

Solenoid Valves

Contents

How to Use This Catalog	3	Standard Manifold Ordering Information	31
Valve Overview		Valve Ordering Information	
Valve Styles	4-5	2-Way Normally Open Valves	32
Capabilities	6	2-Way Normally Closed Valves	33
Solenoid Selection Chart	7	3-Way Normally Closed Valves	34
Coils Chart	8	3-Way Multi-Purpose Valves	35
Part Numbering System	9	3-Way Normally Open Valves	36
Body Porting	10	3-Way Directional Control Valves	37
Housing Styles	11	Value Added Options	38
Body Material / Valve Types	12	Dimensions	
Orifice / Seals	13	Standard, KIP Jr. Valve & Mounting Brackets	39-40
Coil Construction	14	KIP Jr. Series Manifold	41-42
Rectified Coils / Diodes	15	Manifold Dimensions	43
Manifold Mount	16	Manifold Dimensions Including Cartridge Inserts	44
Male Bottom Port	16	Application Considerations	
Bottom Port - O Ring Seal	16	Liquid Flow Calculations	45
Metering	17	Air/Gas Flow Calculations	46
3/8" Options	18	Plastic Body Medical Valve	47
Valves with Brazed in Fittings or Tube Ends	18	Series 8 Valves	
Filters and Screens	18	Model 8208	48-49
KIP Jr. Series	19	Model 8241	50-51
KIP Jr. Ordering Information	20	Model 8257	52-53
KIP Isolation Valves	21	Model 8263	54-55
Selection Criteria for Isolation Valves	22	Model 8264	56-57
KIP Isolation Valve PIN & Isolation Manifolds	23	Model 8265	58-59
Isolation Valve - Back Pressure	24	Model 8273	60-61
R91 Water or Air Pressure Regulator	25	Model 8451	62-63
Q2 Valve	26-27	Model 8453	64-65
Manifolds		Model 8501	66-67
Operator Mount	28	Model 8505	68-69
Isolated Style	28	Model 8531	70-71
Manifold Mount	28	Valve Inquiry Application Sheet	72
Acrylic Subplates	29	Series 8 Valve Application Sheet	73
OEM Design Capabilities	29	Warning / Warranty	74
KIP Jr.	29		
Cartridge Fitting Inserts	30		



Solenoid Valves For All Your Applications

KIP is proud to offer a complete line of solenoid valves, manifold assemblies, and custom valve assemblies. 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 solenoid valves 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 requirements. Our solenoid valves and manifolds are constructed from standard, modular components. We can manufacture a nearly unlimited number of differently configured controls to meet your needs. 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 applications now.

CALL US TODAY!

1-800-722-5547



Q2 Quick-Connect Plastic Body Valve



Model 8208 2-Way Plastic Media Isolation Valve



Model 8257 2-Way Stainless Steel Diaphragm Valve



Model 8501 2-Way Brass Flat Piston Valve



Model 8241 2-Way Brass Diaphragm Valve



Plastic Body Medical Valve



Model 8451 2-Way Bronze Angle Seat Valve



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!



Standard Sub-Miniature Solenoid Valves

KIP offers a complete line of subminiature 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. For more information and ordering data, please refer to the Isolated Valve section on pages 21-24.



KIP Jr. Series

When your application calls for a micro miniature valve, (.800 Dia.), low wattage (.65 watts), and great flow (.050 CV), then the KIP Jr. series offers the right valve for the application. KIP Jr.'s patented construction generates considerable force from the .65 watt coil. Valves are available in brass or stainless steel body construction as well as an operator or in a manifold mount configuration. Additional specifications and ordering data are available on pages 19 - 20.

The KIP Jr. series can be provided with the fitting of your choice installed, as well as a large variety of wire termination and printed circuit board mountings.





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.



Q2 Quick-Connect Plastic Body Valve

The Q2 is a two-way normally closed (2 WNC) valve with an inlet and an outlet port. The valve is closed when in the de-energized state and opened when energized. There is one orifice on this valve located in the body. Valves with 1/4" OD tube fittings are suitable for full vacuum.



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. For more information on manifolds, see pages 28-31.



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. When ordering just specify the valve number you require and note - "FOR VACUUM SERVICE".

Oxygen Service

KIP valves can be processed for oxygen service; for use in the medical industry, spectro-analysis or other applications requiring O_2 . 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. See page 9.

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. 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.

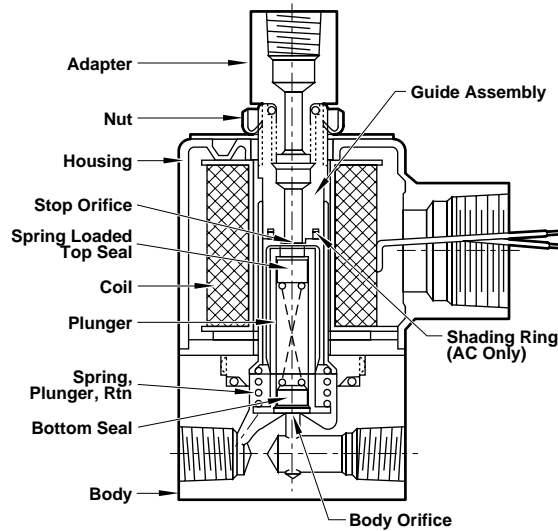
- Available in both 2-Way and 3-Way models in Series 1, Series 2, and Series 3.
- Orifice sizes from 1/32" to 5/32".
- Available in 12VDC and 24VDC.
- Refer to KIP solenoid valve charts for wattage, pressure ratings and Cv factors.

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.





Selecting the Best Solenoid Operator for Your Application

FEATURE	Series 1	Series 2	Series 3	Series 6	KIP Jr.
Size - Diameter (inches)	1	1	1-3/16	1-5/8	0.80
Maximum MOPD (psi)	800	1000	1000	1200	100
Vacuum Service	✓	✓	✓	✓	✓
Max. Cv - Body	0.305	0.305	0.490	0.900	0.050
Min. Cv - Body	0.030	0.030	0.030	0.035	0.035
Max. Cv - Stop	0.125	0.140	0.140	0.270	0.025
Min. Cv - Stop	0.025	0.025	0.025	0.024	0.015
Power Rating	6 watts	7 watts	7 watts	10 watts	.65 watts
Lead Wire Gauge	20 AWG/18 AWG	20 AWG/18 AWG	18 AWG	18 AWG	24 AWG
Low Wattage Operators to 1.5 Watt	Available	Available	Available	N/A	Available
1/8" NPTF Ports - Body	✓	✓	✓	✓	
1/4" NPTF Ports - Body			✓	✓	
3/8" NPTF Ports - Body				✓	
#10 - 32 UNF Ports - Body	✓	✓	✓	✓	✓
1/8" NPT or 1/4" NPT Male Bottom Port	✓	✓	✓		
UL Recognized	✓	✓	✓	✓	
CSA Approved	✓	✓	✓	✓	
Grommet Style Housing	✓	✓	✓	✓	✓
Conduit Style Housing	✓	✓	✓	✓	
Spade Terminal Style - (Standard)		1/4"	1/4"	1/4"	
Spade Terminal Style - (Options)		3/16"	3/16"		
Automotive Terminal Style			✓		
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.

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

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

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

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.

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 - see p.15

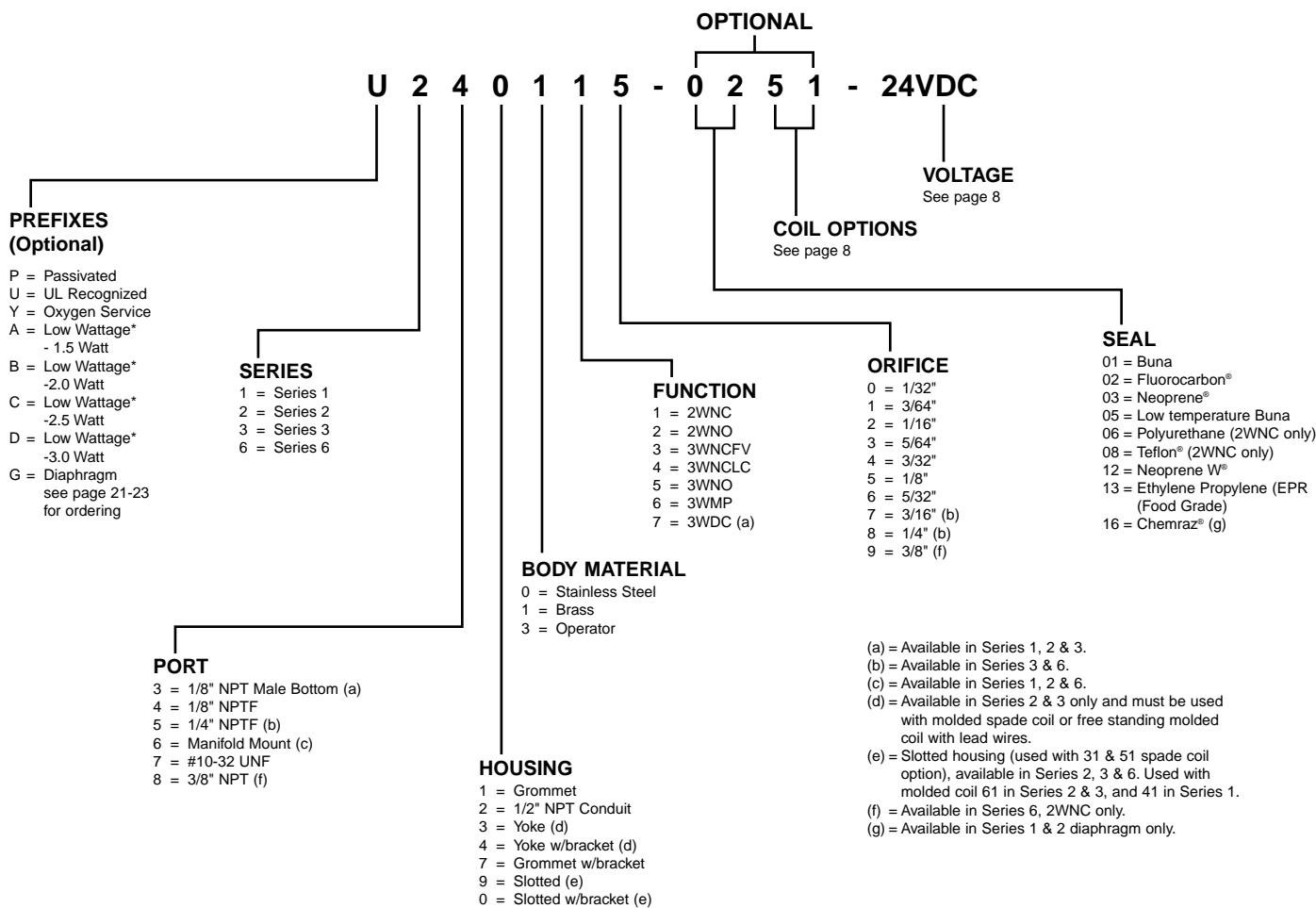
*See page 9 for P/N System



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.

® Chemraz is a registered trademark of Green, Tweed & Co., Inc.

*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. For more information, see page 38 or ask KIP representatives for technical information, or send along information on the fitting of your choice.

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

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 with 1/8 NPTF -Side Port Brass ONLY	✓	✓	✓		
	Male 1/4" NPT with 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	✓	✓	✓		✓
1/8" barb	✓	✓	✓	✓	✓
1/16" barb	✓	✓	✓	✓	✓

Port Identification

- 1 - Normally Closed (underseat - valve body)
- 2 - Common (overseat - valve body)
- 3 - Normally open (endstop)

*See page 9 for P/N System



Housing Styles

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

Housings are supplied standard in low carbon steel with a yellow dichromate 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 Housing w/Optional Bracket



Inverted With Leads



Inverted Potting Housing



Optional Mounting Bracket



AN Connector



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

* See page 9 for P/N System



Body Material

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

KIP offers valve bodies in three standard materials. Brass, 430F Stainless Steel, and injection molded Polypropylene. KIP also offers bodies manufactured in 303 Stainless Steel, Aluminum,

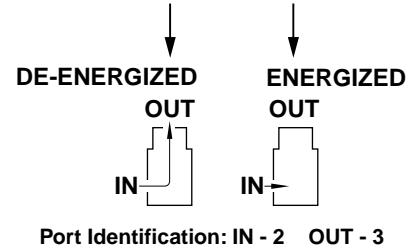
Delrin®, PVC or other materials for OEM applications.

Valve Types

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

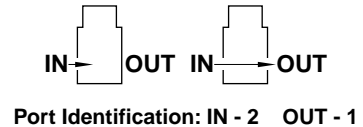
(2WNO) 2-Way Normally Open

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.



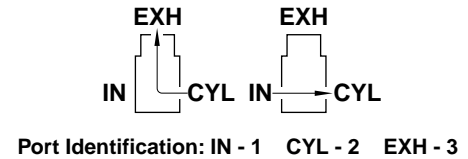
(2WNC) 2-Way Normally Closed

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.



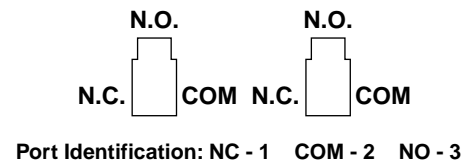
(3WNCFV or 3WNCLC) 3-Way Normally Closed

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.



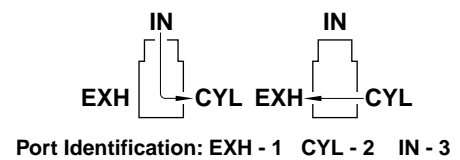
(3WMP) 3-Way Multi-Purpose

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.



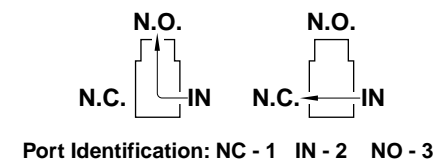
(3WNO) 3-Way Normally Open

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.



(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.





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.

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.

16 Chemraz (Diaphragm Only)

An inert perfluoroelastomer vulcanizate that stands up to a virtually unlimited range of corrosive and aggressive chemicals, including organic and inorganic acids, alkaline, ketones, esters, alcohols and fuels. Chemraz also demonstrates excellent resistance to heat, steam, flame, oil and ozone and retains pliability over a temperature range from -20°F to 450°F.

• See page 9 for P/N System

© Teflon and Neoprene are registered trademark of E.I. Dupont De Nemours Co

© CHEMRAZ is a registered trademark of Green, Tweed & Co., Inc.



Coil Construction

All Dimensions in Inches (mm)

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



Potted Transfer Molded

- Supplied when application requires a more rugged, moisture resistant coil
- Method of construction for Series 1, 2 and 3 conduit housing
- Also method of construction for Automotive Style coils and AN Connector-type for Series 6



Potted w/ Screw Terminals

- Our most moisture resistant coil
- Also available with internal arc suppression diodes



Potted with Leads

- Excellent for marine or automotive applications
- Available with your choice of connector or terminal
- Internally grounded, single wire option also available



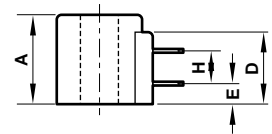
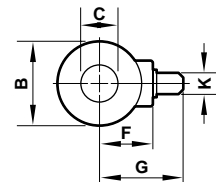
AN Connector

- Supplied when application requires a more rugged, moisture resistant coil & connector
- High shock and vibration tested
- Available with 2-Pin and 3-Pin military style connectors
- Consult factory for ordering information



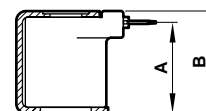
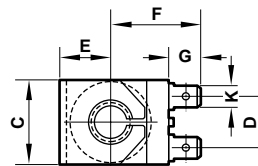
Spade

- 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
SERIES 2 & 3	1.05 (27)	.94 (24)	.44 (11)	.85 (22)	.25 (6)	.64 (16)
SERIES 6	1.25 (32)	1.41 (36)	.54 (14)	1.25 (32)	.37 (9)	.88 (22)
	G	H	K			
SERIES 2 & 3	.97 (25)	.38 (10)	.187 x .020 (4.7 x .51)			
	1.03 (26)		(6.4 x .81) (6.4 x .81)			
SERIES 6	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 (16)	1.19 (30)	.38 (10)	.250 x .032 (6.4 x .81)

All Dimensions in Inches (mm)

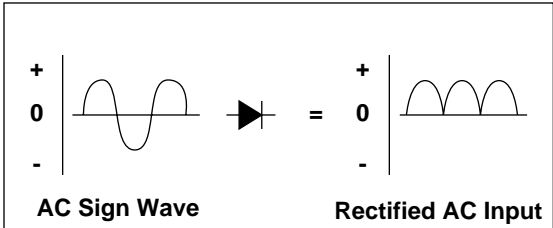
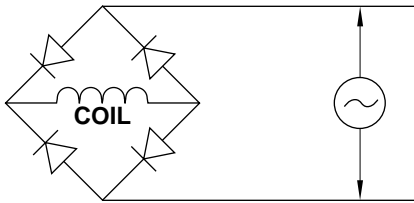


Rectified Coils and Coils with Arc Suppression Diodes



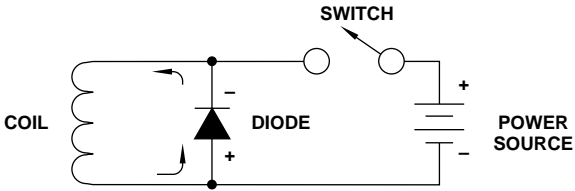
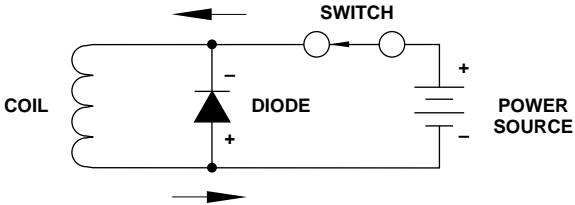
Rectified Coils

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 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.





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.

See catalog valve charts for operating specifications pages 32-37.



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.





Metering

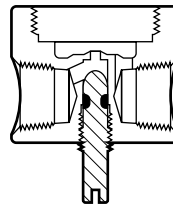
Provides adjustable flow for dispensing a specific rate or volume of fluid or gas. Permits controlled movement of a cylinder or actuator. Available in 2-Way and 3-Way valves. KIP's standard pressure ratings and Cv's apply.

Manifold Metering

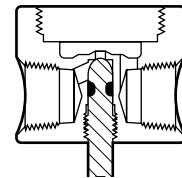
Manifold metering is available in side metering and bottom metering versions. Please consult factory with design specifications for additional data on metered manifolds and minimum order quantities. Yoke housing not available with top plate.

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

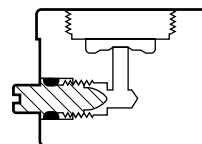


Shut Off

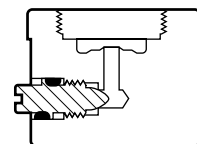


Side Metering - Body and Adapter

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



Series 6 Valves with 3/8" Ports and 3/8" Orifice

For specific applications when our standard 1/4" orifice just can't deliver enough flow, KIP can provide our Series 6 valve with a 3/8" orifice. Typically used for gravity feed systems, this valve comes in 2-way normally closed models only. It has a maximum operating pressure differential of 5 PSI and a Cv factor of .90. This high flow valve is supplied with 3/8" NPT ports on a standard brass or stainless steel body, or with even larger ports on a single station manifold base. Order by the following part numbers for grommet style valves with body material of: Brass- 681119 or Stainless Steel- 681019. Be sure to specify the applicable voltage or other desired options when ordering.



Valves with Brazed in Fittings or Tube Ends

KIP will provide any of our brass body valves with either brazed in fittings or tube ends for OEM applications. Ideal for natural gas, propane or refrigeration systems where leaking fittings or tube connections cannot be tolerated. Select from standard fittings and tube sizes or call KIP to discuss a custom configured design. This feature applies to our complete line of 2- and 3-way valves and also our standard and custom manifold assemblies.



Filters and Screens

While solenoid valves are highly reliable and fairly simple devices, they cannot tolerate very much contamination. If your system does not already include adequate filtration, KIP can provide a variety of screens or filters to minimize contaminants and costly down time. From a simple 50 mesh metal screen installed in the valve port to more precise types of cartridge filters, KIP will provide and install the filtration necessary to keep your system running.





KIP Jr. Series - .65 Watt



* U.S. Patent #5,207,245 and # 5,289,841



The KIP Jr. series provides a small solution for your valve requirements but doesn't compromise on performance. Available in all 2- and 3-way configurations the same as our standard series, the KIP Jr. valve is only .800" in diameter, 1.73" high and weighs less than three ounces.

Unlike other low watt valves, the KIP Jr. series is equally compatible with air, water, gases, vacuum and many other fluids. Our patented construction optimizes the performance of each valve. KIP Jr. valves are designed for long life. Hundreds of millions of cycles are typical, however this may fluctuate depending on the specific application.

Standard construction of brass or stainless steel bodies, the KIP Jr. series has 12" long, #24 AWG electrical leads. The leads exit the top of the valve for ease of orientation. Buna seals and "O" Rings are standard. Other wetted parts are Ryton® and stainless steel. The nickel plated housing provides for a durable, corrosion resistant package. Coils are available in 5, 12, 15 and 24 volt DC.

In addition to the standard #10-32 UNF ported valves, the KIP Jr. series is available with manifold mount bodies or as an operator. For critical applications involving corrosive or ultra pure media, KIP Jr. isolation valves are the answer. Refer to pages 20-24 for ordering information and specifications.



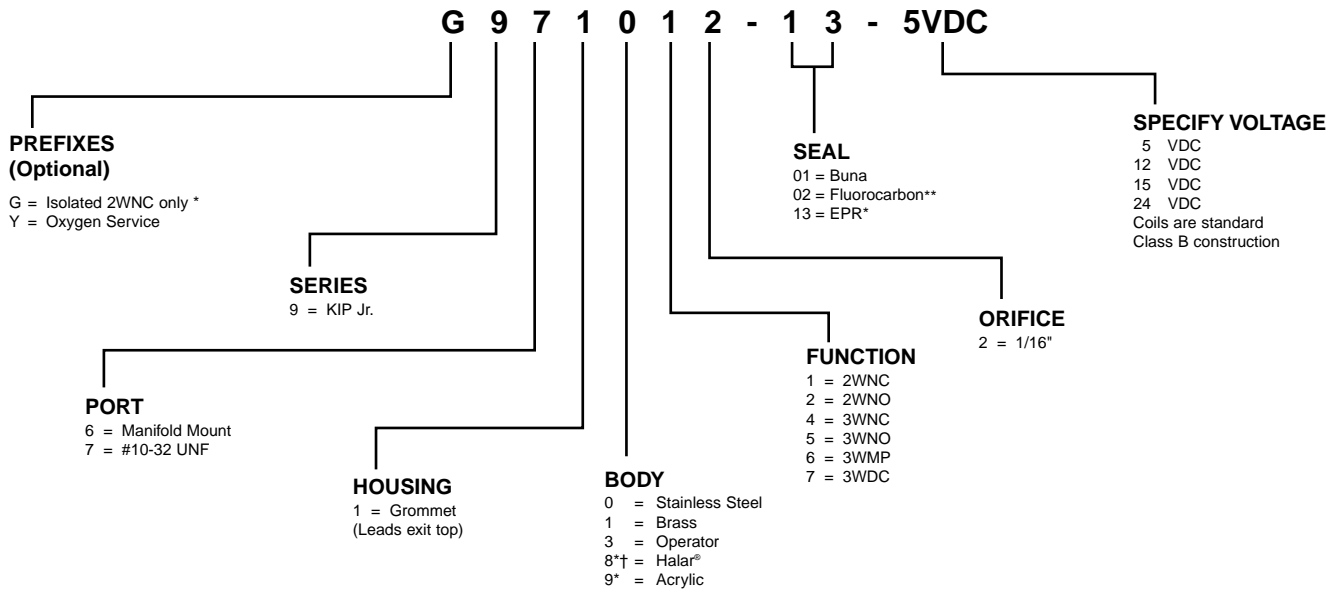
KIP Jr. Ordering Information

The following matrix system provides the selection criteria for creating a KIP Jr. part number. Performance characteristics including orifice sizes, flow coefficients (Cv) and pressure

ratings are included in the standard part number chart found below. Of course, KIP will manufacture custom designs for the OEM.

How to Order Your KIP Jr. Valve

KIP ordering code is contained within our part number:



Standard KIP Jr.

Type	Orifice Body/Stop		Cv Body/Stop		MOPD	SS	Brass	Manifold Mount SS	Manifold Mount BR
2WNC	1/16"	-	.050	-	100	971012	971112	961012	961112
2WNO	-	3/64"	-	.025	90	971022	971122	961022	961122
3WNC	1/16"	3/64"	.035	.020	80	971042	971142	961042	961142
3WNO	1/16"	3/64"	.050	.015	60	971052	971152	961052	961152
3WMP	1/16"	3/64"	.035	.015	40	971062	971162	961062	961162
3WDC	1/16"	3/64"	.050	.025	60	971072	971172	961072	961172

* Isolated Version Only

† Halar is a fluoroplastic co polymer with exceptional strength and wear properties and is resistant to creep. For ordering information of KIP Jr. isolation valves, refer to pages 21 - 24.

For manifold information, refer to pages 28-31.

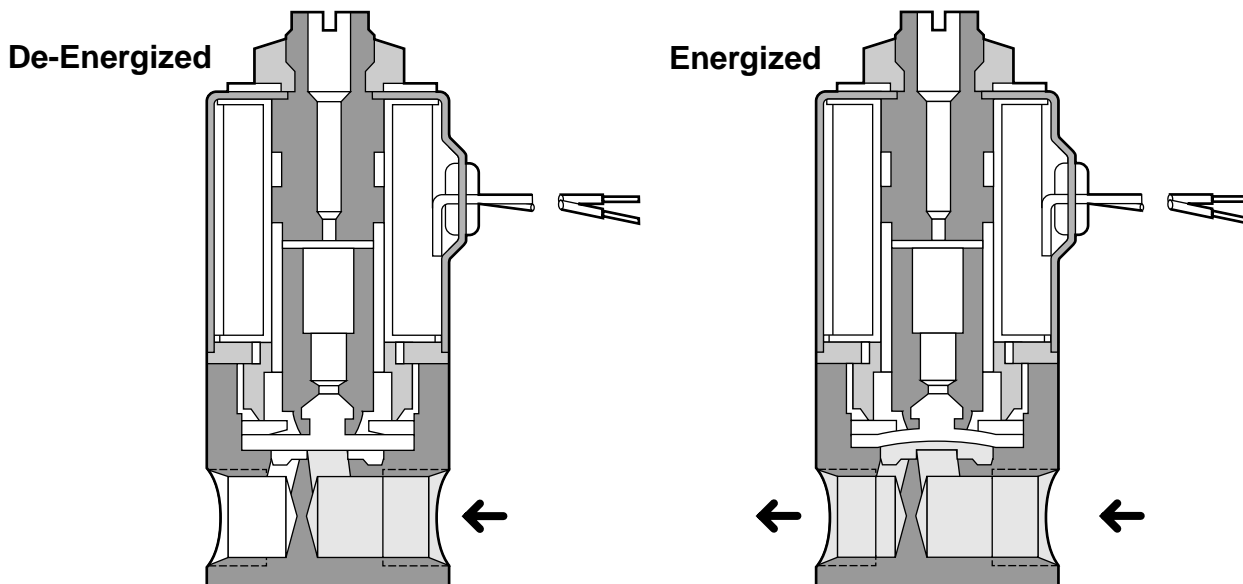
** Poppet style valves only



- 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

Seals	Series 1	Series 2	Series 6	KIP Jr.
CHEMRAZ	Yes	Yes	No	No
EPR	Yes	Yes	No	Yes
FLUOROCARBON	Yes	Yes	Yes	No

	Flow Rates (Cv)	Body Materials	Orifice Size	Porting
SERIES 1	0.250	Delrin, PVC, Kynar®	1/32"-5/32"	1/8" NPT
SERIES 2	0.250	Delrin, PVC, Kynar	1/32"-5/32"	1/8" NPT
SERIES 6	0.545	Delrin, PVC, Kynar	1/32"-1/4"	1/8" NPT
KIP JR.	0.06	Acrylic, Halar	1/16"	#10-32UNF

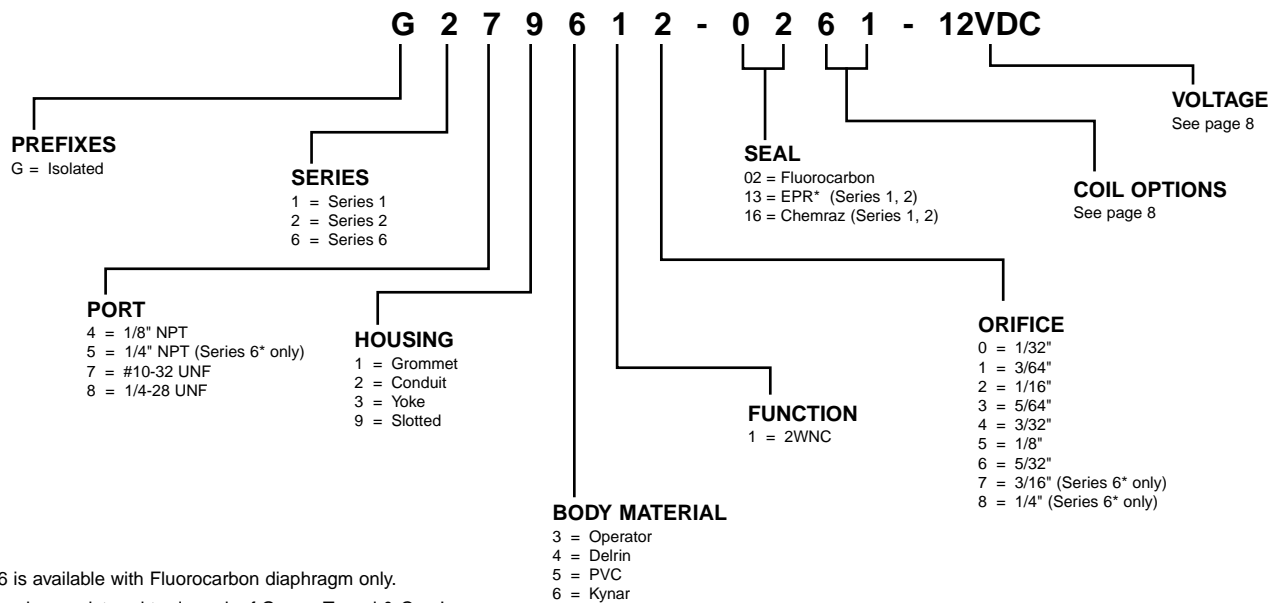




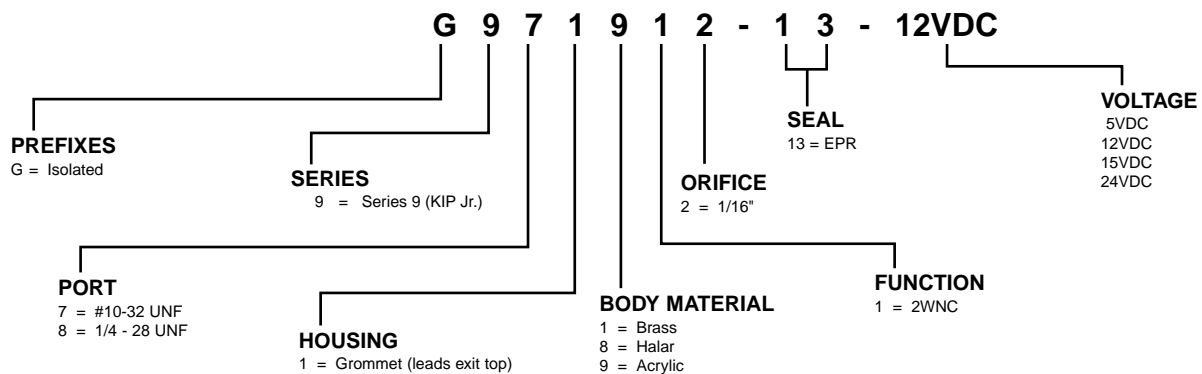
Selection Criteria for Isolation Style Valves

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 - See Pages 28-29	✓	✓	✓	✓

Series 1, 2 & 6



Series 9 KIP Jr.



KIP Isolation Valves

Isolation Valve Manifolds



- 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

For more information on manifolds, please refer to pages 28 through 31.

	Orifice Diameter	Cv Factor	MOPD	Standard Valve Body		
				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	1/32"	0.06	30	G971812-13	G971912-13	

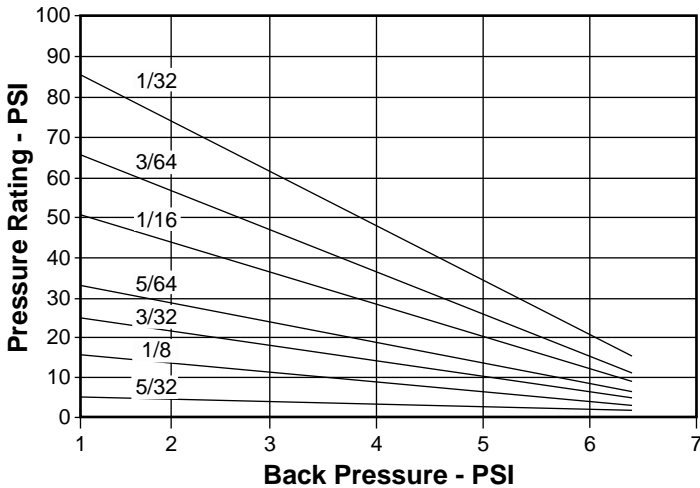


Isolation Valve Back Pressure De-rating Curves

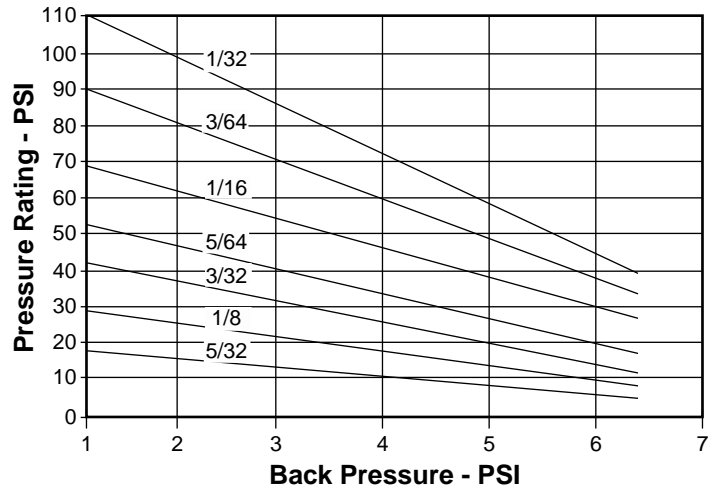
Diaphragm Isolation Valves have a large difference in pressure area between open and closed, creating a sensitivity to back pressure. Excessive back pressure can hinder the closing of the valve. Please use the back pressure charts below to determine the maximum operating pressure of the valve based on 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.

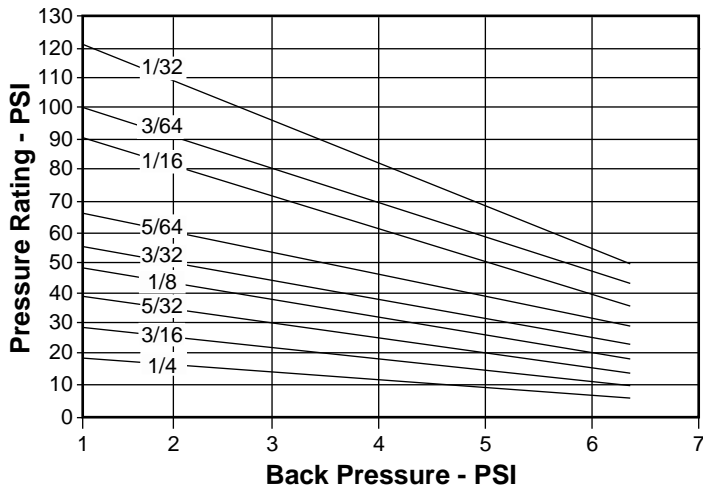
Series 1 Isolation Valves



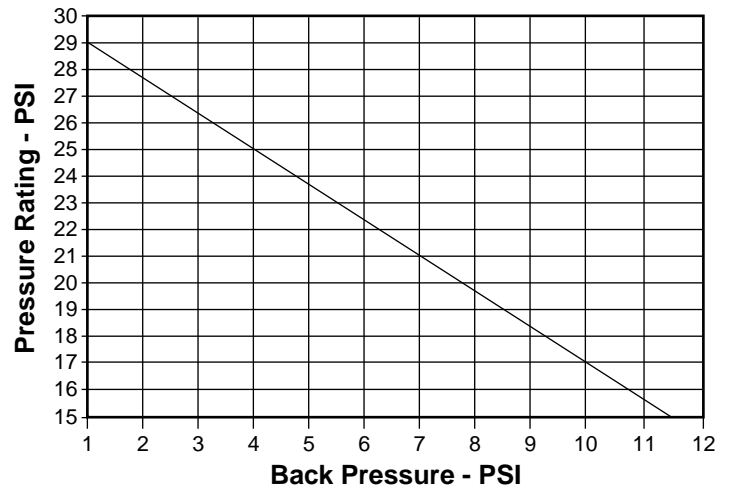
Series 2 Isolation Valves



Series 6 Isolation Valves



KIP Jr. Series Isolation Valves



R91



Water or Compressed Air Pressure Regulator 1/4" Port Size



- Bonnet and body made from acetal plastic.
- R91W designed for use with deionized water and potable water systems. Plastics and metals in contact with fluid are approved by the National Sanitation Foundation (NSF) or the Food And Drug Administration (FDA) for use in potable water systems. Elastomers are food grade. Non relieving models only.
- R91G designed for use with non-potable water and compressed air systems. Non relieving and relieving models.
- Low torque, non-rising adjusting knob.
- Snap action knob locks pressure setting when pushed down.
- Can be disassembled without the use of tools or removal from the air or water line.

Ordering Information. Models listed include PTF threads, knob adjustment, non relieving diaphragm, 5 to 125 psig (0.3 to 8.6 bar) outlet pressure adjustment range†, and without gauge.

Inlet Port	Application	Model	Flow* scfm (dm ³ /s)	Flow** gpm (lpm)	Weight lb (kg)
1/4"	Industrial air and non-potable water	R91G-2AK-NLN	24 (11)	1.75 (6.6)	0.15 (0.07)
1/4"	Potable water and deionized water	R91W-2AK-NLN	24 (11)	1.75 (6.6)	0.15 (0.07)

* Approximate flow with 150 psig (10 bar) inlet pressure, 90 psig (6.3 bar) set pressure and a 15 psig (1 bar) droop from set.

** Approximate flow with 100 psig (7 bar) inlet pressure, 60 psig (4 bar) set pressure and a 15 psig (1 bar) droop from set.

† Gauge with NSF approved materials not available.

†† Outlet pressure can be adjusted to pressures in excess of, and less than, those specified. Do not use these units to control pressures outside of the specified ranges.

Technical Data

Maximum pressure: 150 psig (10 bar)

Operating temperature

Water service: 35° to 125°F (2° to 52°C)

Air service: 0° to 125°F (-20° to 52°C) *

* When used in air service, air supply must be dry enough to avoid ice formation at temperatures below 35°F (2°C).

Typical flow for compressed air service at 150 psig (10 bar) inlet pressure, 90 psig (6.3 bar) set pressure and a droop of 15 psig (1 bar) from set: 24 scfm (11 dm³/s).

Typical flow for water service at 100 psig (7 bar) inlet pressure, 60 psig (4 bar) set pressure and a droop of 15 psig (1 bar) from set: 1.75 US gpm per minute (6.6 liters)

Gauge ports:

1/8 PTF with PTF main ports

R1/8 with ISO Rc main ports

R1/8 with ISO G main ports

Materials

Body and bonnet: Acetal

Valve

R91G: Brass/nitrile

R91W: Stainless steel/food grade EPDM

Valve seat: Acetal

Valve seat o-ring

R91G: Nitrile

R91W: Food grade EPDM

Diaphragm

R91G: Acetal/nylon inserted nitrile

R91W: Acetal/nylon inserted nitrile, food grade

Gauge port plugs: Polypropylene (furnished only with PTF-ported units)

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



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



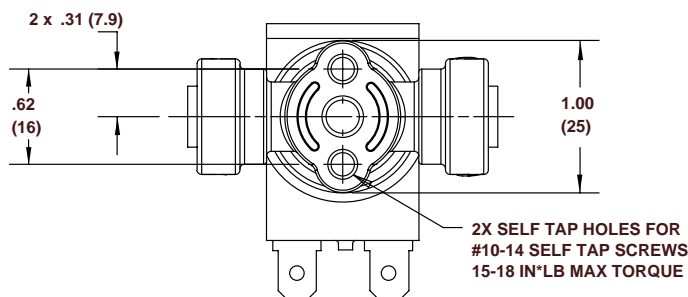
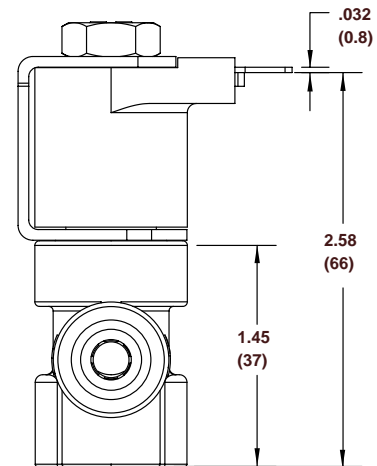
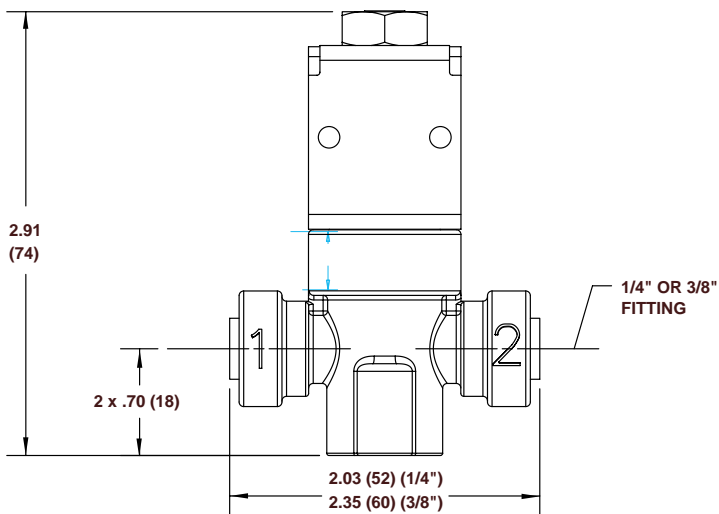
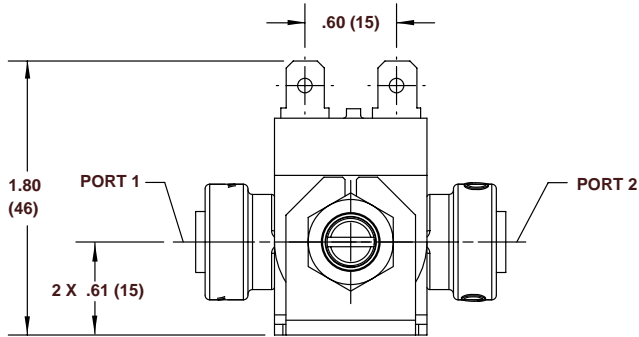
Port Identification: IN - 2 OUT - 1



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



Coil Orientation Options

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



Manifolds

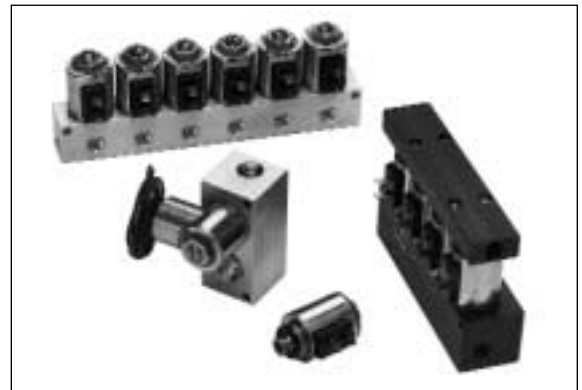
Simplify solenoid valve installation with KIP manifold assemblies. KIP manifolds provide an economical and effective means of gang mounting solenoid valves

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 21-24 for specifications.



Manifold Mount Valve Type Manifolds

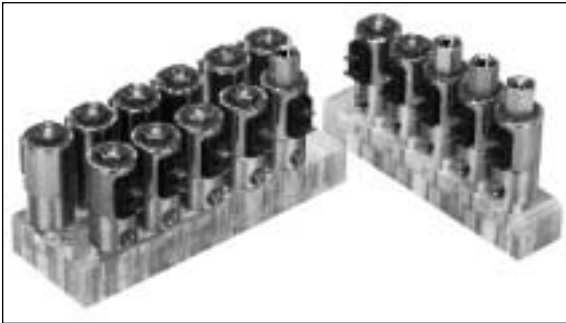
- Series 1, 2, 6 and KIP Jr. valves are available for gang mounting on aluminum, brass or plastic sub-plates.
- Manifolds can be selected with #10-32 UNF, 1/8" NPTF or 1/4" NPTF ports.
- Orifice sizes up to 1/8" in Series 1, 2, and orifice sizes up to 1/4" in Series 6 models are available, and 1/16" 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.



© CHEMRAZ is a registered trademark of Green, Tweed & Co., Inc.



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.

© Kynar is a registered trademark of Elf Atochein North America, Inc.

© Teflon is a registered trademark of E.I. Dupont De Nemours Co.



KIP Jr. Manifolds

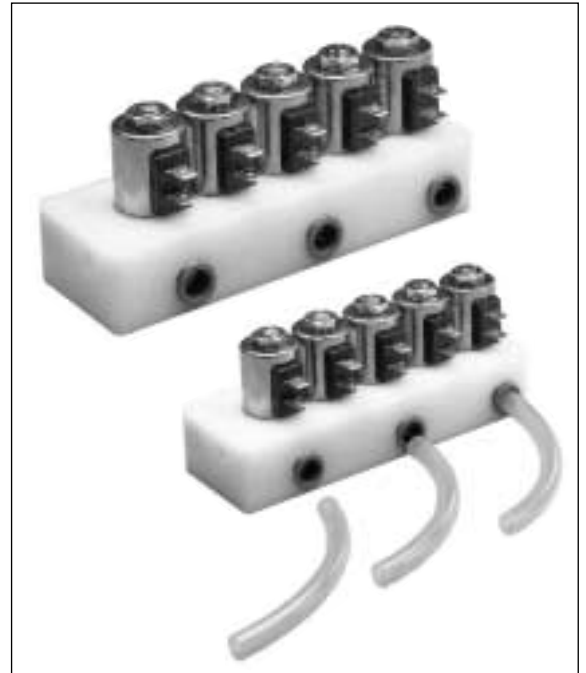
All of the manifold types described on these pages are also available in the KIP Jr. Series.

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.

Manifold Assemblies with Cartridge Fittings Installed

- No fittings to install, Teflon tape or lubricant, and no leaks
- Compatible with both air and liquids
- Available in Series 1, 2 or 6 manifold mount style valves with base materials of Delrin, PVC, brass or aluminum
- As always, KIP is ready to manufacture a “special” to meet your exact OEM specifications



Minimize your labor and material cost by ordering this unique package from KIP. With cartridge fittings installed into the manifold base, you simply push in the proper size tube and you are done.

Select the valve or manifold assembly desired. See the part identification numbering system, the standard manifold ordering information or the Valve Inquiry Application Sheet found on page 72. Specify on your request to have cartridge fittings installed. Be sure to indicate the outside diameter (O.D.) of the tubing you will be using. The following standard sizes are available by Series:

Series	Tubing Outside Diameter		
	Series 1	1/4"	3/8"
Series 2	1/4"	3/8"	–
Series 6	1/4"	3/8"	1/2"

Please note: All manifolds with the cartridge fittings installed have a maximum pressure rating of 150 PSI, even though the actual valve you select may have a higher pressure rating.

Overall manifold dimensions for this option can be found on page 44.

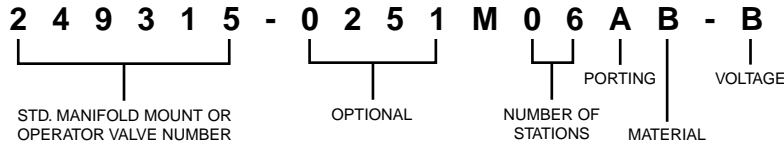
© Teflon and Delrin are registered trademarks of E.I. DuPont De Nemours Co.



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 32 through 37 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., and 6 stations for series 6. 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.

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

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.

Voltage	Designation	KIP Jr. Series	All Other Series
5VDC	A	Standard	Special
12VDC	B	Standard	Standard
15VDC	C	Standard	Special
24VDC	D	Standard	Standard
24/60	E	N/A	Standard
110/50	F	N/A	Standard
120/60	G	N/A	Standard
220/50	H	N/A	Standard
240/60	I	N/A	Standard

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-2	1/8"NPT	OUT-1	
B	S1, S2, S6	2WNC	1/4"NPT	IN-2	1/4"NPT	OUT-1	
C	S1, S2, S6	3WNO	1/8"NPT	EXH-1	1/8"NPT	CYL-2	Inlet Port is through Valve Adapter
D	S1, S2, S6	3WNO	1/4"NPT	EXH-1	1/4"NPT	CYL-2	Inlet Port is through Valve Adapter
C	S1, S2, S6	3WNC	1/8"NPT	IN-1	1/8"NPT	CYL-2	Exhaust Port is through Valve Adapter
D	S1, S2, S6	3WNC	1/4"NPT	IN-1	1/4"NPT	CYL-2	Exhaust Port is through Valve Adapter
C	S1, S2, S6	3WMP	1/8"NPT	NC-1	1/8"NPT	COM-2	N.O. Port is through Valve Adapter
D	S1, S2, S6	3WMP	1/4"NPT	NC-1	1/4"NPT	COM-2	N.O. Port is through Valve Adapter
J	KIP Jr.	2WNC	1/8"NPT	IN-2	#10-32 UNF	OUT-1	
R	KIP Jr.	3WNO	1/8"NPT	EXH-1	#10-32 UNF	CYL-2	Inlet Port is through Valve Adapter
R	KIP Jr.	3WNC	1/8"NPT	IN-1	#10-32 UNF	CYL-2	Exhaust Port is through Valve Adapter
R	KIP Jr.	3WMP	1/8"NPT	NC-1	#10-32 UNF	COM-2	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.



Finding the Right Valve

To help you find the right valve for your application, the types of valves are arranged in two-page spreads (2-Way Normally Open, 2-Way Normally Closed, 3-Way Normally Closed Line Connect, 3-Way Multi-Purpose, 3-Way Normally Open, 3-Way Directional Control). For each valve type, the first boxes are arranged by KIP Series designation (Series 1, 2, 3 and 6). The second, smaller subset of rows designate the various orifice diameters for the Series. Series 1 valves offer the smallest package size and typically have lower flows and pressures for the same orifice size as those of our largest, Series 6, valves. As you move from left to right across the columns on the spread, you will find the Cv factor (flow coefficient) and Maximum Operating Pressure Differential (MOPD) for the corresponding orifice diameter. Part numbers for KIP's valve

body, operator (valve without body), manifold mount and 1/8" NPT male bottom port follow. All part numbers are shown with grommet housing designated by numeral 1 in the third position. Part numbers can be modified by selecting your choice of housing, seal material or molded coil and placing the appropriate numbers into the designated position in the part number sequence (see page 9).

2-Way Normally Open



Port Identification: IN-2 OUT-3

	ORIFICE DIAMETER	Cv Factor	MOPD (psi)	STANDARD Valve Body Grommet		MANIFOLD MOUNT	
	Stop	Stop		Stainless Steel	Brass	Stainless Steel	Brass
Series 1	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
Series 2	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

	ORIFICE DIAMETER	Cv Factor	MOPD (psi)	STANDARD Valve Body Grommet	
	Stop	Stop		Stainless Steel	Brass
Series 3	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

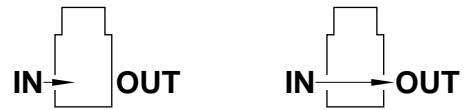
	ORIFICE DIAMETER	Cv Factor	MOPD (psi)	STANDARD Valve Body - Grommet				MANIFOLD MOUNT	
				Stainless Steel		Brass		Stainless Steel	Brass
	Stop	Stop	1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF			
Series 6	1/32	0.035	1000	641020	651020	641120	651120	661020	661120
	3/64	0.050	600	641021	651021	641121	651121	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

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



2-Way Normally Closed

Two-Way Normally Closed (2WNC) - 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 OUT - 1

	ORIFICE DIAMETER	Cv Factor	MOPD	STANDARD Valve Body Grommet		MANIFOLD MOUNT* Valve Body-Grommet		LOW WATT Specifications							
				Body	Body	(psi)	SS	Brass	SS	Brass	Cv Factor Body	1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
												A	B	C	D
Series 1	1/32	0.035	800	141010	141110	161010	161110	0.030	125.000	300	500	775			
	3/64	0.050	500	141011	141111	161011	161111	0.050	30.000	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			
Series 2	5/32	0.290	50	141016	141116	161016	161116	0.280	-	-	-	-			
	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				

	ORIFICE DIAMETER	Cv Factor	MOPD	STANDARD Valve Body - Grommet		LOW WATT Specifications							
				Body	Body	(psi)	SS	Brass	Cv Factor Body	1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
										A	B	C	D
Series 3	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	-	-	-	-	-				

	ORIFICE DIAMETER	Cv Factor	MOPD	STANDARD Valve Body (Grommet)				MANIFOLD MOUNT		
				Body	Body	(psi)	Stainless Steel		Brass	
							1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF
Series 6	1/32	0.035	1200	641010	651010	641110	351110	661010	661110	
	3/64	0.050	1000	641011	651011	641111	351111	661011	661111	
	1/16	0.095	500	641012	651012	641112	351112	661012	661112	
	5/64	0.140	300	641013	651013	641113	351113	661013	661113	
	3/32	0.200	200	641014	651014	641114	351114	661014	661114	
	1/8	0.295	150	641015	651015	641115	351115	661015	661115	
	5/32	0.370	110	641016	651016	641116	351116	661016	661116	
	3/16	0.435	60	641017	651017	641117	351117	661017	661117	
	1/4	0.610	30	641018	651018	641118	351118	661018	661118	
	3/8	0.900	5	—	681019***	—	681119***	—	—	

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

† These valves are supplied with 3/8" NPTF ports.



3-Way Normally Closed

Line Connect

For Free Vent, change fifth digit from 4 to 3

Three-Way Normally Closed (3WNCFV or 3WNCLC) 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 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. Three-Way Normally Closed Valves are available in Line Connect style (with piping adapter), and Free Vent style.



Port Identification: IN - 1 CYL - 2 EXH - 3

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet		MANIFOLD MOUNT Valve Body-Grommet		LOW WATT Specifications					
			Body	Stop		Body	Stop	SS	Brass	SS	Brass	Cv Factor		1.5 Watt	2.0 Watt
	Body	Stop	Body	Stop	SS	Brass	SS	Brass	Body	Stop	A	B	C	D	
Series 1	1/32	1/32	0.035	0.025	200	141040	141140	161040	161140	0.030	0.025	100.000	-	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
Series 2	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

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet		LOW WATT Specifications					
			Body	Stop		Body	Stop	Cv Factor		1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
	Body	Stop	Body	Stop	SS	Brass	Body	Stop	A	B	C	D	
Series 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	-	-	-	-	-	-

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body - Grommet	
			Body	Stop		Stainless Steel		Brass		SS	Brass
	Body	Stop	Body	Stop	1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF	SS	Brass	
Series 6	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	-	-

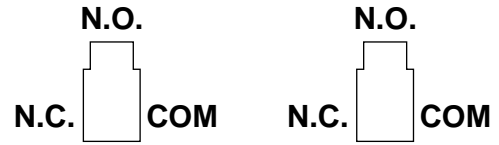
* Larger stop orifice available with reduced pressure ratings; consult KIP.

Note: Series 6 manifold mount 3-Way valves have a 1/4" NPTF adapter as standard. 1/8" NPTF available upon request.



3-Way Multi-Purpose

Three-Way Multi-Purpose (3WMP) - 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 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. Three-Way Multi-Purpose Valves can be used as a 3WNC, 3WNO, or a 3WDC valve. Additionally, this valve can be used to pipe the alternate flow of two different media to one port.



Port Identification: NC - 1 COM - 2 NO - 3

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet		MANIFOLD MOUNT Valve Body-Grommet		LOW WATT Specifications					
	Body	Stop	Body	Stop		SS	Brass	SS	Brass	Cv Factor		1.5 Watt A	2.0 Watt B	2.5 Watt C	3.0 Watt D
										Body	Stop				
Series 1	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	-	-	-	-
Series 2	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	-	-	-	-

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet		LOW WATT Specifications					
	Body	Stop	Body	Stop		SS	Brass	Cv Factor		1.5 Watt A	2.0 Watt B	2.5 Watt C	3.0 Watt D
								Body	Stop				
Series 3	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	-	-	-	-	-	-

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body - Grommet	
	Body	Stop	Body	Stop		Stainless Steel		Brass		SS	Brass
						1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF		
Series 6	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

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

Note: Series 6 manifold mount 3-Way valves have a 1/4" NPTF adapter as standard. 1/8" NPTF available upon request.



3-Way Normally Open

Three-Way Normally Open (3WNO) - 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 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 - 2 IN-3

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body Grommet		MANIFOLD MOUNT Valve Body	
	Body	Stop	Body	Stop		Stainless Steel	Brass	Stainless Steel	Brass
Series 1	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
Series 2	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

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body Grommet	
	Body	Stop	Body	Stop		Stainless Steel	Brass
Series 3	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

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body - Grommet	
	Body	Stop	Body	Stop		Stainless Steel		Brass		SS	Brass
						1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF		
Series 6	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

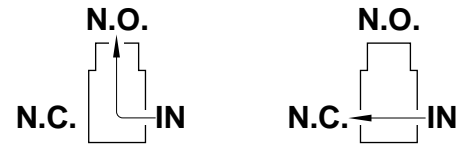
* Larger stop orifice available with reduced pressure ratings; consult KIP.

NOTE: Series 6 manifold mount 3-Way valves have a 1/4" NPTF adapter as standard. 1/8" NPTF available upon request.



3-Way Directional Control

Three-Way Directional Control (3WDC) - 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. Three-Way Directional Control valve can be used to divert flow from one port to another.



Port Identification: NC - 1 IN - 2 NO - 3

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body Grommet		MANIFOLD MOUNT Valve Body	
	Body	Stop	Body	Stop		Stainless Steel	Brass	Stainless Steel	Brass
	Series 1	1/32	1/32	0.035		0.025	230	141070	141170
	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
Series 2	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

	ORIFICE DIAMETER		Cv Factor		MOPD (psi)	STANDARD Valve Body Grommet	
	Body	Stop	Body	Stop		Stainless Steel	Brass
	Series 3	1/32	1/32	0.035		0.025	275
	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.



Value-Added Valve Options

Take KIP Service Another Step... or Two



Take the opportunity to reduce multiple parts and multiple processes to one complete valve assembly purchase. Have all your fittings Teflon taped, installed and leadwire trimmed to the proper length and the connector of your choice attached.

KIP Incorporated offers a wide array of fittings and electrical terminations for a complete manifold or solenoid valve assembly. We offer pre-taped (Teflon) fittings, factory installed and leak checked, and shipped to you under one part number.

Let KIP show you the benefits of part number consolidation, from overall part cost to internal cost and time reduction.

Features:

- Reduce your inventory requirements
- Plan for one part rather than multiple components
- Shift quality responsibility for complete assembly to KIP

Whether you are considering design changes of an existing product or a new product development, contact KIP early in the development stage. KIP can bring a high level of application expertise and technical support to your design project.

We can evaluate the entire system, including pressure controls, fittings, transducers, gauges and overall packaging requirements, to provide you with a cost-effective system rather than a jigsaw puzzle of components.

We provide support from design through installation. When product design is completed, tested and approved, KIP will talk to your manufacturing personnel concerning packaging and handling requirements.

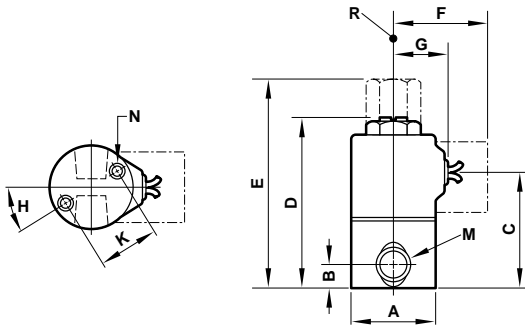
Don't wait any longer to contact KIP with your requirements!



Dimensions

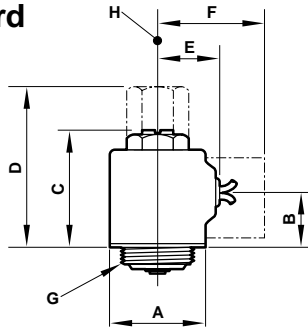
All Dimensions in Inches (mm)

Standard Valve



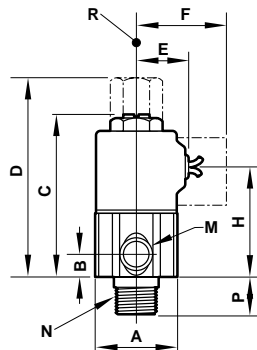
	A	B	C	D	E	F	G	H	K	M	N	R
Series 1	.99 (25)	.28 (7)	1.33 (33)	2.12 (54)	2.47 (63)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF
Series 2	.99 (25)	.28 (7)	1.51 (38)	2.32 (59)	2.66 (68)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF
Series 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
								0°		1/4-18 NPTF	#8-32 UNC x 1/4 MFT	1/4-18 NPTF
Series 6	1.62 (41)	.344 (9)	G-2.04 (52)	2.86 (73)	3.54 (90)	1.58 (40)	1.03 (26)	45°	1.24 (31)	1/8-27 NPTF	#10-32 UNF x or	1/8-27 NPTF
			C-1.87 (48)							1/4-18 NPTF	#8-32 UNC x 5/16 MFT	1/4-18 NPTF

Operator Standard



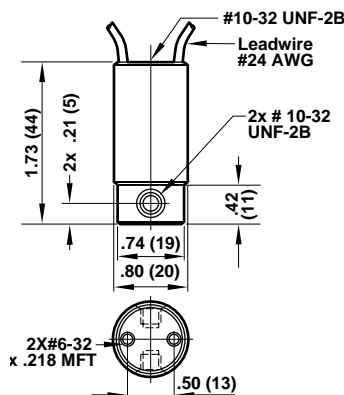
	A	B	C	D	E	F	G	H
Series 1	1.02 (26)	.52 (13)	1.32 (34)	1.67 (42)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27 NPTF
Series 2	1.02 (26)	.71 (18)	1.52 (39)	1.86 (47)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27 NPTF
Series 3	1.16 (30)	.71 (18)	1.52 (39)	1.86 (47)	.78 (20)	1.19 (30)	3/4-32 UNEF	1/8-27 NPTF or 1/4-18 NPTF
Series 6	1.64 (42)	G- .97 (25)	1.79 (46)	2.48 (63)	1.03 (26)	1.58 (40)	1-32 UN	1/8-27 NPTF or 1/4-18 NPTF
		C- .80 (20)						

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 1/4-18 NPTF	.44 (11) .56 (14)	1/8-27 NPTF
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 1/4-18 NPTF	.44 (11) .56 (14)	1/8-27 NPTF

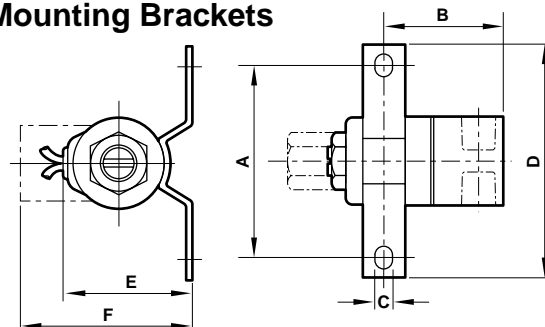
KIP Jr. Standard



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)
Series 6	2.13 (54)	1.97 (50)	.20 (5)	2.63 (67)	2.15 (55)	2.68 (68)

Mounting Brackets



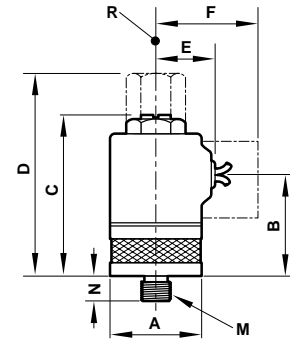


Dimensions

All Dimensions in Inches (mm)

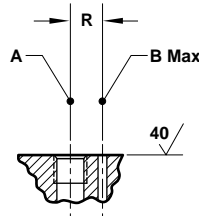
	A	B	C	D	E	F	M	N	R
Series 1	.99 (25)	1.07 (27)	1.87 (48)	2.22 (56)	.64 (16)	1.12 (29)	5/16 24 UNF	.25 (6)	1/8-27 NPTF
Series 2	.99 (25)	1.26 (32)	2.07 (53)	2.41 (61)	.64 (16)	1.12 (29)	5/16 24 UNF	.25 (6)	1/8-27 NPTF
Series 6	1.62 (41)	G- 1.73 (44) C- 1.56 (40)	2.55 (65)	3.23 (82)	1.03 (26)	1.58 (40)	1/2 20 UNF	.31 (8)	1/8-27 NPTF or 1/4-18 NPTF

Manifold Mount Valve



Manifold Mount Interface

	A	B	R
Series 1 & 2	5/16 - 20 UNF-2B x .26 MFT	.09 (2)	.31 (8)
Series 6	1/2 - 20 UNF-2B x .32 MFT	.27 (7)	.51 (13)

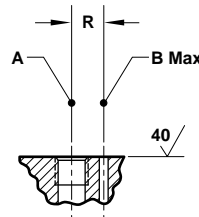


NOTE: A is underseat connection**

B is overseat connection***

KIP Jr. Manifold Mount Interface

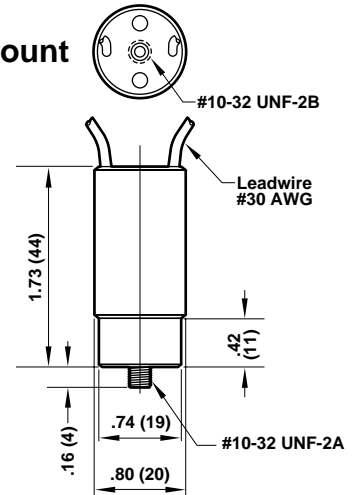
	A	B	R
Low Watt	10-32 UNF-2B x .150 MFT	.08 (2.08)	.22 (5.45)



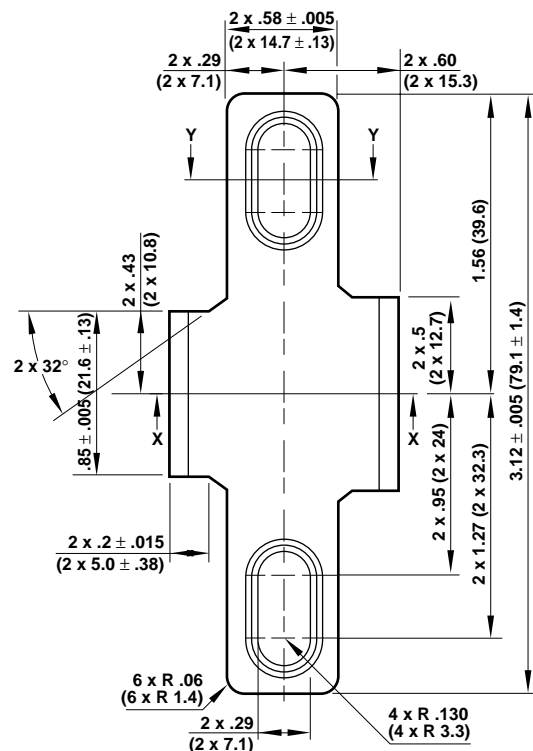
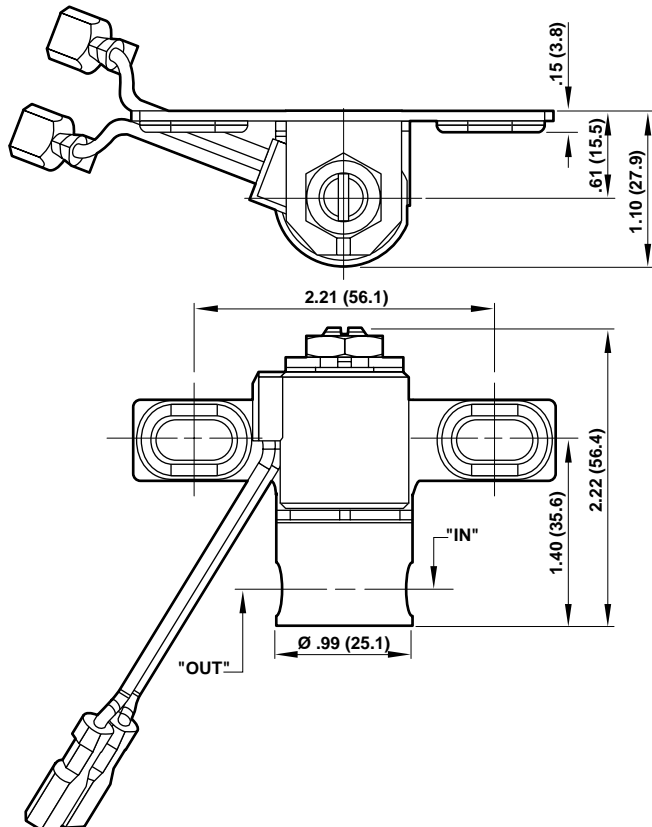
NOTE: A is underseat connection**

B is overseat connection***

KIP Jr. Manifold Mount



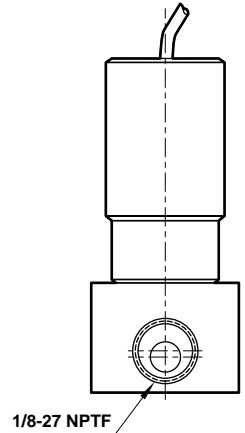
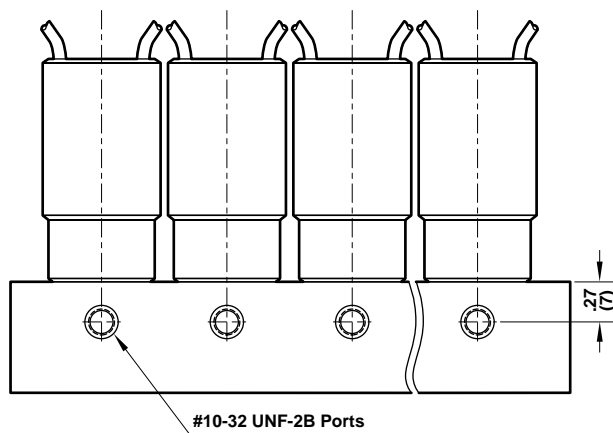
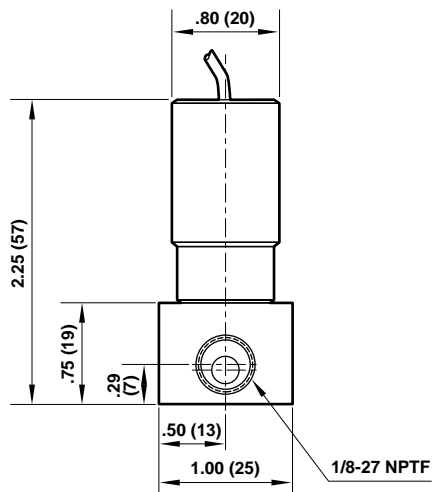
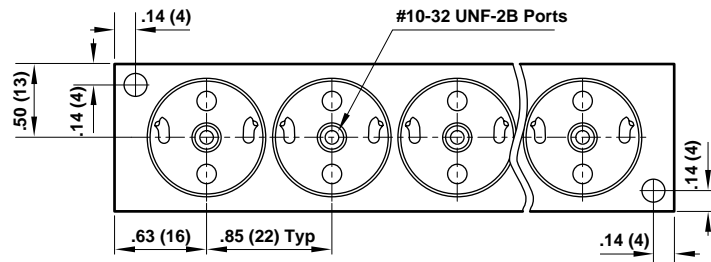
Plastic Body Standard





KIP Jr. Series Manifold Dimensions

Manifold Mount Valve Type Manifold





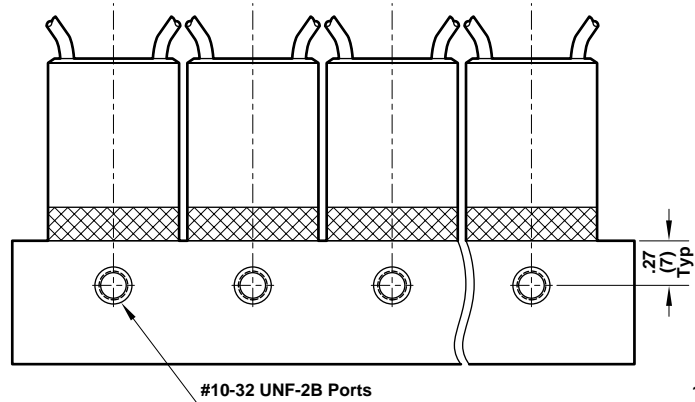
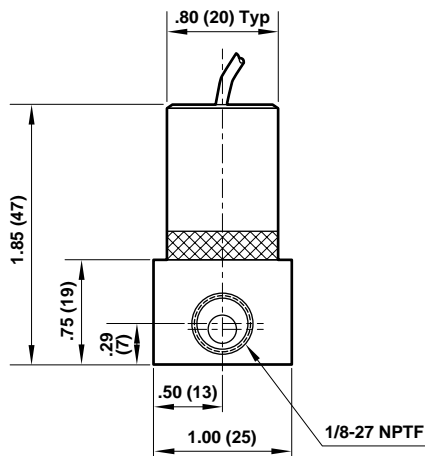
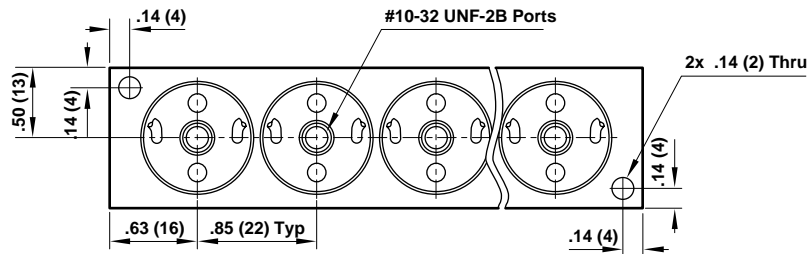
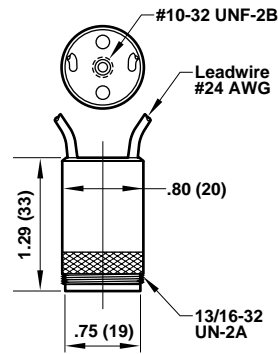
Dimensions

All Dimensions in Inches (mm)

KIP Jr. Series Manifold Dimensions

Operator Mounting Type Manifolds - Including Isolation Type Manifolds

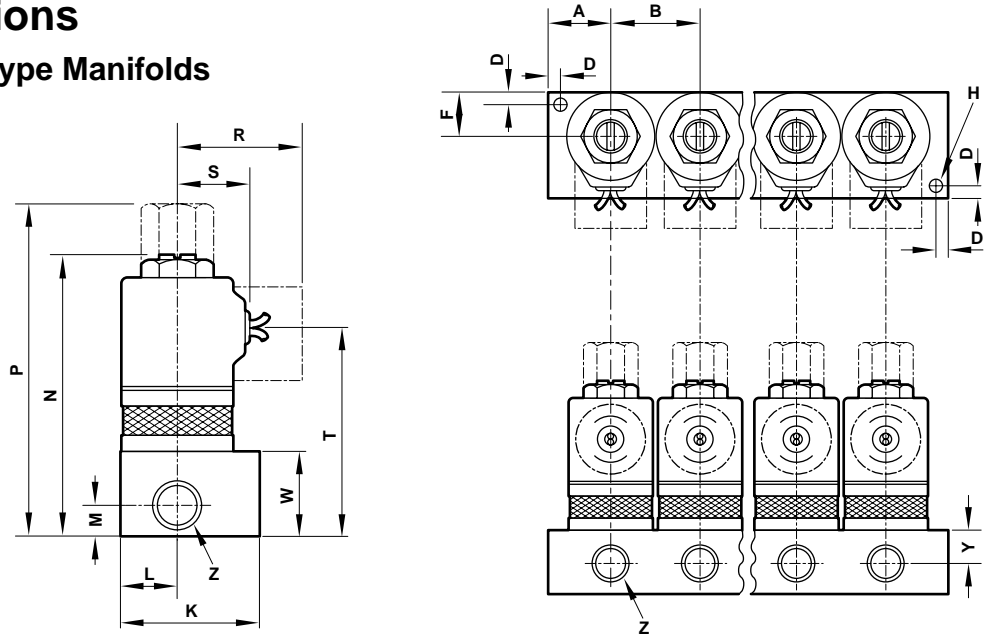
KIP Jr. Operator





Manifold Dimensions

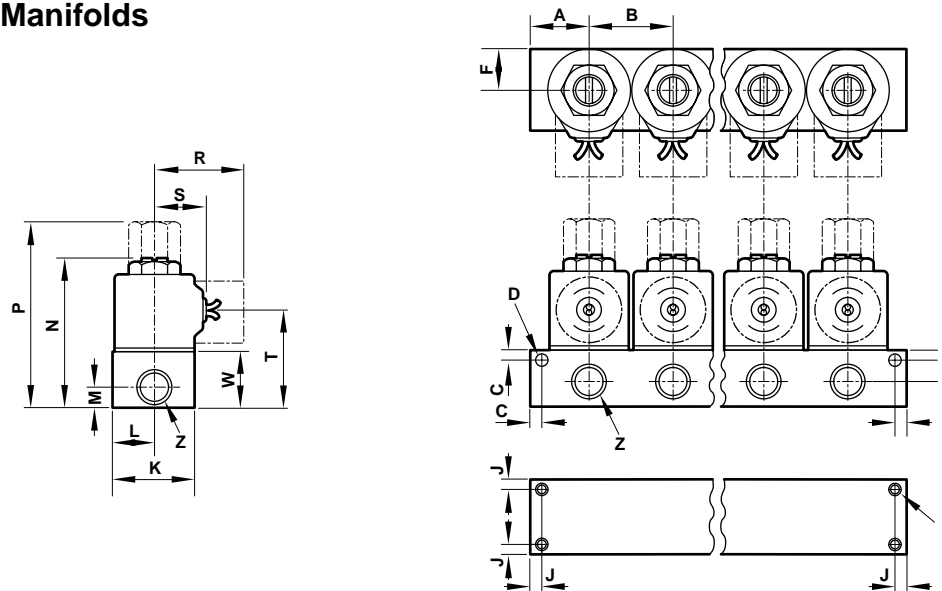
Manifold Mount Valve Type Manifolds



	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



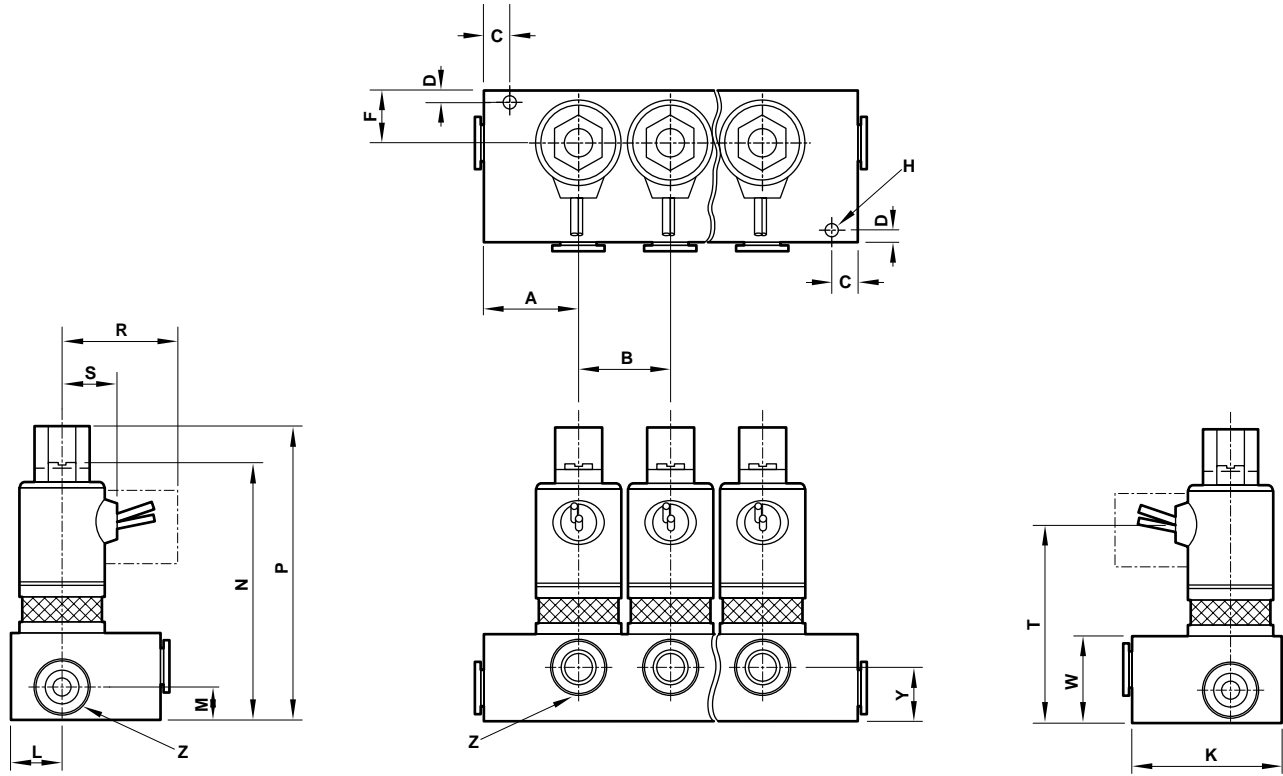
	A	B	C	D	F	J	K	L	M	N	P	R	S	T	U	W	Y	Z
Series 1	.78 (20)	1.06 (27)	.16 (4)	.19 (5)	.52 (13)	.16 (4)	1.00 (25)	.50 (13)	.42 (10)	2.33 (59)	2.67 (68)	1.12 (29)	.64 (16)	1.52 (39)	#8-32 UNC x 1/4 MFT	1.00 (25)	.58 (15)	1/8-27 NPTF
Series 2	.78 (20)	1.06 (27)	.16 (4)	.19 (5)	.52 (13)	.16 (4)	1.00 (25)	.50 (13)	.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



Dimensions

All Dimensions in Inches (mm)

Manifold Dimensions Including Cartridge Inserts



	A	B	C	D	F	H	K	L	M	N	P	R	S	T	W	Y	Z
Series 1	.92 (23)	1.06 (27)	.30 (8)	.14 (4)	.52 (13)	.15 (4)	1.50 (38)	.52 (13)	.33 (8)	2.87 (73)	3.53 (90)	1.12 (28)	.64 (16)	2.07 (53)	1.00 (25)	.60 (15)	1/4
	1.10 (28)	1.06 (27)	.30 (8)	.14 (4)	.60 (15)	.15 (4)	1.75 (45)	.60 (15)	.38 (10)	2.87 (73)	3.69 (94)	1.12 (28)	.64 (16)	2.07 (53)	1.00 (25)	.62 (16)	3/8
Series 2	.92 (23)	1.06 (27)	.30 (8)	.14 (4)	.52 (13)	.15 (4)	1.50 (38)	.52 (13)	.33 (8)	3.07 (78)	3.71 (94)	1.12 (28)	.64 (16)	2.26 (57)	1.00 (25)	.60 (15)	1/4
	1.10 (28)	1.06 (27)	.30 (8)	.14 (4)	.60 (15)	.15 (4)	1.75 (45)	.60 (15)	.38 (10)	3.07 (78)	3.88 (99)	1.12 (28)	.64 (16)	2.26 (57)	1.00 (25)	.62 (16)	3/8
Series 6	1.17 (30)	1.69 (43)	.19 (5)	.19 (5)	.84 (21)	.20 (5)	2.00 (51)	.84 (21)	1.17 (30)	3.55 (90)	4.23 (107)	1.58 (40)	1.03 (26)	2.73* (69)	1.00 (25)	.55 (14)	1/4
														2.56** (65)			
	1.41 (36)	1.69 (43)	.19 (5)	.19 (5)	.84 (21)	.20 (5)	2.25 (57)	.84 (21)	1.41 (36)	3.80 (97)	4.65 (118)	1.58 (40)	1.03 (26)	2.98* (76)	1.25 (32)	.78 (20)	3/8
														2.81** (71)			
	1.41 (36)	1.69 (43)	.19 (5)	.19 (5)	.84 (21)	.20 (5)	2.25 (57)	.84 (21)	1.41 (36)	3.80 (97)	4.65 (118)	1.58 (40)	1.03 (26)	2.98* (76)	1.25 (32)	.78 (20)	1/2
														2.81** (71)			

* = Grommet ** = Conduit



Liquid Flow Calculations

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

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:

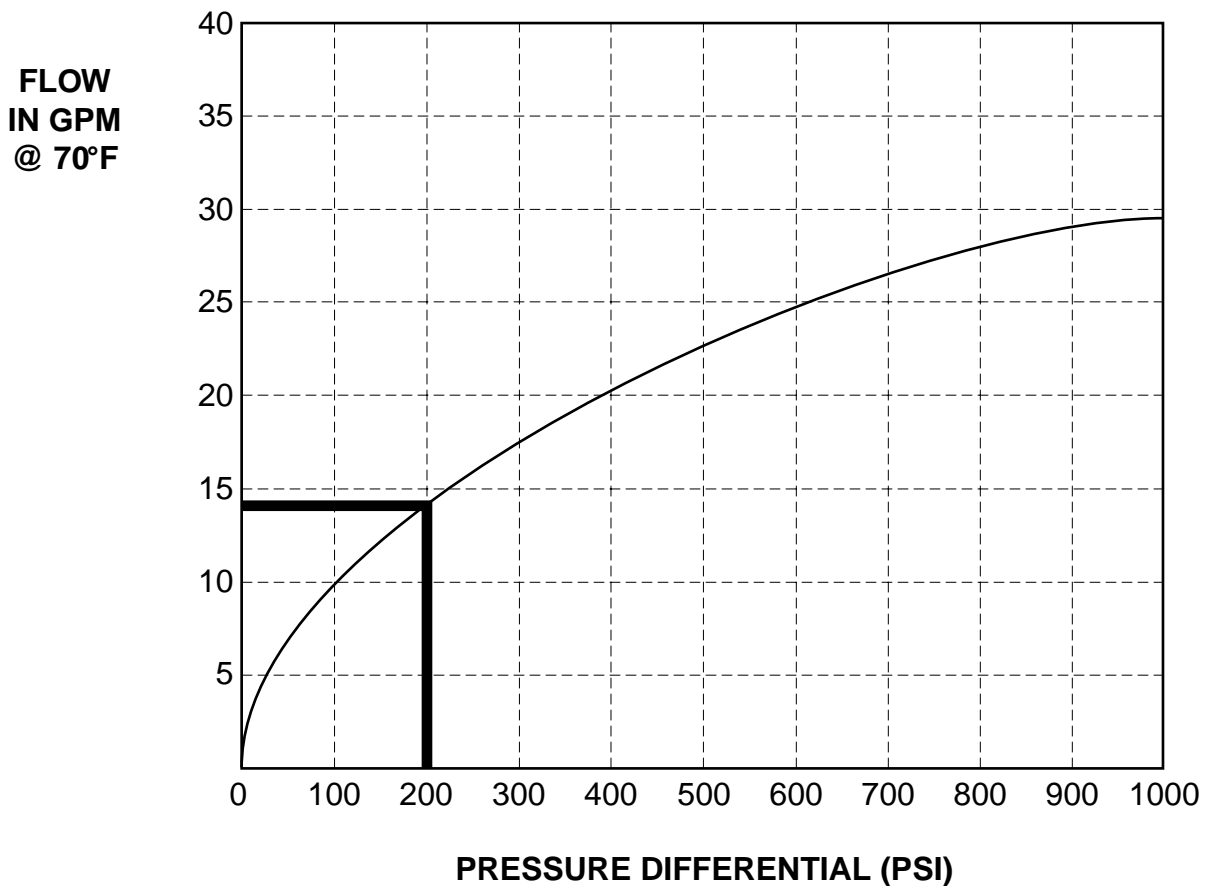
Gasoline	1.200
Ethyl Alcohol	1.120
MIL-H-5606A	
Hydro-oil	1.087

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

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

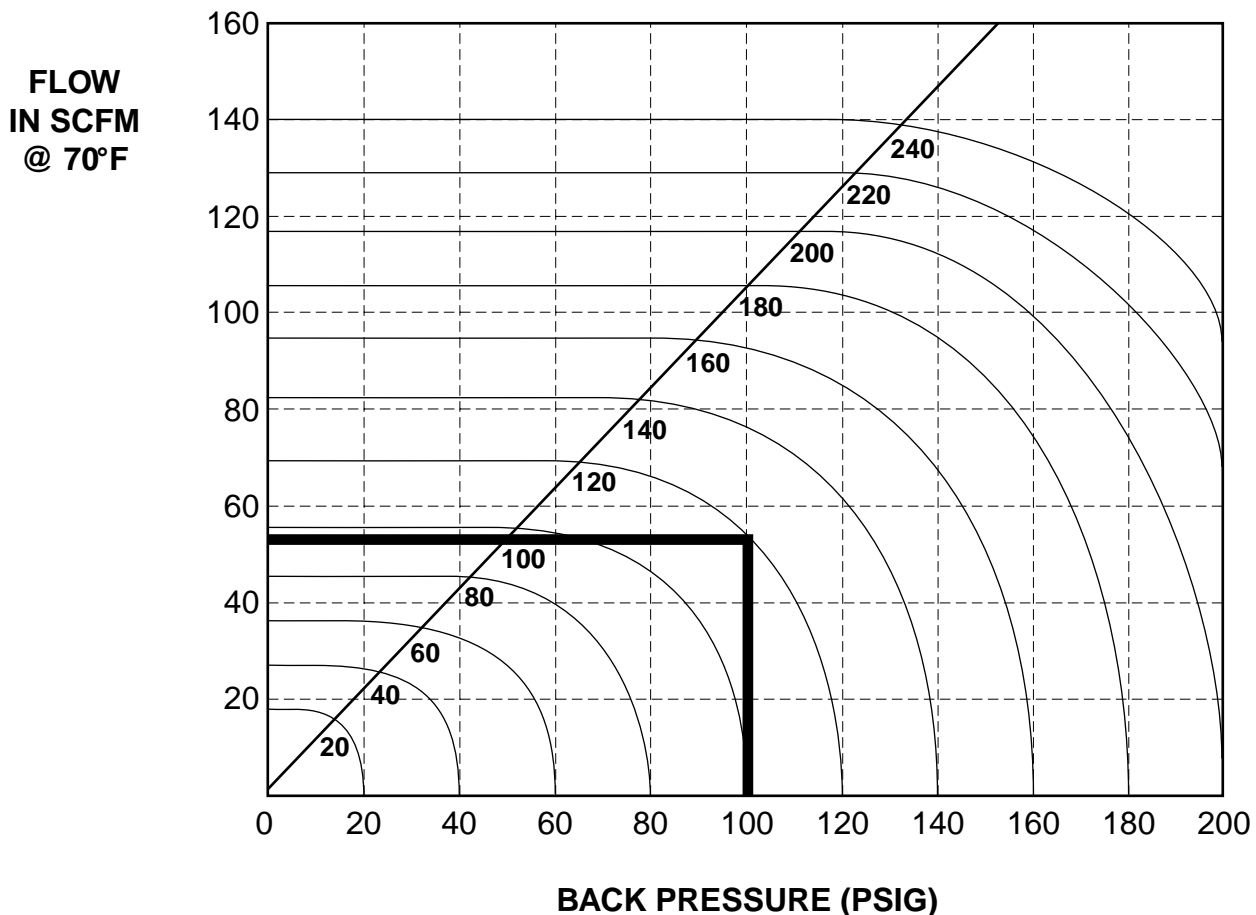
Other Fluids = $\sqrt{\frac{1}{\text{S.G.}}}$

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
 = 2.50 x .95 = 2.375 SCFM

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





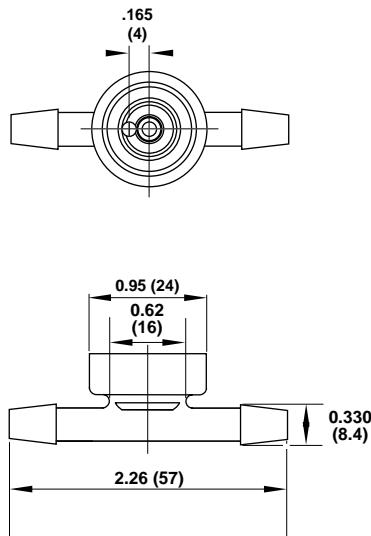
Bi-Directional Valve part number **2X1958-Voltage***

This plastic body valve is primarily used in the medical industry. KIP offers this valve for Series 2, 2-way normally closed, applications. It has a quiet valve design, which provides noise-reduction within the valve.

Bayblend FR110, ABS and Polycarbonate are the compounds used in constructing this barbed body valve.

With a 1/8" orifice, this valve has a maximum PSI of 30 and a Cv of .245. The power rating for the valve is 7 watts (nominal).

*Note: All AC valves are full wave rectified



All Dimensions in Inches (mm)

- Excellent Resistance to Aggressive Media
- PVDF Body / PTFE Bellows
- Simple Compact Design
- Value Priced


Technical Data

Function:

2-Way Normally Closed

Ports (NPT)	Orifice	Cv	Operating Pressure Range* (PSI)
G1/4	1/8"	0.28	0 - 100
G3/8	3/16"	0.50	0 - 72
1"	1/4"	0.74	0 - 29
1/4"	5/16"	1.0	0 - 14

Temperature Rating

Ambient: 32°F to 122°F (0°C to +50°C)

Fluid: 14°F to 230°F (-10°C to +110°C)

Power Rating: 12 Watt

Voltage:

24 Volt DC

24/50-60, 120/50-60, 230/50-60 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: PVDF

Bellows: PTFE

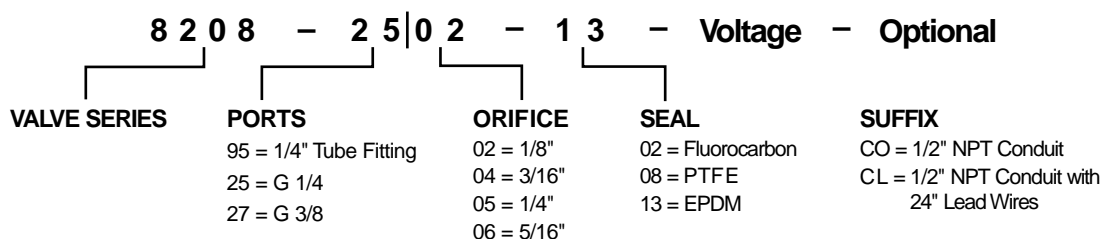
Tube Fitting: Delrin

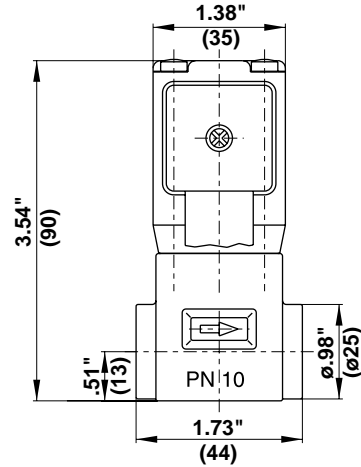
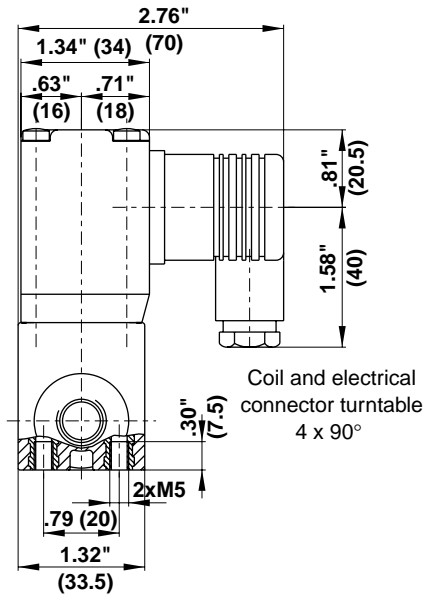
Seat Seal:

EPDM (Standard)

Fluorocarbon, PTFE (Optional)

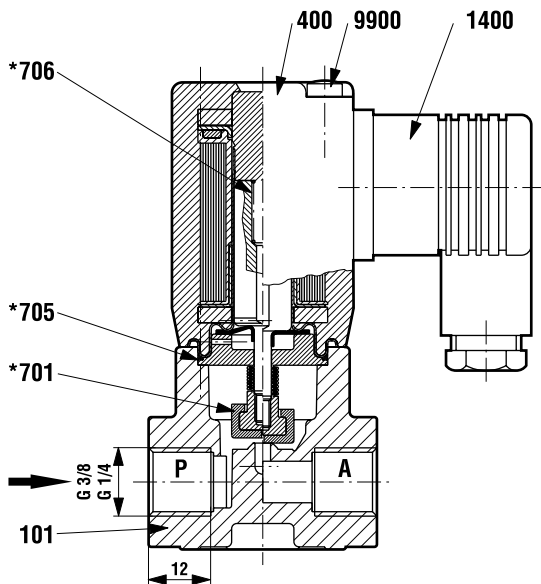
Coil: Class F, Molded, Continuous Duty

Part Number Identification




Power Consumption

DC	AC	
	Inrush	Holding
12W	13VA	13VA



- 101 Body
- 400 Coil
- *701 Guide
- *705 O-ring
- *706 Pressure spring
- 1400 Electrical connector
- 9900 Oval head cap screw

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Hot Water & Steam Valves Available
- Minimal Pressure Differential Required
- Interchangeable “Click-On®” Coil
- Manual Override – Optional
- Latching Coil – Optional for 6, 12 & 24 VDC Versions (1/4"–1" NPT only)


Technical Data

Function:

2-Way Normally Closed

2-Way Normally Open – Optional

Ports (NPT)	Orifice	Cv	Operating Pressure Range* (PSI)
1/4"	5/16"	2.3	1.5 - 232 PSI (0.1 - 16 bar)
3/8"	3/8"	3.6	1.5 - 232 PSI (0.1 - 16 bar)
1/2"	7/16"	4.5	1.5 - 232 PSI (0.1 - 16 bar)
3/4"	3/4"	7.3	1.5 - 232 PSI (0.1 - 16 bar)
1"	1"	11.4	1.5 - 232 PSI (0.1 - 16 bar)
1-1/4"	1-1/4"	27.6	1.5 - 145 PSI (0.1 - 10 bar)
1-1/2"	1-1/2"	30.0	1.5 - 145 PSI (0.1 - 10 bar)
2"	2"	49.2	1.5 - 145 PSI (0.1 - 10 bar)

Temperature Rating

Ambient:

14°F to 122°F (-10°C to +50°C)

14°F to 140°F (-10°C to +60°C) - HNBR*

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM,* Fluorocarbon

32°F to 302°F (0°C to +150°C) - HNBR*

*Pressure range (EPDM seals):

4.5 – 232 PSI (0.3 – 16 bar): 1/4" – 1" NPT

4.5 – 145 PSI (0.3 – 10 bar): 1-1/4" – 2" NPT

*Pressure range (HNBR seals):

1.5 – 232 PSI (0.1 – 10 bar):

1/4" – 1" NPT only

Power Rating: 6.5 Watt

Voltage:

24 Volt DC

 24/50, 110/50, 120/60, 220/60,
230/50 Volt AC

Electrical Connector:

 DIN Style Plug with Removable Cable
Plug Adapter

Body: Brass

Seal: Buna (Standard)

 Other Wetted Parts: Stainless Steel, PVDF,
Brass

 Coil: Class F, Molded, Continuous Duty,
UL Recognized

Part Number Identification
A 8 – 8 2 4 1 – 1 1 1 1 – 0 1 – U – Voltage – Optional

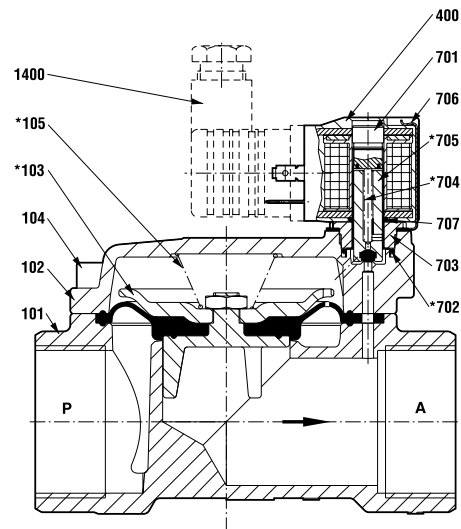
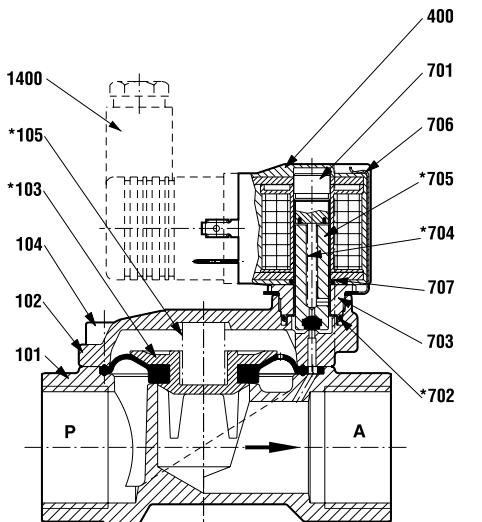
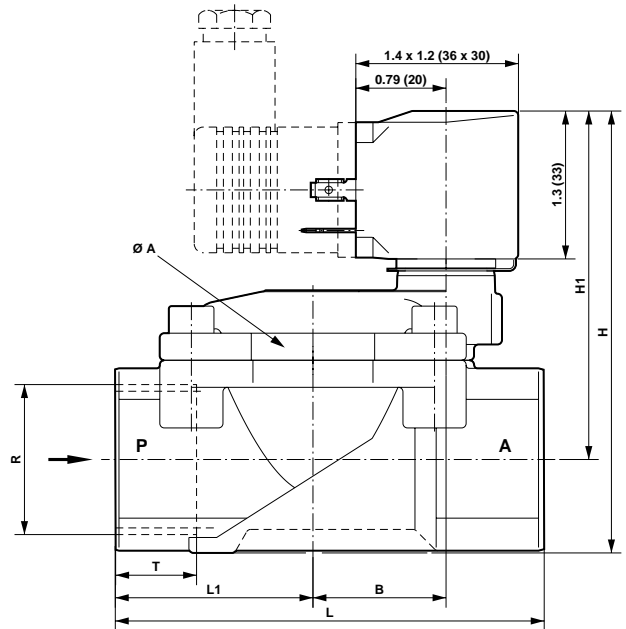
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
0506 =	1/4" NPT	5/16"	01 = Buna	NO = Normally Open
0707 =	3/8" NPT	3/8"	02 = Fluorocarbon	MO = Manual Override
0908 =	1/2" NPT	7/16"	13 = EPDM	LC = Latching Coil
1010 =	3/4" NPT	3/4"	51 = HNBR (Steam)	CO = 1/2" NPT Conduit
1111 =	1" NPT	1"		CL = 1/2" NPT Conduit with 24" Lead Wires
1212 =	1-1/4" NPT	1-1/4"		
1313 =	1-1/2" NPT	1-1/2"		
1414 =	2" NPT	2"		



R	ØA	B	H	H ₁	L	L ₁
1/4" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
3/8" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
1/2" NPT	1.73 (44)	.77 (19.5)	3.19 (81)	2.64 (67)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	.95 (24)	3.47 (88)	2.82 (71.5)	3.15 (80)	1.44 (36.5)
1" NPT	2.44 (62)	1.16 (29.5)	3.84 (97.5)	3.03 (77)	3.74 (95)	1.73 (44)
1-1/4" NPT	3.62 (92)	1.75 (44.5)	4.90 (124.5)	3.76 (95.5)	5.20 (132)	2.36 (60)
1-1/2" NPT	3.62 (92)	1.75 (44.5)	4.90 (124.5)	3.76 (95.5)	5.20 (132)	2.36 (60)
2" NPT	4.29 (109)	2.15 (54.5)	5.61 (142.5)	4.25 (108)	6.30 (160)	2.91 (74)

Power Consumption

DC	AC	
	Inrush	Holding
6.5W	15VA	12VA



- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Coil
- 701 Guide

- *702 O-ring
- 703 Screw piece
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Electrical connector

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Slightly Aggressive Gases and Liquids
- Operates at Zero Pressure Differential
- High Flow Capacity
- Compact Design
- Suitable for Vacuum


Technical Data

Function: 2-Way Normally Closed

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
1/4"	3/8"	1.8	0 - 145 PSI (0 - 10 bar)
3/8"	3/8"	2.0	0 - 145 PSI (0 - 10 bar)
1/2"	3/8"	2.0	0 - 145 PSI (0 - 10 bar)

Temperature Rating:

Ambient:

14°F to 140°F (-10°C to +60°C)

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM, Fluorocarbon

Power Rating: 12 Watt

Voltage:

24 Volt DC

24/50, 110/50, 120/60, 220/60, 230/50 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: Stainless Steel

Diaphragm:

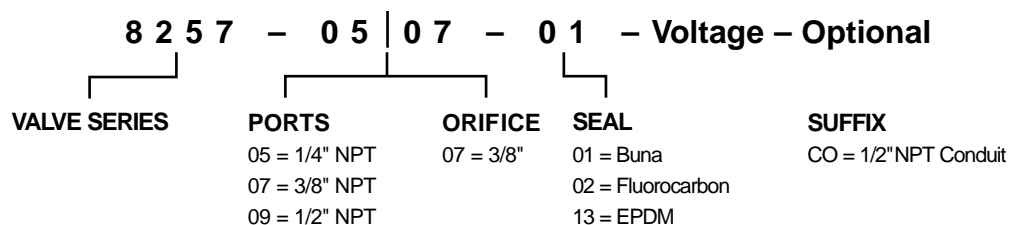
Buna (Standard)

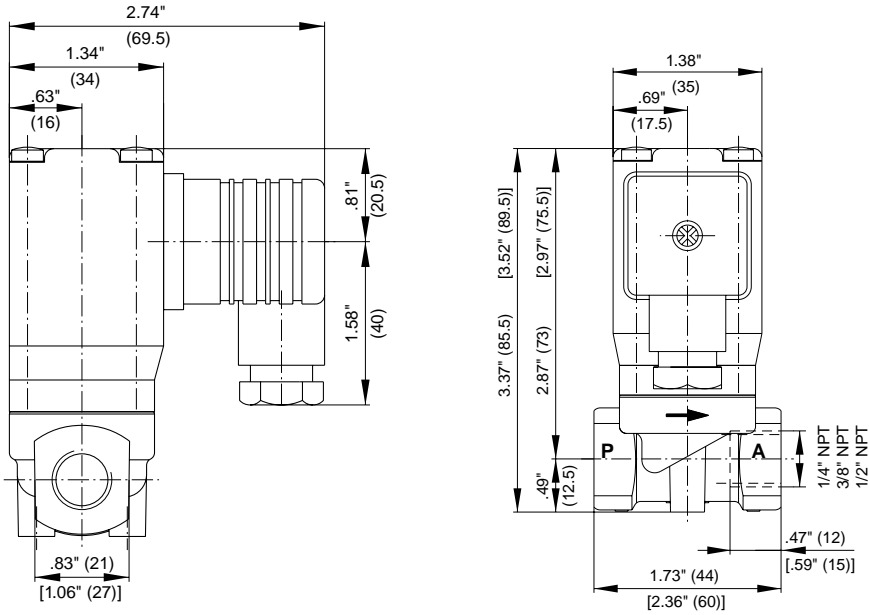
Fluorocarbon, EPDM (Optional)

Other Wetted Parts:

Stainless Steel, Polyamid 66

Coil: Class F, Molded, Continuous Duty

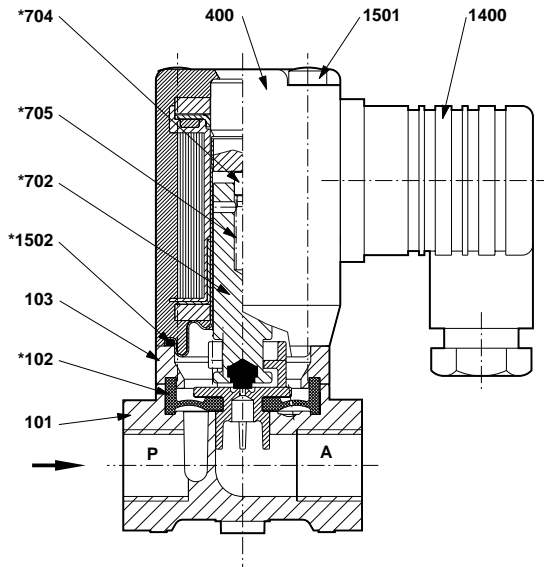
Part Number Identification




Power Consumption

DC	AC	
	Inrush	Holding
12W	13VA	13VA

Dimensions in [] for version 1/2" NPT.



- 101 Valve body
- *102 Diaphragm
- 103 Spacer
- 400 Coil
- *702 Plunger
- *704 Guide pin
- *705 Pressure spring
- 1400 Electrical connector
- 1501 Oval head cap screw
- *1502 O-ring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Hot Water & Steam Valves Available
- Operates at Zero Pressure Differential
- High Flow Capacity
- Compact Design


Technical Data

Function: 2-Way Normally Closed

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)*
1/4"	3/8"	1.8	0 - 145 PSI (0 - 10 bar)
3/8"	3/8"	2.0	0 - 145 PSI (0 - 10 bar)
1/2"	3/8"	2.0	0 - 145 PSI (0 - 10 bar)

*0 - 87 PSI (0 - 6 bar): HNBR Seal

Temperature Rating

Ambient:

14°F to 140°F (-10°C to +60°C)

14°F to 122°F (-10°C to +50°C) - HNBR

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM, Fluorocarbon

14°F to 302°F (-10°C to +150°C) - HNBR

Power Rating: 12 Watt

Voltage:

24 Volt DC

24/50, 110/50, 120/60, 220/60, 230/50 Volt AC

Electrical Connector: DIN Style Plug with Removable Cable Plug Adapter

Body: Brass

Diaphragm:

Buna (Standard)

Fluorocarbon, EPDM, HNBR (Optional)

Other Wetted Parts: Brass, Polyamid 66

Coil: Class F, Molded, Continuous Duty, UL Recognized

Part Number Identification
A 8 - 8 2 6 3 - 0 5 | 0 7 - 0 1 - U - Voltage - Optional
VALVE SERIES
PORTS
ORIFICE
SEAL
SUFFIX

05 = 1/4" NPT

07 = 3/8"

01 = Buna

CO = 1/2" NPT Conduit

07 = 3/8" NPT

02 = Fluorocarbon

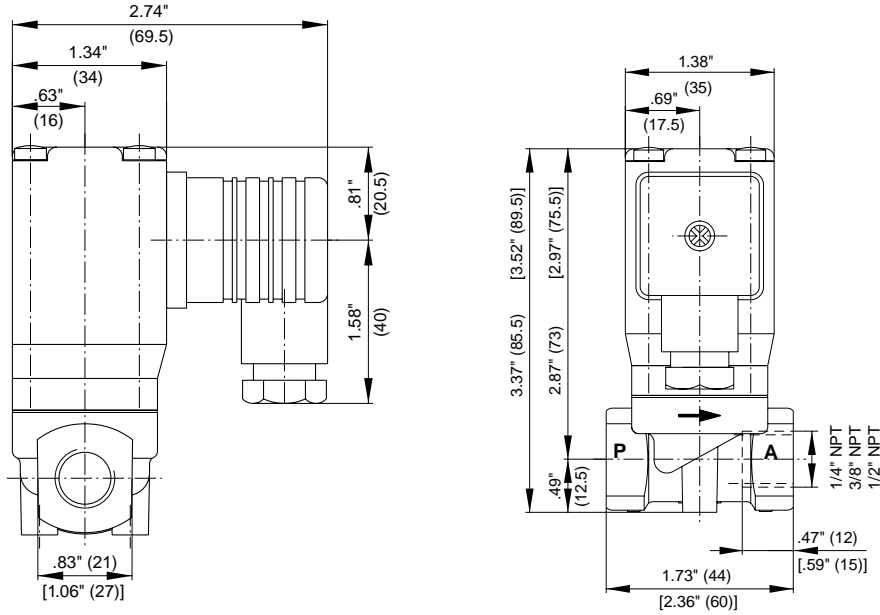
CL = 1/2" NPT Conduit with

09 = 1/2" NPT

13 = EPDM

24" Lead Wires

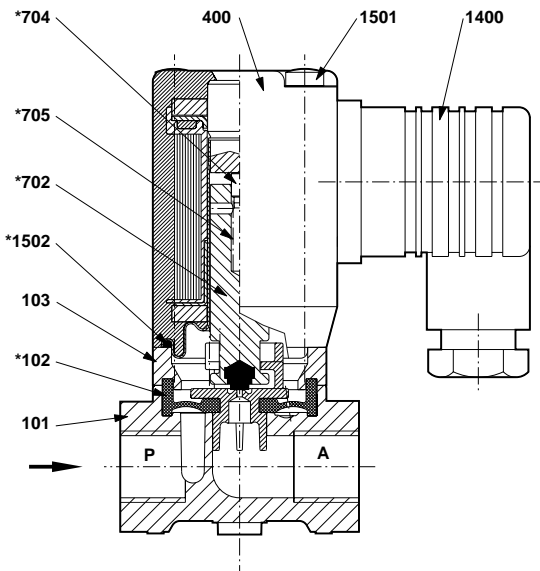
51 = HNBR (Steam)



Power Consumption

DC	AC	
	Inrush	Holding
12W	20VA	16VA

Dimensions in [] for version 1/2" NPT.



- 101 Valve body
- *102 Diaphragm
- 103 Spacer
- 400 Coil
- *702 Plunger
- *704 Guide pin
- *705 Pressure spring
- 1400 Electrical connector
- 1501 Oval head cap screw
- *1502 O-ring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Zero Pressure Differential
- Interchangeable “Click-On” Coil
- Normally Open – Optional
- Suitable for Vacuum


Technical Data
Function:

2-Way Normally Closed

2-Way Normally Open – Optional

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
1/4"	5/16"	2.3	0 - 145 PSI (0 - 10 bar)
3/8"	3/8"	3.6	0 - 145 PSI (0 - 10 bar)
1/2"	7/16"	4.1	0 - 145 PSI (0 - 10 bar)
3/4"	3/4"	7.0	0 - 145 PSI (0 - 10 bar)
1"	1"	9.6	0 - 145 PSI (0 - 10 bar)

Temperature Rating:
Ambient:

14°F to 122°F (-10°C to +50°C)

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - Fluorocarbon, EPDM

Power Rating: 18 Watt

Voltage:

24 Volt DC

 24/50-60, 42/50-60, 110/50-60, 230/50-60
 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: Brass

Seal:


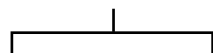

Buna (Standard)

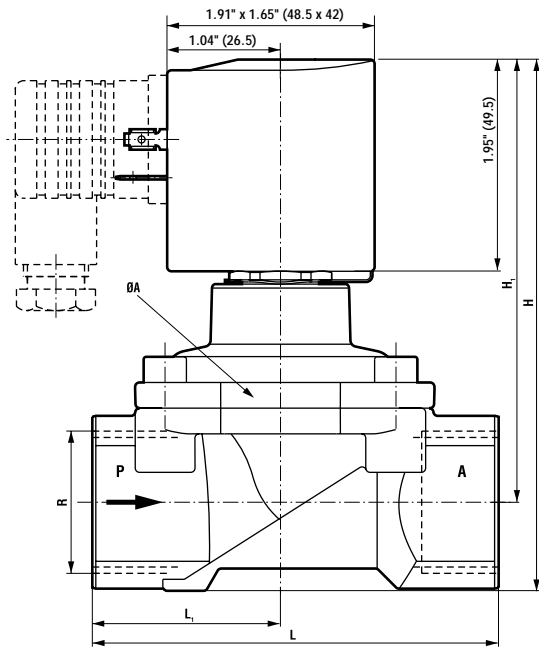
Fluorocarbon, EPDM (Optional)

Other Wetted Parts: Stainless Steel, PVDF

Coil: Class F, Molded, Continuous Duty

Part Number Identification

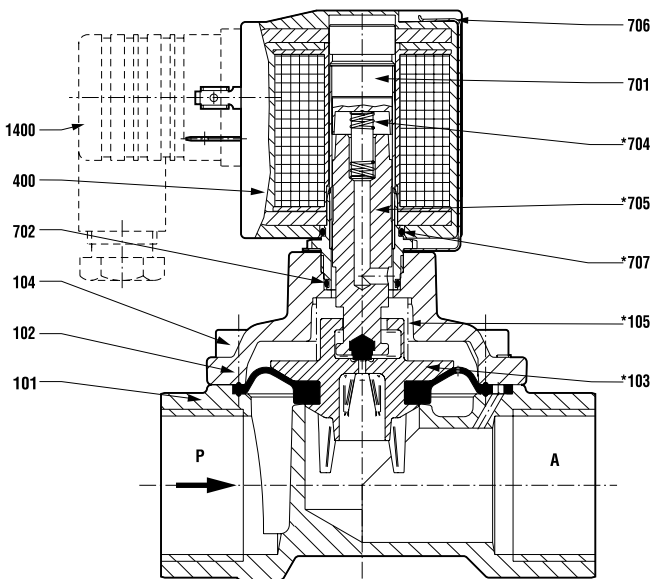
8 2 6 4 - 1 1 1 1 - 0 1 - Voltage - Optional					
					
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX	
	0506 = 1/4" NPT	5/16"	01 = Buna	NO = Normally Open	
	0707 = 3/8" NPT	3/8"	02 = Fluorocarbon	CO = 1/2" NPT Conduit	
	0908 = 1/2" NPT	7/16"	13 = EPDM	CL = 1/2" NPT Conduit with 24" Lead Wires	
	1010 = 3/4" NPT	3/4"			
	1111 = 1" NPT	1"			



R	AØ	H	H _i	L	L ₁
1/4" NPT	1.74 (44)	4.10 (104)	3.64 (92.5)	2.37 (60)	1.08 (27.5)
3/8" NPT	1.74 (44)	4.10 (104)	3.64 (92.5)	2.37 (60)	1.08 (27.5)
1/2" NPT	1.74 (44)	4.26 (108)	3.72 (94.5)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	4.53 (115)	3.90 (99)	3.15 (80)	1.43 (36.5)
1" NPT	2.44 (62)	4.90 (124)	4.07 (103.5)	3.74 (95)	1.74 (44)

Power Consumption

DC	AC	
	Inrush	Holding
18W	20VA	20VA



- 101 Valve body
- 102 Body cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Coil
- 701 Guide
- 702 O-ring
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- *707 O-ring
- 1400 Electrical connector

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Hot Water & Steam Valves Available
- Operates at Zero Pressure Differential
- High Flow Capacity
- Suitable For Vacuum


Technical Data

Function: 2-Way Normally Closed

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
1/4"	5/16"	2.3	DC Valves: 0 - 116 PSI (0 - 8 bar)
3/8"	3/8"	3.1	AC Valves: 0 - 232 PSI (0 - 16 bar)
1/2"	1/2"	3.8	All Steam Valves (HNBR Seal):
3/4"	3/4"	9.0	0 - 145 PSI (0 - 10 bar)
1"	1"	12.0	

Temperature Rating

Ambient:

14°F to 122°F (-10°C to +50°C)

14°F to 140°F (-10°C to +60°C) - HNBR

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM, Fluorocarbon

14°F to 302°F (-10°C to +150°C) - HNBR

Power Rating: 18 Watt

Voltage:

24 Volt DC

 24/50, 110/50, 120/60, 220/60,
230/50 Volt AC

Electrical Connector:

 DIN Style Plug with Removable Cable Plug
Adapter

Body: Brass

Diaphragm:

Buna (Standard)

Fluorocarbon, EPDM, HNBR (Optional)

Other Wetted Parts: Brass, PVDF, 430F

Stainless, 304 Stainless

Coil: Class F, Molded, Continuous Duty, UL

Recognized

Part Number Identification
A 8 - 8 2 6 5 - 1 1 1 1 - 0 1 - U - Voltage - Optional
VALVE SERIES
PORTS
ORIFICE
SEAL
SUFFIX

0506 = 1/4" NPT

5/16"

01 = Buna

CO = 1/2" NPT Conduit

0707 = 3/8" NPT

3/8"

02 = Fluorocarbon

CL = 1/2" NPT Conduit with

0909 = 1/2" NPT

1/2"

13 = EPDM

24" Lead Wires

1010 = 3/4" NPT

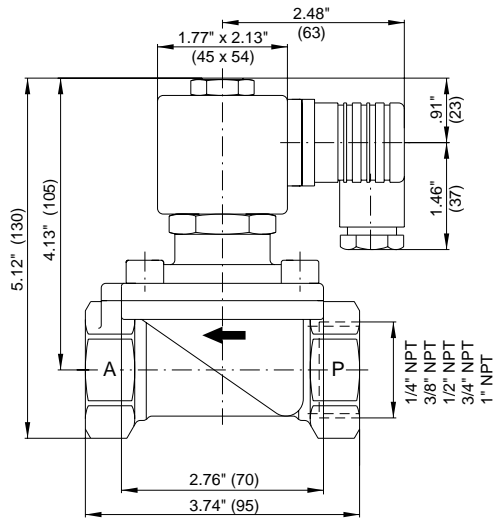
3/4"

51 = HNBR (Steam)*

1111 = 1" NPT

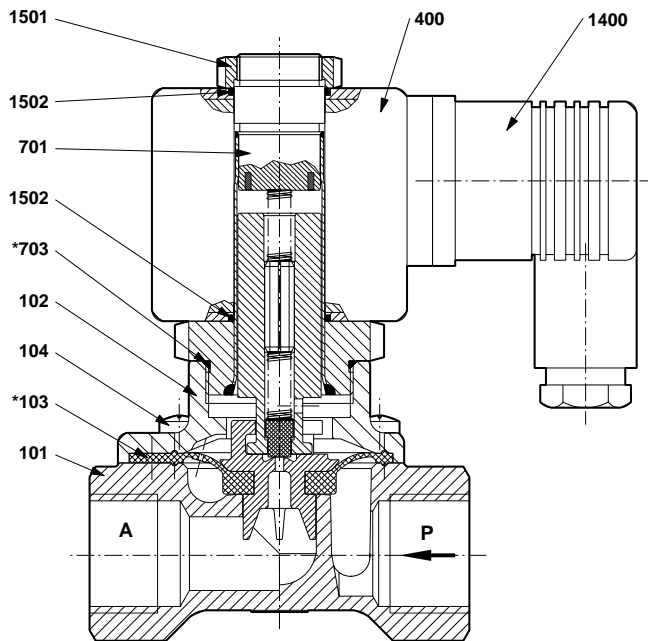
1"

* Note: Valves with seal option 51 (HNBR) are not available with UL recognized coils.



Power Consumption

DC	AC	
	Inrush	Holding
18W	106VA	35VA



- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Oval head cap screw up to 1/2" NPT
Socket head cap screw from 3/4" NPT
- 400 Coil
- 701 Guide
- *703 O-ring
- 1400 Socket
- 1501 Hexagon nut
- 1502 O-ring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Slightly Aggressive Gases and Liquids
- Hot Water Valves Available
- Minimal Pressure Differential Required
- Interchangeable “Click-On” Coil
- High Flow Rate
- Compact Design


Technical Data

Function:

2-Way Normally Closed

2-Way Normally Open – Optional

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
1/4"	5/16"	2.3	1.5 - 232 PSI (0.1 - 16 bar)
3/8"	3/8"	3.6	1.5 - 232 PSI (0.1 - 16 bar)
1/2"	7/16"	4.6	1.5 - 232 PSI (0.1 - 16 bar)
3/4"	3/4"	7.3	1.5 - 232 PSI (0.1 - 16 bar)
1"	1"	11.4	1.5 - 232 PSI (0.1 - 16 bar)

Temperature Rating

Ambient:

14°F to 122°F (-10°C to +50°C)

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM*, Fluorocarbon

*Pressure range (EPDM seals):

4.5 – 232 PSI (0.3 – 16 bar)

Power Rating: 8 Watt

Voltage:

24 Volt DC, 205 Volt DC

24/50, 110/50, 120/60, 220/60,

230/50 Volt AC

Electrical Connector:

 DIN Style Plug with Removable Cable
Plug Adapter

Body: Stainless Steel

Seal: Buna (Standard)

Other Wetted Parts: Stainless Steel, PVDF

 Coil: Class F, Molded, Continuous Duty,
UL Recognized

A 8 - 8 2 7 3 - 1 1 1 1 - 0 1 - U - Voltage - Optional

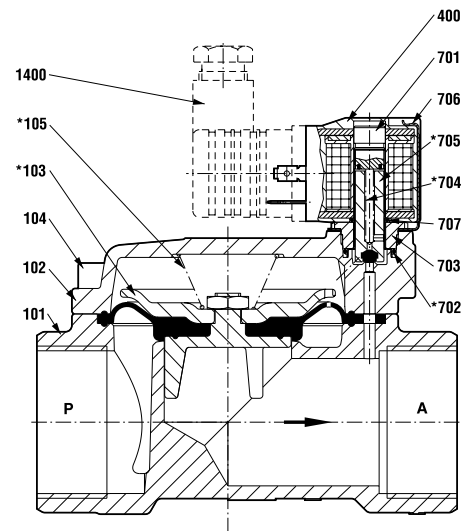
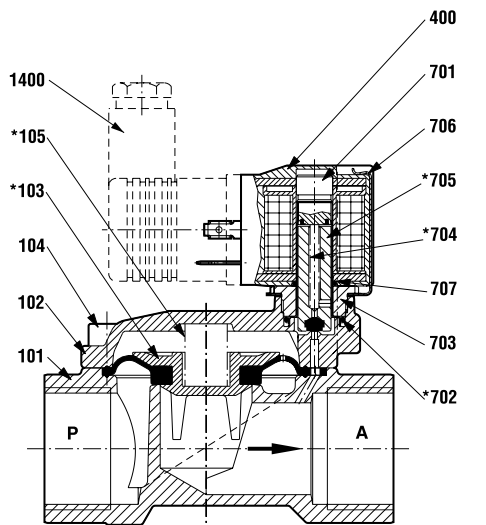
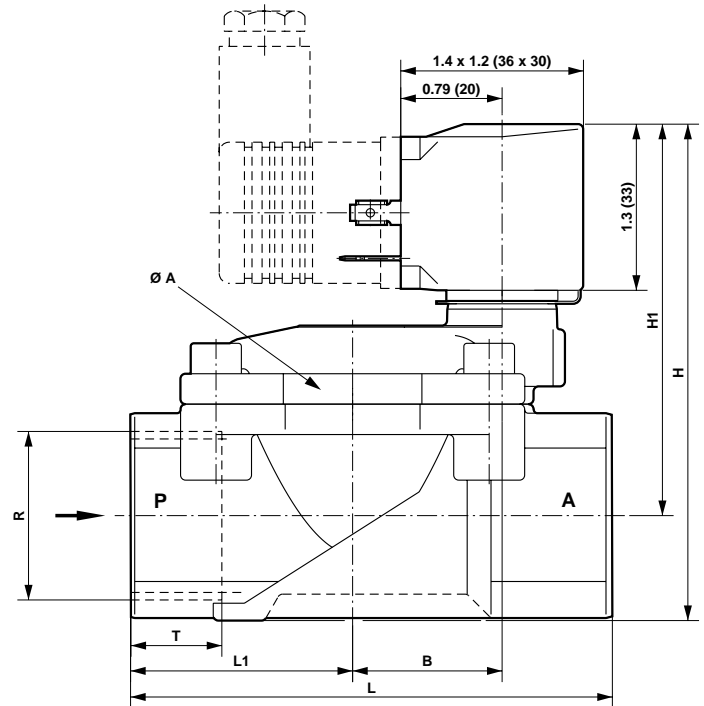
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
	0506 = 1/4" NPT	5/16"	01 = Buna	NO = Normally Open
	0707 = 3/8" NPT	3/8"	02 = Fluorocarbon	
	0908 = 1/2" NPT	7/16"	13 = EPDM (Hot Water)	
	1010 = 3/4" NPT	3/4"		
	1111 = 1" NPT	1"		



R	ØA	B	H	H ₁	L	L ₁
1/4" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
3/8" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
1/2" NPT	1.73 (44)	.77 (19.5)	3.19 (81)	2.64 (67)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	.95 (24)	3.47 (88)	2.82 (71.5)	3.15 (80)	1.44 (36.5)
1" NPT	2.44 (62)	1.16 (29.5)	3.84 (97.5)	3.03 (77)	3.74 (95)	1.73 (44)

Power Consumption

DC	AC	
	Inrush	Holding
8W	15VA	12VA



- 101 Valve body
- 102 Valve cover
- *103 Diaphragm
- 104 Socket head cap screw
- *105 Pressure spring
- 400 Coil
- 701 Guide

- *702 O-ring
- 703 Screw piece
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Electrical connector

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- High Flow Rate
- Waterhammer-Free
- Suitable for Slurries
- Optical Position Indicator Standard
- High Pressure Version Optional
- Vacuum Service Compatible


Technical Data

Function:

- 2-Way Normally Closed
- 2-Way Normally Open – Optional
- 2-Way Double-Acting – Optional

Flow Direction: Fixed, Underseat

Ports (NPT)	Orifice	Cv	Operating Pressure Range* (PSI)	Pilot Pressure Range (PSI)
1/2"	1/2"	5.8	0 - 232 (363)**	51 - 145
3/4"	3/4"	12.0	0 - 145 (232)**	51 - 145
1"	1"	16.8	0 - 145	51 - 145
1-1/4"	1-1/4"	27.6	0 - 102	51 - 145
1-1/2"	1-1/2"	36.0	0 - 65	51 - 145
2"	2"	44.4	0 - 44	51 - 145

 * Operating pressure range based on gaseous and liquid fluids up to 600 mm²/s

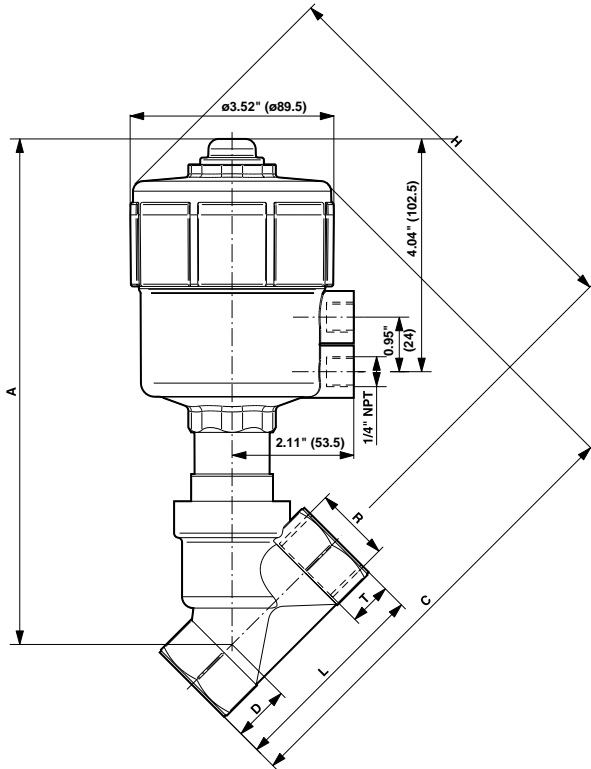
**High Pressure Version (see Part Number Identification below)

Temperature Rating

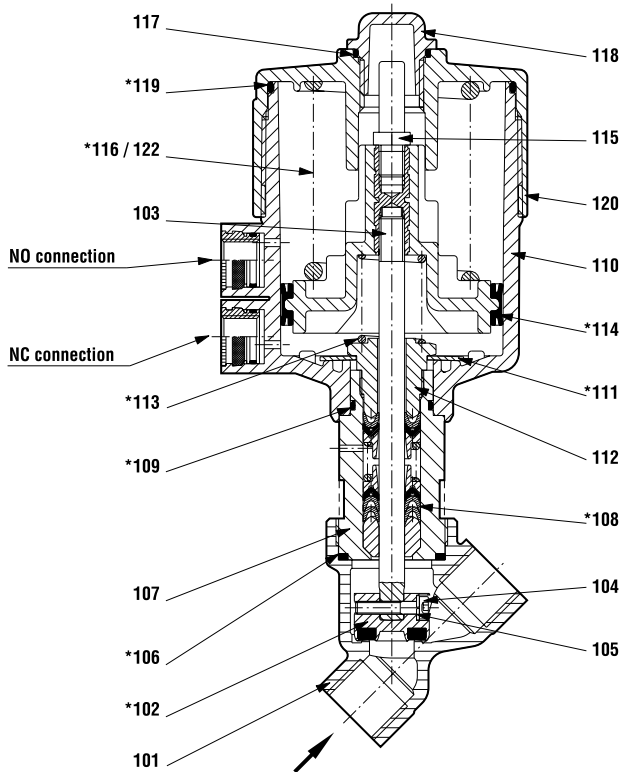
- Media: 14°F to 356°F (-10°C to +180°C)
- Ambient: 14°F to 140°F (-10°C to +60°C)

Part Number Identification

8 4 5 1		- 0 9 0 9		- 0 8		- Voltage - Optional	
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX			
	0909 = 1/2" NPT	1/2"	08 = PTFE	NO = Normally Open			
	1010 = 3/4" NPT	3/4"		DA = Double Acting			
	1111 = 1" NPT	1"		(4/2- or 5/2-way pilot valve required)			
	1212 = 1-1/4" NPT	1-1/4"		HP = High Pressure			
	1313 = 1-1/2" NPT	1-1/2"					
	1414 = 2" NPT	2"					



R	A	C	D	H	L	T
1/2" NPT	8.05 (204.5)	7.20 (183)	0.73 (18.5)	6.46 (164)	2.56 (65)	0.51 (13)
3/4" NPT	8.41 (213.5)	7.44 (189)	0.83 (21)	6.61 (168)	2.95 (75)	0.55 (14)
1" NPT	8.72 (221.5)	7.83 (199)	0.98 (25)	6.85 (174)	3.54 (90)	0.65 (16.5)
1-1/4" NPT	9.31 (236.5)	8.37 (212.5)	1.12 (28.5)	7.24 (184.5)	4.33 (110)	0.67 (17)
1-1/2" NPT	9.39 (238.5)	8.54 (217)	1.22 (31)	7.32 (186)	4.72 (120)	0.67 (17)
2" NPT	9.86 (250.5)	9.23 (234.5)	1.57 (40)	7.66 (194.5)	5.91 (150)	0.69 (17.5)



- 101 Valve body
- *102 Valve plate
- 103 Valve spindle, complete
- 104 Round head cap screw
- 105 Spring washer
- *106 Seal ring
- 107 Screw piece
- *108 Seal packing
- *109 O-ring
- 110 Control head housing cover, bottom part
- *111 Cup spring
- 112 Screw piece
- *113 Pressure spring
- *114 Cylinder packing
- 115 Signal pin
- *116 Pressure spring
- 117 O-ring
- 118 Cover cap
- *119 O-ring
- 120 Control head housing cover
- *122 Pressure spring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Aggressive Gases and Liquids
- High Flow Rate
- Waterhammer-Free
- Suitable for Slurries
- Optical Position Indicator Standard
- High Pressure Version Optional
- Vacuum Service Compatible


Technical Data

Function:

- 2-Way Normally Closed
- 2-Way Normally Open – Optional
- 2-Way Double-Acting – Optional

Flow Direction: Fixed, Underseat

Ports (NPT)	Orifice	Cv	Operating Pressure Range* (PSI)	Pilot Pressure Range (PSI)
1/2"	1/2"	5.8	0 - 232 (580)**	51 - 145
3/4"	3/4"	12.0	0 - 145 (232)**	51 - 145
1"	1"	16.8	0 - 145	51 - 145
1-1/4"	1-1/4"	27.6	0 - 102	51 - 145
1-1/2"	1-1/2"	36.0	0 - 65	51 - 145
2"	2"	44.4	0 - 44	51 - 145

 * Operating pressure range based on gaseous and liquid fluids up to 600 mm²/s

** High Pressure Version (see Part Number Identification below)

Temperature Rating

Media:

14°F to 356°F (-10°C to +180°C)

Ambient:

14°F to 140°F (-10°C to +60°C)

Body: Stainless Steel

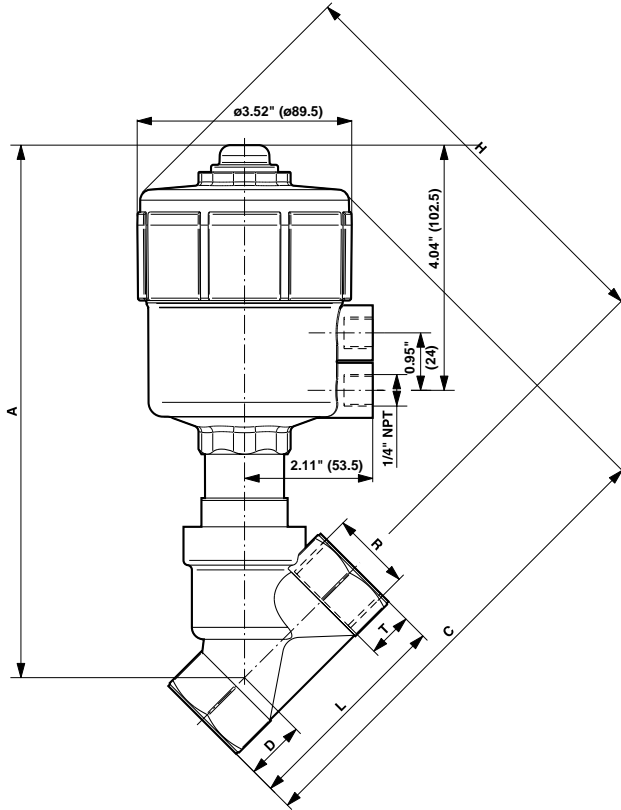
Seal: PTFE

Other Wetted Parts: Stainless Steel

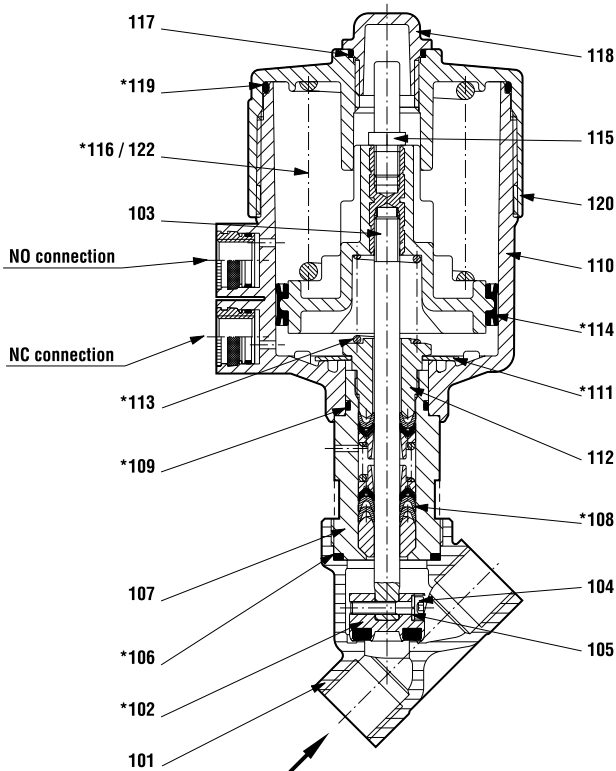
Actuator: 30% Glass-Filled Polyamid 66

Part Number Identification
8 4 5 3 - 0 9 0 9 - 0 8 - Voltage - Optional

VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
0909 =	1/2" NPT	1/2"	08 = PTFE	NO = Normally Open
1010 =	3/4" NPT	3/4"		DA = Double Acting
1111 =	1" NPT	1"		(4/2- or 5/2-way pilot valve required)
1212 =	1-1/4" NPT	1-1/4"		HP = High Pressure
1313 =	1-1/2" NPT	1-1/2"		
1414 =	2" NPT	2"		



R	A	C	D	H	L	T
1/2" NPT	8.05 (204.5)	7.20 (183)	0.73 (18.5)	6.46 (164)	2.56 (65)	0.51 (13)
3/4" NPT	8.41 (213.5)	7.44 (189)	0.83 (21)	6.61 (168)	2.95 (75)	0.55 (14)
1" NPT	8.72 (221.5)	7.83 (199)	0.98 (25)	6.85 (174)	3.54 (90)	0.65 (16.5)
1-1/4" NPT	9.31 (236.5)	8.37 (212.5)	1.12 (28.5)	7.24 (184.5)	4.33 (110)	0.67 (17)
1-1/2" NPT	9.39 (238.5)	8.54 (217)	1.22 (31)	7.32 (186)	4.72 (120)	0.67 (17)
2" NPT	9.86 (250.5)	9.23 (234.5)	1.57 (40)	7.66 (194.5)	5.91 (150)	0.69 (17.5)



- 101 Valve body
- *102 Valve plate
- 103 Valve spindle, complete
- 104 Round head cap screw
- 105 Spring washer
- *106 Seal ring
- 107 Screw piece
- *108 Seal packing
- *109 O-ring
- 110 Control head housing cover, bottom part
- *111 Cup spring
- 112 Screw piece
- *113 Pressure spring
- *114 Cylinder packing
- 115 Signal pin
- *116 Pressure spring
- 117 O-ring
- 118 Cover cap
- *119 O-ring
- 120 Control head housing cover
- *122 Pressure spring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Hot Water & Steam Valves Available
- Operates at Zero Pressure Differential
- Manual Override – Optional (3/4" - 2" NPT only)
- High Flow Capacity


Technical Data
Function:

2-Way Normally Closed

2-Way Normally Open – Optional

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
1/2"	7/16"	4.5	
3/4"	3/4"	13.2	0 - 360 PSI (0 - 25 bar)
1"	1"	15.6	All orifice sizes:
1-1/4"	1-1/4"	36.0	0 - 232 PSI (0 - 16 bar) - PTFE
1-1/2"	1-1/2"	37.2	
2"	2"	55.2	

Temperature Rating
Ambient:

14°F to 122°F (-10°C to +50°C)

14°F to 140°F (-10°C to +60°C) - PTFE

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM, Fluorocarbon

14°F to 392°F (-10°C to +200°C) - PTFE

Power Rating:

22 Watt (1/2" NPT)

40 Watt (3/4" NPT to 2" NPT)

Voltage:

24 Volt DC

24/50-60, 110/50-60, 230/50-60 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: Brass


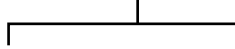



Piston Seal: Buna (Standard)

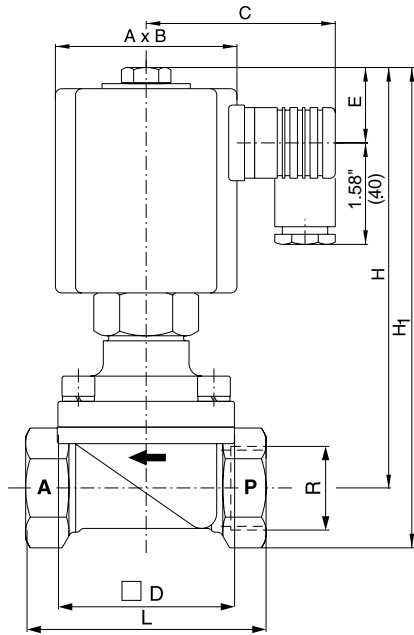
Fluorocarbon, EPDM, PTFE (Optional)

Other Wetted Parts: Stainless Steel, Brass, Gun Metal

Coil: Class F, Molded, Continuous Duty

Part Number Identification

8 5 0 1 - 1 1 1 1 - 0 1 - Voltage - Optional				
				
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
	0908 = 1/2" NPT	7/16"	01 = Buna	NO = Normally Open
	1010 = 3/4" NPT	3/4"	02 = Fluorocarbon	MO = Manual Override
	1111 = 1" NPT	1"	08 = PTFE	CO = 1/2" NPT Conduit
	1212 = 1-1/4" NPT	1-1/4"	13 = EPDM	CL = 1/2" NPT Conduit with 24" Lead Wires
	1313 = 1-1/2" NPT	1-1/2"		
	1414 = 2" NPT	2"		

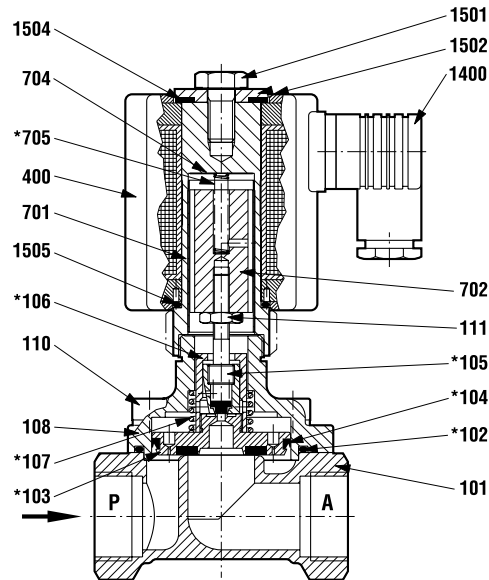
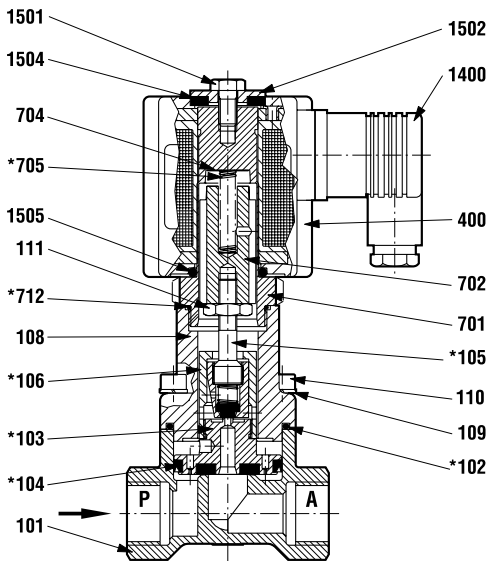


R	A x B	C	□ D	E	H	H ₁	L
1/2" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	5.71 (145)	6.30 (160)	2.64 (67)
3/4" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
1" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
1-1/4" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	3.78 (96)	1.22 (31)	7.36 (187)	8.66 (220)	5.20 (132)
1-1/2" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	3.78 (96)	1.22 (31)	7.36 (187)	8.66 (220)	5.20 (132)
2" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	4.41 (112)	1.22 (31)	7.80 (198)	9.37 (238)	6.30 (160)

Power Consumption

DC	AC	
	Inrush	Holding
22W	25VA	25VA
40W	45VA	45VA

AC coil incl. rectifier



- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring, from 3/4" NPT
- 108 Body cover
- 109 Spring washer
- 110 Round head cap screw
- 111 Hexagon nut

- 400 Coil
- 701 Guide
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- *712 O-ring, 1/2" NPT only
- 1400 Socket
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Suitable for Slightly Aggressive Media
- Operates at Zero Pressure Differential
- High Flow Capacity
- Suitable for Vacuum


Technical Data
Function:

- 2-Way Normally Closed
- 2-Way Normally Open – Optional

Ports (NPT)	Orifice	Cv	Operating Pressure Range (PSI)
3/8"	3/8"	4.0	
1/2"	7/16"	4.5	0 - 360 PSI (0 - 25 bar)
3/4"	3/4"	13.2	All orifice sizes:
1"	1"	15.5	0 - 232 PSI (0 - 16 bar) - PTFE

Temperature Rating
Ambient:

14°F to 122°F (-10°C to +50°C)

Fluid:

- 4°F to 194°F (-20°C to +90°C) - Buna
- 4°F to 230°F (-20°C to +110°C) - EPDM, Fluorocarbon, PTFE

Power Rating:

- 22 Watt (3/8" NPT, 1/2" NPT)
- 40 Watt (3/4" NPT, 1" NPT)

Voltage:

- 24 Volt DC
- 24/50-60, 110/50-60, 230/50-60 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: 316 Stainless Steel


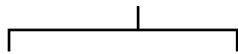

Piston Seal:

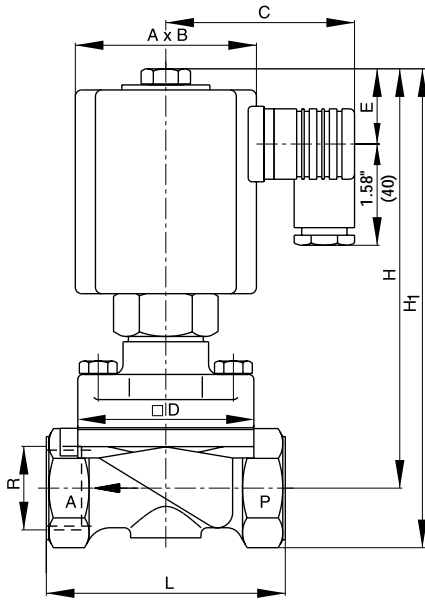
- Buna (Standard)
- Fluorocarbon, EPDM, PTFE (Optional)

Other Wetted Parts: 430F, 316, 304, 301 Stainless Steel

Coil: Class F, Molded, Continuous Duty

Part Number Identification

8 5 0 5 - 0 7 0 7 - 0 1 - Voltage - Optional				
				
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
	0707 = 3/8" NPT	3/8"	01 = Buna	NO = Normally Open
	0908 = 1/2" NPT	7/16"	02 = Fluorocarbon	CO = 1/2" NPT Conduit
	1010 = 3/4" NPT	3/4"	08 = PTFE	CL = 1/2" NPT Conduit with
	1111 = 1" NPT	1"	13 = EPDM	24" Lead Wires

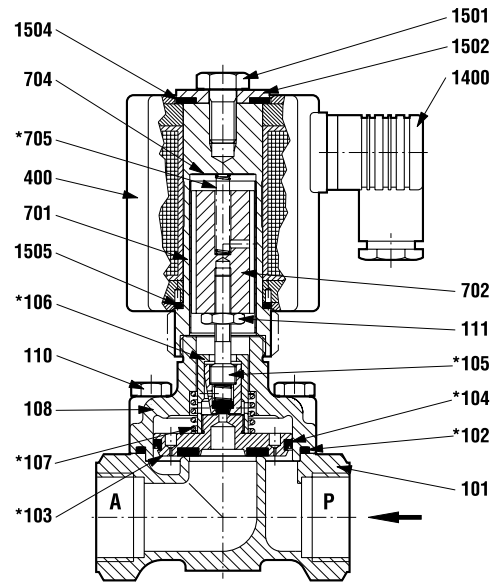
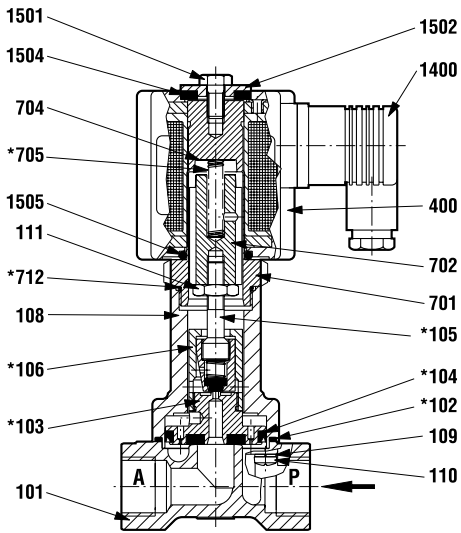


R	A x B	C	□ D	E	H	H ₁	L
3/8" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	5.91 (150)	6.50 (165)	2.64 (67)
1/2" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	6.91 (150)	6.50 (165)	2.64 (67)
3/4" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
1" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)

Power Consumption

DC	AC	
	Inrush	Holding
22W	25VA	25VA
40W	45VA	45VA

AC coil incl. rectifier



- 101 Valve body
- *102 O-ring
- *103 Valve plate
- *104 Grooved ring
- *105 Valve spindle
- *106 Screw piece
- *107 Pressure spring, from 3/4" NPT
- 108 Body cover
- 109 Spring washer, 1/2" NPT only
- 110 Round head screw, 1/2" NPT only
Hexagon head screw from 3/4" NPT
- 111 Hexagon nut

- 400 Coil
- 701 Guide
- 702 Plunger
- 704 Round plate
- *705 Pressure spring
- *712 O-ring, 1/2" NPT only
- 1400 Electrical connector
- 1501 Hexagon screw
- 1502 Round plate
- 1504 Gasket
- 1505 O-ring

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.

- Ideal for Control of Neutral Gases and Liquids
- Minimal Pressure Differential Required
- Interchangeable “Click-On” Coil
- High Flow – High Pressure Capacity
- Manual Override – Optional


Technical Data

Function:

2-Way Normally Closed

2-Way Normally Open – Optional

Ports (NPT): 1/4" 3/8" 1/2" 3/4" 1"

Orifice: 5/16" 3/8" 1/2" 3/4" 1"

Cv Factor: 2.6 4.1 5.3 8.4 12.6

Pressure Range: 7.25 - 580 PSI (0.5 - 40 bar) all orifice sizes

Temperature Rating

Ambient:

14°F to 122°F (-10°C to +50°C)

Fluid:

14°F to 194°F (-10°C to +90°C) - Buna

14°F to 230°F (-10°C to +110°C) - EPDM, Fluorocarbon

Power Rating: 18 Watt

Voltage:

24 Volt DC

24/50, 110/50, 120/60, 220/60, 230/50 Volt AC

Electrical Connector:

DIN Style Plug with Removable Cable Plug Adapter

Body: Brass

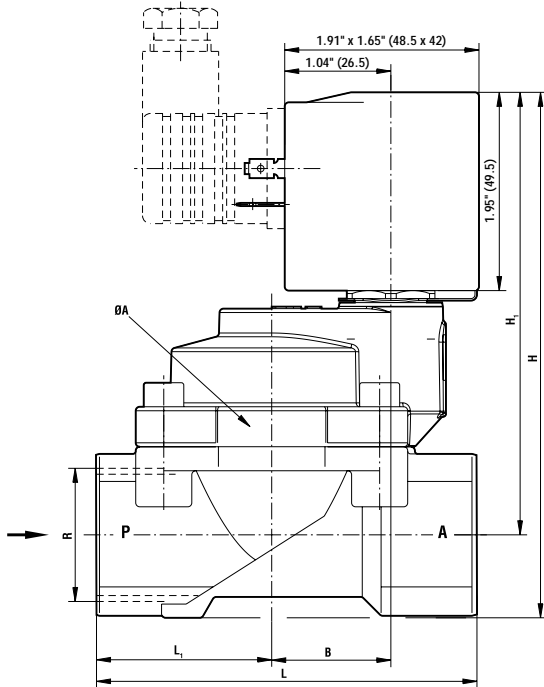
Seal: Buna (Standard)

Other Wetted Parts: Brass, PTFE, Stainless Steel

Coil: Class F, Molded, Continuous Duty

Part Number Identification
8 5 3 1 - 0 5 0 6 - 0 1 - Voltage - Optional

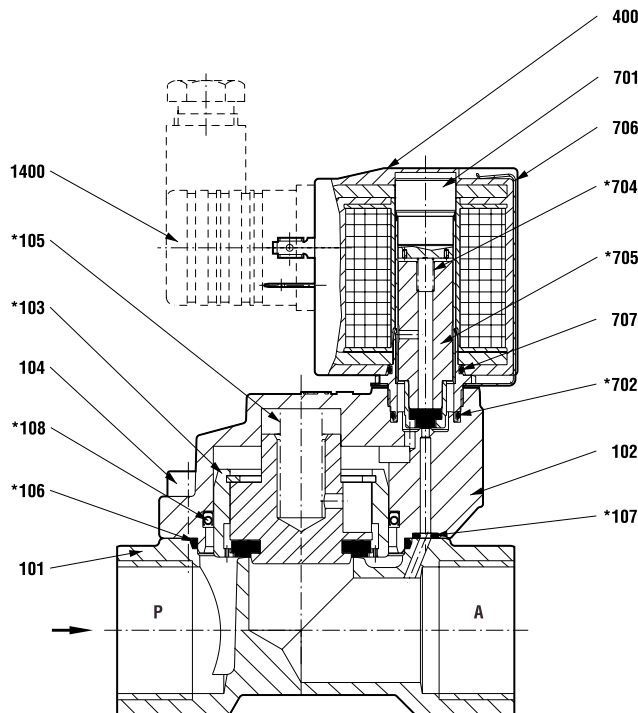
VALVE SERIES	PORTS	ORIFICE	SEAL	SUFFIX
	0506 = 1/4" NPT	5/16"	01 = Buna	NO = Normally Open
	0707 = 3/8" NPT	3/8"	02 = Fluorocarbon	MO = Manual Override
	0909 = 1/2" NPT	1/2"	13 = EPDM	CO = 1/2" NPT Conduit
	1010 = 3/4" NPT	3/4"		CL = 1/2" NPT Conduit with
	1111 = 1" NPT	1"		24" Lead Wires



R	B	H	H ₁	L	L ₁	AØ
1/4" NPT	0.77 (19.5)	4.13 (105)	3.68 (93.5)	2.36 (60)	1.08 (27.5)	1.73 (44)
3/8" NPT	0.77 (19.5)	4.13 (105)	3.68 (93.5)	2.36 (60)	1.08 (27.5)	1.73 (44)
1/2" NPT	0.77 (19.5)	4.23 (107.5)	3.68 (93.5)	2.64 (67)	1.22 (31)	1.73 (44)
3/4" NPT	0.95 (24)	4.70 (119)	4.04 (102.5)	3.15 (80)	1.44 (36.5)	1.97 (50)
1" NPT	1.16 (29.5)	5.18 (131.5)	4.35 (110.5)	3.74 (95)	1.73 (44)	2.44 (62)

Power Consumption

DC	AC	
	Inrush	Holding
18W	45VA	35VA



- 101 Valve body
- 102 Valve cover
- *103 Valve piston
- 104 Round head cap screw
- *105 Pressure spring
- *106 Seal ring
- *107 O-ring
- *108 Grooved ring
- 400 Coil
- 701 Guide
- *702 O-ring
- *704 Pressure spring
- *705 Plunger
- 706 Spring clip
- 707 O-ring
- 1400 Electrical connector

* These individual parts form a complete wearing unit. When ordering spare parts please state complete part number.



Copy this page. Fill in the blanks.

Fax it to KIP at (860) 677-4999

Call us at 1-800-722-5547

Date ___/___/___

Valve Inquiry Application Sheet

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



Series 8 Valve Inquiry Application Sheet

Date ____/____/____

CONTACT INFORMATION

Name _____ Company _____
 Address _____ City _____
 State _____ Zip _____ Telephone _____ Fax _____
 E-mail _____ Website _____

DESCRIPTION OF APPLICATION

Media _____
 Media Temperature Range _____
 Ambient Temperature Range _____
 Operating Pressure Range (Min./Max.) _____
 Back Pressure _____
 Desired Flow Rate @ Operating Pressure Differential _____

VALVE REQUIREMENTS

Function (circle one): **2-Way Normally Closed** **2-Way Normally Open** **Double Acting**
 Port Size _____
 Options (circle one): **Manual Override** **Latching Coil**
 Orifice Size _____
 Minimum Voltage _____ Maximum Voltage _____
 Maximum Wattage _____

MATERIALS OF CONSTRUCTION

Body (circle one): **Brass** **Stainless Steel** **PVDF** **PPS (Polyphenylene Sulphide)** **Bronze**
 Seal (circle one): **Buna** **EPDM** **Fluorocarbon** **PTFE** **HNBR**
 Immediate Production Quantity _____
 Estimated Annual Quantity _____

Copy this page. Fill in the blanks.

Fax it to KIP at (860) 677-4999 • Call us at 1-800-722-5547

KIP • 72 Spring Lane • Farmington, CT 06032 USA • email: sales@kipinc.com • www.kipinc.com



Warning

These products are intended to use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **Specifications**.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes. **System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.**

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products. System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

Warranty

Limited Warranty, Disclaimer and Limitation of Remedies

Items sold by Norgren are warranted to be free from defects in materials and workmanship for a period of one year from the date manufacture, provided said items are used according to Norgren's recommended usages and within Norgren's specifications. Norgren's liability is limited to the repair of, or replacement in kind of, at Norgren's sole option, any items proved defective, provided these items are returned to Norgren prepaid. To confirm date of purchase, invoice date or invoice number must be furnished; otherwise, date code on product will be used to determine eligibility for warranty coverage. The warranties expressed above are in lieu of and exclusive of all other warranties.

There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. Norgren's liability for breach of warranty as herein stated in the exclusive remedy, and in no event shall Norgren be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to Norgren.

Norgren reserves the right to discontinue manufacture of any product or change product materials, design, or specifications without notice.



M5 A metric machine screw thread (M5 x 0.8) 5 mm in diameter with 0.8 mm between threads. Used on miniature pneumatic products it is nearly identical in size to a 10-32 UNF thread. Port sealing is effected by a thermoplastic washer which creates a static face seal.

ISO G Designed to mate with threads conforming to ISO Standard 228/1, a parallel pipe thread available in both male and female forms. ISO G ports feature a flat surface perpendicular to the axis of the port on which a washer incorporated into the male fitting establishes a static face seal, (reference ISO 1179).

ISO G series threads are usually designated in the following manner, with a 1/4 size pipe thread being indicated in this example: G1/4. This format is always used with female threads, however, in some, but not all instances, male threads may include an "A" or "B" suffix following the port size indicating the thread class, (typically "A"). Example: G 1/4A.

In addition to itself, the ISO G thread form will also mate with British Standard Pipe Parallel (BSPP) and Japanese Industrial Standard Parallel per JIS B 0202. As both the BSPP and JIS B 0202 standards do not define an area for the ISO G static seal to engage, some form of thread sealant must be applied to the thread to prevent spiral leakage.

Note:

Norgren male ISO G threads have always included a thermoplastic washer to create the static face seal. During 1998/9 this design will be changed to provide an o-ring in an under-cut groove. This improved design will still mate with port forms shown opposite but will provide an improved seal.

ISO R Designed to mate with threads conforming to ISO Standard 7/1, a tapered pipe thread available in male form. ISO R ports are similar to NPTF threads, they form a pressure tight joint via an interference fit as they are tightened, (thread sealant is recommended). To insure a pressure tight seal, Pneufit ISO R male pipe threads are supplied with Precote 5 thread sealant.

ISO R male series threads are usually designated in the following manner, with a 1/4 size pipe thread being indicated in this example: R 1/4.

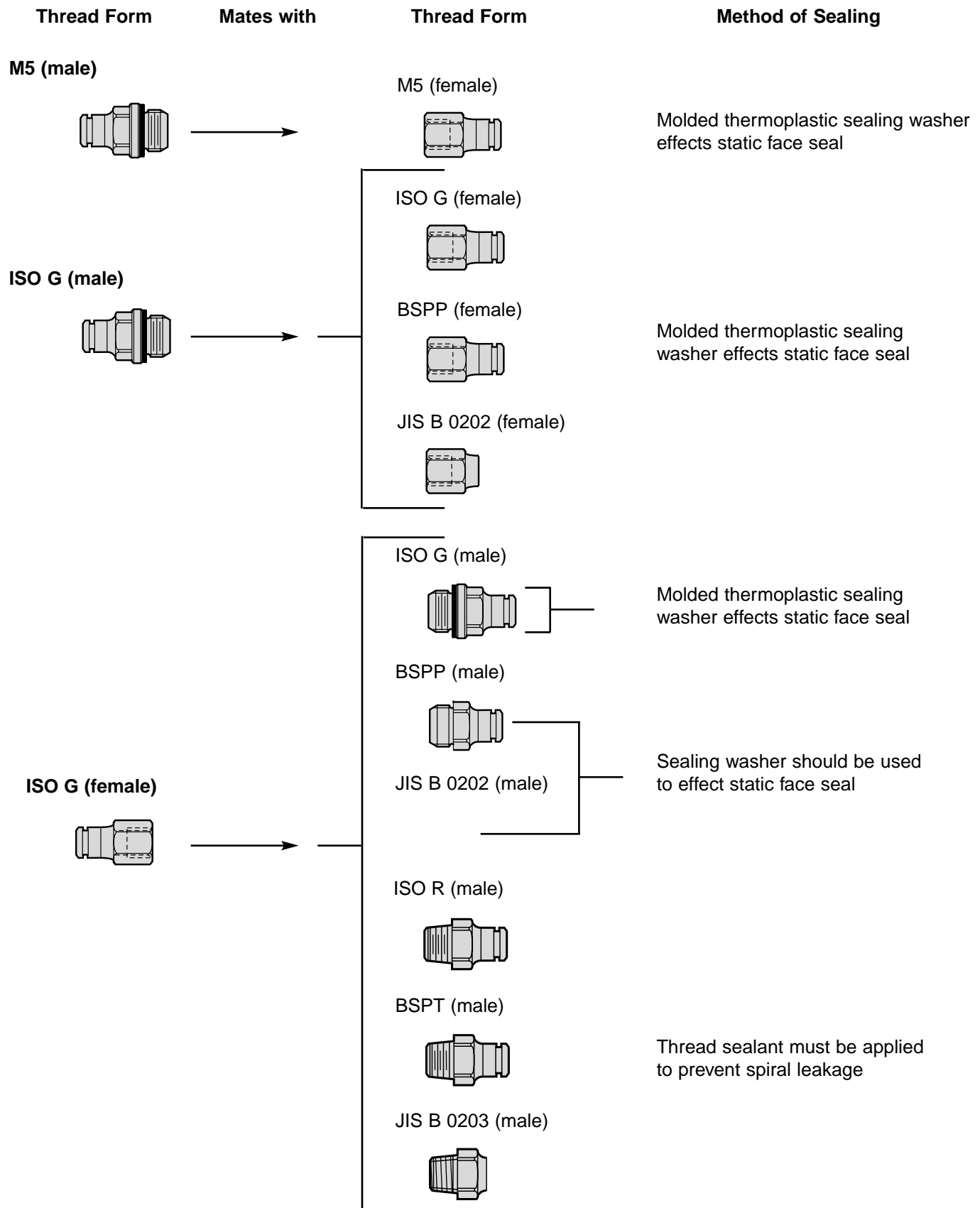
ISO R female series threads are usually designated in the same manner, but with a "c" subscript. Example: R_c1/4.

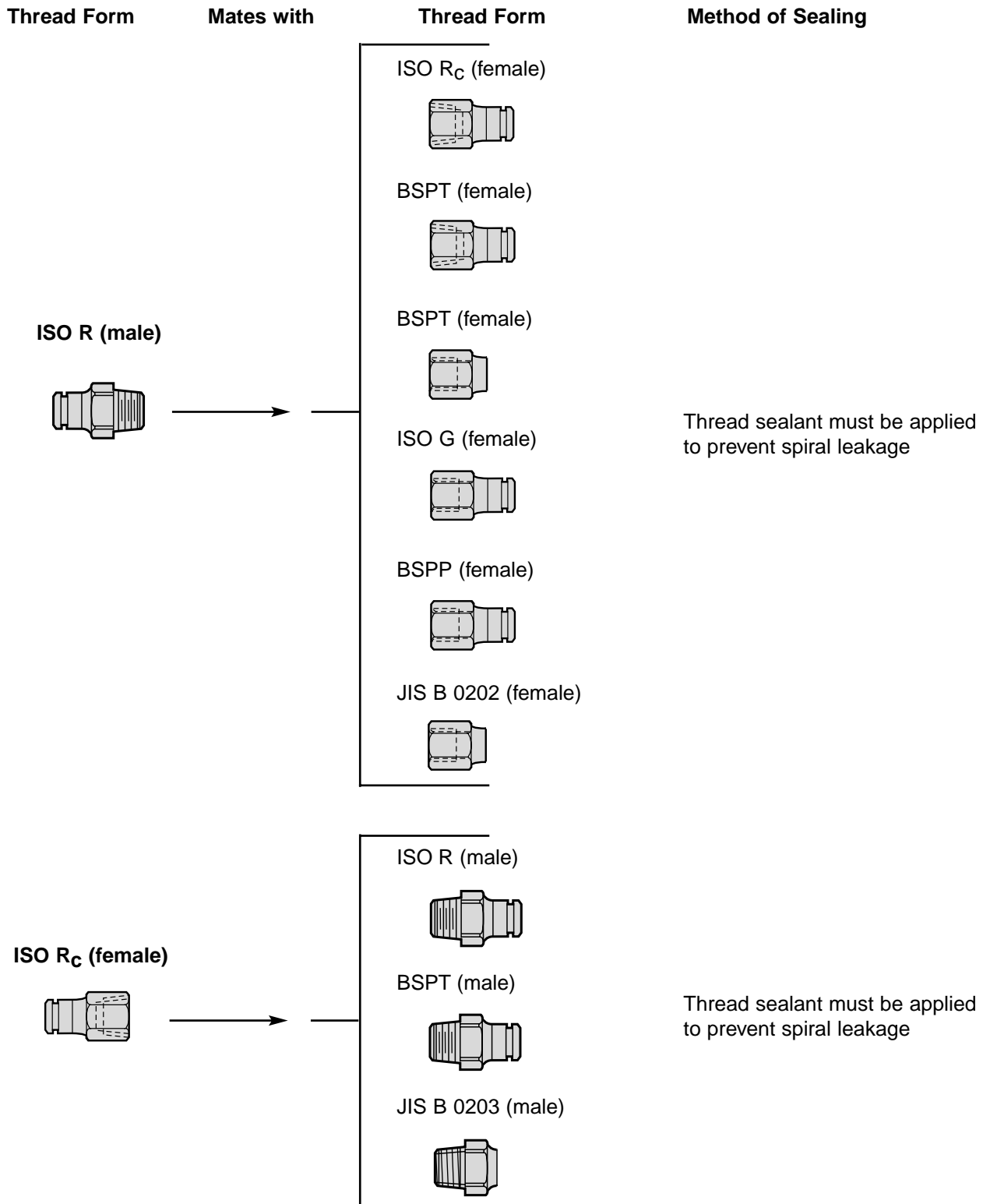
In addition to itself, the ISO R thread form will also mate with British Standard Pipe Tapered (BSPT) and Japanese Industrial Standard Tapered Pipe (PT) per JIS B 0203. Some form of thread sealant must be applied to the thread to prevent spiral leakage.

ISO R male threads will also effect a seal with ISO G, BSPP and JIS B 0202. In all cases, some form of thread sealant must be applied to the thread to prevent spiral leakage.



Thread Forms







Conversion Tables

VOLUME

from/to	cm ³	liter	in ³	ft ³	fl oz	pt.	qt.	gal
cm ³	1	.001	0.06102	3.53 x 10 ⁻⁵	.03381	.00211	0.106	2.64 x -10
liter	1000	1	61.02	0.03532	33.81	2.113	10.057	.2642
in ³	16.39	0.01639	1	5379 x 10 ⁻⁴	.5541	.03463	0.01732	.00433
ft ³	2.83 x 10 ⁴	28.32	1728	1	957.5	59.84	29.92	7.481
fl oz	29.57	0.02957	1.805	0.00104	1	.06250	.03125	.00781
pt	473.2	0.4732	28.88	0.01671	16	1	0.500	0.1250
qt	946.4	0.9463	57.75	0.03342	32	2	1	0.2500
gal (US)	3785	3.785	231	0.1337	128	8	4	1

PRESSURE

from/to	mm Hg	in Hg	in H ₂ O	ft H ₂ O	atm	lb/in ²	kg/cm ²
mm Hg	1	0.03937	0.5353	0.04460	.00132	0.01934	.00136
in Hg	25.40	1	13.60	1.133	.03342	0.4912	0.03453
in H ₂ O	1.868	0.07355	1	0.08333	0.00246	0.03613	0.00254
ft H ₂ O	22.42	0.8826	12	1	0.02950	0.4335	0.03048
atm	760	29392	406.8	33.9	1	14.70	1.033
lb/in ²	51.71	2.036	27.67	2.307	0.06805	1	0.07031
kg/cm ²	735.6	28.96	393.7	32.81	0.9678	14.22	1
bar	750.0	29.53	401.32	33.46	0.98592	14.504	1.01978

Length

from/to	cm	m	km	in	ft.	mile
cm	1	0.01	1 x 10 ⁻⁵	0.3937	0.03281	6.21 x 10 ⁻⁶
m	100	1	0.001	39.37	3.281	6.21 x 10 ⁻⁴
km	1 x 10 ⁵	1000	1	3.94 x 10 ⁴	3281	0.6214
in	2.540	0.02540	2.54 x 10 ⁻⁵	1	0.08333	1.58 x 10 ⁻⁵
ft	30.48	0.3048	3.05 x 10 ⁻⁴	12	1	1.89 x 10 ⁻⁴
mile	1.61 x 10 ⁵	1609	1.609	6.34 x 10 ⁴	5280	1

ENERGY

from/to	BTU	Cal	Joule	Hp. hr.	Kw hr.
BTU	1	252.0	1055	3.93 x 10 ⁻⁴	2.93 x 10 ⁻⁴
Cal	0.397	1	4.186	1.56 x 10 ⁻⁵	1.16 x 10 ⁻⁵
joule	9.48 x 10 ⁻⁴	0.2389	1	3.73 x 10 ⁻⁷	2.78 x 10 ⁻⁷
Hp hr	2545	6.41 x 10 ⁵	2.68 x 10 ⁶	1	0.7457
Kw hr	3413	8.60 x 10 ⁵	3.60 x 10 ⁶	1.341	1

AREA

from/to	cm ⁴	m ²	km ²	in ²	ft ²
cm ²	1	0.0001	1 x 10 ⁻¹⁰	0.1550	0.00108
m ²	1 x 10 ⁴	1	1 x 10 ⁻⁵	1550	10.76
km ²	1 x 10 ¹⁰	1x 10 ⁵	1	1.55 x 10 ⁹	1.08 x 10 ⁷
in ²	6.452	6.45 x 10 ⁻⁴	6.45 x 10 ⁻¹⁰	1	0.00694
ft ²	929.00	0.09290	9.29 x 10 ⁻⁸	144	1

TEMPERATURE CONVERSION

°C = 5/9 (°F - 32)
°F = 9/5 (°C + 32)
°K = °C + 273.2
°R = °F + 459.7

WEIGHT

from/to	gm	kg	oz	lb
gm	1	0.001	0.03527	0.00220
kg	1000	1	35.27	2.205
oz	28.35	0.02835	1	0.06250
lb	453.6	0.4536	16	1

TEMPERATURE COMPARISON

-100°C to +300°C			
°C	°F	°C	°F
-100	-148	29	84.2
-90	-130	30	86.0
-80	-112	31	87.8
-70	-94	32	89.6
-60	-76	33	91.4
-50	-58	34	93.2
-40	-40	35	95.0
-35	-31	36	96.8
-30	-22	37	98.6
-25	-13	38	100.4
-20	-4	39	102.2
-15	5	40	104.0
-10	14	45	113
-5	23	50	122
0	32	55	131
1	33.8	60	140
2	35.6	65	149
3	37.4	70	158
4	39.2	75	167
5	41	80	176
6	42.8	85	185
7	44.6	90	194
8	46.4	95	203
9	48.2	100	212
10	50	110	230
11	51.8	120	248
12	53.6	130	266
13	55.4	140	284
14	57.2	150	302
15	59	160	320
16	60.8	170	338
17	62.6	180	356
18	64.4	190	374
19	66.2	200	392
20	68	210	410
21	69.8	220	428
22	71.6	230	446
23	73.4	240	464
24	75.2	250	482
25	77	260	500
26	78.8	270	518
27	80.6	280	531
28	82.4	290	554
		300	572



www.kipinc.com is your complete source for the latest KIP Fluid Controls product information, technical tips, and other valuable information.

Welcome to KIP.
We specialize in quality-engineered, standard and custom controls for your industry. For immediate, expert technical assistance, call 800-722-5547 or 860-677-0272.

What's your control challenge?
If you have a specific need, put us to the test. Briefly describe your application and product requirements, and one of our design engineers will contact you to discuss the solution.

