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Solenoid Valves

Contents

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

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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.

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

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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!

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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.



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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.

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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.

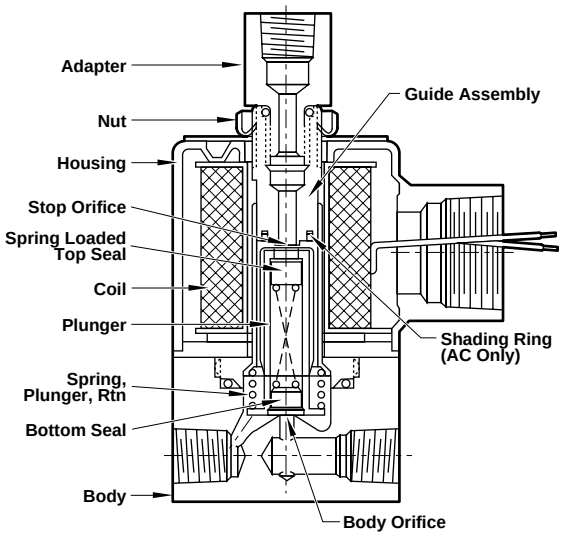
- Available in both 2-Way and 3-Way models in Series 1, Series 2, and Series 3.
- Orifice sizes from 1/32" to 5/32".
- Available in 12VDC and 24VDC.
- Refer to KIP solenoid valve charts for wattage, pressure ratings and Cv factors.

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.

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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	✔	✔		✔	✔

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Coils

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

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

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

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

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

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

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

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

* For Class F coils change the second digit to a 2. Consult KIP for minimum order quantities.
** For Class H coils change the second digit to a 3. Consult KIP for minimum order quantities.
*** Full wave rectification - see p.15

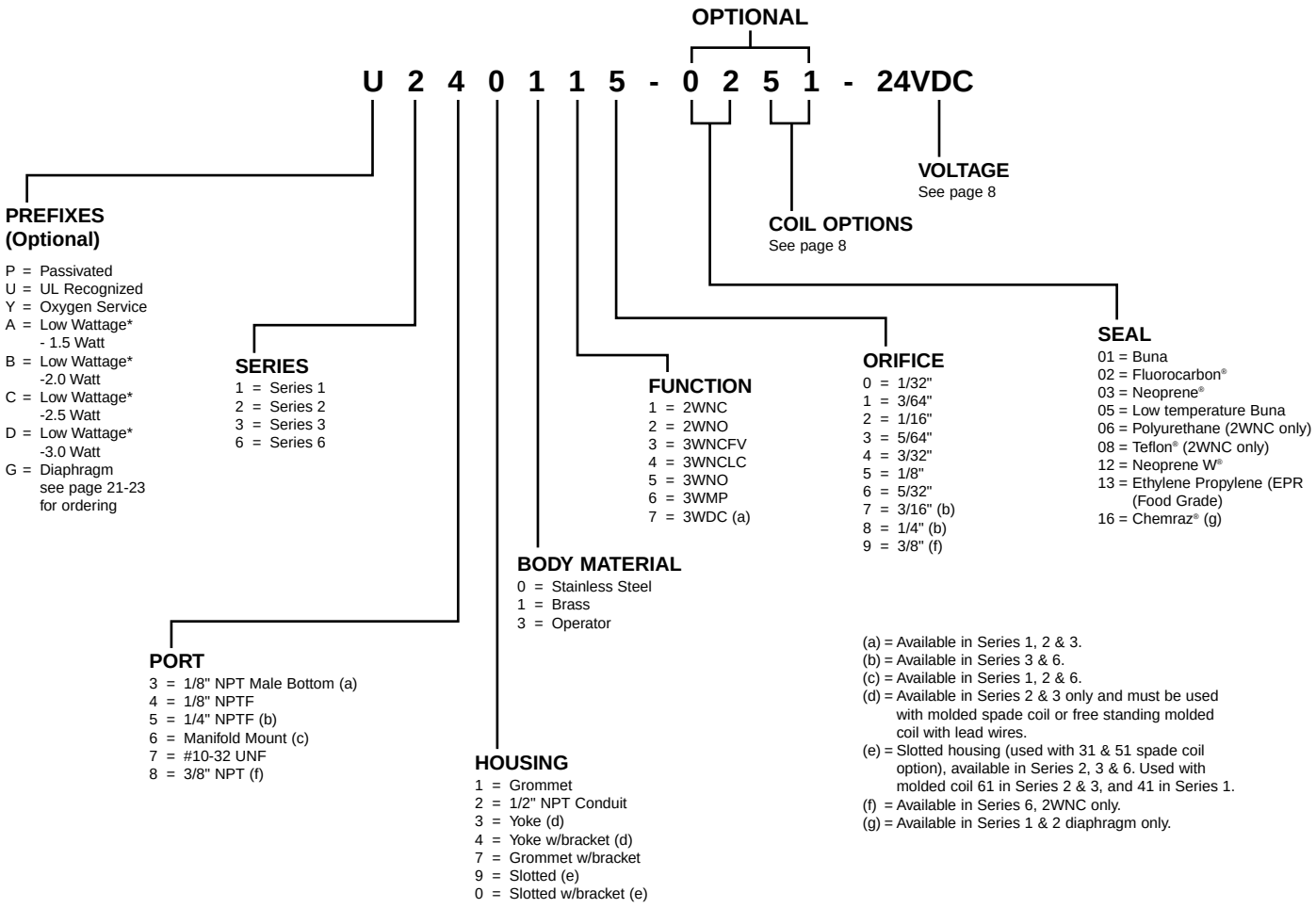
*See page 9 for P/N System

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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.



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® 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.

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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
– Standard 180°
- 90° porting is available either right or left.
- A third body port can be added as a gauge port or to accommodate sampling, switches and transducers, on Series 3 and Series 6.

Type of Porting	Q2	Series 1	Series 2	Series 3	Series 6	Manifolds
1/8" NPTF		✔ - Std	✔ - Std	✔	✔	✔
1/4" NPTF				✔	✔	✔
3/8" NPTF					✔	✔
7/16 – 20 UNF Male			✔			
7/16 – 20 UNF Male w/ 1/8" NPTF Female			✔			
#10 – 32 UNF		✔	✔	✔	✔	✔
1/16" NPTF		✔	✔	✔	✔	✔
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

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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

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Body Material

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

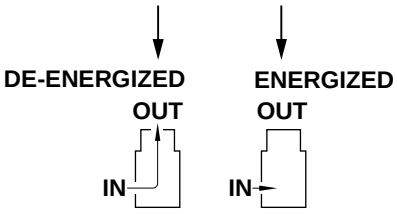
KIP offers valve bodies in three standard materials. Brass, 430F Stainless Steel, and injection molded Polypropylene. KIP also offers bodies manufactured in 303 Stainless Steel, Aluminum, Delrin®, PVC or other materials for OEM applications.

Valve Types

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

(2WNO) 2-Way Normally Open

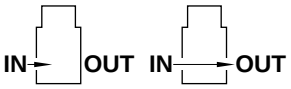
Valve with two ports, inlet and outlet. Valve is open in a de-energized state, and closes when energized. Valve has one orifice which is located in the end stop.



Port Identification: IN - 2 OUT - 3

(2WNC) 2-Way Normally Closed

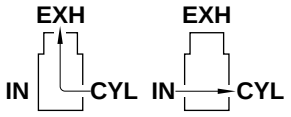
Valve with two ports, inlet and outlet. Valve is closed in a de-energized state, and opens when energized. Valve has one orifice which is located in the body.



Port Identification: IN - 2 OUT - 1

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

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



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

(3WMP) 3-Way Multi-Purpose

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



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

(3WNO) 3-Way Normally Open

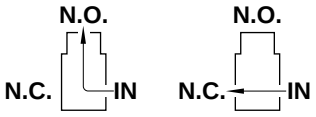
Valve with three ports, and two orifices. One orifice is located in the body and the other in the end stop. The three ports are the “IN”, “EXHAUST” and “CYLINDER”. When the valve is de-energized, the inlet is open to the cylinder port and the exhaust is closed. When the valve is energized, the exhaust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



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

(3WDC) 3-Way Directional Control

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



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

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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 CO_2. 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.

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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

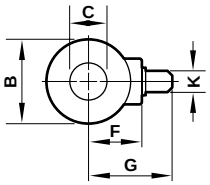
- Supplied when application requires a more rugged, moisture resistant coil & connector
- High shock and vibration tested
- Available with 2-Pin and 3-Pin military style connectors
- Consult factory for ordering information

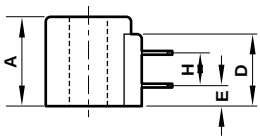


Spade

- 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.



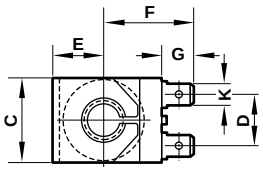


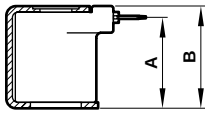


Vertical Spade Coil

	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) 1.03 (26)	.38 (10)	.187 x .020 (4.7 x .51) (6.4 x .81) (6.4 x .81)
SERIES 6	1.27 (32)	.52 (13)	.250 x .032 (6 x .8)







Top Spade Coil

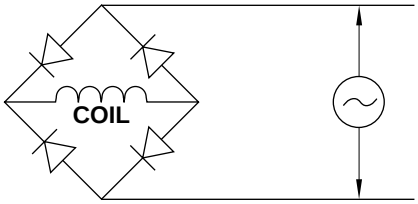
	A	B	C	D	E	F	G	K
SERIES 2 & 3	1.06 (27)	1.18 (30)	1.00 (25)	.60 (15)	.61 (16)	1.19 (30)	.38 (10)	.250 x .032 (6.4 x .81)

All Dimensions in Inches (mm)

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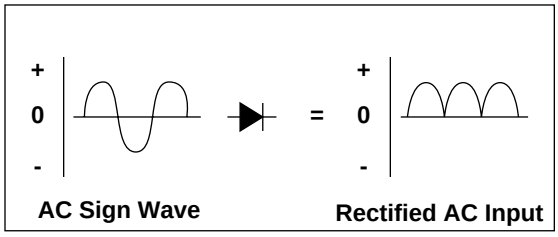
Rectified Coils and Coils with Arc Suppression Diodes

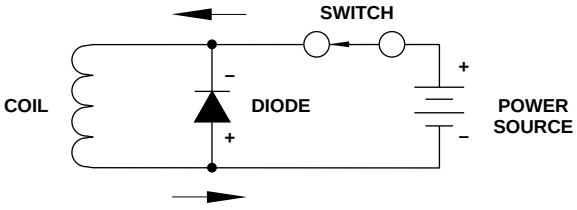


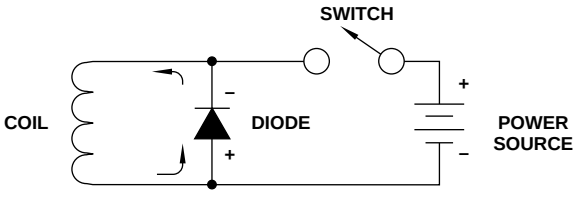


Rectified Coils

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.

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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

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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.

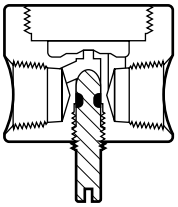
Manifold Metering

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.

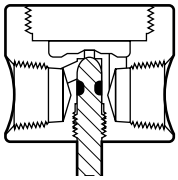
Bottom Metering

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

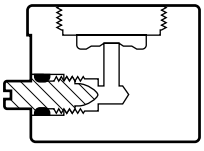


Shut Off

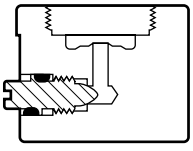


Side Metering - Body and Adapter

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

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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.



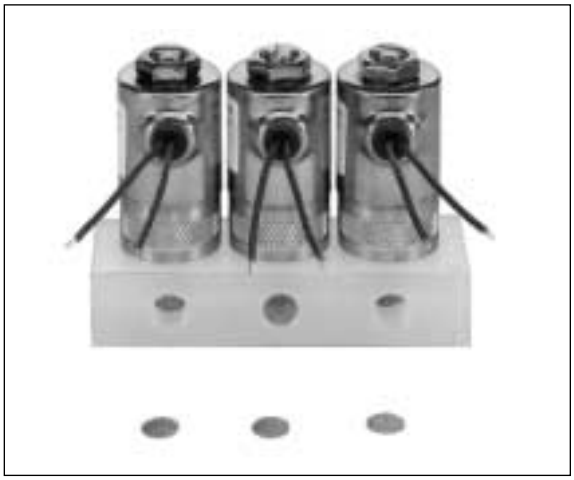
Valves with Brazed in Fittings or Tube Ends

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.

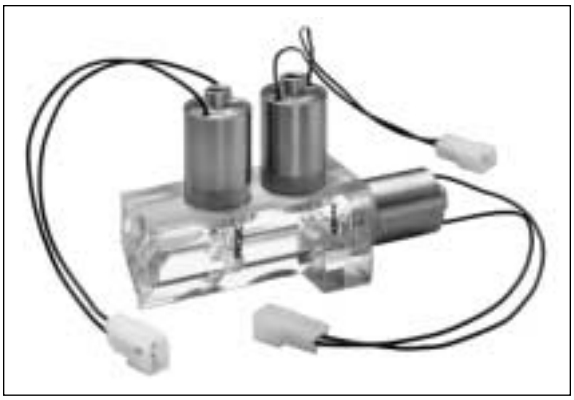


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KIP Jr. Series - .65 Watt



* 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.

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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:

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

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

SERIES
9 = KIP Jr.

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

HOUSING
1 = Grommet
(Leads exit top)

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

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

ORIFICE
2 = 1/16"

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

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

Standard KIP Jr.

Type	Orifice Body/Stop		Cv Body/Stop		MOPD	SS	Brass	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

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KIP Isolation Valves

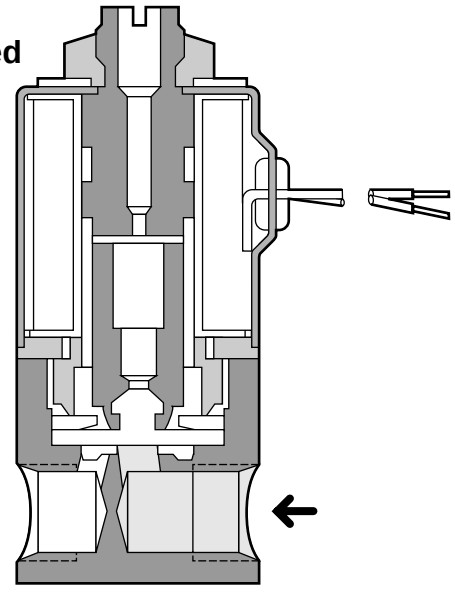


- **Ideal for control of corrosive and aggressive media**
- **Elastomer diaphragm provides protection from aggressive, corrosive, and gritty media**
- **Isolation valves can be equipped with a low wattage coil (as low as 0.65 watts in the KIP Jr. series)**
- **Valves can also be integrated into standard 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**

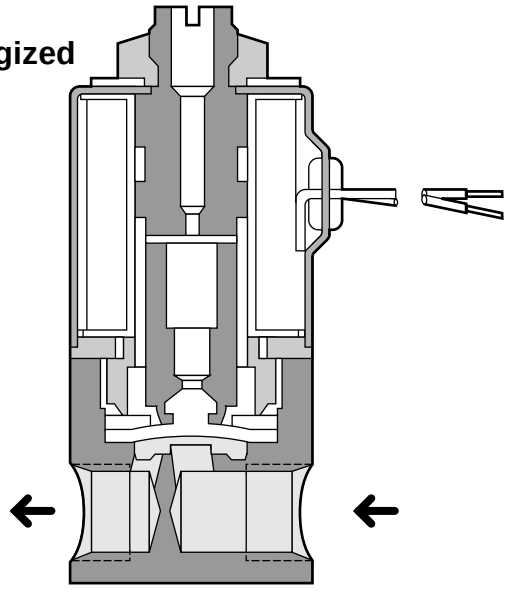
Seals	Series 1	Series 2	Series 6	KIP Jr.
CHEMRAZ	Yes	Yes	No	No
EPR	Yes	Yes	No	Yes
FLUOROCARBON	Yes	Yes	Yes	No

	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

De-Energized



Energized



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Selection Criteria for Isolation Style Valves

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

Series 1, 2 & 6

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

PREFIXES
G = Isolated

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

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

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

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

FUNCTION
1 = 2WNC

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

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

COIL OPTIONS
See page 8

VOLTAGE
See page 8

* Series 6 is available with Fluorocarbon diaphragm only.

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

Series 9 KIP Jr.

G 9 7 1 9 1 2 - 1 3 - 12VDC

PREFIXES
G = Isolated

SERIES
9 = Series 9 (KIP Jr.)

PORT
7 = #10-32 UNF
8 = 1/4 - 28 UNF

HOUSING
1 = Grommet (leads exit top)

BODY MATERIAL
1 = Brass
8 = Halar
9 = Acrylic

ORIFICE
2 = 1/16"

SEAL
13 = EPR

FUNCTION
1 = 2WNC

VOLTAGE
5VDC
12VDC
15VDC
24VDC

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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.

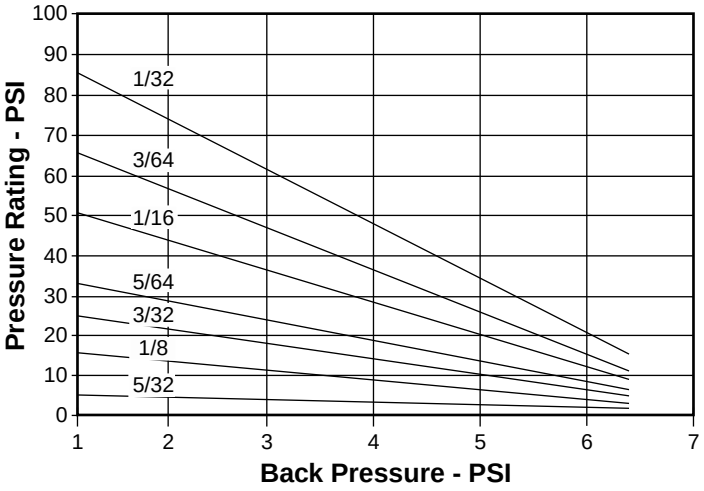
	Orifice Diameter	Cv Factor	MOPD	Standard Valve Body		
				Kynar	Delrin	PVC
Series 1	1/32"	0.025	95	G141610	G141410	G141510
	3/64"	0.045	75	G141611	G141411	G141511
	1/16"	0.075	55	G141612	G141412	G141512
	5/64"	0.115	35	G141613	G141413	G141513
	3/32"	0.155	25	G141614	G141414	G141514
	1/8"	0.210	15	G141615	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	

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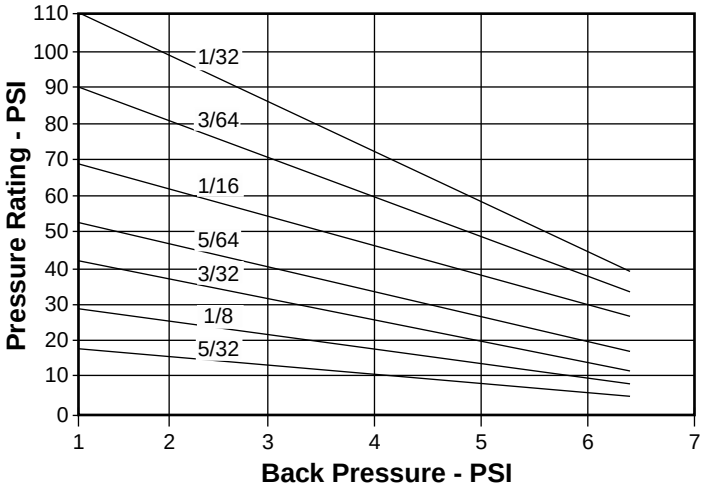
Isolation Valve Back Pressure De-rating Curves

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.

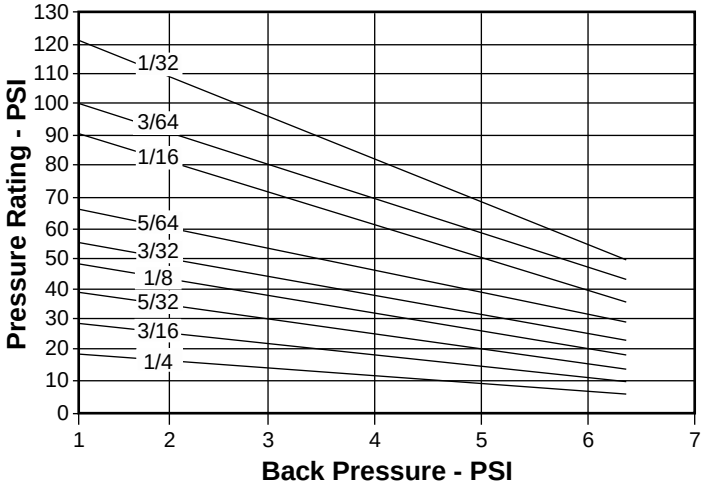
Series 1 Isolation Valves



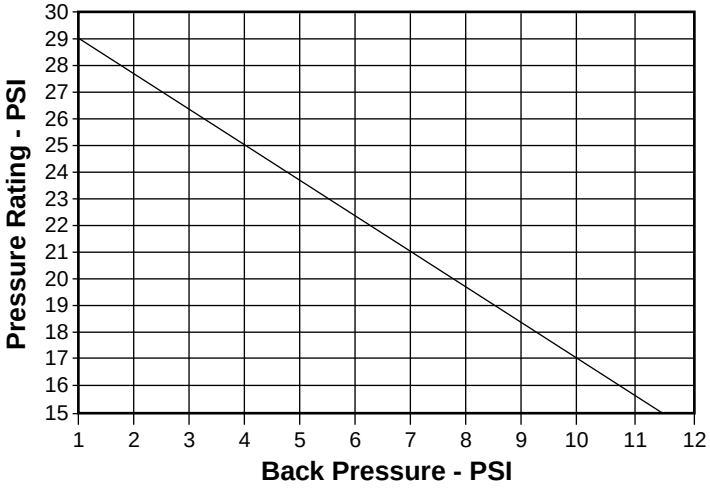
Series 2 Isolation Valves



Series 6 Isolation Valves



KIP Jr. Series
Isolation Valves



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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 dm^3/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)

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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**



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



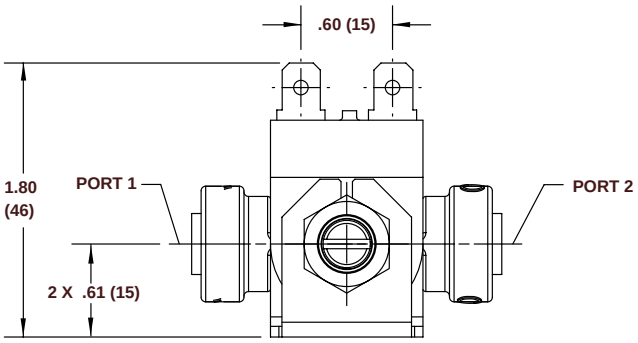
Port Identification: IN – 2 OUT – 1

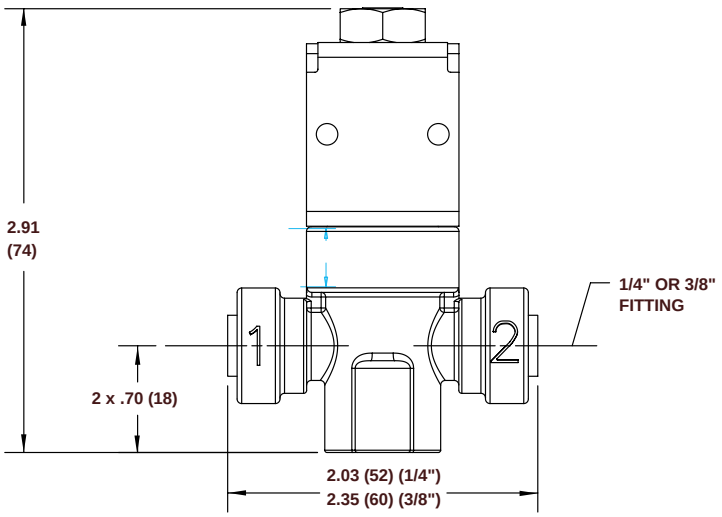
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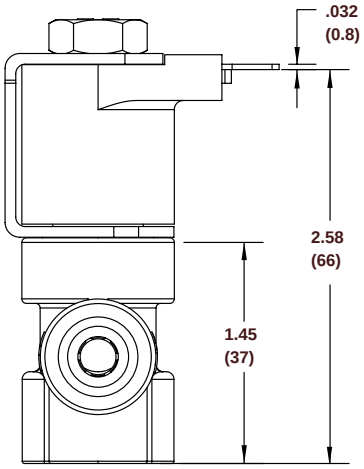
Specifications

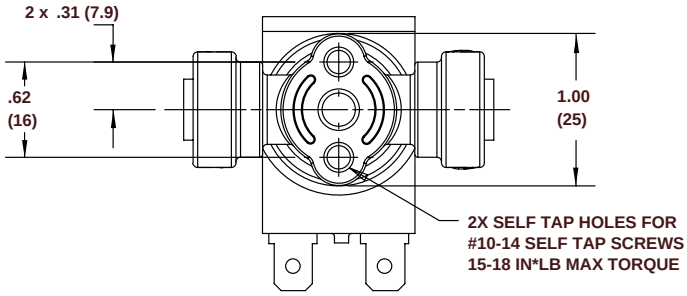
Power Rating	10 Watt
Voltage	12, 24, 110 Volt DC 24/50-60, 120/50-60, 240/50-60 Volt AC*
Housing	Yoke
Coil	1/4" Top Spade
Temperature Rating	
Ambient and Media	-10°F to 100°F

*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

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Manifolds

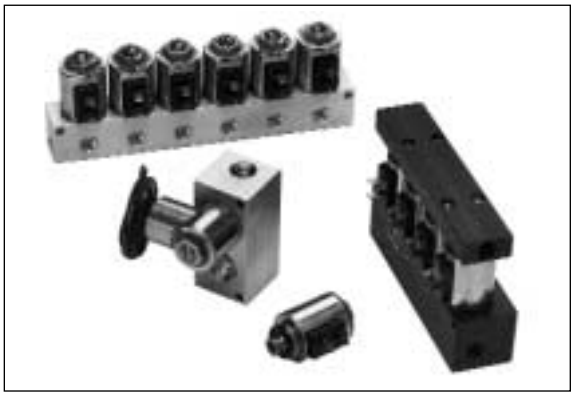
Simplify solenoid valve installation with KIP manifold assemblies. KIP manifolds provide an economical and effective means of gang mounting solenoid valves

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

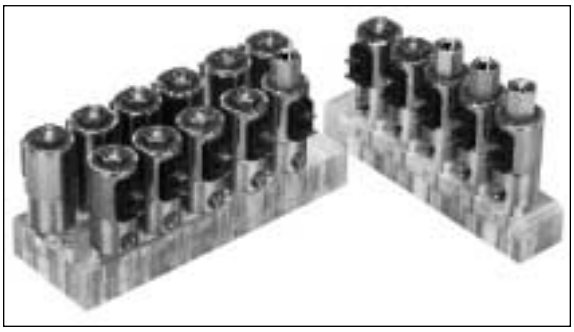
- Series 1, 2, 6 and KIP Jr. valves are available for gang mounting on aluminum, brass or plastic sub-plates.
- Manifolds can be selected with #10-32 UNF, 1/8" NPTF or 1/4" NPTF ports.
- Orifice sizes up to 1/8" in Series 1, 2, and orifice sizes up to 1/4" in Series 6 models are available, and 1/16"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



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Manifolds



Acrylic Subplates

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





Additional OEM Manifold Design Capabilities

KIP manifolds offer many additional options such as:

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

Consult KIP for application engineering assistance.

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® 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.

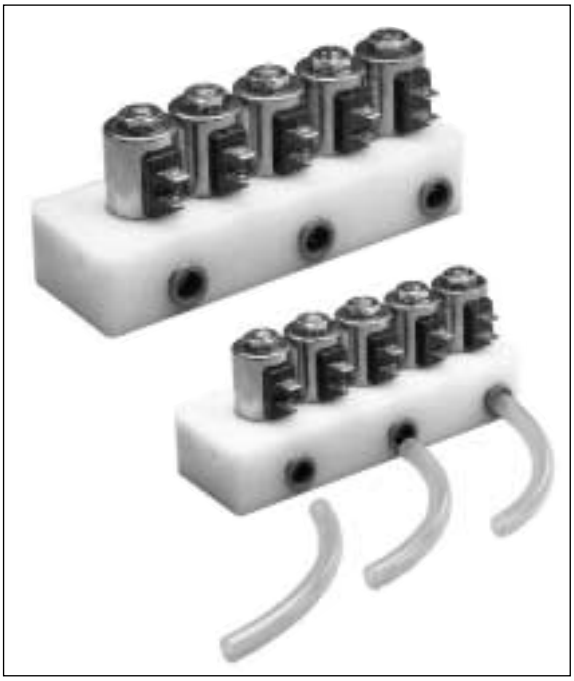
FEATURES:

- 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.

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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:

	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.

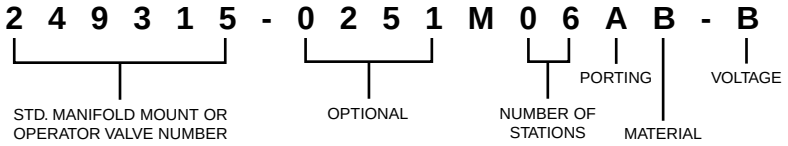
Overall manifold dimensions for this option can be found on page 44.

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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.

Porting

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

Base Material

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

Voltage

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

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.

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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			
	Stop	Stop		1/8" NPTF	1/4"NPTF	1/8" NPTF	1/4"NPTF	Stainless Steel	Brass
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.

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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 A	2.0 Watt B	2.5 Watt C	3.0 Watt 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
	5/32	0.290	50	141016	141116	161016	161116	0.280	-	-	-	-
Series 2	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 A	2.0 Watt B	2.5 Watt C	3.0 Watt 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	
				Stainless Steel		Brass			
	Body	Body	(psi)	1/8" NPTF	1/4"NPTF	1/8" NPTF	1/4"NPTF	Stainless Steel	Brass
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.

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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	STANDARD Valve Body - Grommet		MANIFOLD MOUNT Valve Body-Grommet		LOW WATT Specifications					
										Cv Factor		1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
	Body	Stop	Body	Stop	(psi)	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	STANDARD Valve Body - Grommet		LOW WATT Specifications					
								Cv Factor		1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
	Body	Stop	Body	Stop	(psi)	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	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body – Grommet	
						Stainless Steel		Brass			
	Body	Stop	Body	Stop	(psi)	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	-	-

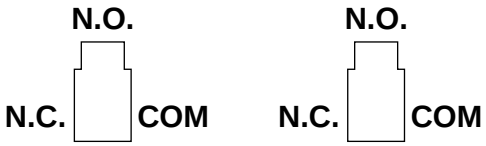
* Larger stop orifice available with reduced pressure ratings; consult KIP.

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

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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	STANDARD Valve Body - Grommet		MANIFOLD MOUNT Valve Body-Grommet		LOW WATT Specifications					
										Cv Factor		1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
	Body	Stop	Body	Stop	(psi)	SS	Brass	SS	Brass	Body	Stop	A	B	C	D
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	STANDARD Valve Body - Grommet		LOW WATT Specifications					
								Cv Factor		1.5 Watt	2.0 Watt	2.5 Watt	3.0 Watt
	Body	Stop	Body	Stop	(psi)	SS	Brass	Body	Stop	A	B	C	D
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	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body – Grommet	
						Stainless Steel		Brass			
	Body	Stop	Body	Stop	(psi)	1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF	SS	Brass
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.

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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	STANDARD Valve Body Grommet		MANIFOLD MOUNT Valve Body	
	Body	Stop	Body	Stop	(psi)	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	STANDARD Valve Body Grommet	
	Body	Stop	Body	Stop	(psi)	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	STANDARD Valve Body - Grommet				MANIFOLD MOUNT Valve Body – Grommet	
						Stainless Steel		Brass			
	Body	Stop	Body	Stop	(psi)	1/8" NPTF	1/4" NPTF	1/8" NPTF	1/4" NPTF	SS	Brass
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

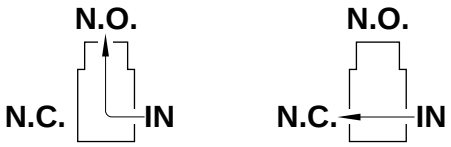
* Larger stop orifice available with reduced pressure ratings; consult KIP.

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

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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	STANDARD Valve Body Grommet		MANIFOLD MOUNT Valve Body	
	Body	Stop	Body	Stop	(psi)	Stainless Steel	Brass	Stainless Steel	Brass
Series 1	1/32	1/32	0.035	0.025	230	141070	141170	161070	161170
	3/64	3/64	0.050	0.065	160	141071	141171	161071	161171
	1/16	1/16*	0.085	0.115	120	141072	141172	161072	161172
	5/64	1/16*	0.125	0.115	80	141073	141173	161073	161173
	3/32	1/16*	0.165	0.115	60	141074	141174	161074	161174
	1/8	1/16*	0.240	0.115	35	141075	141175	161075	161175
	5/32	1/16*	0.285	0.115	20	141076	141176	N/A	161176
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	STANDARD Valve Body Grommet	
	Body	Stop	Body	Stop	(psi)	Stainless Steel	Brass
Series 3	1/32	1/32	0.035	0.025	275	351070	351170
	3/64	3/64	0.050	0.065	200	351071	351171
	1/16	1/16	0.085	0.115	150	351072	351172
	5/64	5/64*	0.125	0.145	100	351073	351173
	3/32	5/64*	0.165	0.145	75	351074	351174
	1/8	5/64*	0.240	0.145	50	351075	351175
	5/32	5/64*	0.290	0.145	25	351076	351176
	3/16	5/64*	0.345	0.145	10	351077	351177
	1/4	5/64*	0.415	0.145	5	351078	351178

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

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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.

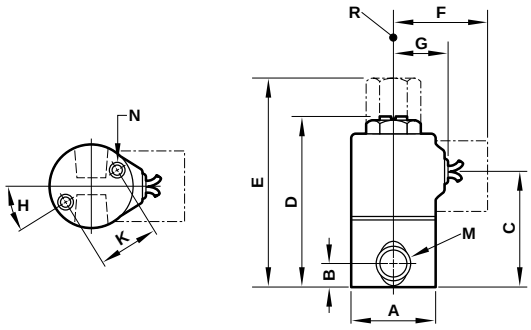
We provide support from design through installation. When product design is completed, tested and approved, KIP will talk to your manufacturing personnel concerning packaging and handling requirements.

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

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

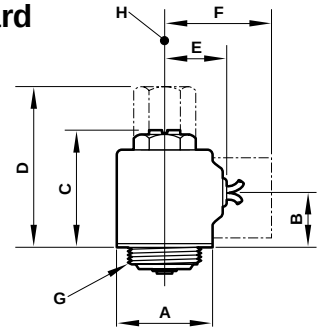
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Standard Valve



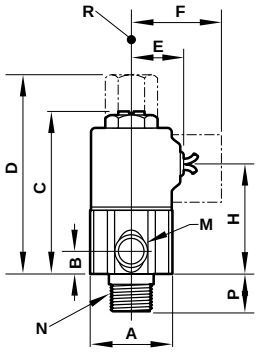
	A	B	C	D	E	F	G	H	K	M	N	R
Series 1	.99 (25)	.28 (7)	1.33 (33)	2.12 (54)	2.47 (63)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF
Series 2	.99 (25)	.28 (7)	1.51 (38)	2.32 (59)	2.66 (68)	1.12 (29)	.64 (16)	32-1/2°	.73 (19)	1/8-27 NPTF	#8-32 UNC x 1/4 MFT	1/8-27 NPTF
Series 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 1/4-18 NPTF
								0°		1/4-18 NPTF	#8-32 UNC x 1/4 MFT	
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 or 1/4-18 NPTF	#10-32 UNF x 5/16 MFT	1/8-27 NPTF or 1/4-18 NPTF
			C-1.87 (48)									

Operator Standard



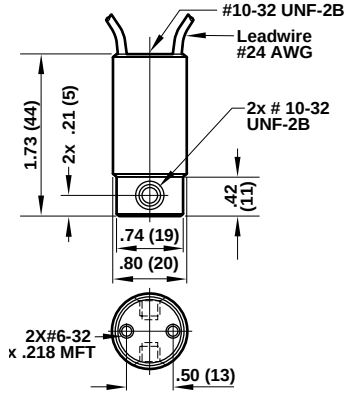
	A	B	C	D	E	F	G	H
Series 1	1.02 (26)	.52 (13)	1.32 (34)	1.67 (42)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27 NPTF
Series 2	1.02 (26)	.71 (18)	1.52 (39)	1.86 (47)	.64 (16)	1.12 (29)	3/4-32 UNEF	1/8-27NPTF
Series 3	1.16 (30)	.71 (18)	1.52 (39)	1.86 (47)	.78 (20)	1.19 (30)	3/4-32 UNEF	1/8-27 NPTF or 1/4-18 NPTF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

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

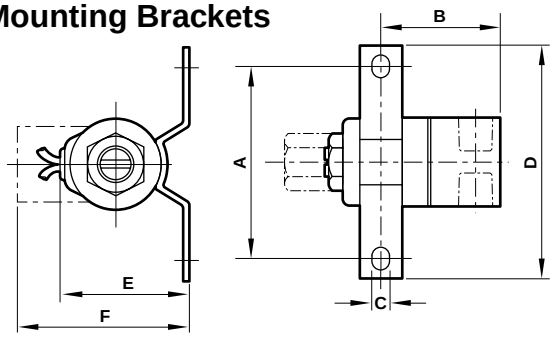
KIP Jr. Standard



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



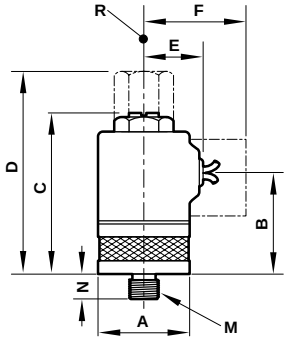
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Dimensions

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

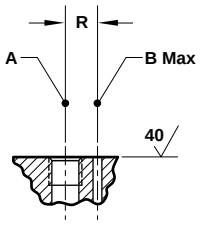
Manifold Mount Valve



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)

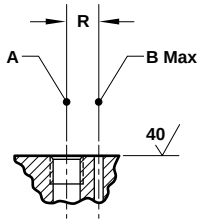
NOTE: **A** is underseat connection**
B is overseat connection***



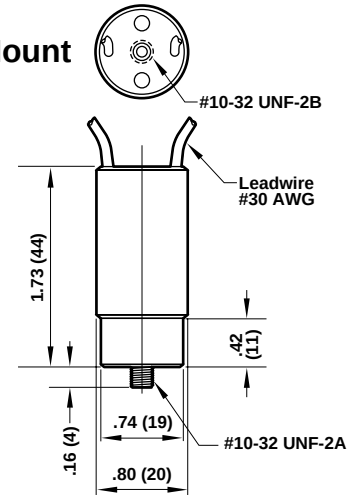
KIP Jr. Manifold Mount Interface

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

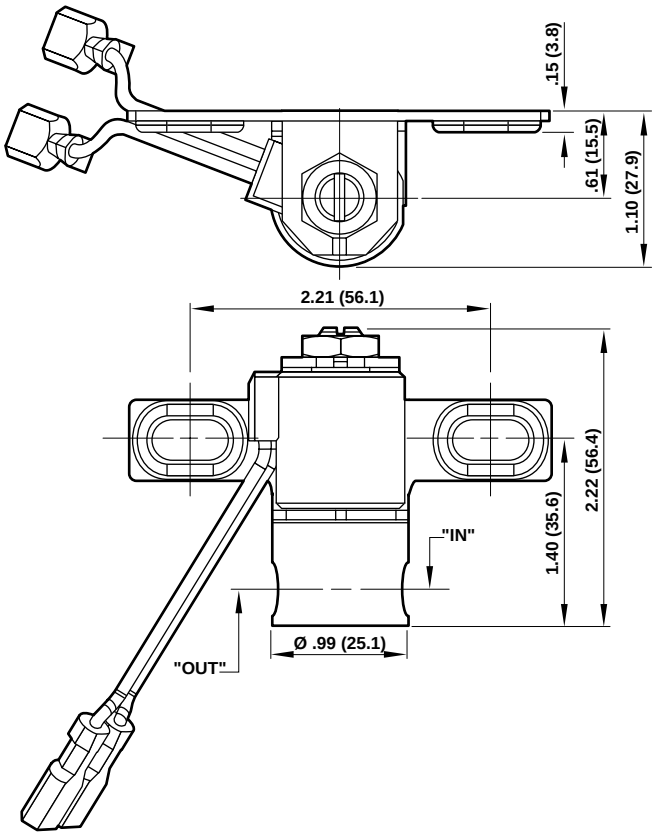
NOTE: **A** is underseat connection**
B is overseat connection***

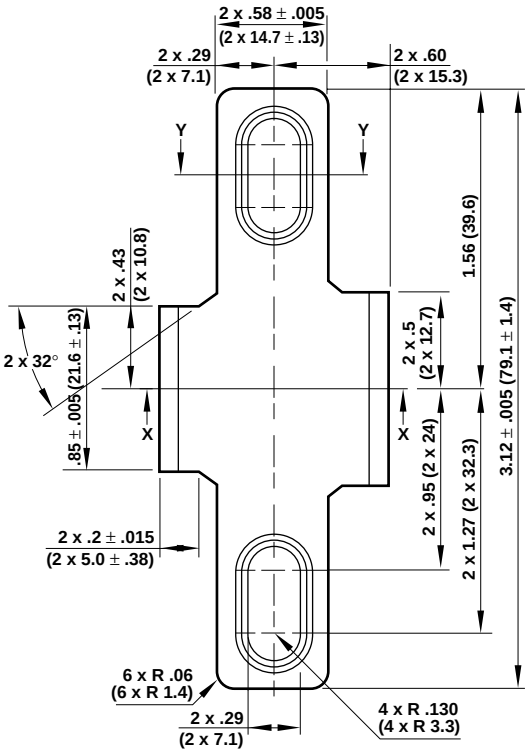


KIP Jr. Manifold Mount



Plastic Body Standard

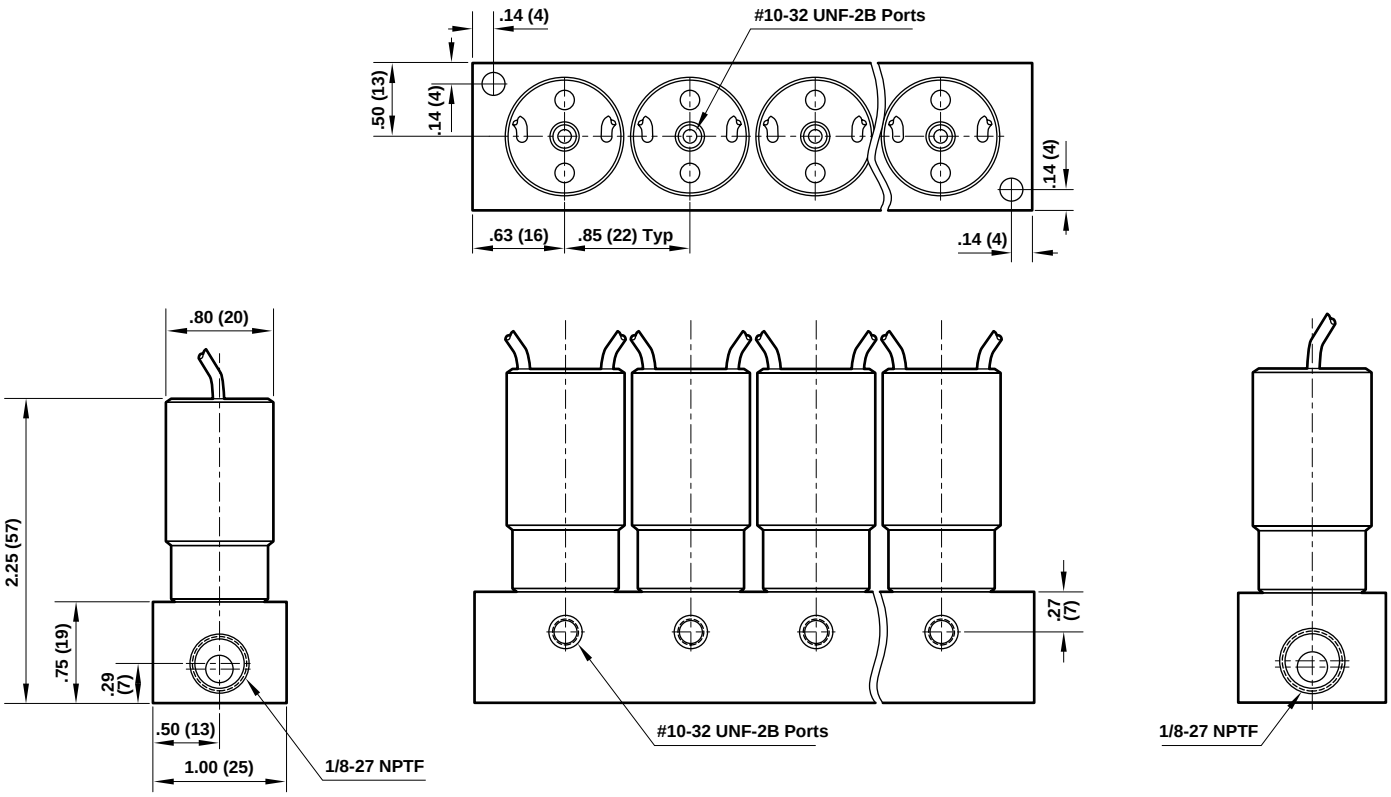




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KIP Jr. Series Manifold Dimensions

Manifold Mount Valve Type Manifold

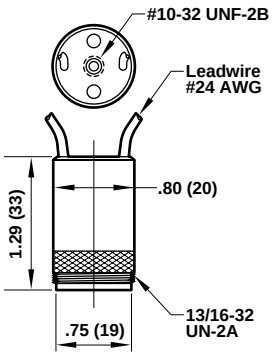


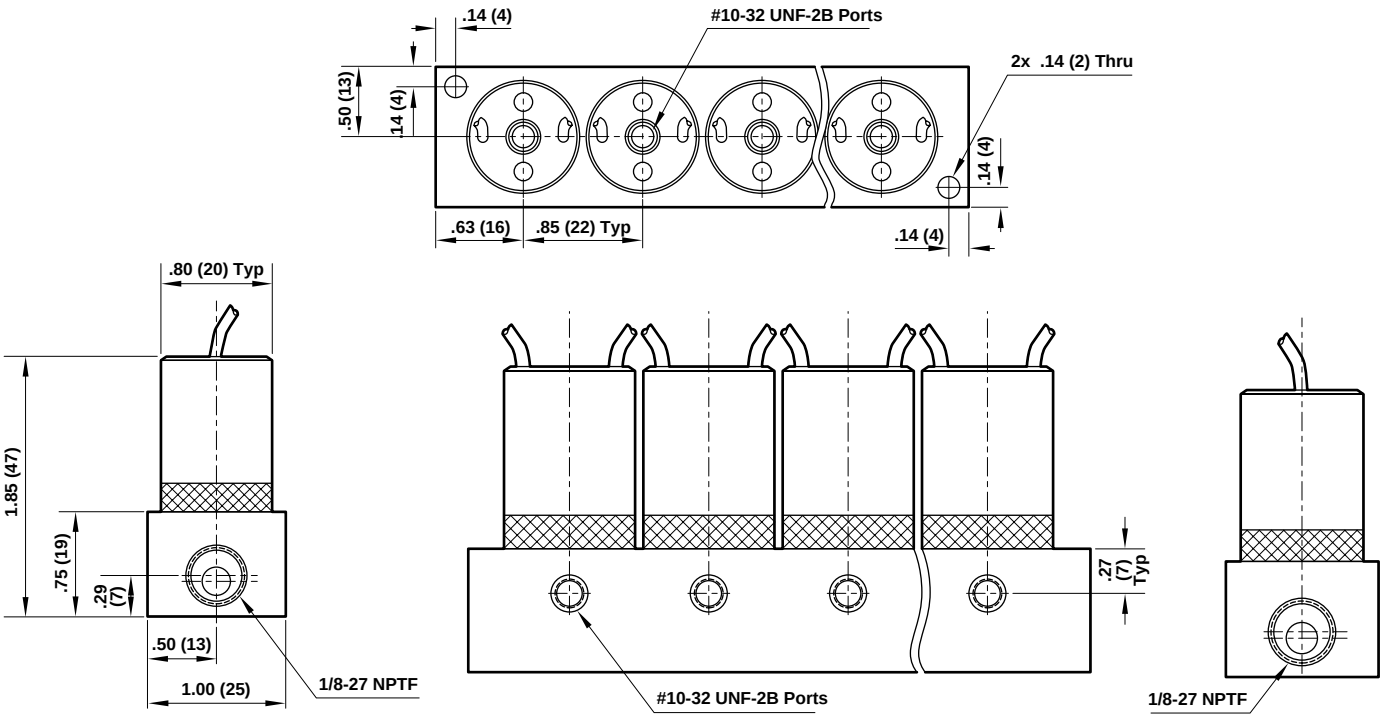
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KIP Jr. Series Manifold Dimensions

Operator Mounting Type Manifolds - Including Isolation Type Manifolds

KIP Jr. Operator

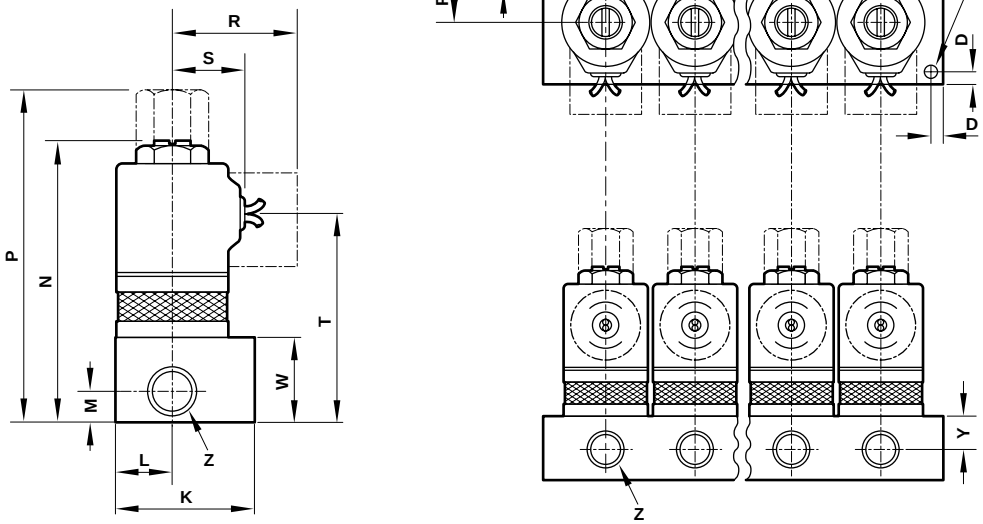




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Manifold Dimensions

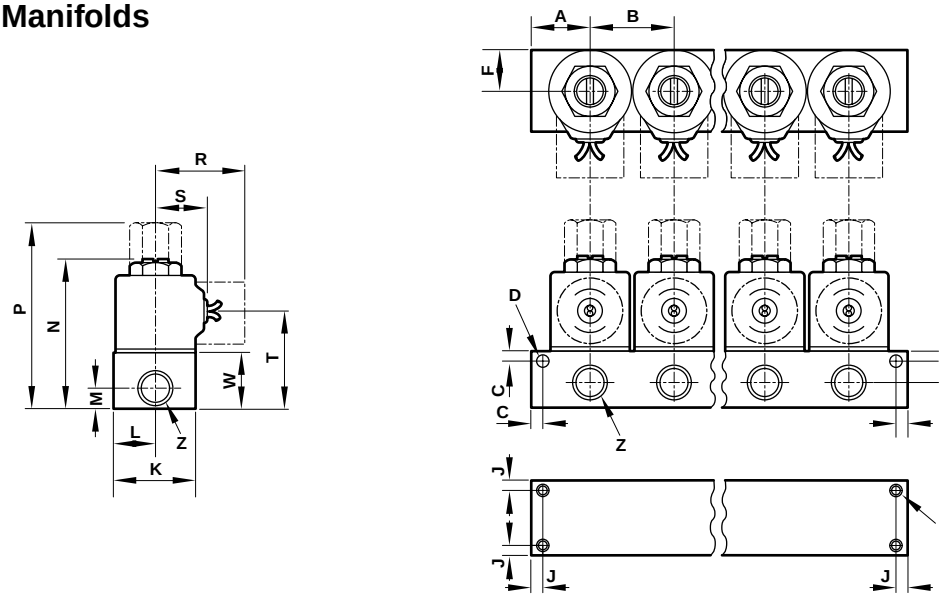
Manifold Mount Valve Type Manifolds



	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

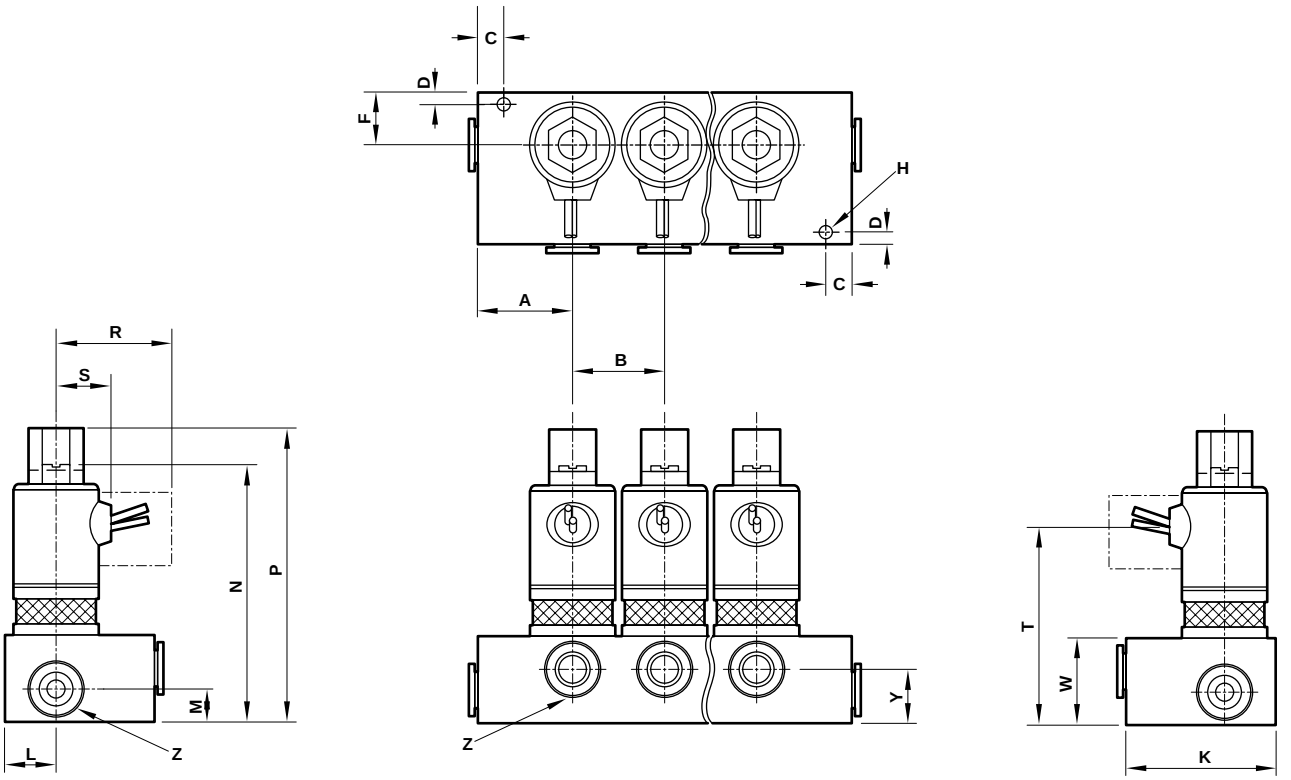
Operating Mounting Type Manifolds



	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

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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) 2.56** (65)	1.00 (25)	.55 (14)	1/4
	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) 2.81** (71)	1.25 (32)	.78 (20)	3/8
	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) 2.81** (71)	1.25 (32)	.78 (20)	1/2

* = Grommet ** = Conduit

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Liquid Flow Calculations

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

1. Find pressure differential on horizontal axis.

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

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

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

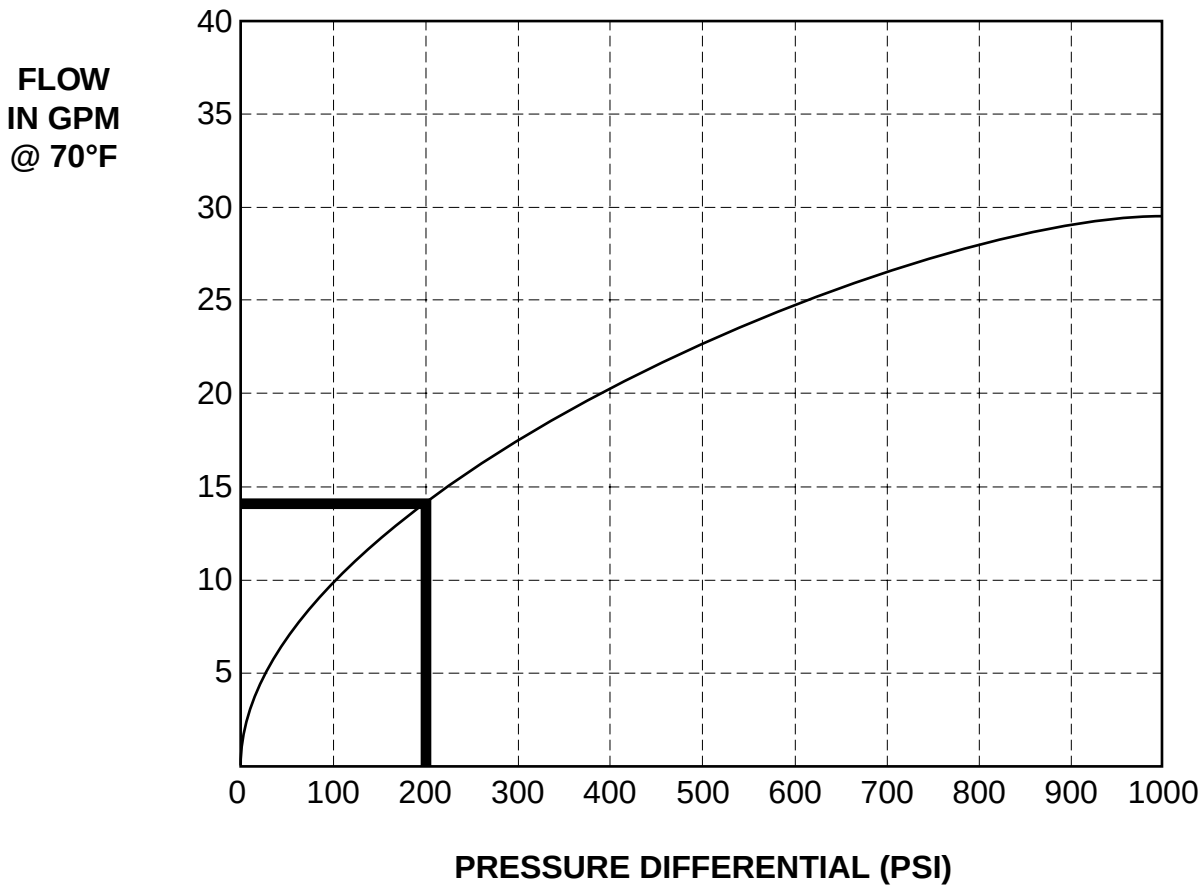
Gasoline	1.200
Ethyl Alcohol	1.120
MIL-H-5606A Hydro-oil	1.087

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

EXAMPLE

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

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



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Air/Gas Flow Calculations

1. Find back pressure on horizontal axis.

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

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

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

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

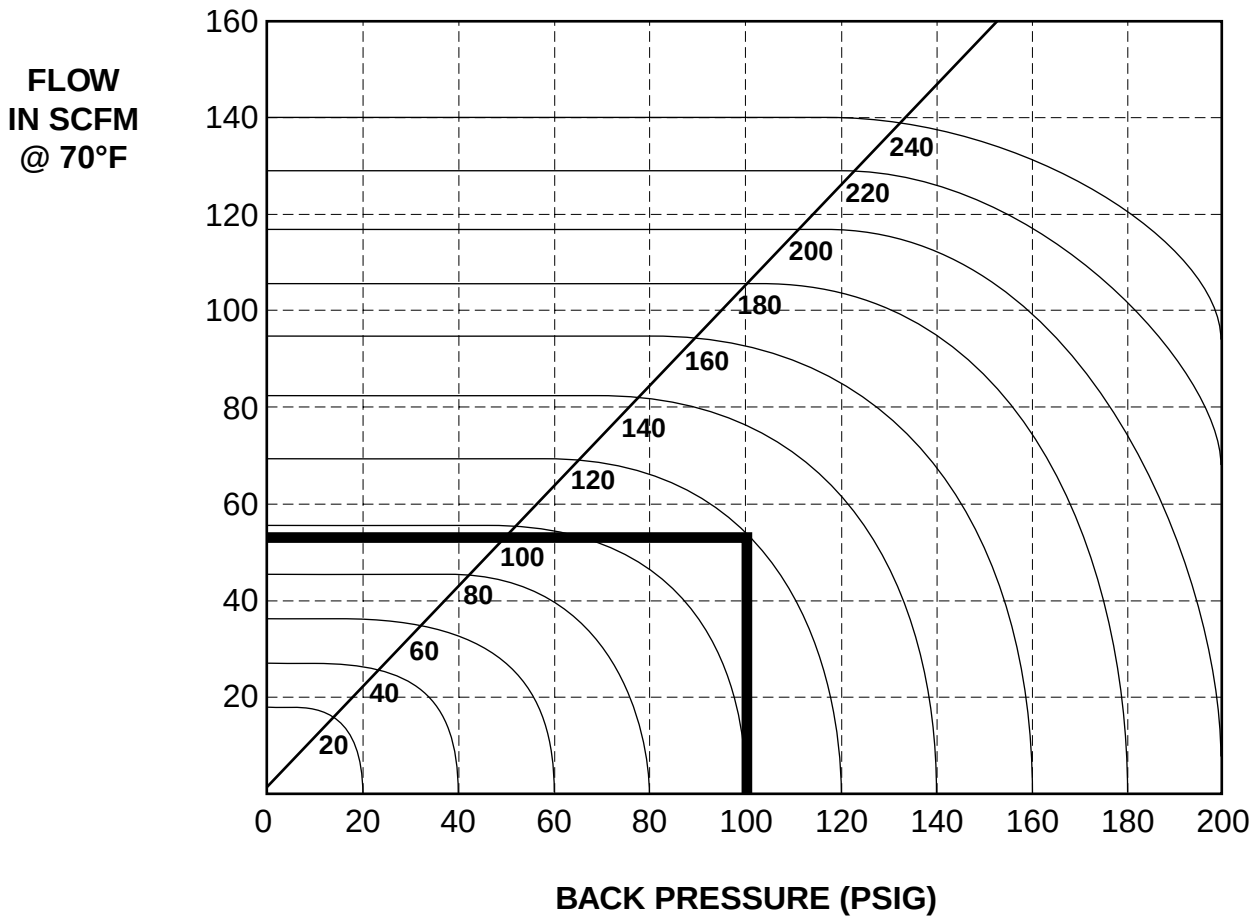
Other Fluids = $\sqrt{\frac{1}{S.G.}}$

EXAMPLE

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

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

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



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Plastic Body Medical Valve



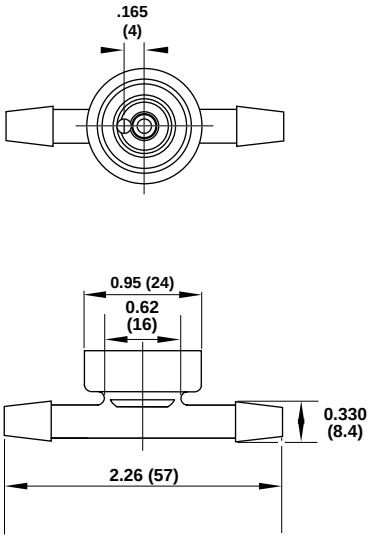
Bi-Directional Valve part number **2X1958-Voltage***

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)

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NORGREN

Model 8208

2-Way Plastic Media Isolation Valve

- **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

8208 – 25|02 – 13 – Voltage – Optional

VALVE SERIES

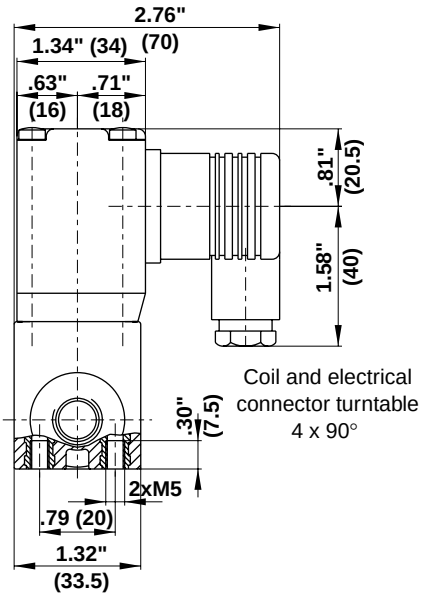
PORTS
95 = 1/4" Tube Fitting
25 = G 1/4
27 = G 3/8

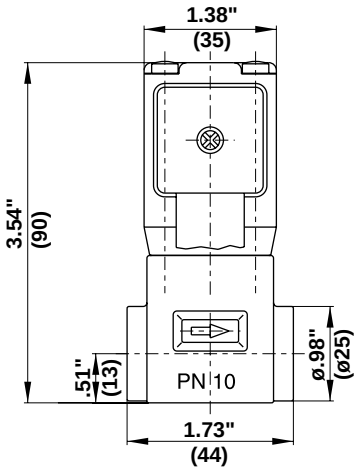
ORIFICE
02 = 1/8"
04 = 3/16"
05 = 1/4"
06 = 5/16"

SEAL
02 = Fluorocarbon
08 = PTFE
13 = EPDM

SUFFIX
CO = 1/2" NPT Conduit
CL = 1/2" NPT Conduit with 24" Lead Wires

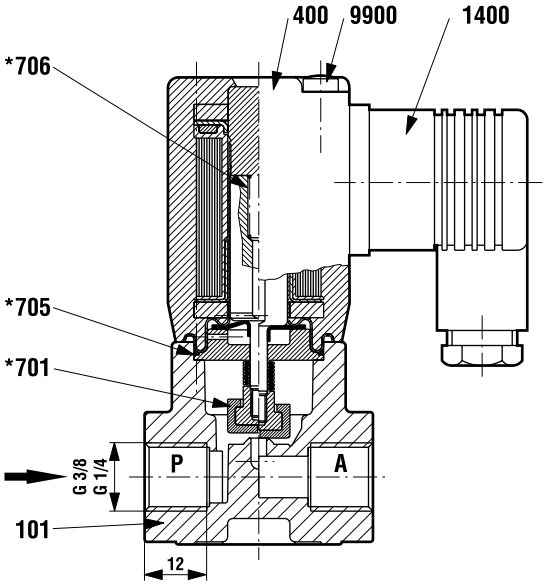
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Power Consumption

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.

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Model 8241

2-Way Brass Diaphragm Valve

- **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

0506 = 1/4" NPT
0707 = 3/8" NPT
0908 = 1/2" NPT
1010 = 3/4" NPT
1111 = 1" NPT
1212 = 1-1/4" NPT
1313 = 1-1/2" NPT
1414 = 2" NPT

ORIFICE

5/16"
3/8"
7/16"
3/4"
1"
1-1/4"
1-1/2"
2"

SEAL

01 = Buna
02 = Fluorocarbon
13 = EPDM
51 = HNBR (Steam)

SUFFIX

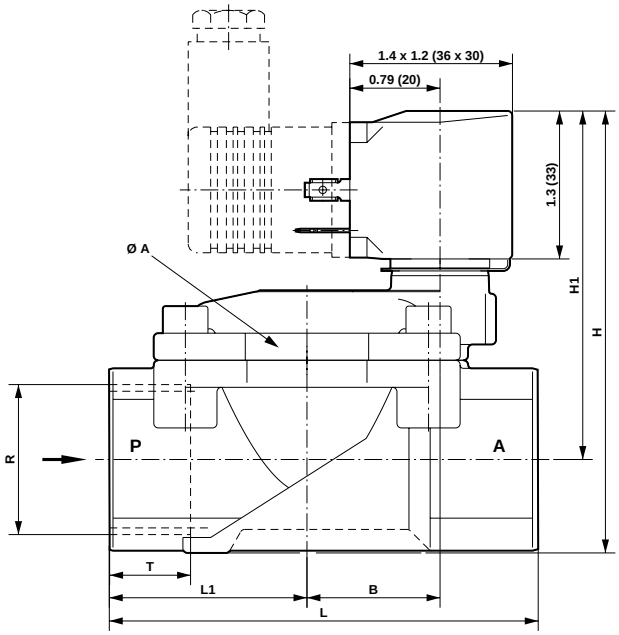
NO = Normally Open
MO = Manual Override
LC = Latching Coil
CO = 1/2" NPT Conduit
CL = 1/2" NPT Conduit with 24" Lead Wires

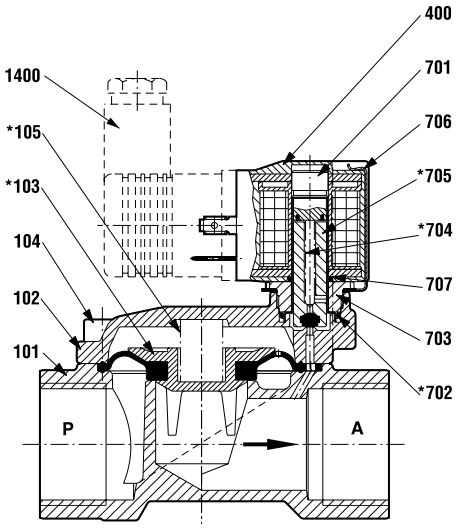
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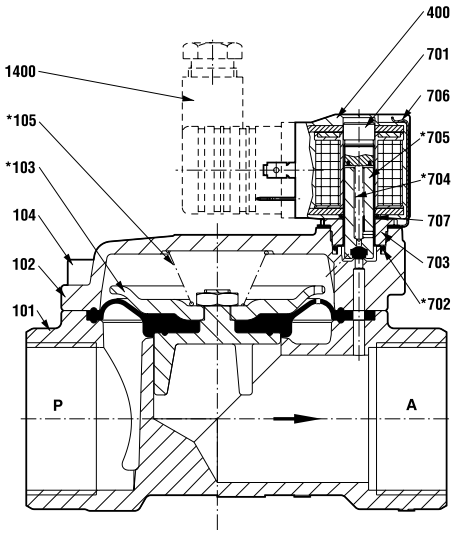
R	ØA	B	H	H_1	L	L_1
1/4" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
3/8" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
1/2" NPT	1.73 (44)	.77 (19.5)	3.19 (81)	2.64 (67)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	.95 (24)	3.47 (88)	2.82 (71.5)	3.15 (80)	1.44 (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	*702	O-ring
102	Valve cover	703	Screw piece
*103	Diaphragm	*704	Pressure spring
104	Socket head cap screw	*705	Plunger
*105	Pressure spring	706	Spring clip
400	Coil	707	O-ring
701	Guide	1400	Electrical connector

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

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NORGREN

Model 8257

2-Way Stainless Steel Diaphragm Valve

- **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

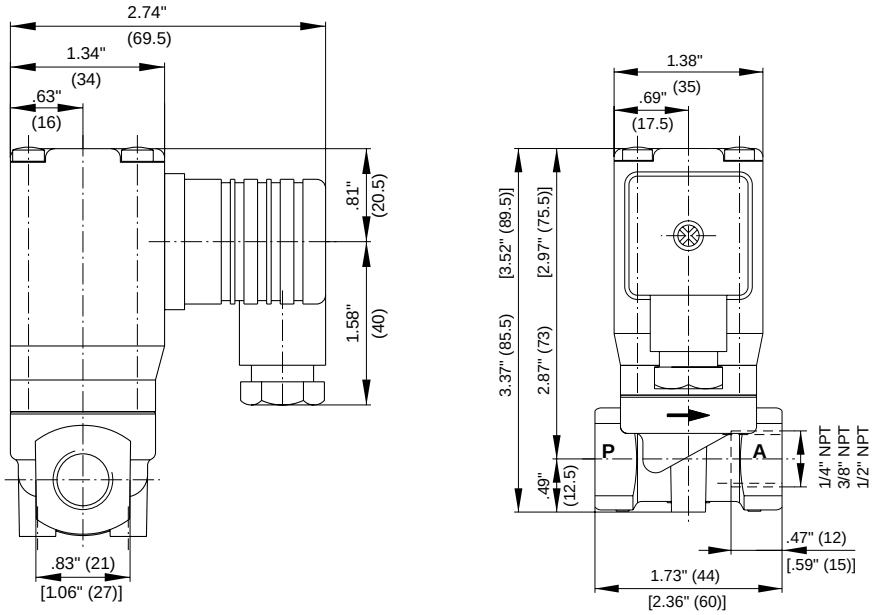
Coil: Class F, Molded, Continuous Duty

Part Number Identification

8257 – 0507 – 01 – 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	
	09 = 1/2" NPT		13 = EPDM	

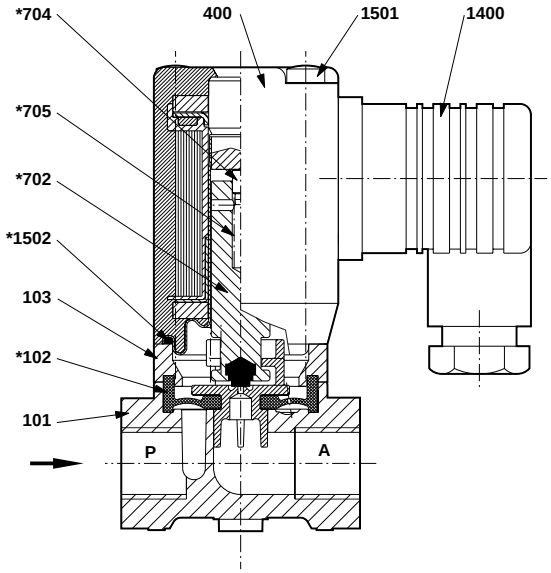
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Dimensions in [ ] for version 1/2" NPT.

Power Consumption

DC	AC	
	Inrush	Holding
12W	13VA	13VA



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.

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NORGREN

Model 8263

2-Way Brass Diaphragm Valve

- **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

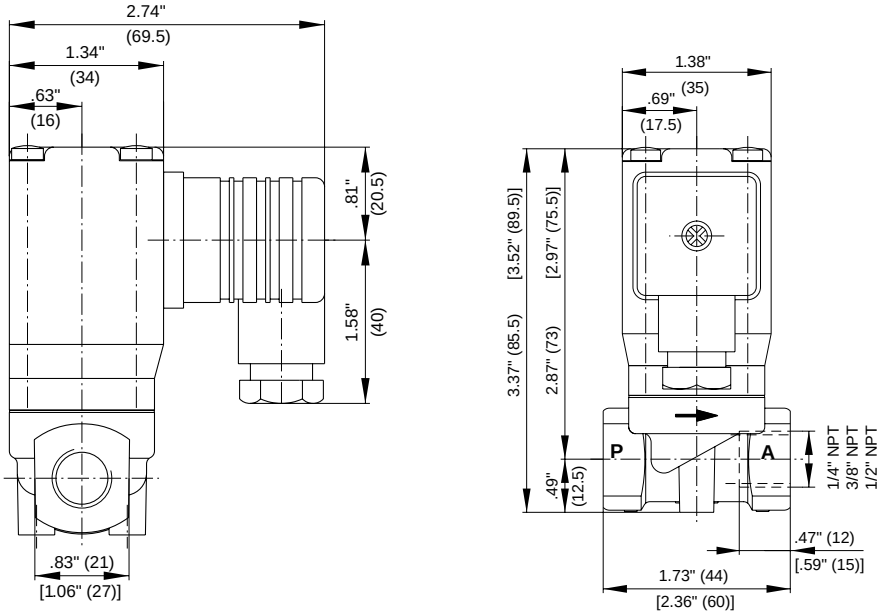
PORTS
05 = 1/4" NPT
07 = 3/8" NPT
09 = 1/2" NPT

ORIFICE
07 = 3/8"

SEAL
01 = Buna
02 = Fluorocarbon
13 = EPDM
51 = HNBR (Steam)

SUFFIX
CO = 1/2" NPT Conduit
CL = 1/2" NPT Conduit with 24" Lead Wires

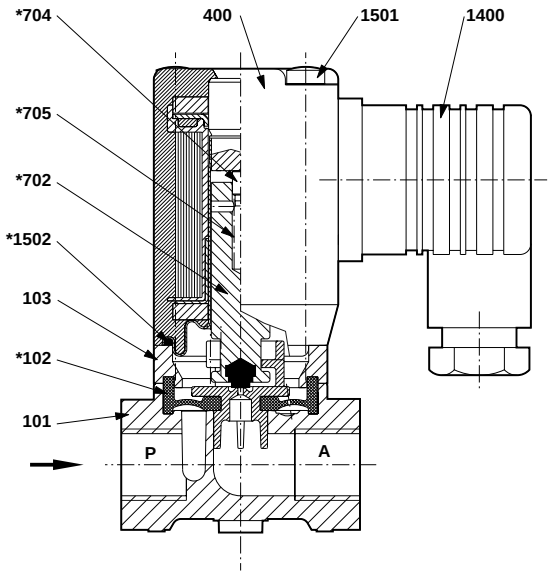
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Dimensions in [ ] for version 1/2" NPT.

Power Consumption

DC	AC	
	Inrush	Holding
12W	20VA	16VA



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.

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Model 8264

2-Way Brass Diaphragm Valve

- **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

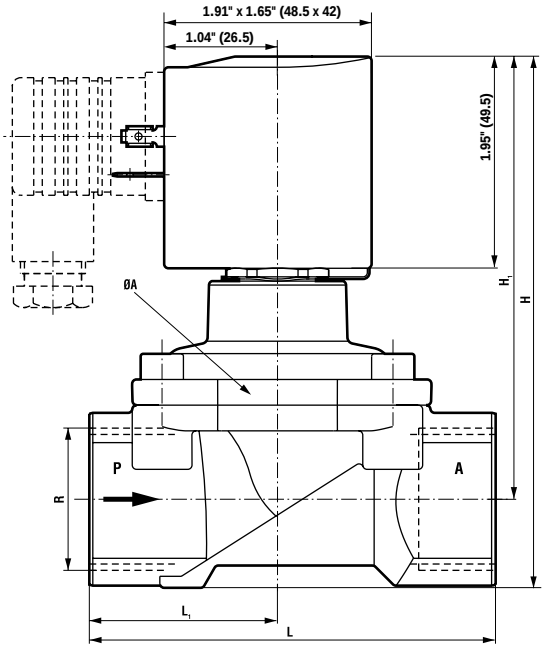
Coil: Class F, Molded, Continuous Duty

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"		

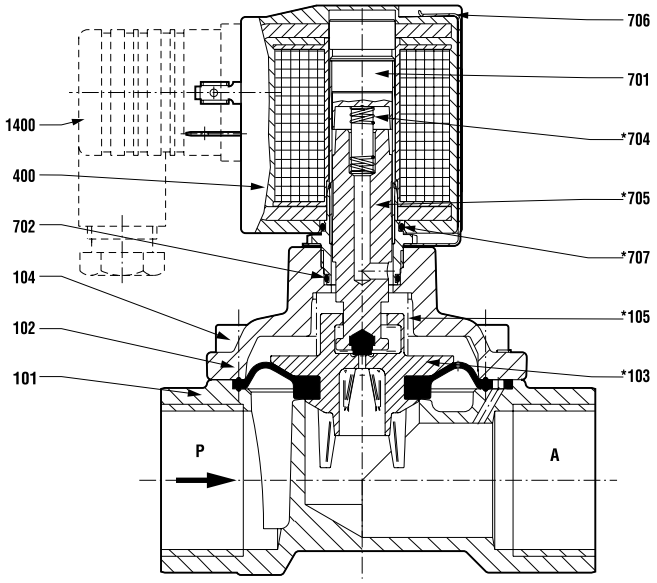
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R	AØ	H	H_1	L	L_1
1/4" NPT	1.74 (44)	4.10 (104)	3.64 (92.5)	2.37 (60)	1.08 (27.5)
3/8" NPT	1.74 (44)	4.10 (104)	3.64 (92.5)	2.37 (60)	1.08 (27.5)
1/2" NPT	1.74 (44)	4.26 (108)	3.72 (94.5)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	4.53 (115)	3.90 (99)	3.15 (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.

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NORGREN

Model 8265

2-Way Brass Diaphragm Valve

- **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

0506 = 1/4" NPT
0707 = 3/8" NPT
0909 = 1/2" NPT
1010 = 3/4" NPT
1111 = 1" NPT

ORIFICE

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

SEAL

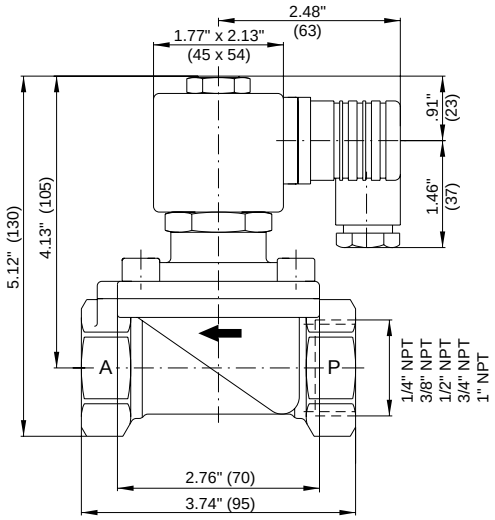
01 = Buna
02 = Fluorocarbon
13 = EPDM
51 = HNBR (Steam)*

SUFFIX

CO = 1/2" NPT Conduit
CL = 1/2" NPT Conduit with 24" Lead Wires

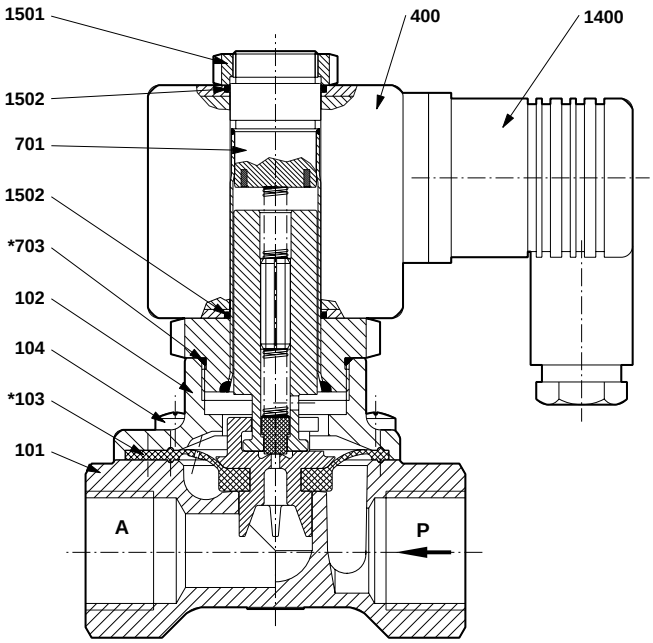
* Note: Valves with seal option 51 (HNBR) are not available with UL recognized coils.

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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.

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Model 8273

2-Way Stainless Steel Diaphragm Valve

- **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

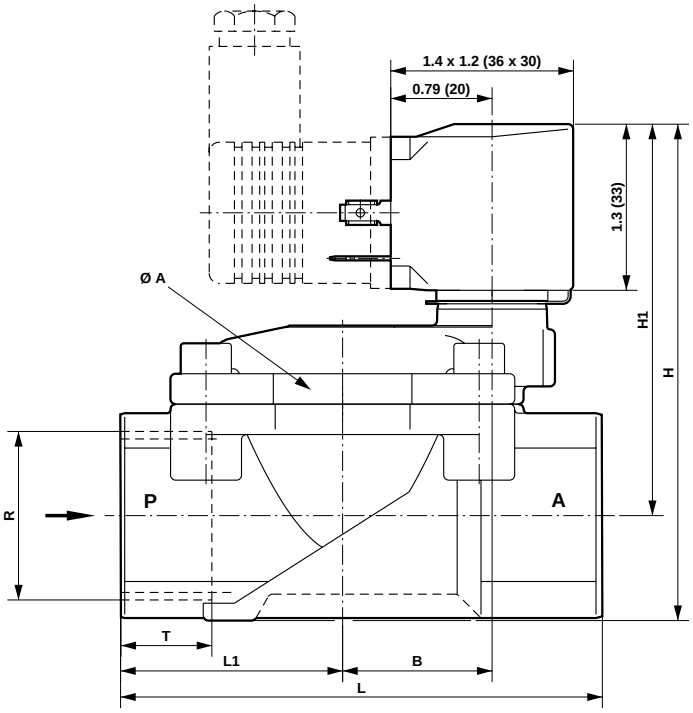
Coil: Class F, Molded, Continuous Duty, UL Recognized

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"		

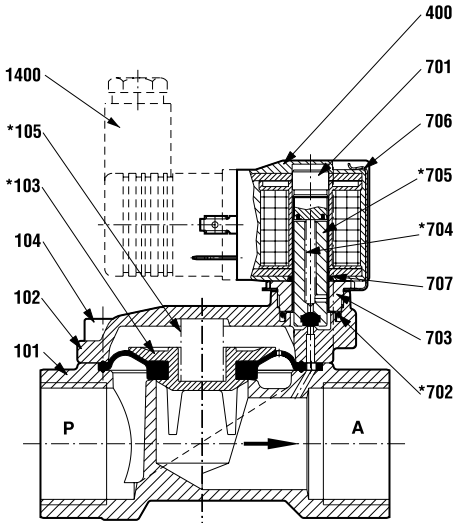
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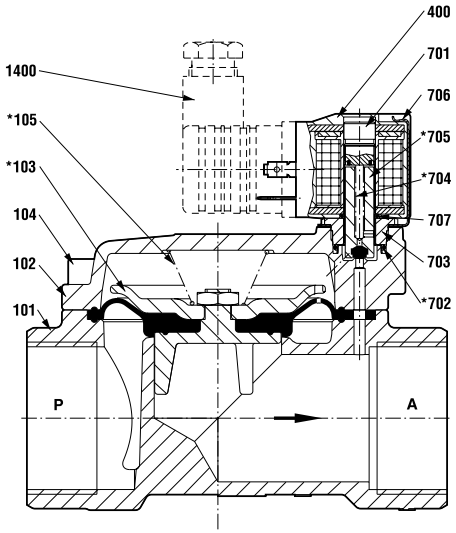
R	ØA	B	H	H_1	L	L_1
1/4" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
3/8" NPT	1.73 (44)	.77 (19.5)	3.09 (78.5)	2.64 (67)	2.36 (60)	1.08 (27.5)
1/2" NPT	1.73 (44)	.77 (19.5)	3.19 (81)	2.64 (67)	2.64 (67)	1.22 (31)
3/4" NPT	1.97 (50)	.95 (24)	3.47 (88)	2.82 (71.5)	3.15 (80)	1.44 (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.

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NORGREN

Model 8451

2-Way Bronze Angle Seat Valve

- **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)

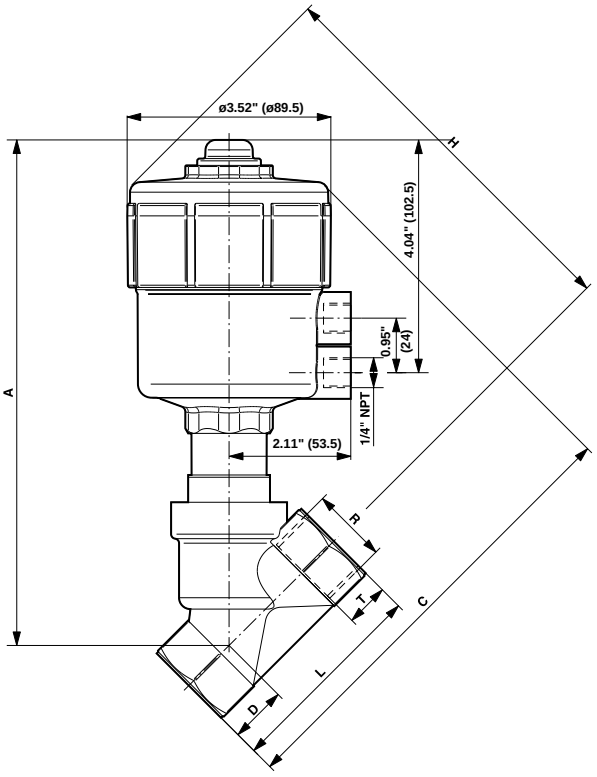
Body: Bronze, Nickel-Plated Brass
Seal: PTFE
Other Wetted Parts:
Brass, Stainless Steel, Sandvik 1802
Actuator: 30% Glass-Filled Polyamid 66

Part Number Identification

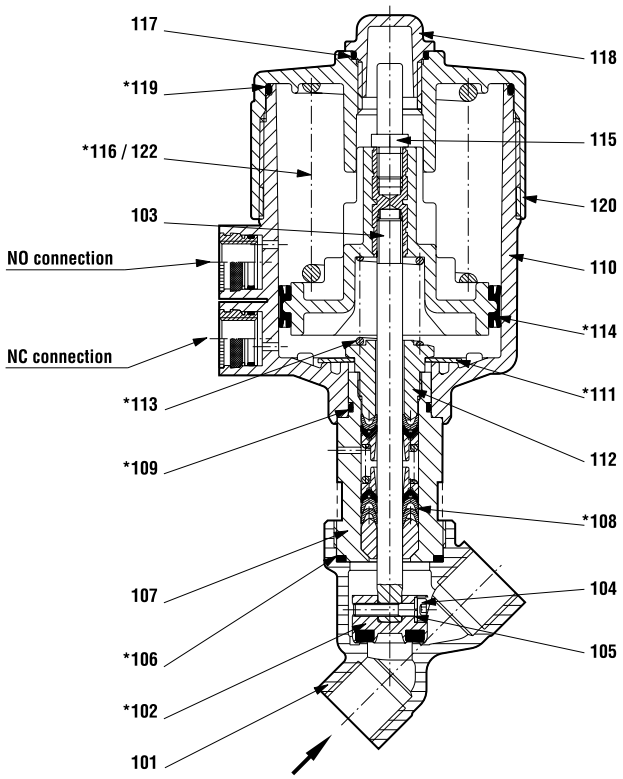
8 4 5 1 – 0 9 0 9 – 0 8 – Voltage – Optional

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"		

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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.

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Model 8453

2-Way Stainless Steel Angle Seat Valve

- **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)

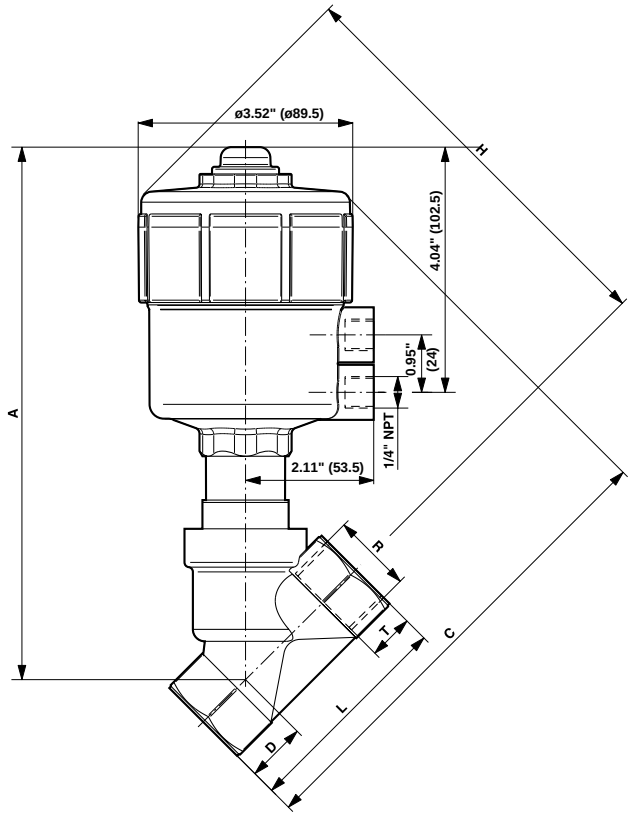
Temperature Rating
Media:
14°F to 356°F (-10°C to +180°C)
Ambient:
14°F to 140°F (-10°C to +60°C)
Body: Stainless Steel
Seal: PTFE
Other Wetted Parts: Stainless Steel
Actuator: 30% Glass-Filled Polyamid 66

Part Number Identification

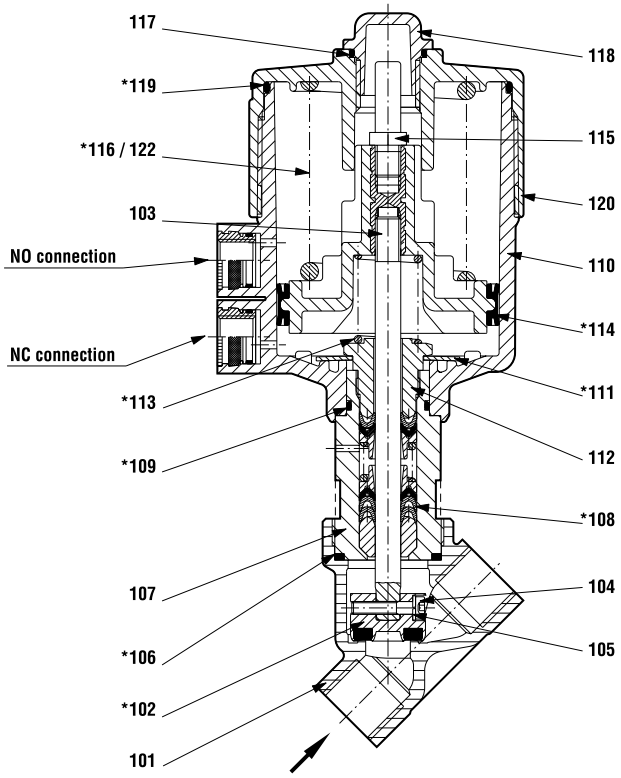
8 4 5 3 – 0 9 0 9 – 0 8 – Voltage – Optional

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"		

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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.

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NORGREN

Model 8501

2-Way Brass Flat Piston Valve

- **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

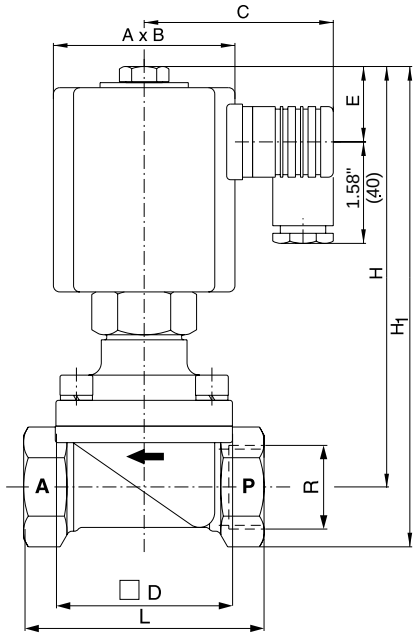
Coil: Class F, Molded, Continuous Duty

Part Number Identification

8501 – 1111 – 01 – 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"		

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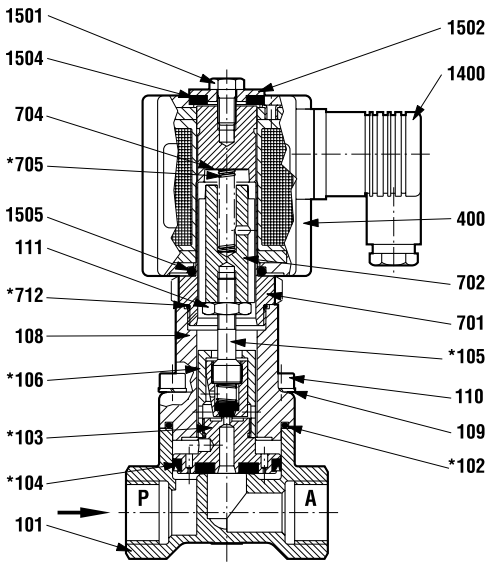


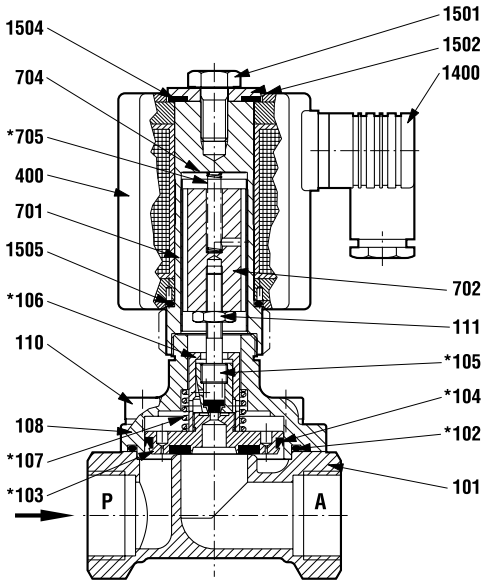
R	A x B	C	□ D	E	H	H1	L
1/2" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	5.71 (145)	6.30 (160)	2.64 (67)
3/4" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
1" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
1-1/4" 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	400	Coil
*102	O-ring	701	Guide
*103	Valve plate	702	Plunger
*104	Grooved ring	704	Round plate
*105	Valve spindle	*705	Pressure spring
*106	Screw piece	*712	O-ring, 1/2" NPT only
*107	Pressure spring, from 3/4" NPT	1400	Socket
108	Body cover	1501	Hexagon screw
109	Spring washer	1502	Round plate
110	Round head cap screw	1504	Gasket
111	Hexagon nut	1505	O-ring

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

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NORGREN

Model 8505

2-Way Stainless Steel Flat Piston Valve

- **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

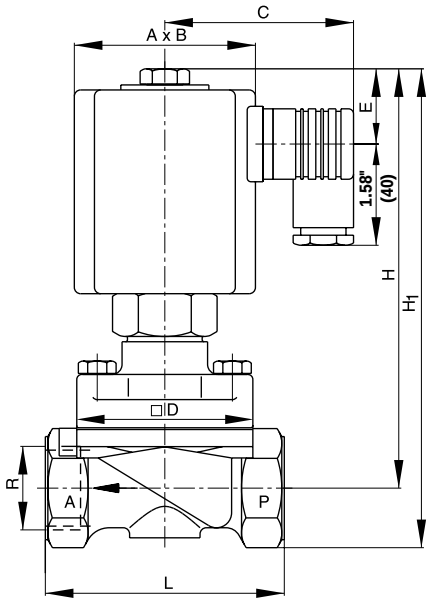
Coil: Class F, Molded, Continuous Duty

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

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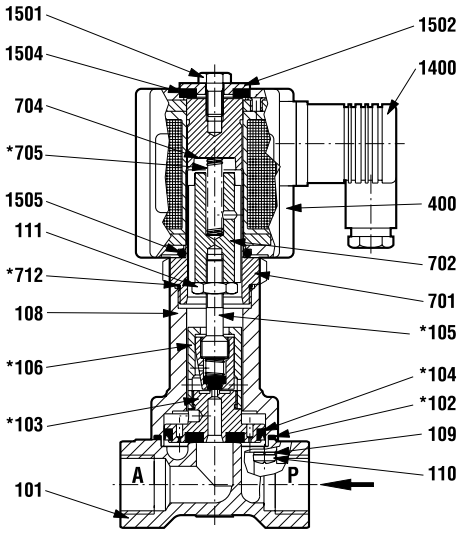


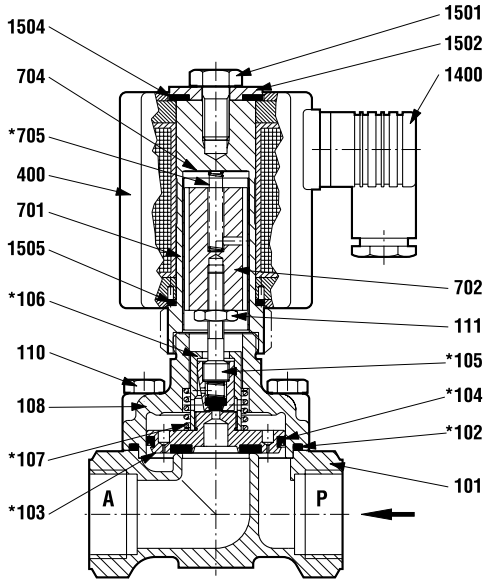
R	A x B	C	□D	E	H	H1	L
3/8" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	5.91 (150)	6.50 (165)	2.64 (67)
1/2" NPT	2.05 x 2.56 (52 x 65)	2.56 (65)	1.77 (45)	1.02 (26)	6.91 (150)	6.50 (165)	2.64 (67)
3/4" NPT	2.84 x 3.62 (72 x 92)	2.95 (75)	2.76 (70)	1.22 (31)	6.77 (172)	7.72 (196)	3.74 (95)
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.

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Model 8531

2-Way High Pressure Flat Piston Valve

- **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

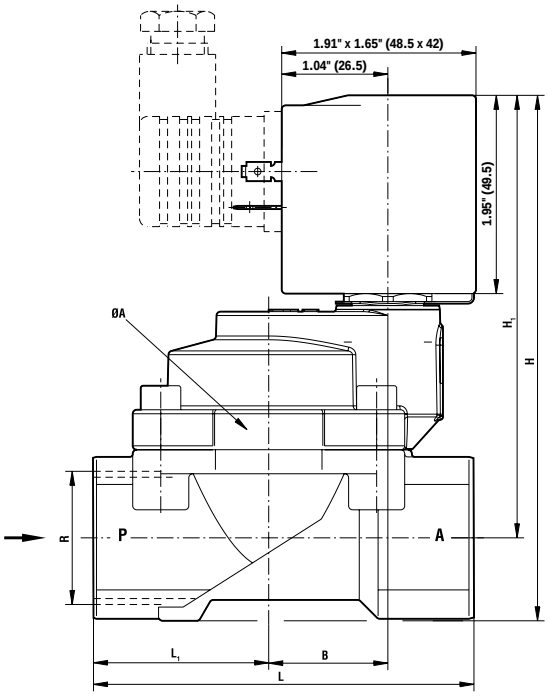
PORTS
- 0506 = 1/4" NPT
- 0707 = 3/8" NPT
- 0909 = 1/2" NPT
- 1010 = 3/4" NPT
- 1111 = 1" NPT

ORIFICE
- 5/16"
- 3/8"
- 1/2"
- 3/4"
- 1"

SEAL
- 01 = Buna
- 02 = Fluorocarbon
- 13 = EPDM

SUFFIX
- NO = Normally Open
- MO = Manual Override
- CO = 1/2" NPT Conduit
- CL = 1/2" NPT Conduit with 24" Lead Wires

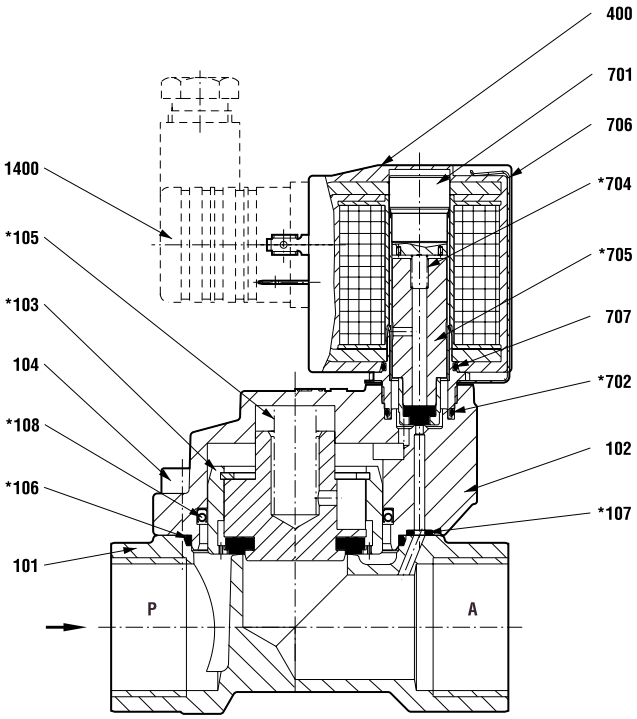
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R	B	H	H1	L	L1	AØ
1/4" NPT	0.77 (19.5)	4.13 (105)	3.68 (93.5)	2.36 (60)	1.08 (27.5)	1.73 (44)
3/8" NPT	0.77 (19.5)	4.13 (105)	3.68 (93.5)	2.36 (60)	1.08 (27.5)	1.73 (44)
1/2" NPT	0.77 (19.5)	4.23 (107.5)	3.68 (93.5)	2.64 (67)	1.22 (31)	1.73 (44)
3/4" 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.

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Valve Inquiry Application Sheet

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

Name _____ Company _____

Address_____ City _____E-mail_____

State_____ Zip _____ Telephone_____ Fax _____

Description of application _____

_____

Valves Per System_____ Manifold _____ (Submit System Schematic)

Immediate Quantity _____ Prototype Y _____N _____ Estimated Yearly Quantity _____

MEDIA INFORMATION

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

Liquid Media _____ Specific Gravity _____ Viscosity _____

Inlet Pressure _____ Minimum Temp. _____

Downstream Pressure (-) _____ Minimum Temp. _____

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

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

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

TYPE OF VALVE

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

2WNC_____ 2WNO _____ 3WNCFV_____ 3WNCLC _____ 3WNO _____ 3WMP _____ 3WDC _____

Standard Valve Body_____ Manifold Mount Body_____ Operator_____ Other _____

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

UL Recognized _____ CSA Approved_____ Food Grade_____ Other _____

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

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

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

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

BODY OPTIONS INFORMATION

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

SEAL SELECTION (SEE PAGE 11 FOR SEAL OPTIONS AVAILABLE)

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

Seal Selections Special Information_____

_____

COIL SELECTION CRITERIA

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

Housing/Plating Special Request_____

_____

Class B_____ Class H _____ Molded Coil_____ Tape Wound (Dry) _____ Wattage Req'd_____

Voltage _____ AC/DC _____ HZ_____ Minimum Voltage_____ Maximum Voltage _____

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

Continuous Duty_____ Intermittent Duty _____ Max. Time On _____ Max. Time Off _____ Cycle Rate_____

Will Valve Be in a Moisture Environment _____ Coil Comments _____

Application Comments _____

_____

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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** (Polyphenelene Sulphide) **Bronze**

Seal (circle one): **Buna** **EPDM** **Fluorocarbon** **PTFE** **HNBR**

Immediate Production Quantity _____

Estimated Annual Quantity _____

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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.

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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.

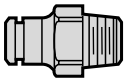
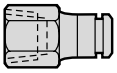
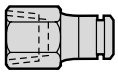
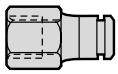
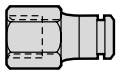
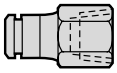
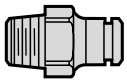
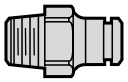
ISO R female series threads are usually designated in the same manner, but with a “c” subscript. Example: R_c1/4.
In addition to itself, the ISO R thread form will also mate with British Standard Pipe Tapered (BSPT) and Japanese Industrial Standard Tapered Pipe (PT) per JIS B 0203. Some form of thread 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.

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Thread Form	Mates with	Thread Form	Method of Sealing
M5 (male)		M5 (female)	Molded thermoplastic sealing washer effects static face seal
ISO G (male)		ISO G (female) BSPP (female) JIS B 0202 (female)	Molded thermoplastic sealing washer effects static face seal
ISO G (female)		ISO G (male) BSPP (male) JIS B 0202 (male)	Molded thermoplastic sealing washer effects static face seal Sealing washer should be used to effect static face seal
		ISO R (male) BSPT (male) JIS B 0203 (male)	Thread sealant must be applied to prevent spiral leakage

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Thread Form	Mates with	Thread Form	Method of Sealing
ISO R (male) 		ISO R_C (female) 	Thread sealant must be applied to prevent spiral leakage
		BSPT (female) 	
		BSPT (female) 	
		ISO G (female) 	
		BSPP (female) 	
		JIS B 0202 (female) 	
ISO R_C (female) 		ISO R (male) 	Thread sealant must be applied to prevent spiral leakage
		BSPT (male) 	
		JIS B 0203 (male) 	

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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 104	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_2O	ft H_2O	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_2O	1.868	0.07355	1	0.08333	0.00246	0.03613	0.00254
ft H_2O	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 105	1000	1	3.94 x 104	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 105	1609	1.609	6.34 x 104	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 105	2.68 x 106	1	0.7457
Kw hr	3413	8.60 x 105	3.60 x 106	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 104	1	1 x 10-5	1550	10.76
km^2	1 x 1010	1x 105	1	1.55 x 109	1.08 x 107
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

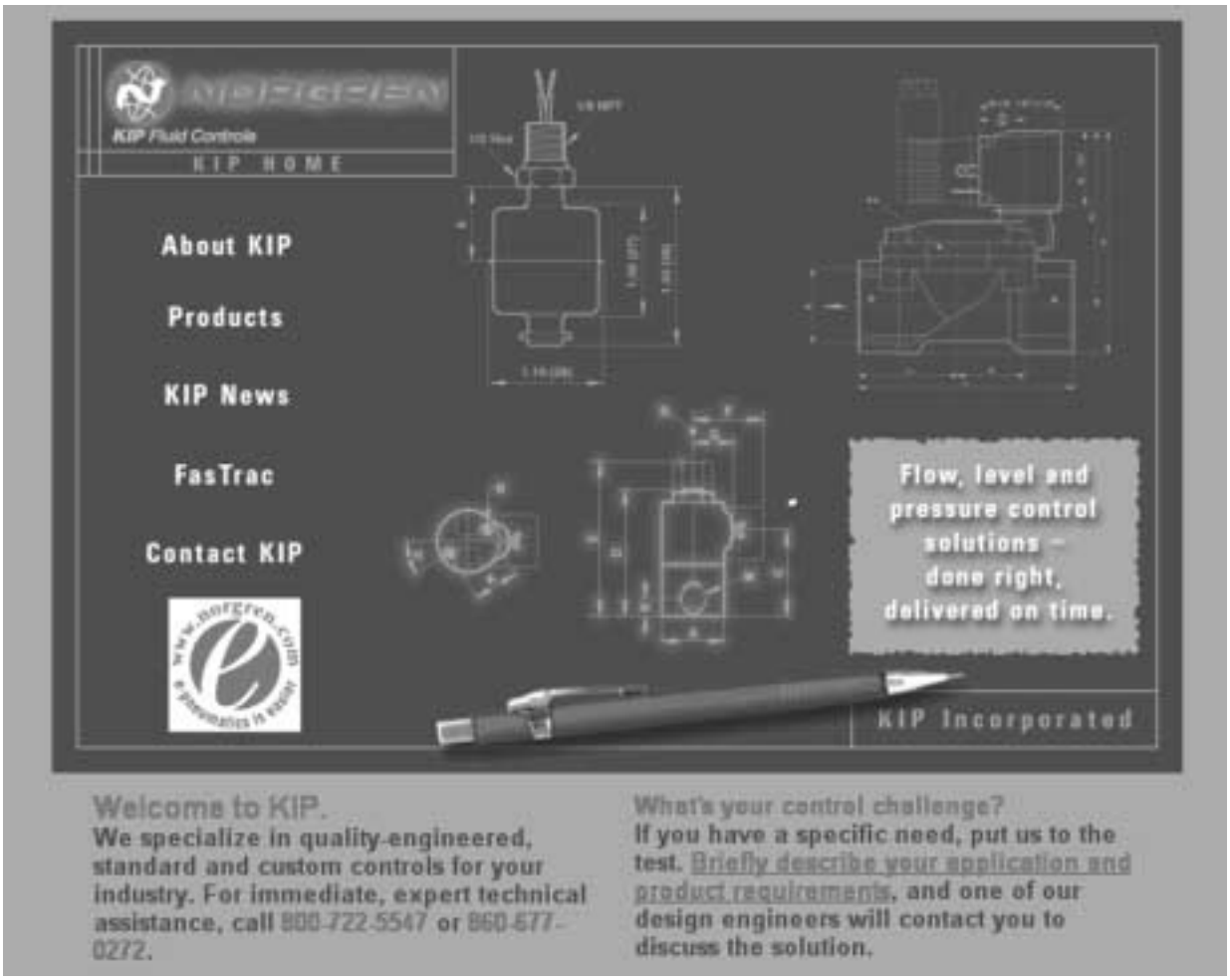
TEMPERATURE COMPARISON

-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

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