simple selection chart below. First, select the manifold mount valve or valve operator from the part numbering charts on pages 30 through 41 or create the part number from the part number identification system on page 9. Provide the numbers for the desired seal and coil construction options if applicable. This will give you the valve portion of the manifold. Now, select the base to complete your assembly.



Number of Stations

Fill in the number of valve stations you need after the "M". This can be up to 16 stations for series 1, 2 or KIP Jr. Manifold mount valves and 6 stations for series 6 manifold mount valves. For operator style manifolds where the cavity is machined into the base, 16 stations is the maximum for series 1, 2 and KIP Jr. series and 6 stations for series 6.

Porting

Select the porting configuration and port size to fit your application. Choose from the offerings below and enter the appropriate letter after the number of stations.

Base Material

Next, select the base material which offers the best media compatibility for your application. Place the appropriate letter in the last position of the part number sequence.
A) Aluminum - Best suited for non-critical air, vacuum or inert gases.
B) Brass - Commonly used for non-potable water applications or other low pressure fluids or oils.
D) Delrin® - FDA grade material is used for potable water applications, critical gas sampling or high purity systems.

Voltage

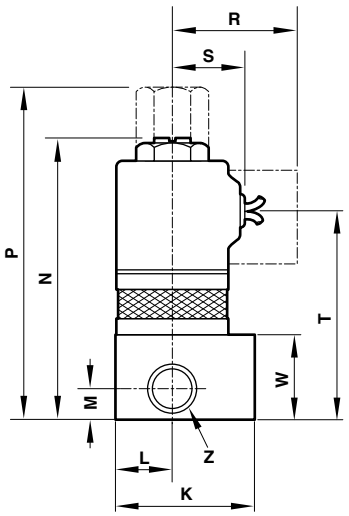
After selecting your standard manifold part number, remember to include the operating voltage. Select the appropriate letter from the following standard voltages and add it at the end of your manifold part number:

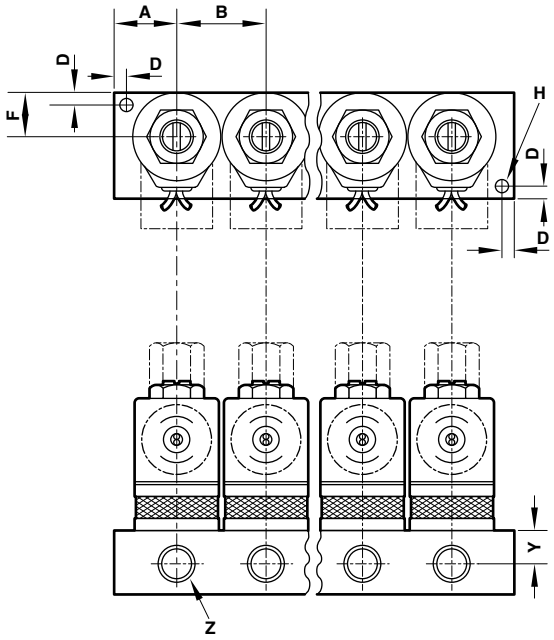
Porting Designation	Valve Series	Valve Type	Common Port Size	Common Marking	Outlet Port Size	Outlet Marking	Comments
A	S1, S2, S6	2WNC	1/8"NPT	IN	1/8"NPT	OUT	Common in, individual out
B	S1, S2, S6	2WNC	1/4"NPT	IN	1/4"NPT	OUT	
C	S1, S2, S6	3WNO	1/8"NPT	EXH	1/8"NPT	CYL	Inlet Port is through Valve Adapter
D	S1, S2, S6	3WNO	1/4"NPT	EXH	1/4"NPT	CYL	Inlet Port is through Valve Adapter
C	S1, S2, S6	3WNC	1/8"NPT	IN	1/8"NPT	CYL	Exhaust Port is through Valve Adapter
D	S1, S2, S6	3WNC	1/4"NPT	IN	1/4"NPT	CYL	Exhaust Port is through Valve Adapter
C	S1, S2, S6	3WMP	1/8"NPT	NC	1/8"NPT	COM	N.O. Port is through Valve Adapter
D	S1, S2, S6	3WMP	1/4"NPT	NC	1/4"NPT	COM	N.O. Port is through Valve Adapter
J	KIP Jr.	2WNC	1/8"NPT	IN	10-21 UNF	OUT	
R	KIP Jr.	3WNO	1/8"NPT	EXH	10-21 UNF	CYL	Inlet Port is through Valve Adapter
R	KIP Jr.	3WNC	1/8"NPT	IN	10-21 UNF	CYL	Exhaust Port is through Valve Adapter
R	KIP Jr.	3WMP	1/8"NPT	NC	10-21 UNF	COM	N.O. Port is through Valve Adapter

Note: For 3-way directional control manifolds, use the 3-way multi-purpose manifold which most closely fits your need.
For the 2-way normally open manifolds, consult KIP.

Manifold Dimensions

Manifold Mount Valve Type Manifolds

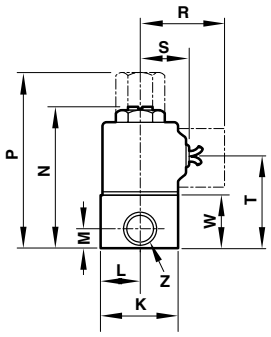


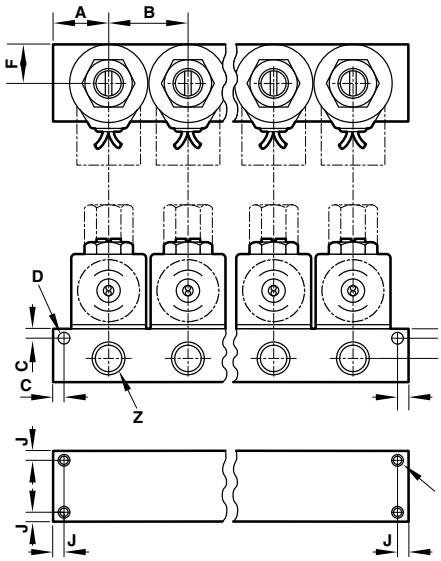


	a	b	d	f	h	k	l	m	n	p	r	s	t	w	y	z
Series 1	.75 (19)	1.06 (27)	.14 (4)	.52 (13)	.15 (4)	1.25 (32)	.52 (13)	.28 (7) .34 (9)	2.62 (67)	2.97 (75)	1.12 (29)	.64 (16)	1.82 (46)	.75 (19)	.41 (10)	1/8-27 NPTF 1/4-18 NPTF
Series 2	.75 (19)	1.06 (27)	.14 (4)	.52 (13)	.15 (4)	1.25 (32)	.52 (13)	.28 (7) .34 (9)	2.82 (72)	3.16 (80)	1.12 (29)	.64 (16)	2.01 (51)	.75 (19)	.41 (10)	1/8-27 NPTF 1/4-18 NPTF
Series 6	.94 (24)	1.69 (43)	.19 (5)	.84 (21)	.20 (5)	1.75 (45)	.84 (21)	.38 (10) .44 (11)	3.55 (90)	4.23 (108)	1.58 (40)	1.03 (26)	2.73* (69) 2.56** (65)	1.00 (25)	.56 (14)	1/8-27 NPTF 1/4-18 NPTF

* = Grommet ** = Conduit

Operating Mounting Type Manifolds





	a	b	c	d	f	j	k	l	m	n	p	r	s	t	u	w	y	z
Series 1	.78 (20)	1.06 (27)	.16 (4)	.19 (5)	.52 (13)	.16 (4)	1.00 (25)	.50 (13)	.42 (10)	2.33 (59)	2.67 (68)	1.12 (29)	.64 (16)	1.52 (39)	#8-32 UNC x 1/4 MFT	1.00 (25)	.58 (15)	1/8-27 NPTF
Series 2	.78 (20)	1.06 (27)	.16 (4)	.19 (5)	.52 (13)	.16 (4)	1.00 (25)	.50 (13)	.42 (10)	2.52 (64)	2.87 (73)	1.12 (29)	.64 (16)	1.72 (44)	#8-32 UNC x 1/4 MFT	1.00 (25)	.58 (15)	1/8-27 NPTF

KIP Jr. Series - .65 Watt

Small solution without sacrificing performance.
Available in all 2- and 3-way configurations
Compatible with air, water, gases, vacuum and many other fluids.
Designed for long life.
12" long, #24 AWG electrical leads
Wetted parts are Ryton® and stainless steel.
Nickel plated housing for a durable, corrosion resistant package.

How to Order Your KIP Jr. Valve

KIP ordering code is contained within our part number:

G 9 7 1 0 1 2 - 1 3 - 5VDC

PREFIXES (Optional)
G = Isolated 2WNC only *
Y = Oxygen Service

SERIES
9 = KIP Jr.

PORT
6 = Manifold Mount
7 = #10-32 UNF

HOUSING
1 = Grommet
(Leads exit top)

BODY
0 = Stainless Steel
1 = Brass
3 = Operator
8*†= Halar®
9* = Acrylic

FUNCTION
1 = 2WNC
2 = 2WNO
4 = 3WNC
5 = 3WNO
6 = 3WMP
7 = 3WDC

ORIFICE
2 = 1/16

SEAL
01= Buna
02= Fluorocarbon®
13= EPR*

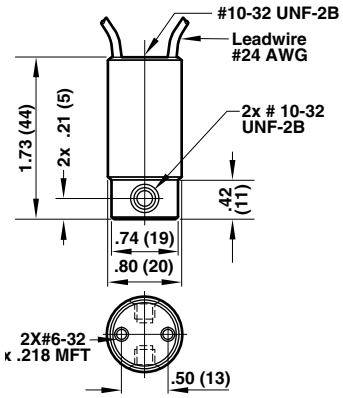
SPECIFY VOLTAGE
5 VDC
12 VDC
15 VDC
24 VDC
Coils are standard
Class B construction

Standard KIP Jr.

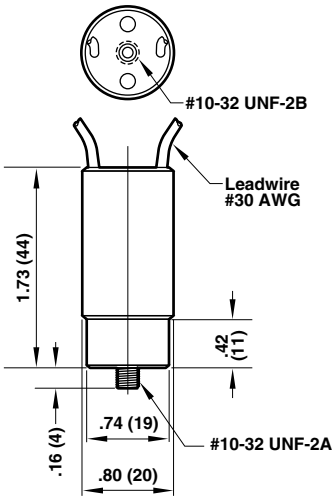
Type	Orifice Body/Stop		Cv Body/Stop		MOPD	SS	Brass	Operator	Manifold Mount SS	Manifold Mount BR
2WNC	1/16"	-	.050	-	100	971012	971112	971312	961012	961112
2WNO	-	3/64"	-	.025	90	971022	971122	971322	961022	961122
3WNC	1/16"	3/64"	.035	.020	80	971042	971142	971342	961042	961142
3WNO	1/16"	3/64"	.050	.015	60	971052	971152	971352	961052	961152
3WMP	1/16"	3/64"	.035	.015	40	971052	971162	971362	961062	961162
3WDC	1/16"	3/64"	.050	.025	60	971052	971172	971372	961072	961172

* Isolated Version Only
† Halar is a fluoroplastic co polymer with exceptional strength and wear properties and is resistant to creep.
** Poppet style valves only

KIP Jr. Standard



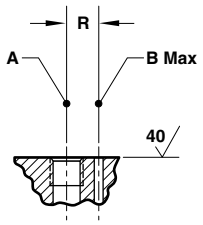
KIP Jr. Manifold Mount



KIP Jr. Manifold Mount Interface

	A	B	R
Low Watt	10-32 UNF-2B x .150 MFT	.08 (2.08)	.22 (5.45)

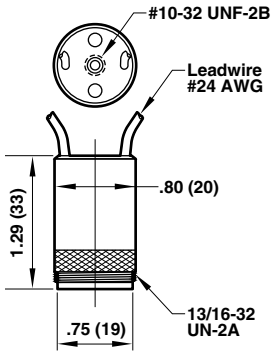
NOTE: **A** is underseat connection**
B is overseat connection***

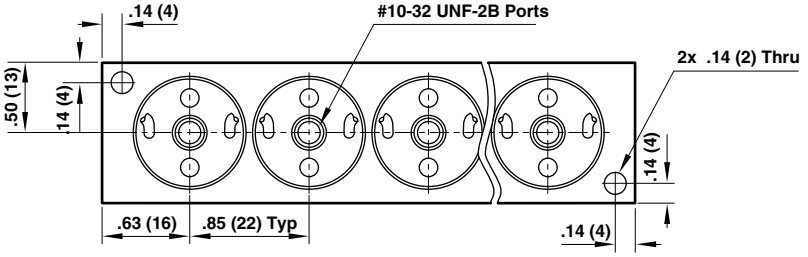


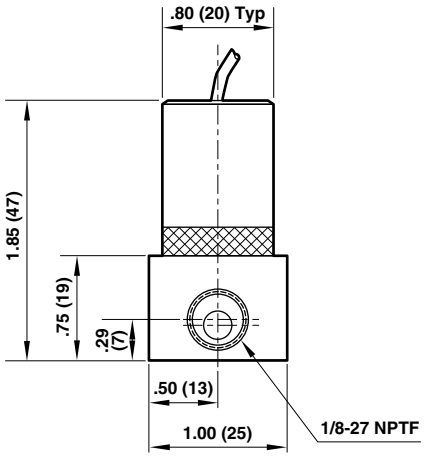
KIP Jr. Series Manifold Dimensions

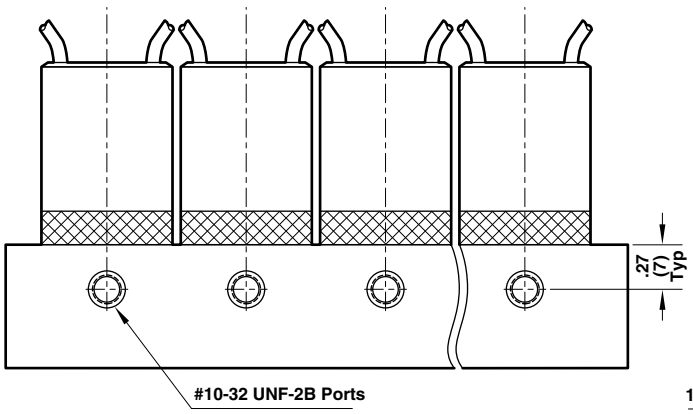
Operator Mounting Type Manifolds - Including Isolation Type Manifolds

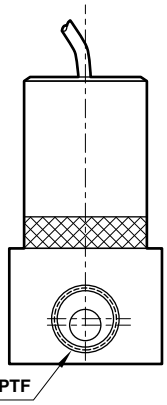
KIP Jr. Operator









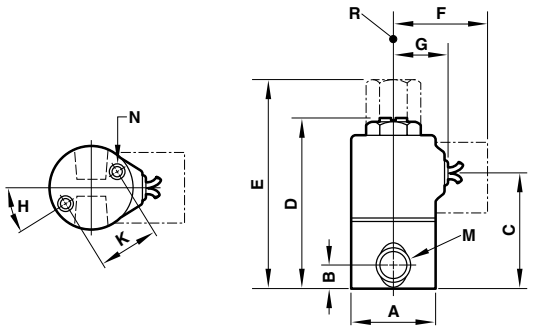


Series 1

Series 1	Orifice Diameter		Cv Factor		MOPD (psi)	Standard Valve Body Grommet		Manifold Mount** Valve Body-Grommet		LOW WATT Specifications					
										Cv Factor		1.5 Watt A	2.0 Watt B	2.5 Watt C	3.0 Watt D
	Body	Stop	Body	Stop		SS	Brass	SS	Brass	Body	Stop				
2-Way Normally Open		1/32		0.035	300	141020	141120	161020	161120						
		3/64		0.050	200	141021	141121	161021	161121						
		1/16*		0.095	150	141022	141122	161022	161122						
2-Way Nomally Closed	1/32		0.035		800	141010	141110	161010	161110	0.030		125	300	500	775
	3/64		0.050		500	141011	141111	161011	161111	0.050		30	100	175	300
	1/16		0.095		300	141012	141112	161012	161112	0.085		-	30	65	95
	5/64		0.135		200	141013	141113	161013	161113	0.125		-	15	40	65
	3/32		0.175		175	141014	141114	161014	161114	0.170		-	10	25	40
	1/8		0.245		100	141015	141115	161015	161115	0.225		-	-	-	4
	5/32		0.290		50	141016	141116	161016	161116	0.280		-	-	-	-
3-Way Normally Open	1/32	1/32	0.035	0.025	160	141050	141150	161050	161150						
	3/64	3/64	0.050	0.065	125	141051	141151	161051	161151						
	1/16	1/16*	0.085	0.115	100	141052	141152	161052	161152						
	5/64	1/16*	0.125	0.115	80	141053	141153	161053	161153						
	3/32	1/16*	0.165	0.115	60	141054	141154	161054	161154						
	1/8	1/16*	0.240	0.115	40	141055	141155	161055	161155						
	5/32	1/16*	0.285	0.115	10	141056	141156	N/A	N/A						
3-Way Normally Closed (For free vent, change fifth digit from 4 to 3)	1/32	1/32	0.035	0.025	200	141040	141140	161040	161140	0.030	0.025	100	-	150	-
	3/64	3/64	0.050	0.065	150	141041	141141	161041	161141	0.050	0.060	-	80	120	-
	1/16	1/16*	0.085	0.115	100	141042	141142	161042	161142	0.085	0.105	-	45	650	-
	5/64	1/16*	0.125	0.115	80	141043	141143	161043	161143	0.120	0.105	-	25	-	50
	3/32	1/16*	0.165	0.115	60	141044	141144	161044	161144	0.150	0.105	-	-	20	35
	1/8	1/16*	0.240	0.115	40	141045	141145	161045	161145	0.225	0.105	-	-	10	20
	5/32	1/16*	0.285	0.115	10	141046	141146	161046	161146	0.270	0.105	-	7	-	10
3-Way Multi-Purpose	1/32	1/32	0.035	0.025	150	141060	141160	161060	161160	0.030	0.025	-	80	-	95
	3/64	3/64	0.050	0.065	100	141061	141161	161061	161161	0.050	0.060	-	25	40	60
	1/16	1/16*	0.085	0.115	80	141062	141162	161062	161162	0.085	0.105	-	-	-	20
	5/64	1/16*	0.125	0.115	60	141063	141163	161063	161163	0.120	0.105	-	-	-	8
	3/32	1/16*	0.165	0.115	35	141064	141164	161064	161164	0.150	0.105	-	-	-	-
	1/8	1/16*	0.240	0.115	20	141065	141165	161065	161165	0.225	0.105	-	-	-	-
	5/32	1/16*	0.285	0.115	10	141066	141166	161066	161166	0.270	0.105	-	-	-	-
3-Way Directional Control	1/32	1/32	0.035	0.025	230	141070	141170	161070	161170						
	3/64	3/64	0.050	0.065	160	141071	141171	161071	161171						
	1/16	1/16*	0.085	0.115	120	141072	141172	161072	161172						
	5/64	1/16*	0.125	0.115	80	141073	141173	161073	161173						
	3/32	1/16*	0.165	0.115	60	141074	141174	161074	161174						
	1/8	1/16*	0.240	0.115	35	141075	141175	161075	161175						
	5/32	1/16*	0.285	0.115	20	141076	141176	N/A	161176						

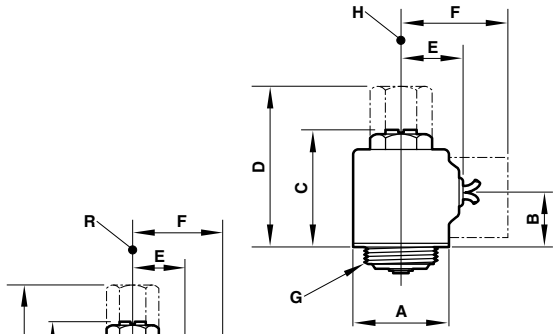
* Larger stop orifice available with reduced pressure ratings; consult KIP.
** Manifold Mount valve has maximum 400 MOPD rating for UL recognition.

Series 1



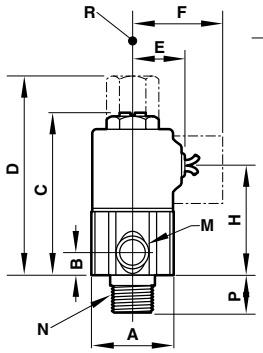
Standard Valve

	A	B	C	D	E	F	G	H	K	M	N	R
Series 1	.99 (25)	.28 (7)	1.33 (33)	2.12 (54)	2.47 (63)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF



Operator Standard

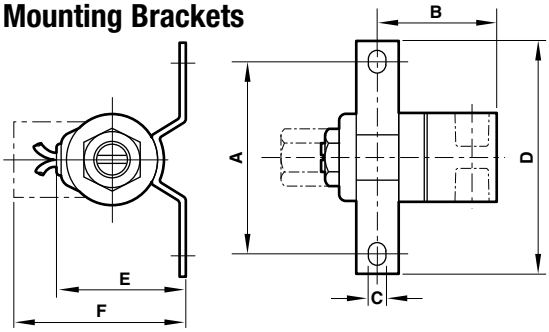
	A	B	C	D	E	F	G	H
Series 1	1.02 (26)	.52 (13)	1.32 (34)	1.67 (42)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27 NPTF



Hex Male Valve Standard

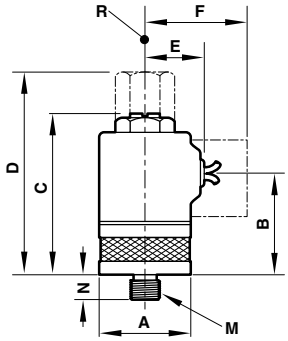
	A	B	C	D	E	F	H	M	N	P	R
Series 1	.94(24) Hex	.27 (7)	2.12 (54)	2.47 (63)	.64 (16)	1.12 (29)	1.32 (33)	1/8-27 NPTF	1/8-27 NPTF	.44 (11)	1/8-27 NPTF
									1/4-18 NPTF	.56 (14)	

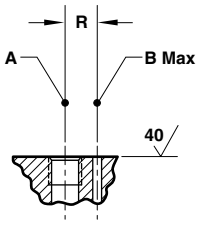
Mounting Brackets



Bracket Dimensions

	A	B	C	D	E	F
Series 1	2.13 (54)	1.33 (34)	.20 (5)	2.63 (67)	1.45 (37)	1.93 (49)





Manifold Mount Valve

	A	B	C	D	E	F	m	n	r
Series 1	.99 (25)	1.07 (27)	1.87 (48)	2.22 (56)	.64 (16)	1.12 (29)	5/16 24 UNF	.25 (6)	1/8-27 NPTF

Manifold Mount Interface

	A	B	R
Series 1 & 2	5/16 - 24 UNF-2B x .26 MFT	.09 (2)	.31 (8)

NOTE: **A** is underseat connection** **B** is overseat connection***

7

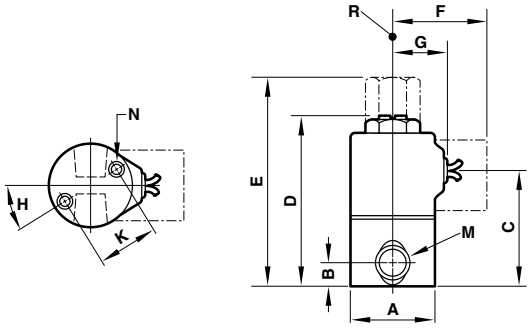
Series 2

Series 2	Orifice Diameter		Cv Factor		MOPD (psi)	Standard Valve Body Grommet		Manifold Mount** Valve Body-Grommet		LOW WATT Specifications					
										Cv Factor		1.5 Watt A	2.0 Watt B	2.5 Watt C	3.0 Watt D
	Body	Stop*	Body	Stop		SS	Brass	SS	Brass	Body	Stop				
2-Way Normally Open		1/32		0.035	400	241020	241120	261020	261120						
		3/64		0.050	300	241021	241121	261021	261121						
		1/16		0.095	180	241022	241122	261022	261122						
		5/64*		0.135	140	241023	241123	261023	261123						
2-Way Nomally Closed	1/32		0.035		1000	241010	241110	261010	261110	0.030		300	540	780	1000
	3/64		0.050		600	241011	241111	261011	261111	0.050		50	125	240	340
	1/16		0.095		400	241012	241112	261012	261112	0.085		15	60	100	160
	5/64		0.135		300	241013	241113	261013	261113	0.125		5	30	55	95
	3/32		0.175		250	241014	241114	261014	261114	0.170		3	20	40	55
	1/8		0.245		150	241015	241115	261015	261115	0.225		-	12	25	35
	5/32		0.290		100	241016	241116	N/A	N/A	0.280		-	7	14	20
3-Way Normally Open	1/32	1/32	0.035	0.025	200	241050	241150	261050	261150						
	3/64	3/64	0.050	0.065	150	241051	241151	261051	261151						
	1/16	1/16	0.085	0.115	125	241052	241152	261052	261152						
	5/64	5/64*	0.125	0.140	100	241053	241153	261053	261153						
	3/32	5/64*	0.165	0.140	75	241054	241154	261054	261154						
	1/8	5/64*	0.240	0.140	60	241055	241155	261055	261155						
	5/32	5/64*	0.285	0.140	25	241056	241156	N/A	N/A						
3-Way Normally Closed (For free vent, change fifth digit from 4 to 3)	1/32	1/32	0.035	0.025	250	241040	241140	261040	261140	0.030	0.025	150	185	210	-
	3/64	3/64	0.050	0.065	175	241041	241141	261041	261141	0.050	0.060	80	120	140	170
	1/16	1/16	0.085	0.115	125	241042	241142	261042	261142	0.085	0.105	45	60	-	95
	5/64	5/64*	0.125	0.140	100	241043	241143	261043	261143	0.120	0.105	25	-	50	65
	3/32	5/64*	0.165	0.140	75	241044	241144	261044	261144	0.150	0.105	20	-	35	55
	1/8	5/64*	0.240	0.140	45	241045	241145	261045	261145	0.225	0.105	-	10	20	30
	5/32	5/64*	0.285	0.140	20	241046	241146	N/A	N/A	0.270	0.105	-	7	10	20
3-Way Multi-Purpose	1/32	1/32	0.035	0.025	175	241060	241160	261060	261160	0.030	0.025	-	-	95	130
	3/64	3/64	0.050	0.065	125	241061	241161	261061	261161	0.050	0.060	-	-	50	75
	1/16	1/16	0.085	0.115	100	241062	241162	261062	261162	0.085	0.105	-	-	10	20
	5/64	5/64*	0.125	0.140	75	241063	241163	261063	261163	0.120	0.125	-	-	-	15
	3/32	5/64*	0.165	0.140	50	241064	241164	261064	261164	0.150	0.125	-	-	-	-
	1/8	5/64*	0.240	0.140	25	241065	241165	261065	261165	0.225	0.125	-	-	-	-
	5/32	5/64*	0.285	0.140	15	241066	241166	N/A	N/A	0.270	0.125	-	-	-	-
3-Way Directional Control	1/32	1/32	0.035	0.025	275	241070	241170	261070	261170						
	3/64	3/64	0.050	0.065	200	241071	241171	261071	261171						
	1/16	1/16	0.085	0.115	150	241072	241172	261072	261172						
	5/64	5/64*	0.125	0.140	100	241073	241173	261073	261173						
	3/32	5/64*	0.165	0.140	75	241074	241174	261074	261174						
	1/8	5/64*	0.240	0.140	50	241075	241175	261075	261175						
	5/32	5/64*	0.285	0.140	25	241076	241176	N/A	N/A						

* Larger stop orifice available with reduced pressure ratings; consult KIP.

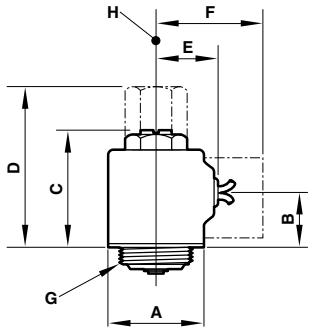
** Manifold Mount valve has maximum 400 MOPD rating for UL recognition.

Series 2



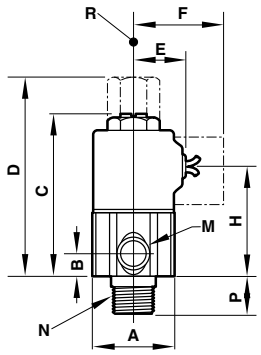
Standard Valve

	A	B	C	D	E	F	G	H	K	M	N	R
Series 2	.99 (25)	.28 (7)	1.51 (38)	2.32 (59)	2.66 (68)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF



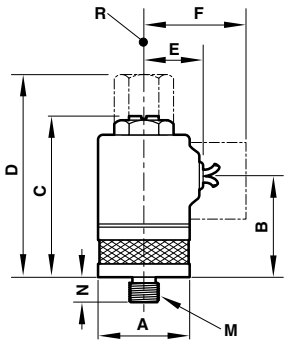
Operator Standard

	A	B	C	D	E	F	G	H
Series 2	1.02 (26)	.71 (18)	1.52 (39)	1.86 (47)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27 NPTF



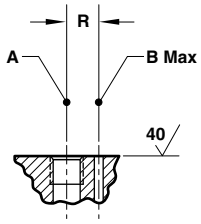
Hex Male Valve Standard

	A	B	C	D	E	F	H	M	N	P	R
Series 2	.94(24) Hex	.27 (7)	2.32 (59)	2.66 (68)	.64 (16)	1.12 (29)	1.51 (38)	1/8-27 NPTF	1/8-27 NPTF	.44 (11)	1/8-27 NPTF
									1/4-18 NPTF	.56 (14)	



Manifold Mount Valve

	A	B	C	D	E	F	m	n	r
Series 2	.99 (25)	1.26 (32)	2.07 (53)	2.41 (61)	.64 (16)	1.12 (29)	5/16 24 UNF	.25 (6)	1/8-27 NPTF



Manifold Mount Interface

	A	B	R
Series 1 & 2	5/16 - 24 UNF-2B x .26 MFT	.09 (2)	.31 (8)

NOTE: **A** is underseat connection** **B** is overseat connection***

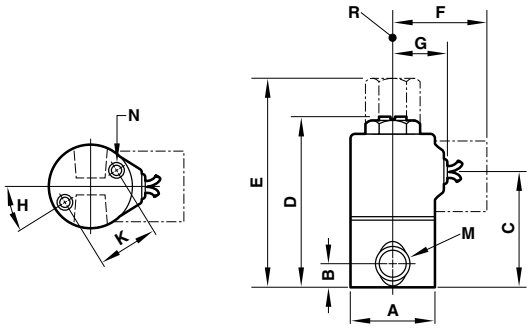
7

Series 3

Series 3	Orifice Diameter		Cv Factor		MOPD (psi)	Standard Valve Body Grommet		LOW WATT Specifications					
								Cv Factor		1.5 Watt A	2.0 Watt B	2.5 Watt C	3.0 Watt D
	Body	Stop	Body	Stop		SS	Brass	Body	Stop				
2-Way Normally Open		1/32		0.035	400	351020	351120						
		3/64		0.050	300	351021	351121						
		1/16		0.095	180	351022	351122						
		5/64*		0.140	140	351023	351123						
2-Way Nomally Closed	1/32		0.035		1000	351010	351110	0.030		300	540	780	1000
	3/64		0.050		600	351011	351111	0.050		50	125	240	340
	1/16		0.095		400	351012	351112	0.085		15	60	100	160
	5/64		0.140		300	351013	351113	0.125		5	30	55	95
	3/32		0.185		250	351014	351114	0.180		3	20	40	55
	1/8		0.265		150	351015	351115	0.225		-	12	25	35
	5/32		0.330		100	351016	351116	0.280		-	7	14	20
	3/16		0.385		40	351017	351117	-		-	-	-	-
	1/4		0.450		15	351018	351118	-		-	-	-	-
3-Way Normally Open	1/32	1/32	0.035	0.025	200	351050	351150						
	3/64	3/64	0.050	0.065	150	351051	351151						
	1/16	1/16	0.085	0.115	125	351052	351152						
	5/64	5/64*	0.125	0.145	100	351053	351153						
	3/32	5/64*	0.165	0.145	75	351054	351154						
	1/8	5/64*	0.240	0.145	60	351055	351155						
	5/32	5/64*	0.290	0.145	45	351056	351156						
	3/16	5/64*	0.345	0.145	10	351057	351157						
	1/4	5/64*	0.415	0.145	5	351058	351158						
3-Way Normally Closed (For free vent, change fifth digit from 4 to 3)	1/32	1/32	0.035	0.025	250	351040	351140	0.030	0.025	150	185	210	-
	3/64	3/64	0.050	0.065	175	351041	351141	0.050	0.060	80	120	140	170
	1/16	1/16	0.085	0.115	125	351042	351142	0.085	0.105	45	60	-	95
	5/64	5/64*	0.125	0.145	100	351043	351143	0.120	0.125	25	-	50	65
	3/32	5/64*	0.165	0.145	75	351044	351144	0.150	0.125	20	-	35	55
	1/8	5/64*	0.240	0.145	45	351045	351145	0.225	0.125	-	10	12	30
	5/32	5/64*	0.290	0.145	20	351046	351146	0.270	0.125	-	7	10	20
	3/16	5/64*	0.345	0.145	10	351047	351147	-	-	-	-	-	-
	1/4	5/64*	0.415	0.145	5	351048	351148	-	-	-	-	-	-
3-Way Multi-Purpose	1/32	1/32	0.035	0.025	175	351060	351160	0.030	0.025	-	-	95	130
	3/64	3/64	0.050	0.065	125	351061	351161	0.050	0.060	-	-	50	75
	1/16	1/16	0.085	0.115	100	351062	351162	0.085	0.105	-	-	10	20
	5/64	5/64*	0.125	0.145	75	351063	351163	0.120	0.125	-	-	-	15
	3/32	5/64*	0.165	0.145	50	351064	351164	0.150	0.125	-	-	-	-
	1/8	5/64*	0.240	0.145	25	351065	351165	0.225	0.125	-	-	-	-
	5/32	5/64*	0.290	0.145	15	351066	351166	0.270	0.125	-	-	-	-
	3/16	5/64*	0.345	0.145	10	351067	351167	-	-	-	-	-	-
	1/4	5/64*	0.415	0.145	5	351068	351168	-	-	-	-	-	-
3-Way Directional Control	1/32	1/32	0.035	0.025	275	351070	351170						
	3/64	3/64	0.050	0.065	200	351071	351171						
	1/16	1/16	0.085	0.115	150	351072	351172						
	5/64	5/64*	0.125	0.145	100	351073	351173						
	3/32	5/64*	0.165	0.145	75	351074	351174						
	1/8	5/64*	0.240	0.145	50	351075	351175						
	5/32	5/64*	0.290	0.145	25	351076	351176						
	3/16	5/64*	0.345	0.145	10	351077	351177						
	1/4	5/64*	0.415	0.145	5	351078	351178						

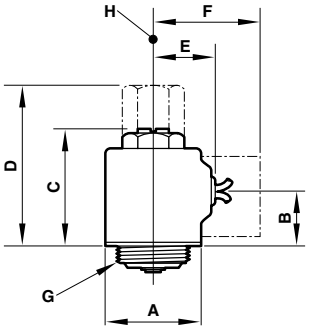
* Larger stop orifice available with reduced pressure ratings; consult KIP.

Series 3



Standard Valve

	A	B	C	D	E	F	G	H	K	M	N	R
Series 3	1.18 (30)	.355 (9)	1.65 (42)	2.46 (62)	2.80 (71)	1.19 (30)	.78 (20)	41°	.91 (23)	1/8-27 NPTF	#10-32 UNF x 1/4 MFT	1/8-27 NPTF or 1/4-18 NPTF
								0°		1/4-18 NPTF	#8-32 UNC x 1/4 MFT	



Operator Standard

	A	B	C	D	E	F	G	H
Series 3	1.16 (30)	.71 (18)	1.52 (39)	1.86 (47)	.78 (20)	1.19 (30)	3/4-32 UNEF	1/8-27 NPTF or 1/4-18 NPTF

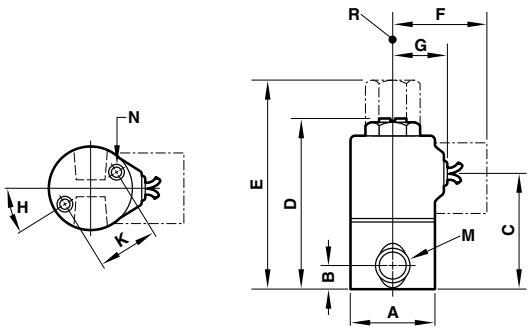
7

Series 6

Series 6	Orifice Diameter		Cv Factor		MOPD (psi)	Standard Valve Body Grommet				Manifold Mount** Valve Body-Grommet	
						Stainless Steel		Brass			
	Body	Stop	Body	Stop		1/8" NPTF	1/4"NPTF	1/8" NPTF	1/4"NPTF	Stainless Steel	Brass
2-Way Normally Open		1/32		0.035	1000	641020	651020	641120	651120	661020	661120
		3/64		0.050	600	641021	651021	641121	651121	661021	661121
		1/16		0.095	350	641022	651022	641122	651122	661022	661122
		5/64		0.140	250	641023	651023	641123	651123	661023	661123
		3/32		0.200	175	641024	651024	641124	651124	661024	661124
		1/8		0.295	100	641025	651025	641125	651125	661025	661125
2-Way Nomally Closed	1/32		0.035		1200	641010	651010	641110	651110	661010	661110
	3/64		0.050		1000	641011	651011	641111	651111	661011	661111
	1/16		0.095		500	641012	651012	641112	651112	661012	661112
	5/64		0.140		300	641013	651013	641113	651113	661013	661113
	3/32		0.200		200	641014	651014	641114	651114	661014	661114
	1/8		0.295		150	641015	651015	641115	651115	661015	661115
	5/32		0.370		110	641016	651016	641116	651116	661016	661116
	3/16		0.435		60	641017	651017	641117	651117	661017	661117
	1/4		0.610		30	641018	651018	641118	651118	661018	661118
	3/8		0.900		5	—	681019†	—	681119†	—	—
3-Way Normally Open	1/32	1/32	0.035	0.025	400	641050	651050	641150	651150	661050	661150
	3/64	3/64	0.050	0.065	250	641051	651051	641151	651151	661051	661151
	1/16	1/16	0.090	0.115	200	641052	651052	641152	651152	661052	661152
	5/64	5/64	0.135	0.180	175	641053	651053	641153	651153	661053	661153
	3/32	3/32	0.180	0.210	125	641054	651054	641154	651154	661054	661154
	1/8	1/8	0.275	0.240	85	641055	651055	641155	651155	661055	661155
	5/32	1/8	0.370	0.240	50	641056	651056	641156	651156	661056	661156
	3/16	1/8	0.455	0.240	35	641057	651057	641157	651157	661057	661157
	1/4	1/8	0.650	0.240	15	641058	651058	641158	651158	661058	661158
3-Way Normally Closed (For free vent, change fifth digit from 4 to 3)	1/32	1/32	0.035	0.025	300	641040	651040	641140	651140	661040	661140
	3/64	3/64	0.050	0.065	250	641041	651041	641141	651141	661041	661141
	1/16	1/16	0.090	0.115	200	641042	651042	641142	651142	661042	661142
	5/64	5/64	0.135	0.180	175	641043	651043	641143	651143	661044	661144
	3/32	3/32	0.180	0.210	125	641044	651044	641144	651144	661045	661145
	1/8	1/8	0.275	0.240	85	641045	651045	641145	651145	661046	661146
	5/32	1/8	0.370	0.240	50	641046	651046	641146	651146	661047	661147
	3/16	1/8	0.455	0.240	30	641047	651047	641147	651147	661048	661148
	1/4	1/8	0.650	0.240	15	641048	651048	641148	651148	-	-
3-Way Multi-Purpose	1/32	1/32	0.035	0.025	275	641060	651060	641160	651160	661060	661160
	3/64	3/64	0.050	0.065	200	641061	651061	641161	651161	661061	661161
	1/16	1/16	0.090	0.115	175	641062	651062	641162	651162	661062	661162
	5/64	5/64	0.135	0.180	125	641063	651063	641163	651163	661063	661163
	3/32	3/32	0.180	0.210	100	641064	651064	641164	651164	661064	661164
	1/8	1/8	0.750	0.240	60	641065	651065	641165	651165	661065	661165
	5/32	1/8	0.370	0.240	40	641066	651066	641166	651166	661066	661166
	3/16	1/8	0.455	0.240	25	641067	651067	641167	651167	661067	661167
	1/4	1/8	0.650	0.240	15	641068	651068	641168	651168	661068	661168

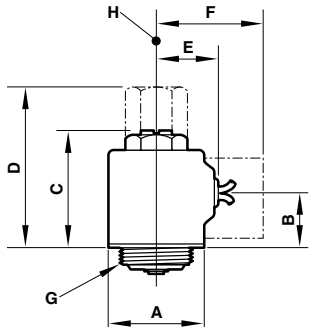
Note: Series 6 manifold mount 3-Way valves have a 1/4" NPTF adapter as standard. 1/8" NPTF available upon request.
** Manifold Mount valve has maximum 400 MOPD rating for UL recognition.
† These valves are supplied with 3/8" NPTF ports.

Series 6



Standard Valve

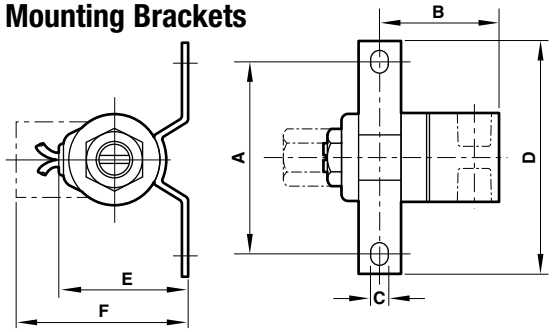
	A	B	C	D	E	F	G	H	K	M	N	R
Series 6	1.62 (41)	.344 (9)	G-2.04 (52) C-1.87 (48)	2.86 (73)	3.54 (90)	1.58 (40)	1.03 (26)	45°	1.24 (31)	1/8-27 NPTF or 1/4-18 NPTF	#10-32 UNF x 5/16 MFT	1/8-27 NPTF or 1/4-18 NPTF



Operator Standard

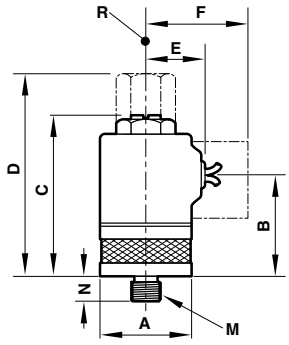
	A	B	C	D	E	F	G	H
Series 6	1.64 (42)	G-.97 (25) C-.80 (20)	1.79 (46)	2.48 (63)	1.03 (26)	1.58 (40)	1-32 UN	1/8-27 NPTF or 1/4-18NPTF

Mounting Brackets



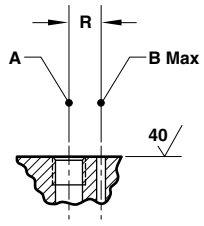
Bracket Dimensions

	A	B	C	D	E	F
Series 6	2.13 (54)	1.97 (50)	.20 (5)	2.63 (67)	2.15 (55)	2.68 (68)



Manifold Mount Valve

	A	B	C	D	E	F	m	n	r
Series 6	1.62 (41)	G-1.73 (44) C-1.56 (40)	2.55 (65)	3.23 (82)	1.03 (26)	1.58 (40)	1/2 20 UNF	.31 (8)	1/8-27 NPTF or 1/4-18 NPTF



Manifold Mount Interface

	A	B	R
Series 6	1/2 - 20 UNF-2B x .32 MFT	.27 (7)	.51 (13)

NOTE: **A** is underseat connection** **B** is overseat connection***

Liquid Flow Calculations

$$Cv = \frac{GPM}{\sqrt{\frac{\Delta P}{S.G.}}}$$

1. Find pressure differential on horizontal axis.

2. Draw vertical line to intersect with curve; at this point draw horizontal line to vertical axis. This is the flow for a valve with a Cv factor of 1.

3. Now, use KIP's Cv factor from the catalog listing, and multiply this Cv by the flow from step two above. This is the flow through the specific valve you have selected.

4. If the media is not water, multiply the flow by a correction factor. Examples of correction factors are:

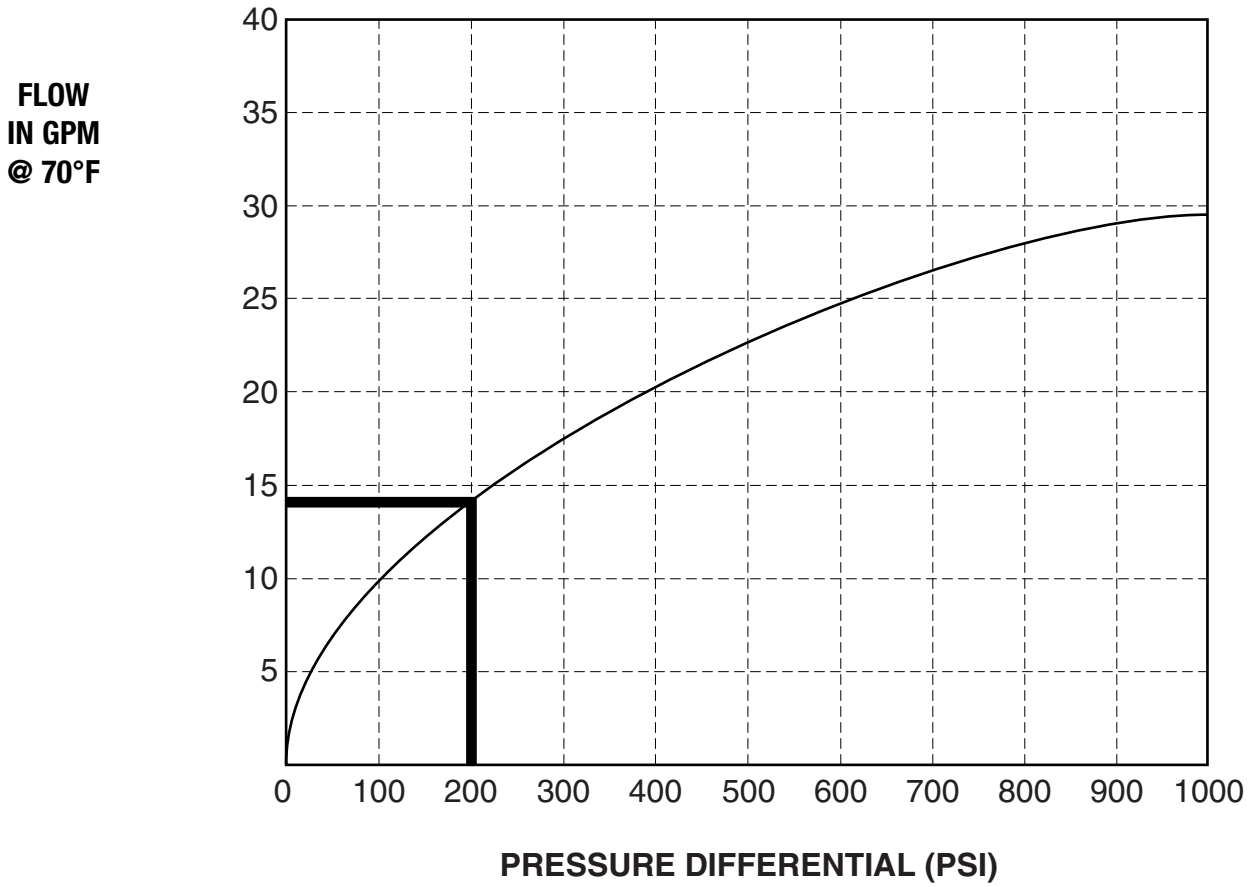
Gasoline	1.200
Ethyl Alcohol	1.120
MIL-H-5606A Hydro-oil	1.087

Other Fluids $= \sqrt{\frac{1}{S.G.}}$

EXAMPLE

Media: Gasoline
Pressure differential: 200
Cv factor - KIP Series 1 valve, 1/32 orifice, 2-Way Normally Closed: .035
Pressure Differential on Chart = 200
Water flow x Cv factor = 14 x .035 = 0.490
Valve Flow with water x Correction factor = 0.490 x 1.200 = .588 GPM

This is the flow of gasoline through a KIP PIN 141040 valve under these conditions.



Air/Gas Flow Calculations

1. Find back pressure on horizontal axis.

2. Draw vertical line to intersect with operating pressure curve; at this point draw horizontal line to vertical axis. This is the flow for a valve with a Cv factor of 1 in SCFM (standard cubic feet per minute).

3. Use the Cv factor from the catalog listing, and multiply this Cv by the flow from step two above. This is the air flow through the specific valve you have selected.

4. If the media is not air multiply the flow by a correction factor. Examples of correction factors are:

Helium	2.69
Hydrogen	3.85
Methane	1.33
Oxygen	.95
Propane	.80

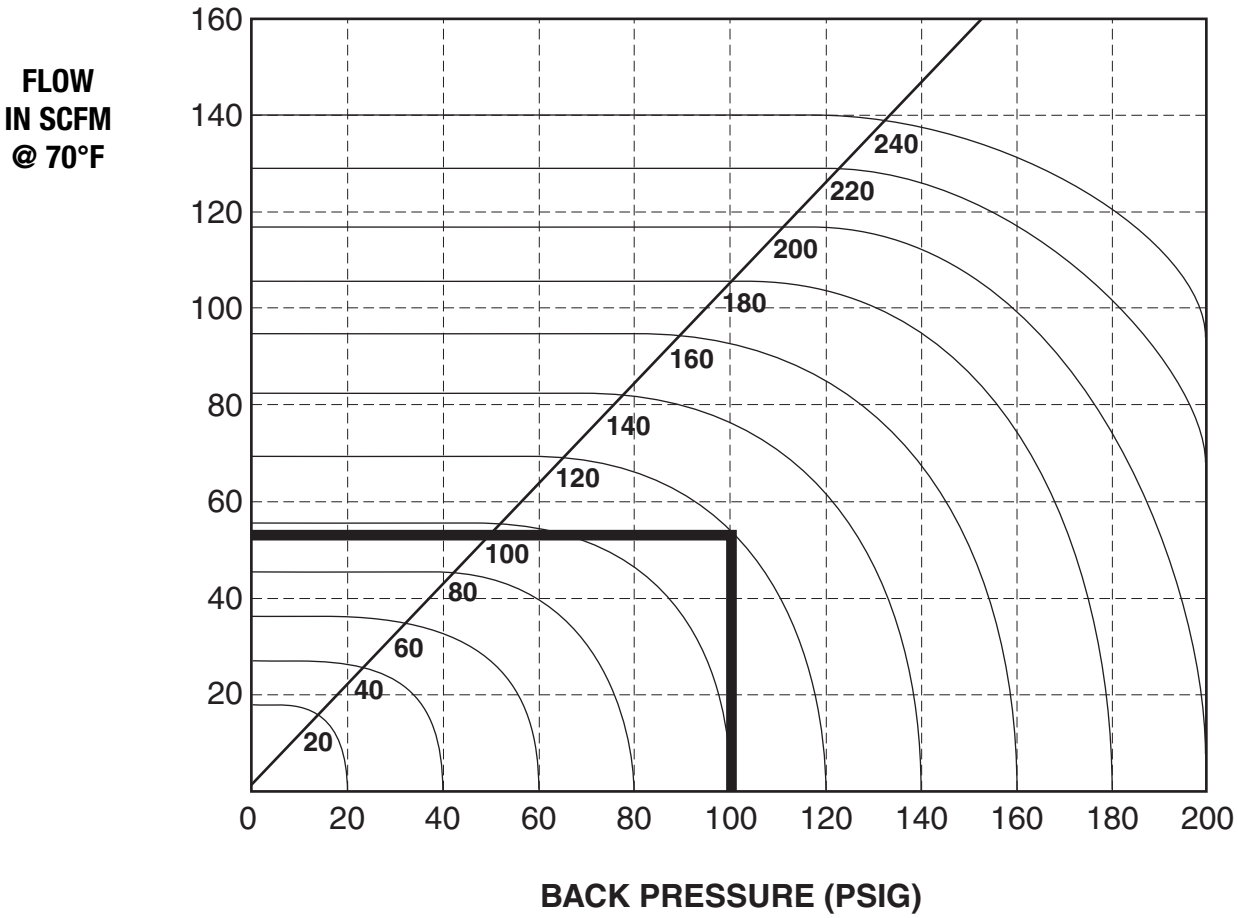
Other Fluids $= \sqrt{\frac{1}{S.G.}}$

EXAMPLE

Media: Oxygen
Back Pressure: 100
Operating Pressure: 120
Cv factor - KIP Series 6 valve, 3/64 orifice,
2-Way Normally Closed: .050

Back Pressure on Chart = 100
Operating Pressure Curve = 120
Air flow x Cv factor = 50 x .050 = 2.50
Valve Flow with air
x Correction factor
= 2.50x.95 = 2.375 SCFM

This is the flow of oxygen through a KIP PIN 651111 valve under these conditions.



Valve Inquiry Application Sheet

Copy this page. Fill in the blanks.
Fax it to KIP at (860) 677-4999
Call us at 1-800-722-5547
Date ____/____/____

Name _____ Company _____

Address _____ City _____ E-mail _____

State Zip _____ Telephone _____ Fax _____

Description of application _____

_____

Valves Per System _____ Manifold _____ (Submit System Schematic)

Immediate Quantity _____ Prototype Y _____ N _____ Estimated Yearly Quantity _____

MEDIA INFORMATION

Air - Y_____ N _____ Lubricated - Y_____ N _____ Oxygen Service - Y_____ N _____

Liquid Media _____ Specific Gravity _____ Viscosity _____

Inlet Pressure _____ Minimum Temp. _____

Downstream Pressure (-) _____ Minimum Temp. _____

Maximum Oper. Pressure Diff. (MOPD) (=) _____ Operating Temp. _____

Flow Required Body _____ (CV, GPM, SCFM, ETC.) At Operating Pressure _____

Flow Required Stop _____ (CV, GPM, SCFM, ETC.) At Operating Pressure _____

TYPE OF VALVE

Standard Poppet Type Valve - Y_____ N _____ Isolated Style Valve - Y_____ N _____ (2WNC Only)

2WNC _____ 2WNO _____ 3WNCFV _____ 3WNCLC _____ 3WNO _____ 3WMP _____ 3WDC _____

Standard Valve Body _ Manifold Mount Body_ Operator _____ Other _____

Body Material - Brass 430 SS _____ Other _____ (See Page 12 for Body Material)

UL Recognized _____ CSA Approved _____ Food Grade _____ Other _____

BODY PORTING INFORMATION (SEE PAGES 8 FOR BODY PORTING AVAILABILITY)

Inlets Ports Body - Side _____ Bottom _____ Size _____ (ie 1/8" NPT, 1/4" NPT, 10-32 UNF)

Outlet Ports Body - Side _____ Bottom _____ Size _____ (ie 1/8" NPT, 1/4" NPT, 10-32 UNF)

Adapter Porting- Size_ (ie 1/8" NPT, 1/4" NPT, 10-32 UNF) Other_____

BODY OPTIONS INFORMATION

Side-Metered Orifice _ Side-Metered Common _____ Bottom-Metered Orifice _

SEAL SELECTION (SEE PAGE 11 FOR SEAL OPTIONS AVAILABLE)

Lower Seal (Buna Standard) _____ Upper Seal (Viton Standard) _____

Seal Selections Special Information _____

_____

COIL SELECTION CRITERIA

Housing Style (See Page 9 For Info) _____ (ie. Grommet) Bracket - Y_____ N _____

Housing/Plating Special Request _____

_____

Class B _____ Class H _____ Molded Coil _____ Tape Wound (Dry) _____ Wattage Req'd _____

Voltage _____ AC/DC _____ HZ _____ Minimum Voltage _____ Maximum Voltage _____

Rectified - Y_____ N _____ Lead Wire (24" STD) _____ Termination _____ Spade Style _____

Continuous Duty _____ Intermittent Duty _____ Max. Time On _____ Max. Time Off _____ Cycle Rate _____

Will Valve Be in a Moisture Environment _____ Coil Comments _____

Application Comments _____

_____