Solenoid Valves

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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.

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

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 3</th>
<th>Series 6</th>
<th>KIP Jr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size - Diameter (inches)</td>
<td>1</td>
<td>1</td>
<td>1-3/16</td>
<td>1-5/8</td>
<td>0.80</td>
</tr>
<tr>
<td>Maximum MOPD (psi)</td>
<td>800</td>
<td>1000</td>
<td>1000</td>
<td>1200</td>
<td>100</td>
</tr>
<tr>
<td>Vacuum Service</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Max. Cv - Body</td>
<td>0.305</td>
<td>0.305</td>
<td>0.490</td>
<td>0.900</td>
<td>0.050</td>
</tr>
<tr>
<td>Min. Cv - Body</td>
<td>0.030</td>
<td>0.030</td>
<td>0.030</td>
<td>0.035</td>
<td>0.035</td>
</tr>
<tr>
<td>Max. Cv - Stop</td>
<td>0.125</td>
<td>0.140</td>
<td>0.140</td>
<td>0.270</td>
<td>0.025</td>
</tr>
<tr>
<td>Min. Cv - Stop</td>
<td>0.025</td>
<td>0.025</td>
<td>0.025</td>
<td>0.024</td>
<td>0.015</td>
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<tr>
<td>Power Rating</td>
<td>6 watts</td>
<td>7 watts</td>
<td>7 watts</td>
<td>10 watts</td>
<td>.65 watts</td>
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<td>Low Wattage Operators to 1.5 Watt</td>
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<td>Available</td>
<td>Available</td>
<td>N/A</td>
<td>Available</td>
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<tr>
<td>1/8&quot; NPTF Ports - Body</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>1/4&quot; NPTF Ports - Body</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>3/8&quot; NPTF Ports - Body</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>#10 - 32 UNF Ports - Body</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>1/8&quot; NPT or 1/4&quot; NPT Male Bottom Port</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>UL Recognized</td>
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<td>CSA Approved</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Grommet Style Housing</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Conduit Style Housing</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Spade Terminal Style - (Standard)</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>Spade Terminal Style - (Options)</td>
<td>3/16&quot;</td>
<td>3/16&quot;</td>
<td>3/16&quot;</td>
<td>3/16&quot;</td>
<td>3/16&quot;</td>
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<tr>
<td>Automotive Terminal Style</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Yoke Style (Open Frame)</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Side Metering</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Bottom Metering</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Extended Flow Capabilities</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Operator Mount Manifolds</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Valve Mount Manifolds</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Diaphragm Isolated Version</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
Coils

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

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

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

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

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

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

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

*See page 9 for P/N System.

<table>
<thead>
<tr>
<th>Number</th>
<th>Housing</th>
<th>Series</th>
<th>Type</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1 - Grommet</td>
<td>1, 2, 3, 6</td>
<td>Standard - dry tape wrapped with leads</td>
<td>B**</td>
</tr>
<tr>
<td>01</td>
<td>2 - Conduit</td>
<td>1, 2, 3, 6</td>
<td>Standard - dry tape wrapped with leads</td>
<td>B**</td>
</tr>
<tr>
<td>41</td>
<td>9 - Slotted</td>
<td>1</td>
<td>Free standing molded with leads</td>
<td>B**</td>
</tr>
<tr>
<td>61</td>
<td>9 - Slotted</td>
<td>2, 3</td>
<td>Free standing molded with leads</td>
<td>B**</td>
</tr>
<tr>
<td>61</td>
<td>3 - Yoke</td>
<td>2, 3</td>
<td>Free standing molded with leads</td>
<td>B**</td>
</tr>
<tr>
<td>41</td>
<td>2 - Conduit</td>
<td>1, 2, 3</td>
<td>Potted with leads</td>
<td>B**</td>
</tr>
<tr>
<td>51</td>
<td>9 - Slotted</td>
<td>2, 3</td>
<td>3/16” Vertical spade</td>
<td>B**</td>
</tr>
<tr>
<td>51</td>
<td>9 - Slotted</td>
<td>2, 3</td>
<td>1/4” Vertical spade</td>
<td>B**</td>
</tr>
<tr>
<td>51</td>
<td>3 - Yoke</td>
<td>2, 3</td>
<td>1/4” Top spade (Available with FWR option***)</td>
<td>B**</td>
</tr>
<tr>
<td>41</td>
<td>1 - Grommet</td>
<td>6</td>
<td>Free standing molded with leads</td>
<td>B**</td>
</tr>
<tr>
<td>41</td>
<td>2 - Conduit</td>
<td>6</td>
<td>Free standing molded with leads</td>
<td>B**</td>
</tr>
<tr>
<td>51</td>
<td>9 - Slotted</td>
<td>6</td>
<td>1/4” Vertical spade</td>
<td>B**</td>
</tr>
</tbody>
</table>

* 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
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.

PREFIXES
- P = Passivated
- U = UL Recognized
- Y = Oxygen Service
- A = Low Wattage*
  - 1.5 Watt
  - 2.0 Watt
  - 2.5 Watt
- B = Low Wattage*
  - 3.0 Watt
- G = Diaphragm see page 21-23 for ordering

SERIES
- 1 = Series 1
- 2 = Series 2
- 3 = Series 3
- 6 = Series 6

PORT
- 3 = 1/8" NPT Male Bottom (a)
- 4 = 1/8" NPTF
- 5 = 1/4" NPTF (b)
- 7 = #10-32 UNF
- 8 = 3/8" NPT (f)

BODY MATERIAL
- 0 = Stainless Steel
- 1 = Brass
- 3 = Operator

FUNCTION
- 1 = 2WNC
- 2 = 2WNO
- 3 = 3WNCFV
- 4 = 3WNLCl
- 5 = 3WNO
- 6 = 3WMP
- 7 = 3WDC (a)

ORIFICE
- 0 = 1/32"
- 1 = 3/64"
- 2 = 1/16"
- 3 = 5/64"
- 4 = 3/32"
- 5 = 1/8"
- 6 = 5/32"
- 7 = 3/16" (b)
- 8 = 1/4" (b)
- 9 = 3/8" (f)

COIL OPTIONS
- See page 8

VOLTAGE
- See page 8

SEAL
- 01 = Buna
- 02 = Fluorocarbon*
- 03 = Neoprene®
- 05 = Low temperature Buna
- 06 = Polyurethane (2WNC only)
- 08 = Teflon® (2WNC only)
- 12 = Neoprene® W
- 13 = Ethylene Propylene (EPR (Food Grade)
- 16 = Chemraz®

(a) = Available in Series 1, 2 & 3.
(b) = Available in Series 3 & 6.
(c) = Available in Series 1, 2 & 6.
(d) = Available in Series 2 & 3 only and must be used with molded spade coil or free standing molded coil with lead wires.
(e) = Slotted housing (used with 31 & 51 spade coil option), available in Series 2, 3 & 6. Used with molded coil 61 in Series 2 & 3, and 41 in Series 1.
(f) = Available in Series 6, 2WNC only.
(g) = Available in Series 1 & 2 diaphragm only.

® 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

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.

### Side Porting

<table>
<thead>
<tr>
<th>Type of Porting</th>
<th>Q2</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 3</th>
<th>Series 6</th>
<th>Manifolds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot; NPTF</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>1/4&quot; NPTF</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3/8&quot; NPTF</td>
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<td>✓</td>
<td>✓</td>
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### Bottom Porting

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<tr>
<th>Type of Porting</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 3</th>
<th>Series 6</th>
<th>Manifolds</th>
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### Adapter Porting

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<th>Series 3</th>
<th>Series 6</th>
<th>Manifolds</th>
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<tr>
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<tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*See page 9 for P/N System*

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.
Housing Styles

Housings are supplied standard in low carbon steel with a yellow dichromate finish. Consult KIP for other plating or finish options.

* See page 9 for P/N System

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

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, Aluminum, Delrin®, PVC or other materials for OEM applications.

Valve Types

(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.

(3WNCF 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 “NORMAL 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 “NORMAL 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

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.

Seals

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.

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.
Coil Construction

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

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<tr>
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<th>B</th>
<th>C</th>
<th>D</th>
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<th>F</th>
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<td>.44</td>
<td>.85</td>
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<td>1.25</td>
<td>1.41</td>
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<td>1.25</td>
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Top Spade Coil

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<th>D</th>
<th>E</th>
<th>F</th>
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<tbody>
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<tr>
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<td>1.00</td>
<td>.60</td>
<td>.61</td>
<td>200</td>
<td>38</td>
<td>(6.4 x .81)</td>
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</table>
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.

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

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.
**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.
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 .600” 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 3/8” 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.
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:

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

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

- **SERIES**
  - 9 = KIP Jr.

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

- **HOUSING**
  - 1 = Grommet (Leads exit top)

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

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

- **ORIFICE**
  - 2 = 1/16”

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

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

### Standard KIP Jr.

<table>
<thead>
<tr>
<th>Type</th>
<th>Orifice</th>
<th>Body/Stop</th>
<th>Cv Body/Stop</th>
<th>MOPD</th>
<th>SS</th>
<th>Brass</th>
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<th>Manifold Mount BR</th>
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<td>971172</td>
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</table>

* Isolated Version Only
† Halar is a fluoroplastic copolymer 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
KIP Isolation Valves

- Ideal for control of corrosive and aggressive media
- Elastomer diaphragm provides protection from aggressive, corrosive, and gritty media
- Isolation valves can be equipped with a low wattage coil (as low as 0.65 watts in the KIP Jr. series)
- Valves can also be integrated into standard manifolds or intricate custom manifold assemblies
- Isolation valves are available in a 2-way normally closed configuration
- Two valves can be combined on a common base for 3-way operation

<table>
<thead>
<tr>
<th>Seals</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 6</th>
<th>KIP Jr.</th>
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</thead>
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<tr>
<td>CHEMRAZ</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>EPR</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>FLUOROCARBON</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Flow Rates (Cv)</th>
<th>Body Materials</th>
<th>Orifice Size</th>
<th>Porting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIES 1</td>
<td>0.250</td>
<td>Delrin, PVC, Kynar*</td>
<td>1/32&quot;-5/32&quot;</td>
<td>1/8&quot; NPT</td>
</tr>
<tr>
<td>SERIES 2</td>
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<td>Delrin, PVC, Kynar</td>
<td>1/32&quot;-5/32&quot;</td>
<td>1/8&quot; NPT</td>
</tr>
<tr>
<td>SERIES 6</td>
<td>0.545</td>
<td>Delrin, PVC, Kynar</td>
<td>1/32&quot;-1/4&quot;</td>
<td>1/8&quot; NPT</td>
</tr>
<tr>
<td>KIP JR.</td>
<td>0.06</td>
<td>Acrylic, Halar</td>
<td>1/16&quot;</td>
<td>#10-32UNF</td>
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</table>
Selection Criteria for Isolation Style Valves

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>Series 1</th>
<th>Series 2</th>
<th>Series 6</th>
<th>KIP Jr. Series 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size - (Diameter)</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>1-5/8&quot;</td>
<td>0.80&quot;</td>
</tr>
<tr>
<td>MOPD (psi)</td>
<td>95</td>
<td>120</td>
<td>130</td>
<td>30</td>
</tr>
<tr>
<td>Vacuum Service</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Max. Cv - Body</td>
<td>0.250</td>
<td>0.250</td>
<td>0.545</td>
<td>0.06</td>
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<tr>
<td>Power Rating</td>
<td>6 watts</td>
<td>7 watts</td>
<td>10 watts</td>
<td>.65 watts</td>
</tr>
<tr>
<td>Lead Wire Gauge</td>
<td>20 AWG/18 AWG</td>
<td>20 AWG/18 AWG</td>
<td>18 AWG</td>
<td>24 AWG</td>
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<tr>
<td>Optional Low Wattage Coils</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>1/8&quot; NPTF Ports</td>
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<td>✔</td>
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<td>✔</td>
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<tr>
<td>#10 - 32 UNF Ports</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>1/4 - 28 UNF</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Grommet Style Housing</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Conduit Style Housing</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Spade Coil</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Manifolds - See Pages 28-29</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Series 1, 2 & 6

- **PREFIXES**
  - G = Isolated
- **PORT**
  - 4 = 1/8" NPT
  - 5 = 1/4" NPT (Series 6 only)
  - 7 = #10-32 UNF
  - 8 = 1/4-28 UNF
- **HOUSING**
  - 1 = Grommet
  - 2 = Conduit
  - 3 = Yoke
  - 9 = Slotted

- **FUNCTION**
  - 1 = 2WNC

Series 9 KIP Jr.

- **PREFIXES**
  - G = Isolated
- **PORT**
  - 7 = #10-32 UNF
  - 8 = 1/4 - 28 UNF
- **HOUSING**
  - 1 = Grommet (leads exit top)

* Series 6 is available with Fluorocarbon diaphragm only.
® Chemraz is a registered trademark of Green, Tweed & Co., Inc.
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.

<table>
<thead>
<tr>
<th>Orifice Diameter</th>
<th>Cv Factor</th>
<th>MOPD</th>
<th>Standard Valve Body</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td>Kynar</td>
</tr>
<tr>
<td>Series 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/32&quot;</td>
<td>0.025</td>
<td>95</td>
<td>G141610</td>
</tr>
<tr>
<td>3/64&quot;</td>
<td>0.045</td>
<td>75</td>
<td>G141611</td>
</tr>
<tr>
<td>1/16&quot;</td>
<td>0.075</td>
<td>55</td>
<td>G141612</td>
</tr>
<tr>
<td>5/64&quot;</td>
<td>0.115</td>
<td>35</td>
<td>G141613</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>0.155</td>
<td>25</td>
<td>G141614</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>0.210</td>
<td>15</td>
<td>G141615</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>0.250</td>
<td>10</td>
<td>G141616</td>
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<tr>
<td>Series 2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1/32&quot;</td>
<td>0.025</td>
<td>120</td>
<td>G241610</td>
</tr>
<tr>
<td>3/64&quot;</td>
<td>0.045</td>
<td>100</td>
<td>G241611</td>
</tr>
<tr>
<td>1/16&quot;</td>
<td>0.075</td>
<td>75</td>
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<td>5/64&quot;</td>
<td>0.115</td>
<td>55</td>
<td>G241613</td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>0.155</td>
<td>45</td>
<td>G241614</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>0.210</td>
<td>30</td>
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<td>5/32&quot;</td>
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<td>20</td>
<td>G241616</td>
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<tr>
<td>Series 6</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1/32&quot;</td>
<td>0.031</td>
<td>130</td>
<td>G641610</td>
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<tr>
<td>3/64&quot;</td>
<td>0.058</td>
<td>110</td>
<td>G641611</td>
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<tr>
<td>1/16&quot;</td>
<td>0.078</td>
<td>95</td>
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<tr>
<td>5/64&quot;</td>
<td>0.117</td>
<td>70</td>
<td>G641613</td>
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<tr>
<td>3/32&quot;</td>
<td>0.167</td>
<td>60</td>
<td>G641614</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>0.241</td>
<td>50</td>
<td>G641615</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>0.316</td>
<td>40</td>
<td>G641616</td>
</tr>
<tr>
<td>3/16&quot;</td>
<td>0.398</td>
<td>30</td>
<td>G641617</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.545</td>
<td>20</td>
<td>G641618</td>
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<tr>
<td>KIP Jr. Series</td>
<td>Orifice Diameter</td>
<td>Cv Factor</td>
<td>MOPD</td>
</tr>
<tr>
<td>Series 9</td>
<td>1/32&quot;</td>
<td>0.06</td>
<td>30</td>
</tr>
</tbody>
</table>

KIP Jr. Series

- Orifice Diameter
- Cv Factor
- MOPD
- Standard Valve Body
- Kynar
- Delrin
- PVC

Halar
- Acrylic
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.
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.

### Technical Data

- **Maximum pressure:** 150 psig (10 bar)
- **Operating temperature**
  - Water service: 35°F to 125°F (2°C to 52°C)
  - Air service: 0°F to 125°F (-20°C to 52°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)

### 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.

<table>
<thead>
<tr>
<th>Inlet Port</th>
<th>Application</th>
<th>Model</th>
<th>Flow* scfm (dm³/s)</th>
<th>Flow* gpm (lpm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>Industrial air and non-potable water</td>
<td>R91G-2AK-NLN</td>
<td>24 (11)</td>
<td>1.75 (6.6)</td>
<td>0.15 (0.07)</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>Potable water and deionized water</td>
<td>R91W-2AK-NLN</td>
<td>24 (11)</td>
<td>1.75 (6.6)</td>
<td>0.15 (0.07)</td>
</tr>
</tbody>
</table>

* 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.

† 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.

- 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)

- **Materials**
  - Body and bonnet: Acetal
  - Valve: R91G: Brass/nitrile, R91W: Stainless steel/food grade EPDM
**Q2 Valve**

**Q2 Quick-Connect Plastic Body Valve**

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

---

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

* Food-Grade EPR seals are NSF approved

---

Port Identification: IN - 2    OUT - 1
### Q2 Valve Specifications

<table>
<thead>
<tr>
<th>Power Rating</th>
<th>10 Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>12, 24, 110 Volt DC</td>
</tr>
<tr>
<td></td>
<td>24/50-60, 120/50-60, 240/50-60 Volt AC*</td>
</tr>
<tr>
<td>Housing</td>
<td>Yoke</td>
</tr>
<tr>
<td>Coil</td>
<td>1/4&quot; Top Spade</td>
</tr>
<tr>
<td>Temperature Rating</td>
<td>-10°F to 100°F</td>
</tr>
</tbody>
</table>

*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

---

![Diagram of Q2 Valve](image.png)

- PORT 1
- PORT 2
- 2X SELF TAP HOLES FOR #10-14 SELF TAP SCREWS 15-18 IN'LB MAX TORQUE
- 1/4" OR 3/8" FITTING
- 1/4" OR 3/8" FITTING
- 1.00 (25)
- 1.45 (37)
- 2.58 (66)
- 1.80 (46)
- 2.03 (52) (1/4"
- 2.35 (60) (3/8"
- 2.91 (74)
- 2 x .31 (7.9)
- 2 x .61 (15)
- 2 x .31 (7.9)
- 2 x .61 (15)
- 1.80 (46)
- 2.03 (52) (1/4"
- 2.35 (60) (3/8"
- 2.91 (74)

---

**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** -10°F to 100°F

---

*All AC valves are full wave rectified*