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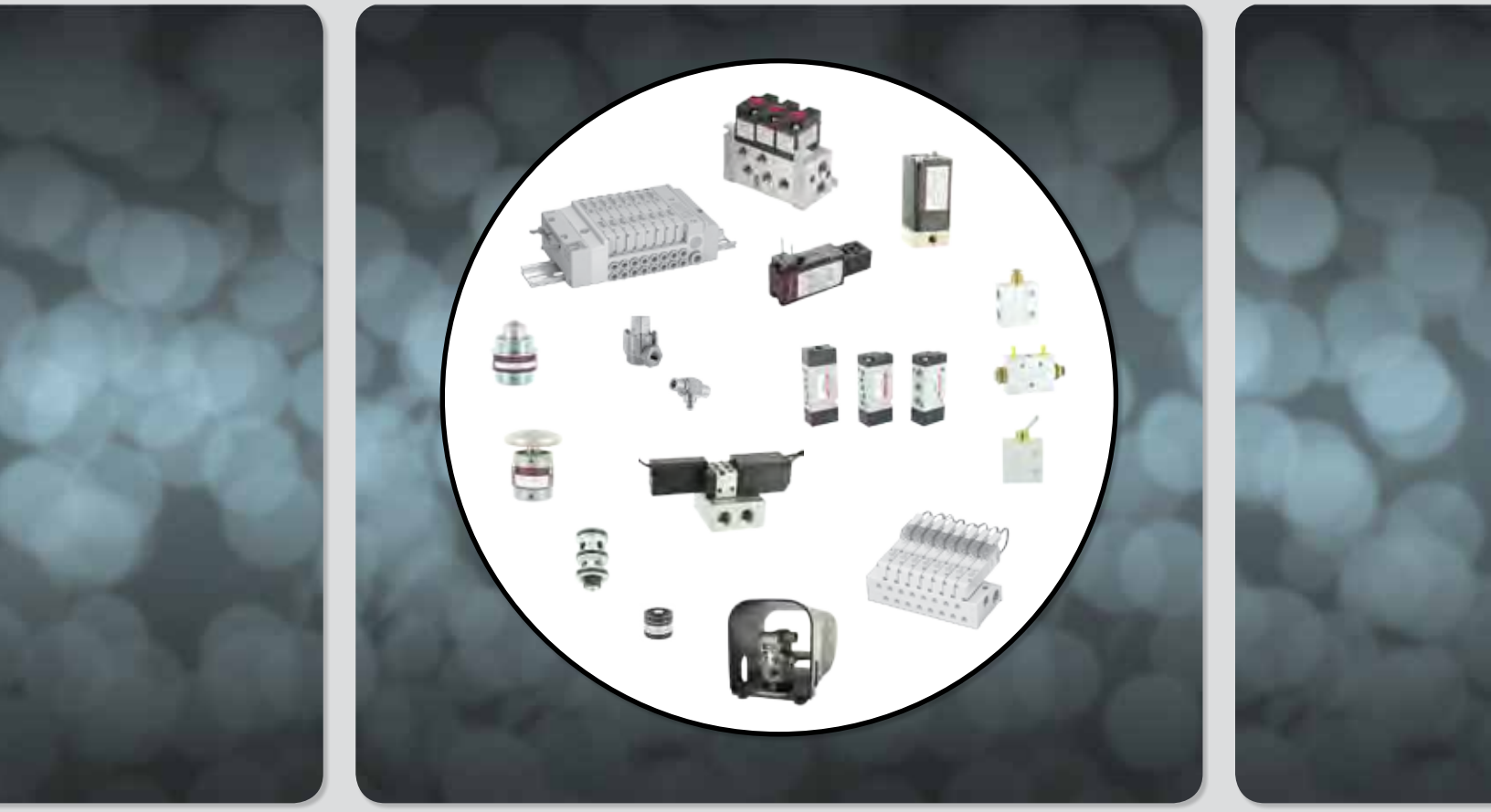
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Find the *Humphrey H110-4E1-83-PSL* at our website: ***Click HERE***

Humphrey®

VALVE CATALOG



www.humphrey-products.com

To learn about our NEW PRODUCTS, scan this QR Code using your smart phone's QR reader.



HUMPHREY PRODUCTS

Founded more than 100 years ago, the long history of Humphrey designed and produced innovations date back to the commercialization of gaslight products in 1901. Today, Humphrey is recognized as a leading producer of fluid control products, serving organizations worldwide. Our expertise in a wide range of markets and industries is based on technologies time-tested and proven in our standard products, enabling us to create truly customized solutions for those customers having unique commercial and industrial applications.

Headquartered in Kalamazoo, Michigan, we have an experienced staff at multiple locations of not more than 200 associates at each one in order to serve you with the very best personal service at locations throughout the United States and Canada. We also have a long-standing alliance with the Japan-based Koganei Corporation, one of the largest and highest quality fluid control companies in the world.

We work to solve not only your fluid control challenges, but to also improve the ease and efficiency of your manufacturing processes. This comprehensive approach offers you tremendous outsourcing advantages, significantly reducing your product development cycle and creating vital cost efficiencies. You gain access to our advanced manufacturing technologies, reduced time-to-market, and the ability to reassign critical internal resources to focus on your core competencies. Our purpose is to serve and solve whatever the problem is you face in automating your controls and processes.



Humphrey has a rich history dating back to 1901, when it was General Gas Light Company.

For details and photos reflecting on our history, go to www.humphrey-products.com, select "Our Company" and then click on the photo you see on this page.

More than 50 years ago, Humphrey and Koganei become the first independent North American and Japanese manufacturers of pneumatics to join forces.

Koganei is a top supplier of pneumatic components in Asia, and among the top five in the world. Over the years, we've worked with Koganei to develop products, exchange the latest design and manufacturing technology, and manufacture some of the finest pneumatic actuators and valves in the world. This relationship continues today. With Koganei, we can call on a breadth and depth of experience which crosses continents and industries, helping us create more innovative, inventive solutions which will help you succeed. For more information, go to www.koganei.co.jp.

For a copy of these certificates, please go to www.humphrey-products.com.

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WARNING

The information in this publication and other information from Humphrey Products and its authorized distributors in intended for use by persons having technical expertise in selecting and using these products. Refer to our website (www.humphrey-products.com) for more information.

All technical and safety requirements of your specific application, including the consequences of any possible failure, should be analyzed prior to selecting and applying the products.

These products are not suitable for all applications, such as applications related to or connected with aviation, aircraft or aerospace.

HOW TO USE THIS CATALOG

The Humphrey Valve Catalog provides basic decision-making information about our broad range of valve products. We recommend you view valve fundamentals, principles and background information on the first page of each valve section, then use the index to quickly navigate to the best solution.

Further information, such as detailed specifications, CAD drawings and how to order information, are readily available on our website at www.humphrey-products.com. Specifications listed here and on our website are based on testing data and may vary by environment and application. Dimensions are in nominal inches to capture the overall size of the product. Consult a factory representative if you cannot find the information you need.

WHERE TO GET MORE INFORMATION

VISIT WWW.HUMPHREY-PRODUCTS.COM

- FIND A DISTRIBUTOR
  Humphrey markets its products through its global distribution network. Click FIND A DISTRIBUTOR to locate one in your local area.
- ENGINEERED SOLUTIONS
  Can't find exactly what you need? Humphrey has produced custom valves, many of which have been explained in a downloadable case history PDF found in our ENGINEERED SOLUTIONS section.
- ONLINE PRODUCT GUIDE
  The ONLINE PRODUCT GUIDE is a comprehensive real time catalog of products – both valves and actuators.
  - Search by spec or model number.
  - List prices shown for all products.
  - Specification sheets are in PDF format for easy viewing and download.
  - Product drawings in several formats for downloading and using in 3D CAD software.
  - Configure your product and email the distributor to Request a Quote.



HOW TO CONTACT HUMPHREY PRODUCTS

FACTORY CUSTOMER SERVICE PHONE
1-800-477-8707 or 269-381-5500

FACTORY CUSTOMER SERVICE FAX
269-381-4113

FACTORY CUSTOMER SERVICE EMAIL
webcust@humphrey-products.com

WEBSITE
www.humphrey-products.com

TECHNICAL SUPPORT
webtech@humphrey-products.com

LITERATURE AND MARKETING REQUESTS
websales@humphrey-products.com

HUMPHREY IS CUSTOMER DRIVEN...

For more than 100 years, Humphrey has evolved through product development born of the relevancy to our customer's needs. We originally began manufacturing gas lights, radiant fires, and water heaters at the turn of the 20th century. Today, we manufacture fluid and process control products for medical devices, green and alternate energy solutions, off-road and specialty transportation applications, testing and analytical equipment, package and conveyor logistics control systems, factory and process automation, and many more. With our focus on you – the customer – Humphrey is driven to find a solution to your fluid control challenge!

IF IT IS A STANDARD SOLUTION – WE HAVE A PRODUCT FOR THAT!

We have hundreds of standard products that are readily available through our worldwide distribution network that ensures you receive local, affordable and quality service for all your fluid and process control needs. If you need technical service, you can contact our Technical Service department. Plus, we offer 24/7 information through our website, www.humphrey-products.com, where you can download 3D CAD, print product specs, locate your local distributor, and send a Request for Quote to any of our distributor organizations worldwide.



HK5

Standard products include:

- *Solenoid Valves*
- *Pilot Operated Valves*
- *Manual and Mechanical Valves*
- *Vacuum Control Products*
- *Quick Exhausts*
- *Cylinders and other Linear Actuators*
- *Sensors and accessories*



310



TAC series

IF IT IS A SIMPLE MODIFICATION – WE HAVE A PRODUCT FOR THAT!

It may be possible to tailor a standard product to meet your demands. We've customized many, so it's likely we have what you need. Simple modifications can be created quickly and cost-effectively when you're organized with the needs of your customer in mind. We are problem solvers first, so if you don't see exactly what you need, please contact your Humphrey representative.



Stainless Steel Cylinders
For more information on our cylinders, visit our website: www.humphrey-products.com

IF IT IS A COMPLETELY NEW IDEA – THEN YOU JUST MAY NEED HUMPHREY ENGINEERED SOLUTIONS!

We are fluid handling system experts. We welcome outsourcing opportunities to design and produce solutions where fluid handling goals may be known, but the most cost effective means and resources to get there, may NOT be known. A brief listing of our case histories and the ES process are featured on pages 118-119 of this catalog. Our website provides additional information that further demonstrates our ability to meet design and production challenges. Please visit www.humphrey-products.com, select "Applications," and then choose "Do I Need an Engineered Solution?"



CH-VI1

INTRODUCTION

Direct-Acting Solenoid Valves utilize the force generated by the magnetic field of the solenoid to operate the valve. When the electrical current is removed, a mechanical spring returns the valve to its original position. Small in size, Humphrey Direct-Acting Solenoid Valves are available in M3x0.5, 10-32 UNF, 1/8 PIPE and 1/4 PIPE porting.

Humphrey enjoys a rich history of simple, reliable, direct-acting valve design and manufacture, with clients ranging from the critically clean and leak-free biomedical and analytical device industry, to packaging and conveying equipment, to the challenging and rugged environments of truck and bus makers. Our many sizes and designs provide us with a vast array of unique control solutions from which to choose.

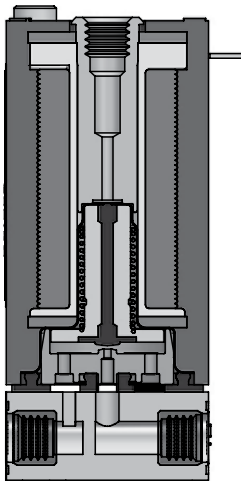
THE ADVANTAGES OF DIRECT-ACTING VALVES OVER INDIRECT-ACTING SOLENOID VALVES ARE:

- No minimum air pressure required.
- Extremely low leak rates.
- Simple construction and more robust at lower comparable costs.
- Multi-purpose. Typically, the same valve can be applied for multiple uses.
- Alternative media. Suitable for clean, dry air, other gases (bottled or other), or vacuum. Consult factory representative.
- More applicable to customization opportunities. Deviations from catalog specifications are typically welcome, such as greater flow, lower power, faster response times.

HUMPHREY OFFERS TWO DIRECT-ACTING SOLENOID VALVE DESIGN TYPES:

UNBALANCED DESIGN: In this design, the return spring is of sufficient force to seal the valve against the supplied air pressure. Characteristics of unbalanced Direct-Acting Solenoid Valves:

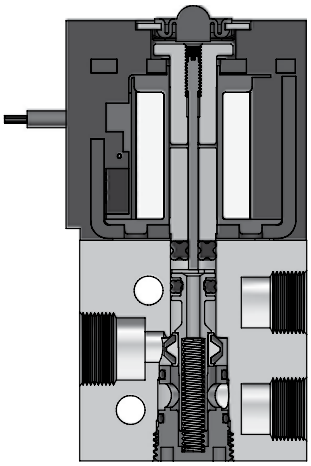
- Very simple, 2- or 3-way construction. Few parts.
- Small size.
- Resultant flow capacity determined by opposing forces of the coil versus the effective area of the air pressure. Valve orifice can be increased with greater current draw, or with reduced air pressure. Consult factory representative for details.
- Low leakage.
- Low cost.



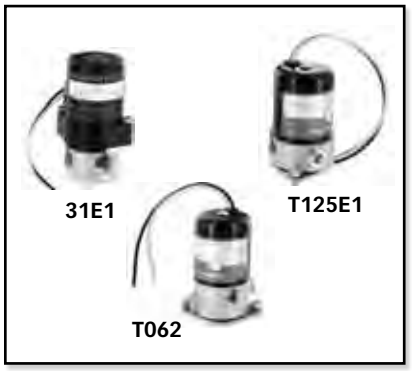
Unbalanced Design – B3E1, Actuated

BALANCED DESIGN: In this design, forces of the supplied air pressure are neutralized in the design. As a result, coil force simply must overcome the force of the return spring and minor friction of the seals. Characteristics of balanced Direct-Acting Solenoid Valves:

- Greater flow versus unbalanced designs.
- Simple construction; however, more parts than unbalanced design.
- Available in 2-, 3- or 4-way models.
- Porting flow paths isolated from solenoid section.



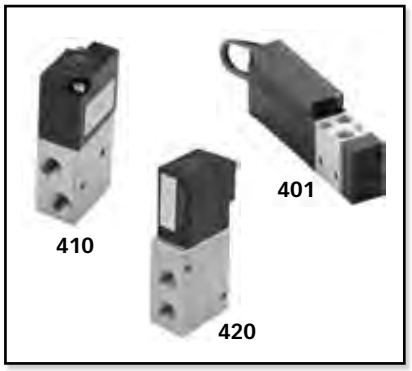
Balanced Design – 310, Unactuated



Three-Way Valves



Three-Way Balanced Valves



Four-Way Valves

	2-, 3-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	HG010 Series	10-32, M3x0.5	1	HG010E1, HGA010E1, HG010LE1, HGA010LE1, HG010HE1, HGA010HE1	6
	Mini Mizer Series	10-32	1	B3E1, MB3E1	7
	HK5 Series	10-32	3	HK5, HKL5	8-9
	H030 Series	10-32	3	H030E1, HV030E1	11
	310 Series	1/8	10	310, M310, S310	12-13
	315 Series	1/8	25	315, 315M	16
	Mini-Myte Series	1/8	6	31E1, M31E1	17
LARGE	320 Series	1/4	60	320	14-15
	Tyna-Myte 062 Series	1/4	9	062E1, T062E1, 062E2, T062E2	18-19
	Tyna-Myte 125 Series	1/4	17	125E1, T125E1, 125E2, T125E2	18-19

	4-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	401 Series	10-32	2	401, M401	10
	H030 Series	10-32	5	H030-4E1	11
	410 Series	1/8	10	410, M410, S410	12-13
	Mini-Myte Series	1/8	2	41E1, M41E1, MC41E1	17
LARGE	420 Series	1/4	60	420, M420	14-15
	Tyna-Myte 062-4 Series	1/4	6	062-4E1, T062-4E1, 062-4E2, T062-4E2	18-19
	Tyna-Myte 125-4 Series	1/4	16	125-4E1, T125-4E1	18-19

**Nominal flow @100 psi*



HG010 Valves

HG010E1, HGA010E1, HG010LE1, HGA010LE1, HG010HE1, HGA010HE1

HG010 Series features miniature, lightweight, 10mm direct-acting solenoid valves, ideal for piloting larger pneumatic or process control valves, or for operating small, single-acting cylinders. Available inline or manifold mount (2-20 stations), HG010 valves are M3x0.5, 3-way, normally closed, as standard. They are offered in a variety of voltages and electrical connections, and are equipped with a manual override, as standard.

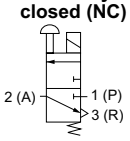
Base Models

- *Standard: Inline (**HG010E1**), Manifold Mount (**HGA010E1**)*
- *Low Current: Inline (**HG010LE1**), Manifold Mount (**HGA010LE1**)*
- *High Flow: Inline (**HG010HE1**), Manifold Mount (**HGA010HE1**)*

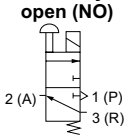
Features and Benefits

- *Compact Size.*
- *Quiet operation. No AC hum. Continuous-Duty rated coil.*
- *Electrical connection options include lead wires or plug-in.*
- *Options: Vacuum (see p. 76), 2-way, normally open, mounting base.*

Normally closed (NC)



Normally open (NO)



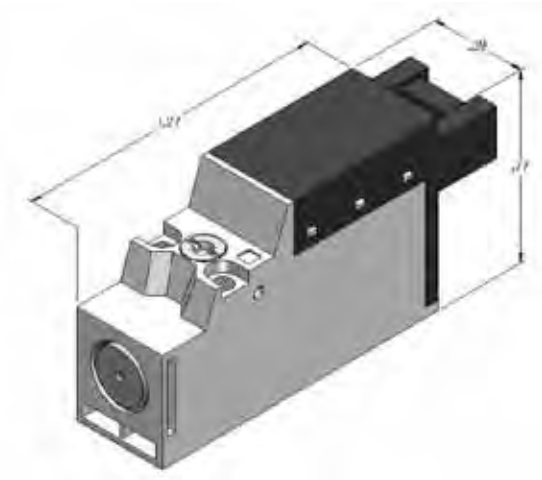


HG010E1



(5) HGA010E1 on HG010M5A

Base Model	Nominal Dimensions (inch) L	H	W
HG(A)010 manifold valve	1.26	0.77	0.39
HG(A)010 inline valve	1.30	1.01	



Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type: Extruded Aluminum. Delivery port 2 located on manifold. Accepts HGA010 valve models.	Two Station (HG010M2A)	1.35	0.55	0.79
	Each Additional station	0.40		
	Max # of stations	20		
F Type: Extruded Aluminum. Delivery port 2 located on valve. Accepts HG010 valve models.	Two Station (HG010M2F)	1.35	0.55	0.79
	Each Additional station	0.40		
	Max # of stations	20		
Consult website for exact dimensions and additional manifold configurations.				

SPECIFICATIONS

	Standard	Low Current	High Flow
Design Principle:	Pressure Unbalanced – Spring Return		
Porting Type:	2- or 3-Way		
Port Size:	10-32 UNF, M3x0.5		
Media:	Air, Inert Gas		
Pressure Range:	0–102 PSIG		
Temperature Range:	41°F to 122°F		
Flow @ 100 PSIG:	1 CFM (28 LPM)	0.6 CFM (16 LPM)	2.5 CFM (70 LPM)
Power:	1.0 W	0.5 W	3.2 W
Available Voltages:	5VDC, 6VDC, 12VDC, 24VDC, 120VAC, 240VAC		

How To Order Valves & Manifolds…Pages 95 & 117

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

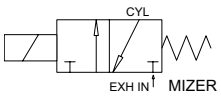
The Mini Mizer Series is designed to accommodate a wide range of pneumatic applications that require high cycling, small size, and low wattage. Available as inline or manifold mount (2-20 stations), this valve is ideal for battery operation, micro-processor controlled or printed circuit board type applications, such as piloting work valves and operating small cylinders and actuators.

Base Models

- *Inline (**B3E1**), Manifold Mount (**MB3E1**)*

Features and Benefits

- *Low leak rate.*
- *Low power consumption.*
- *Quiet operation. No AC hum.*
- *Electrical connection options include standard spade terminals, 18" lead wires or DIN type.*
- *Several mounting options, MTL and DMTL Series Manifolds.*
- *Optional 1/8 male PIPE port, bottom outlet subbase for plumbing convenience.*
- *Consult factory representative for greater flow capability.*





B3E1



(3) MB3E1 on 4 station MTL Manifold



Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
MTL Manifold: Extruded Aluminum. Single sided. Delivery port out located on manifold. Accepts MB3E1 valve models.	Two Station (MTL2)	2.22	0.75	0.68
	Each Additional station	1.02		
	Max # of stations	10		
DMTL Manifold: Extruded Aluminum. Double sided. Delivery ports top and bottom located on manifold. Accepts MB3E1 valve models.	Two Station (DMTL2)	2.22	0.75	0.68
	Each Additional station	1.02		
	Max # of stations	10 (Accommodates 20 valves)		
Consult website for exact dimensions.				

How To Order Valves & Manifolds…Page 96

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

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- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Spring Return
Porting Type:	2- or 3-Way
Port Size:	10-32 UNF
Media:	Air, Inert Gas
Pressure Range:	0–100 PSIG; 28"Hg to 100 PSIG (see Vacuum p. 76)
Temperature Range:	0ºF to 150ºF
Flow @100 PSIG:	1 CFM, 28 LPM (Cv=0.01)
Power:	0.5 W DC; 1.0 W AC
Available Voltages:	5VDC, 12VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

HK5, HKL5

The HK5 Series is based upon the classic Humphrey diaphragm-poppet principle, now in a sub-miniature, balanced design. This proven valve has no sliding seals while isolating coil operation from all wetted parts. The result is multi-media use, multi-purpose functionality, and plumbing conveniences for compact, more difficult valve applications. The short stroke and high flow provides fast response and rapid cycling. The innovative body design allows for versatile plumbing, electrical and mounting features unmatched in the market.

HK5 applications are highlighted by biomedical and analytical equipment, high speed sorting and cylinder cycling, and low pressure liquid and gas control.

Base Models

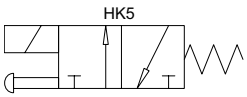
- *Standard:* ***HK5***
- *Liquid Service:* ***HKL5***

Features and Benefits

- *Low leak rate.*
- *Low power consumption.*
- *Inert wetted part, construction, assembled clean and dry at the factory.*
- *Versatile: Multi-purpose functionality.*
- *Long, trouble-free cycle life expected.*
- *Quiet operation.*
- *Electrical connection options include lead wires, plug-in or pins.*
- *Flexible construction simplifies plumbing and mounting objectives.*
- *Subbase or manifold mount.*
- *Vacuum available on p. 76.*

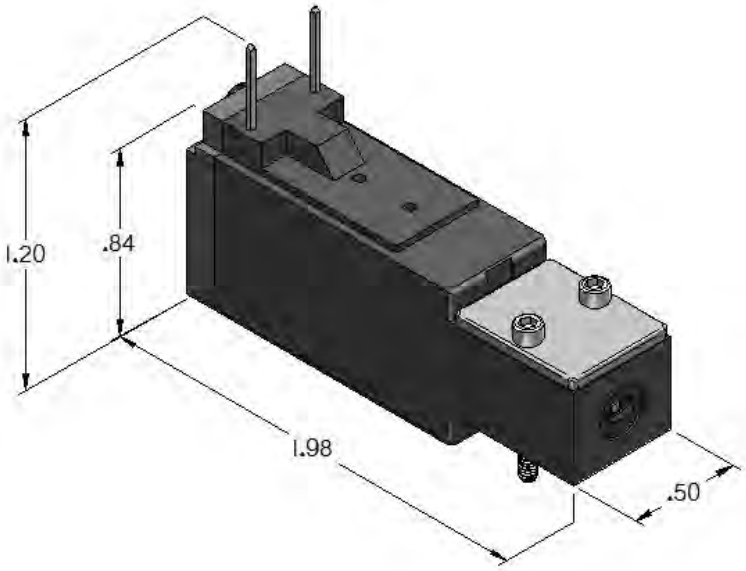
HKL5 Features and Benefits

- *Designed exclusively for liquid use.*





HK5





HKL5 ON SUBBASE

SPECIFICATIONS

Design Principle:	Pressure Balanced – Spring Return	Temperature Range:	32ºF to 125º (175º/212ºF FKM Seals)
Porting Type:	2- or 3-Way	Flow @100 PSIG:	3 CFM, 85 LPM (Cv=0.05)
Port Size:	10-32 UNF	Power:	1.7 W (Consult Factory for 0.9 W)
Media:	Air, Inert Gas, Liquid (HKL5)	Available Voltages:	4.5VDC, 12VDC, 24VDC
Pressure Range:	28"Hg to 100 PSIG (See Vacuum, p. 76)		

Manifolds and Subbases

Unique configuration of the basic, multi-purpose, HK5 valve permits limitless porting and mounting variations. HK5M manifold accepts up to 12 HK5 valves. Rotate valve 180° on manifold for normally open operation.

Orient valve with electrical connections up or down. 2-way function achieved with valve to manifold gaskets.

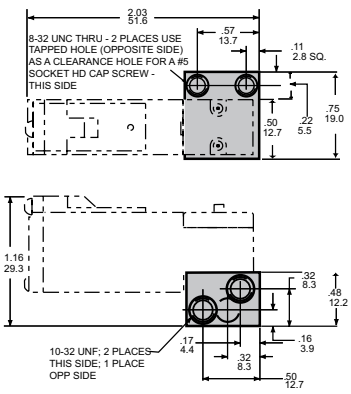
Several single station subbases are available, including:

- *S Type (3-way, through porting)*
- *Y Type (3-way, single surface)*
- *Z Type (2-way, single surface)*

Custom subbase and porting blocks have been developed and are welcomed. Consult factory representative.

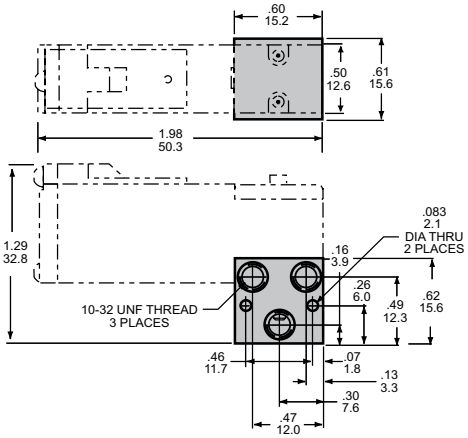
S Subbase

2- or 3-way with 10-32 UNF ports



Y Subbase

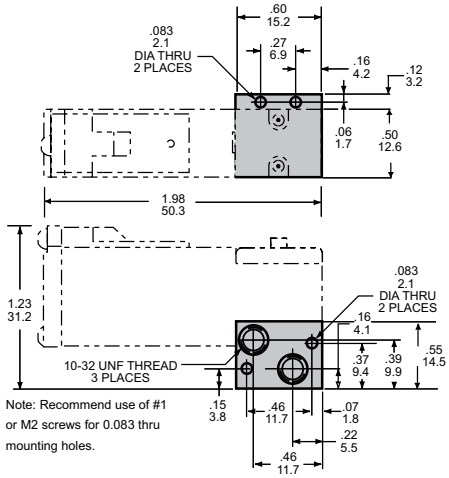
2- or 3-way with 10-32 UNF ports



Shown normally closed. Rotate valve 180 degrees on subbase for normally open operation.

Z Subbase

2-way with 10-32 UNF ports



Shown normally closed. Rotate valve 180 degrees on subbase for normally open operation.

Manifold Types Available			
HK5 Manifold: Extruded Aluminum. Single sided. Delivery port located on manifold. Accepts HK5 valve models. Available in 4, 6, 8, 10 and 12 station lengths.			
Overall Size (valves not mounted)	**Nominal Dimensions (inch) L**	**H**	**D**
Four Station (HK5M04)	2.76	1.00	1.16
Each Additional 2 stations	1.10		
Max # of stations	12		
Consult website for exact dimensions.			



(1) BLOCKOFF PLATE & (2) HK5B324PNR on M04

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HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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401, M401

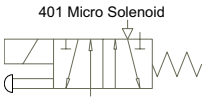
The 401 Series, Micro-Solenoid Valves are the first 10mm direct-acting, 5-ported, 4-way valve ever produced. Based on proven balanced poppet design technology, this high flow, miniature valve features low power consumption, electrical plug-in connectors, surge suppression circuit, indicator light and manual override as standard. Mounting options include inline, subbase, or MOC Series manifolds.

Base Models

- *Inline (**401**), Manifold Mount (**M401**)*

Features and Benefits

- *Low leak rate.*
- *Low power consumption.*
- *Sub-miniature, compact design. Light weight.*
- *Quiet operation. No AC hum.*
- *Electrical connection options include lead wires or plug-in.*
- *Full pressure range, 0-125 PSIG.*
- *Use as 3- or 4-way.*
- *MOC manifolds available with or without exhaust port flow controls.*

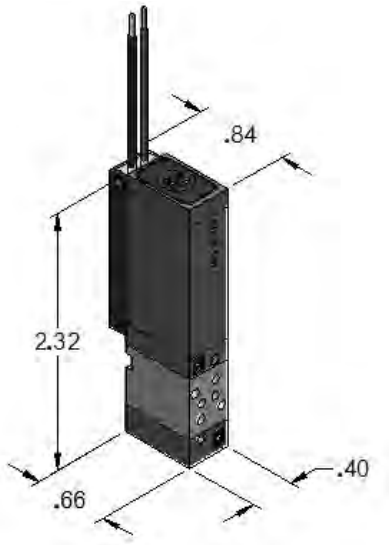




401



(1) BLOCKOFF PLATE and (2) M401-37 Valves on MOC3 Manifold



Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
MOC Manifold: Extruded Aluminum. Delivery ports 1 and 2 located on manifold. Accepts M401 valve models.	Two Station (MOC2)	1.58	0.72	1.41
	Each Additional station	0.40		
	Max # of stations	16		
MOC-70 Manifold: Extruded Aluminum. Includes exhaust port flow controls, each station. Delivery ports 1 and 2 located on manifold. Accepts M401 valve models.	Two Station (MOC2-70)	1.58	0.72	1.41
	Each Additional station	0.40		
	Max # of stations	16		
Consult website for exact dimensions and additional manifold configurations.				

SPECIFICATIONS

Design Principle:	Pressure Balanced – Spring Return
Porting Type:	4-Way
Port Size:	10-32 UNF
Media:	Air, Inert Gas
Pressure Range:	0–125 PSIG
Temperature Range:	32°F to 125°F
Flow @100 PSIG:	3.5 CFM, 56 LPM (Cv=0.03)
Power:	2.0 W
Available Voltages:	5VDC, 12VDC, 24VDC, 120/50/60

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HOW TO OBTAIN VALVE SPECIFICATIONS

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H030 Series are small, Direct-Acting 3-way Solenoid Valves, ideal for piloting larger pneumatic or process control valves, or for operating small, single-acting cylinders. Available inline or manifold mount (2-10 stations), H030 valves are 10-32 UNF ported, normally closed, as standard. They are offered in a variety of voltages and electrical connections, and are equipped with a manual override, as standard.

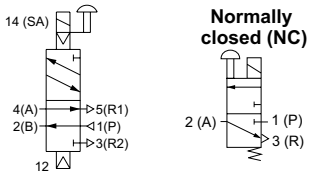
H030-4E1 4-way valve is also available to complement the H030E1 in factory automation uses, inline or manifold mount.

Base Models

- *3-Way Inline (**H030E1**)*
- *3-Way Inline-Vacuum (**HV030E1**)*
- *4-Way Inline (**H030-4E1**)*

Features and Benefits

- *Compact Size.*
- *Quiet operation. No AC hum.*
- *Electrical connection options include lead wires, plug-in, or DIN-type.*
- *Low Current Consumption.*
- *Continuous-Duty rated coil.*
- *Options: 2-way, mounting base.*
- *Three manifolds: 3-way exclusive; 3- and 4-way with 10-32 UNF ports; 3- and 4-way with 1/8 PIPE port supply ports.*





H030E1 **H030-4E1**



(10) H030 Series on Manifold

Base Model	Nominal Dimensions (inch) L	H	W
H030E1	1.90	0.95	0.59
H030-4E1	2.39		

Manifold Types Available
T Type Manifold: Extruded Aluminum. Delivery port 2 located on valve. Accepts H030E1 or HV030E1 valve models.
F Type Manifold: Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts all H030 valve models.

Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
T Type: Two Station (HYM2T)	1.26	0.59	0.79
Each Additional Station	0.63		
Max # of stations	10		
F Type: Two Station (HYM2F)	1.26	0.59	1.38
Each Additional Station	0.63		
Max # of stations	10		
Consult website for exact dimensions.			

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SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Spring Return
Porting Type:	2-, 3- or 4-Way
Port Size:	10-32 UNF
Media:	Air, Inert Gases
Pressure Range:	3-Way: 28"Hg–100 PSIG 4-Way: 20–100 PSIG
Temperature Range:	41°F to 122°F
Flow @100 PSIG:	3.5 CFM, 141 LPM (Cv=0.03)
Power:	1.6 W
Available Voltages:	12VDC, 24VDC, 120VAC, 240VAC

310/410 Valves

310, S310, 410, S410, M310, M410

Humphrey's popular valve series, the 310 and 410 Solenoid Valves, provide outstanding performance and reliability in a simple, versatile design. The pressure-balanced poppet, direct-acting operating principle provides multi-purpose functionality in a compact body.

310: ***2- or 3-way, normally closed or open***

410: ***4-way***

410-70: ***4-way with integral flow controls***

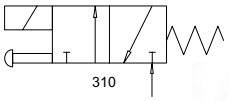
Available in several mounting options, as inline, stackable or manifold mount. The new 410M manifold accepts the standard 310 and 410 inline valves for a low cost manifold solution.

Base Models

- *3-Way Inline (**310**), 4-Way Inline (**410**)*
- *3-Way Stackable (**S310**), 4-Way Stackable (**S410**)*
- *3-Way Manifold Mount (**M310**), 4-Way Manifold Mount (**M410**)*

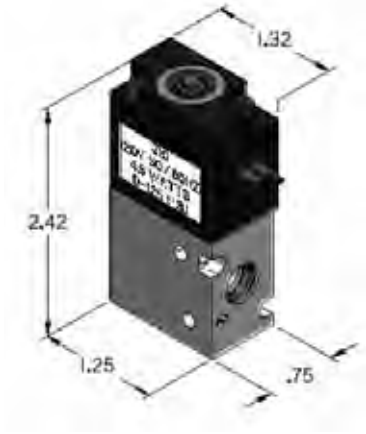
Features and Benefits:

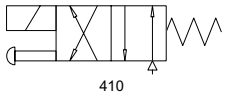
- *Compact, high flow construction.*
- *Quiet operation. No AC hum.*
- *Electrical connection options include lead wires, DIN-type or conduit.*
- *Short stroke, fast response, poppet design.*
- *Low leak rate.*
- *Reliable, tolerant of difficult ambient/media conditions.*
- *Order "V310" for multi-purpose 3-port use, for pressure or vacuum, diverter or selector. See Vacuum, p. 76-77.*
- *Use 410 as universal valve, 3- or 4-way, multi-purpose.*
- *Available in common AC or DC voltages.*





310







410



SPECIFICATIONS FOR 310 AND 410

Design Principle:	Pressure Balanced – Spring Return
Porting Type:	2-, 3- or 4-Way
Port Size:	1/8 PIPE (E31t0/E410: 1/8 BSP)
Media:	Air, Inert Gases
Pressure Range:	28"Hg to 125 PSIG (see Vacuum, p. 76-77)
Temperature Range:	32°F to 125°F
Flow @100 PSIG:	10 CFM, 283 LPM (Cv=0.15)
Power:	4.5 W
Available Voltages:	12VDC, 24VDC, 24/50/60,120/50/60, 240/50/60

Manifolds and Subbases

310 and 410 series valves are available in three mounting/ porting types: Inline, Stackable, and Manifold.

- ***Inline:*** *310, 410 and 410-70 valves can be individually mounted via body mounting holes or hard plumb mount.* ***410M Manifolds*** *accept Inline valves, are low profile/ cost effective, and ideal for OEM applications. Manifolds are shipped with gaskets and screws.*
- ***Stackable****: S310, S410 and S410-70 valves "stack" together with tie-rods, gaskets and end plate kit (PN 7-900A) for a compact, expandable solution.*
- ***Manifold****: M310, M410 and M410-70 valves are base piping types to permit manifold mounting to SM manifolds. Ports 1, 2, 3 and 4 located in manifold for convenient valve replacement without disturbing the plumbing.*



410M
Accepts 310 and/or
410 Series Inline Valves
(410M6 shown)



S410, S410-70,
and S310
Stackable Assembly



(8) M310 Valves on
SM8 Manifold

Stackable Valve and Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
410M Manifold: Extruded Aluminum. Delivery port 2 and 4 located on valve. Accepts 310 and 410 valve models.	Two Station (410M2)	2.69	0.89	1.57
	Each Additional station	0.76		
	Max # of stations	12		
Stackable Valve Type: Extruded Aluminum End Plates for Stackable Valves. Delivery port 2 and 4 located on valve. Available in S310 and S410 valve models.	Two Valves plus End Plates	1.94	2.82	1.86
	Each Additional Valve	0.75		
	Max # of stations	12		
SM Manifold: Extruded Aluminum. Delivery ports 1 and 2 located on manifold. Accepts M310 and M410 valve models.	Two Station (M2)	1.94	2	1.62
	Each Additional station	0.75		
	Max # of stations	12		
Consult website for exact dimensions and additional manifold configurations.				

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HOW TO OBTAIN VALVE SPECIFICATIONS

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320, 420, M420

The 320 and 420 Series Direct-Acting Solenoid Valves have a maximum performance balanced poppet, achieving high flow rates of 1.0 Cv, in a compact design. No air supply lubrication is required. Continuous-Duty molded coil and Class B insulation system provides long hours in tough-working conditions.

320: Multi-purpose universal 2- or 3-way valve.

420: Multi-purpose universal 4-way valve.

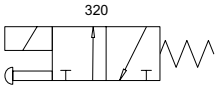
420 Series valves also available as a manifold mount, model M420.

Base Models

- *2- or 3-Way Inline (**320**), 4-Way Inline (**420**)*
- *4-Way Manifold Mount (**M420**)*

Features and Benefits

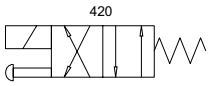
- *Multi-purpose: normally closed, normally open, selector or divertor, pressure or vacuum, 2-, 3- or 4-way.*
- *Quiet operation. No AC hum. Low leak rate.*
- *Electrical connection options include lead wires, conduit connector, or DIN connector.*
- *Available with UR rating. Contact factory representative.*
- *Non-locking manual override: Standard. Optional, no override order Code 87.*
- *Mount in any position – inline, body mounting holes or mounting bracket.*





320







420



SPECIFICATIONS FOR 320 AND 420

Design Principle:	Pressure Balanced – Spring Return
Porting Type:	2-, 3- or 4-Way
Port Size:	1/4 PIPE (E320/E420: 1/4 BSP)
Media:	Air, Inert Gas
Pressure Range:	28"Hg to 125 PSIG (see Vacuum, p. 76-77)

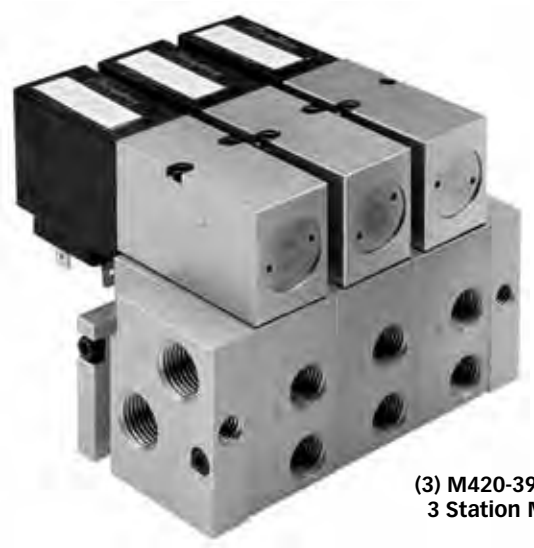
Temperature Range:	32ºF to 125ºF
Flow @100 PSIG:	60 CFM, 1699 LPM (Cv=1.0)
Power:	8 W
Available Voltages:	12VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

Manifold

M420 series valves are multi-purpose 4-way, base piping types to permit mounting to manifolds and subbases. The high flow (1 Cv) M420 series can be used as 2- or 3-way valves, in normally closed or normally open function, as 4-way valves, or as diverter or selector function.

Subbase: *Mount M420 valve to SB-2 subbase with 7-200A end plate kit. Subbase permits convenient valve replacement without disturbing the plumbing.*

Manifold: *Stack several SB-2 subbases together and with one 7-200A end plate for multiple valve manifold. Mount M420 to each subbase. Ports 1, 2, 3 and 4 located in manifold for convenient valve replacement without disturbing the plumbing.*



(3) M420-39 Valves Mounted to 3 Station Manifold Assembly

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
SB2 Subbase: Extruded Aluminum subbases held together by 7-200A end plates. Delivery ports 1 and 2 located on manifold. Accepts M420 valve model.	Two Valves with End Plates	3.38	2.22	2.25
	Each Additional Valve	1.19		
	Max # of stations	12		
Consult website for exact dimensions and additional manifold configurations.				

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HOW TO OBTAIN VALVE SPECIFICATIONS

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315

The 315 Series Solenoid Valves have 1/8 PIPE ports and 1/8" orifice. They are direct-acting, single solenoid, balanced poppet valves with no sliding seals, featuring high flow rates and a compact design while isolating coil operation from all wetted parts. No air supply lubrication is required. Continuous-Duty rated coil and Class B insulation system provides trouble-free service in tough-working conditions.

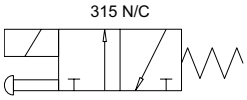
The 315 Series Valves have several mounting options: Inline, body mounting holes, or on 315M Series Manifolds.

Base Model

- *Inline (**315**)*

Features and Benefits

- *Multi-purpose: Valve can be plumbed, normally closed, normally open or as selector or divertor.*
- *Quiet operation. No AC hum. Low leak rate.*
- *Compact, high flow (0.4 Cv).*
- *Electrical connection options are lead wires or DIN type connector.*
- *Non-locking manual override – standard.*
- *Mount in any position – Inline or 315M Manifold Series.*

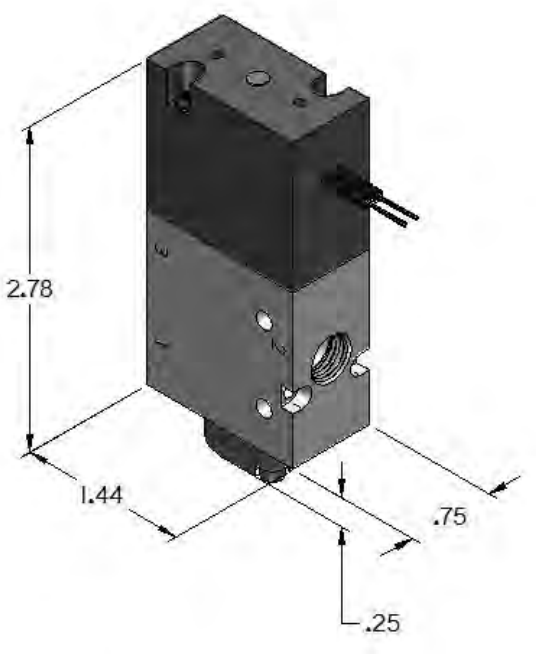




315



(2) 315 Valves on 315M4



Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
315M Manifold: Extruded Aluminum. Delivery port 2 located on valve. Accepts 315 valve model.	Two Station (315M2)	2.74	0.79	1.58
	Each Additional station	0.78		
	Max # of stations	12		
Consult website for exact dimensions and additional manifold configurations.				

SPECIFICATIONS

Design Principle:	Pressure Balanced – Spring Return
Porting Type:	2- or 3-Way
Port Size:	1/8 PIPE
Media:	Air, Inert Gas
Pressure Range:	0–110 PSIG
Temperature Range:	32°F to 125° F
Flow @100 PSIG:	25 CFM, 707 LPM (Cv=0.4)
Power:	5 W
Available Voltages:	12VDC, 24VDC, 24/50/60, 120/50/60

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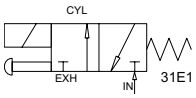
The Mini-Myte Series 3- and 4-way solenoid valves are direct operating using a poppet design and limited sliding seals, providing reliable, smooth performance and long service life. Valves can mount in any position (base, body mounting holes or inline) and there are several mounting options, including the rugged, extruded aluminum MMC and MM Series manifolds.

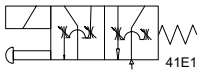
Base Models

- *3-Way Inline (**31E1**), 4-Way Inline (**41E1**)*
- *3-Way Manifold Mount (**M31E1**), 4-Way Manifold Mount (**M41E1**)*
- *4-Way Manifold Mount w/Captured Exhaust (**MC41E1**)*

Features and Benefits

- *Quiet operation. No AC hum. Low leak rate.*
- *3-way: normally closed, normally open or as a selector or diverter, depending upon port selections.*
- *Furnished with push-in grommet or snap-in 1/2" conduit connector electrical connection.*
- *Non-locking manual override standard.*
- *4-way models include exhaust port speed controllers, standard.*







31E1



41E1



31E1



41E1



M41E1, M31E1 MMC-3



M41E1, M31E1 MM-3

Manifold Types Available			
MM Manifold: Extruded Aluminum. Common IN, Exhaust via valve. Delivery ports NO and NC located on manifold. Accepts both M31E1 and M41E1 valve models.			
MMC Manifold: Extruded Aluminum. Common IN, Common Exhaust via manifold. Delivery ports NO and NC located on manifold. Accepts both M31E1 and MC41E1 valve models.			
Overall Size (valves not mounted)	**Nominal Dimensions (inch) L**	**H**	**D**
MM Manifold: Two Station (MM2)	2.79	0.75	1.25
Each Additional station	1.25		
Max # of stations	12		
MMC Manifold: Two Station (MMC2)	2.79	1.25	1.25
Each Additional station	1.25		
Max # of stations	12		
Consult website for exact dimensions.			

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Spring Return
Porting Type:	3- or 4-Way
Port Size:	1/8 PIPE
Media:	Air, Inert Gas
Pressure Range:	0-100 PSIG
Temperature Range:	32º to 130º F
Flow@100 PSIG:	31E1: 6 CFM, 169 LPM (Cv=0.1) 41E1: 2 CFM, 56 LPM (Cv=0.03)
Power:	31E1: 8.5 W 41E1: 7.0 W
Available Voltages:	12VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

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Tyna-Myte 062 and Tyna-Myte 125 Valves

062E1, 062E2, 062-4E1, 062-4E2, T062E1, T062E2, T062-4E1, T062-4E2; 125E1, 125E2, 125-4E1, T125E1, T125E2, T125-4E1

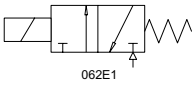
The Humphrey Tyna-Myte Series are available in two flow capacities. The 1/16" orifice 062 Series and the 1/8" orifice 125 Series are available as a 2-, 3- or 4-way configurations. Valves feature a unique direct-acting design that does not require air supply lubrication. Conical poppets move in and out of mating seats; the absence of sliding seals or any metal-to-metal contact provides high reliability and long-cycle life. A controlled stroke length provides fast response and longer poppet life. Tyna-Myte Valves have several mounting options, including inline or the rugged, extruded aluminum TM Series manifolds.

Base Models

- *3-Way Single Solenoid Inline (**062E1, 125E1**)*
- *3-Way Double Solenoid Inline (**062E2, 125E2**)*
- *4-Way Single Solenoid Inline (**062-4E1, 125-4E1**)*
- *4-Way Double Solenoid Inline (**062-4E2**)*
- *3-Way Single Solenoid Manifold Mount (**T062E1, T125E1**)*
- *3-Way Double Solenoid Manifold Mount (**T062E2, T125E2**)*
- *4-Way Single Solenoid Manifold Mount (**T062E1-4E1, T125E1-4E1**)*
- *4-Way Double Solenoid Manifold Mount (**T062E1-4E2**)*

Features and Benefits

- *Quiet operation. No AC hum.*
- *Low leak rate.*
- *Designed for rugged duty and rapid cycling, and long poppet life.*
- *Electrical connections include grommet cover or conduit.*
- *4-way models offered with optional exhaust speed controllers.*

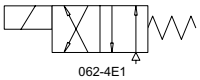




T062E1



062E1





T062-4E1



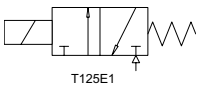
062-4E2

SPECIFICATIONS FOR T062E, T062-4E, T125E AND T125-4E

Design Principle:	Pressure Unbalanced – Spring Return
Porting Type:	2-, 3- or 4-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	0-125 PSIG; 0-29.5" HG (see Vacuum, p. 76-77)
Temperature Range:	-30°F to 150°F; E2: 30–125 PSIG

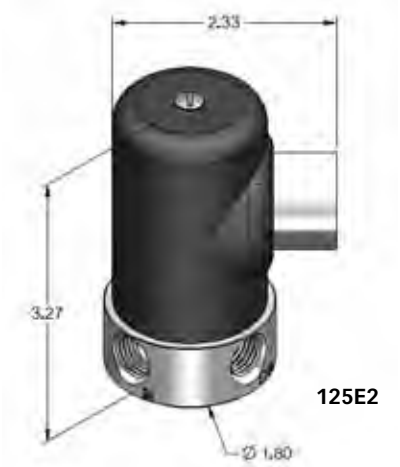
Flow @100 PSIG:	062E: 9 CFM, 254 LPM (Cv=0.14) 062-4E: 6 CFM, 169 LPM (Cv=0.1) 125E: 17 CFM, 481 LPM (Cv=0.3) 125-4E: 16 CFM, 453 LPM (Cv=0.3)
Power:	6.7 W
Available Voltages:	12VDC, 24VDC, 24/50-/60, 120/5060, 240/50/60

062E1, 062E2, 062-4E1, 062-4E2, T062E1, T062E2, T062-4E1, T062-4E2; 125E1, 125E2, 125-4E1, T125E1, T125E2, T125-4E1

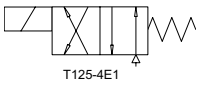




T125E1

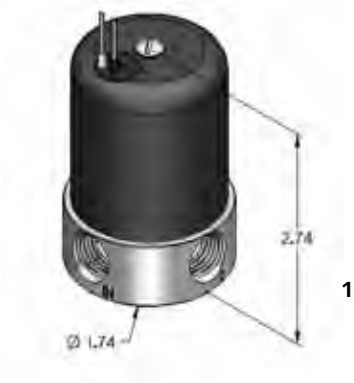


125E2





T125-4E1



125-4E1

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
TM Manifold: Extruded Aluminum. Delivery ports 1 and 2 located on manifold. Accepts T062, T062-4E1, T125, T125-4E1 valve models.	Two Station (TM2)	4.57	1.06	1.67
	Each Additional station	2.38		
	Max # of stations	12		
Consult website for exact dimensions and additional manifold configurations.				

How To Order Valves & Manifolds…Pages 97, 98 & 117

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- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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INTRODUCTION

Indirect-Acting Solenoid Valves utilize a small Humphrey Direct-Acting Solenoid Valve to pneumatically operate a larger Air-Pilot Valve, thus achieving high-flow capacity in smaller overall sizes and low power consumption. Indirect-Acting Solenoid Valves are the popular choice for operating pneumatic cylinders and actuators where the pneumatic pressures are typically set to 30-100 PSIG. High internal shifting forces can be achieved resulting in reliable operation and long, trouble-free service.

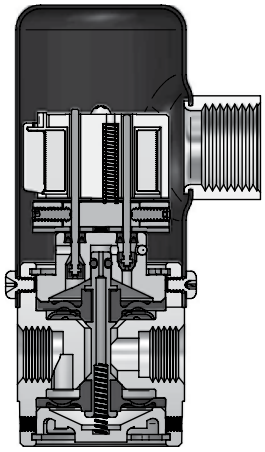
INDIRECT-ACTING SOLENOID VALVES are essentially two pneumatic valves in one package. Their advantages over Direct-Acting Valves are:

- Greater shifting forces.
- Smaller overall size, relative to flow.
- Lower power consumption, relative to flow and size.
- Greater variety. 2-, 3- or 4-way; 2- or 3-position.
- Several valve manifold variations available, when many cylinders and actuators need to be operated.

Available in sub-miniature M3x0.5 porting through large 3/4 PIPE in 2-, 3- and 4-way models, they are the ideal choice for factory automation applications.

SQUARE TYPE: Features a low friction, lip-seal, spool design offered as inline or manifold mount. Square types are a compact, modern design with power consumptions as low as 0.1 Watt and flow capacities as great as 1.0 Cv. The line up includes single or double solenoid, 2- or 3-position valves.

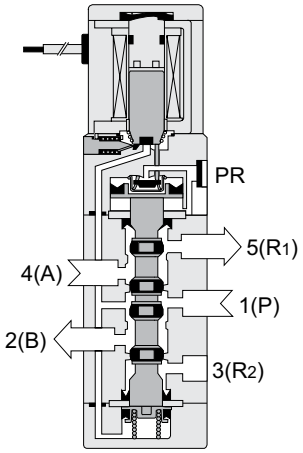
ROUND TYPE: Features the classic Humphrey diaphragm-poppet valve principle known for its reliability in clean, lubrication free environments, as well as a workhorse in poor air quality conditions.



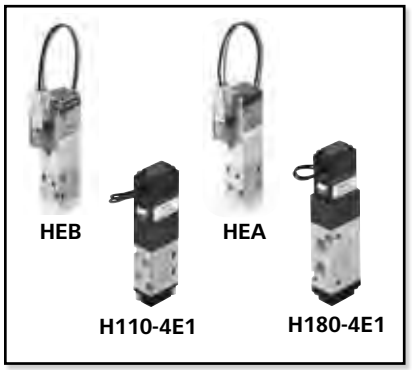
250E1 Series
Round Type, Unactuated

INDIRECT-ACTING SOLENOID VALVE FEATURES:

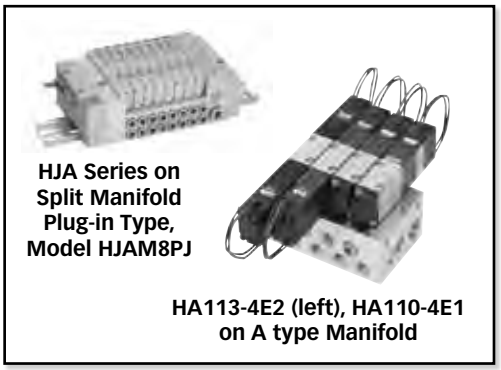
- Compact Size.
- Low power consumption.
- High flow.
- No lubrication required.
- 2- or 3-position.
- Variety of options.



H180-4E1 Series
Square Type, Unactuated



Square Type Valve Offering



Square Type Valve Offering Manifolds



Round Type Valve Offering

	2-, 3-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	HEB Series	10-32, M3x0.5	5	HEB10F, HEB10A	22-23
	HJA Series	1/8	11	HJA10A	26-27
LARGE	250 Series	1/4	50	250(A)E1, 250(A)E2	36
	500 Series	1/2	160	500(A)E1, 500(A)E2	38
	501 Series	1/2	220	501E1, 501E2	39
	590 Series	3/4	260	590(A)E1, 590(A)E2	38

	4-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	HEA Series	10-32, M3x0.5	5	HEA10F, HEA10A	22-23
	HJA Series	1/8	11	HJA10A	26-27
	HJC Series	10-32	12	HJC10F, HJC10A	24-25
	HJE Series	10-32	32	HJE12F, HJE12A	24-25
	F10 Series	10-32	16	F10T(0,1,2,3,4,5)	28-29
	F15 Series	1/8	33	F15T(0,1,2,3,4,5)	28-29
	H110 Series	10-32	14	H(A)110-4E1(2), H(A)113-4E2	32-33
	H180 Series	1/8	33	H(A)180-4E1(2), H(A)183-4E2	32-33
LARGE	F18 Series	1/4	60	F18T(0,1,2,3,4,5)	30-31
	H240 Series	1/4	53	H240-4E1(2), HA240-4E1(2), H(A)243-4E2, HW240-4E1(2), HW243-4E	34-35
	250-4 Series	1/4	50	250-4E1, 250-4E2	37
	TAC3 Series	1/4	31	(M)42E1, (M)42E2, (M)42AE1, (M)42AE2	40-41
	501-4 Series	1/2	170	501-4E1, 501-4E2	39

**Nominal flow @100 psi*



HEB10F, HEB10A, HEA10F, HEA10A

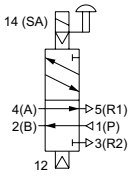
The HEA/HEB Series Indirect-Acting Solenoid, directional control valves feature a miniature 10mm size, high flow 0.07 Cv, and low 0.55 Watt power consumption. The next generation of H040/ H041 Series are interchangeable. These inline or manifold mount valves are a popular choice for operating small bore cylinders. Fast response or ultra low current consumption solenoids are optional.

Base Models

- *2- or 3-Way Inline (**HEB10F**)*
- *2- or 3-Way Manifold Mount (**HEB10A**),*
- *4-Way Inline (**HEA10F**)*
- *4-Way Manifold Mount (**HEA10A**)*

Features and Benefits

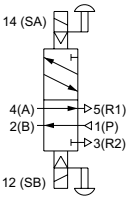
- *High flow.*
- *Small, compact 10mm size. Clean appearance.*
- *Low power consumption. DC voltages.*
- *Manual override standard.*
- *Electrical connection options include lead wires or plug-in.*
- *Grommet type, lead wire valves offer moisture resistant specification – standard.*
- *Options: Fast response solenoid (6 ms), low power solenoid (0.15 W)*





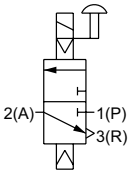
HEA

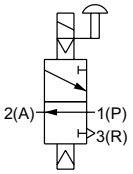
Base Model	Nominal Dimensions (inch) L	H	W
HEB10__ single solenoid only	2.09	0.87	0.39
HEA10A__ single solenoid	2.23		
HEA10A__ double solenoid	3.36		





HEA Double Solenoid







HEB

SPECIFICATIONS

Design Principle:	HEB: Pressure Balanced – Air Return HEA: Pressure Balanced – Air Return
Porting Type:	2-, 3- or 4-Way
Port Size:	10-32 UNF, M3x0.5
Media:	Air
Pressure Range:	29–102 PSIG
Temperature Range:	41°F to 122°F
Flow @100 PSIG:	5 CFM, 141 LPM (Cv=0.08)
Power:	0.55 W
Available Voltages:	5VDC, 6VDC, 12VDC, 24VDC

AVAILABLE VALVE TYPES – HEB AND HEA SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

HEA Series

For Direct Piping, or F Type Manifold:

- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*

For Base Piping, or A-Type Manifolds:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*
- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*

HEB Series

For Direct Piping, or F Type Manifold:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*

For Base Piping, or A-Type Manifolds:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*



HEB Series on HEBM4A Manifold



HEA series on HEAM8F Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (HEAM_A, HEBM_A): Extruded Aluminum. Delivery ports 2 and 4 located on manifold. Accepts base piping HEA10A_ (HEB10A_) valve models.	Two Station (___M2A)	1.63	0.83 (0.67)	1.50 (1.26)
	Each Additional station	0.4		
	Max # of stations	20		
F Type (HEAM_F, HEBM_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts direct piping HEA10F_ (HEB10F_) valve models.	Two Station (___M2F)	1.43	0.59 (0.67)	1.18 (1.04)
	Each Additional station	0.4		
	Max # of stations	20		
Consult website for exact dimensions and additional manifold configurations.				

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HJC10F, HJC10A, HJE12F, HJE12A

HJC Series Indirect-Acting Solenoid, directional control valves achieve large 0.17 Cv flow in a 10mm width. These valves are a popular choice for operating small bore cylinders, up to 1.5" bore.

HJE Series Indirect-Acting Solenoid, directional control valves achieve unprecedented 0.53 Cv flow capacity in a 12mm width. These valves are sized for operating medium size cylinders, up to 2.5" bore.

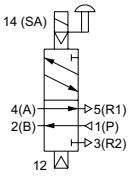
Fast (6ms) response or ultra low (0.15 Watt) current consumption solenoids optional.

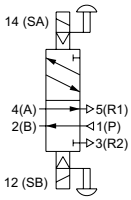
Base Models

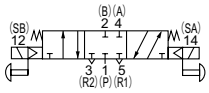
- *4-Way Inline (**HJC10F, HJE12F**)*
- *4-Way Manifold Mount (**HJC10A, HJE12A**)*

Features and Benefits

- *Small, compact 10mm and 12mm size.*
- *Low power consumption.*
- *High flow.*
- *Quiet operation.*
- *DC voltages.*
- *Manual override standard.*
- *Electrical connection options include lead wires or plug-in.*
- *Grommet type, lead wire valves offer moisture proof specification – standard.*
- *Clean appearance.*
- *Options: Fast response solenoid (6 ms), low power solenoid (0.15 W)*







Base Model	Nominal Dimensions (inch) L	H	W
HJC10__ single solenoid	2.58	0.87	0.39
HJC10__ double solenoid	3.77		
HJC10__ 3-position	4.16		
HJE12__ single solenoid	3.15	0.95	0.47
HJE12__ double solenoid	4.37		
HJE12__ 3-position	4.73		



HJC10F5



HJE12F5



HJC/HJE
Double Solenoid

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return
Porting Type:	2, 3- or 4-Way
Port Size:	10-32 UNF
Media:	Air
Pressure Range:	29–102 PSIG

Temperature Range:	41°F to 122°F
Flow @100 PSIG:	HJC: 12 CFM, 339 LPM (Cv=0.2)
	HJE: 32 CFM, 906 LPM (Cv=0.5)
Power:	0.55 W
Available Voltages:	5VDC, 6VDC, 12VDC, 24VDC

AVAILABLE VALVE TYPES – HJC AND HJE SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

For Direct Piping, or F Type Manifold:

- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*

For Base Piping, or A-Type Manifolds:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*
- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*



HJC Series on HJCM8A Manifold



HJE Series on HJEM8F Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (HJCM_A, HJEM_A): Extruded Aluminum. Delivery ports 2 and 4 located on manifold. Accepts base piping HJC10A_ (HJE12A_) valve models.	Two Station (___M2A)	1.59 (1.75)	0.98 (1.24)	1.85 (1.93)
	Each Additional station	0.41 (0.49)		
	Max # of stations	20		
F Type (HJCM_F, HJEM_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts direct piping HJC10F_ (HJE12F_) valve models.	Two Station (___M2F)	1.52 (1.67)	0.63 (0.61)	1.50 (1.81)
	Each Additional station	0.41 (0.49)		
	Max # of stations	20		
Consult website for exact dimensions and additional manifold configurations.				

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HJA10A(1,2,3,4), HJA10A(A,B,C), HJA10LA(1,2,3,4), HJA10LA(A,B,C)

The 10mm HJA Series manifold mount, directional control solenoid valves offer unprecedented compact size versus equivalent competitive models. Din-Rail mounted, HJA valves are low 0.5 Watt power consumption, with excellent 0.19 Cv flow capacity within a thin 50mm overall manifold height. Valves are available as subbase mount, or as manifold mount in 3 different configurations, monoblock, non plug-in, or pre-wired plug-in. Consult factory representative for serial transmission manifolds.

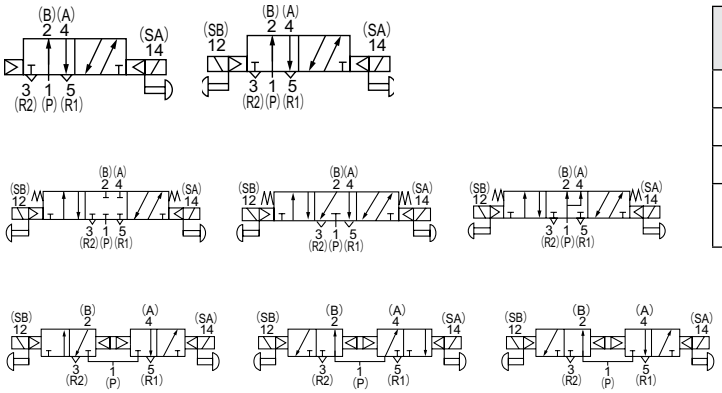
Space saving, tandem 3-port valves (two valves in one body) occupy one slice on a manifold.

Base Models

- *Standard: 0.5 W power consumption (**HJA10A**)*
- *Low: 0.25 W power consumption (**HJA10LA**)*

Features and Benefits

- *Pre-wired, pre-assembled manifold configurations.*
- *Extreme miniaturization achieved for high flow, 0.19 Cv valve platform. Length and height, optimized.*
- *Quiet operation.*
- *DC voltages.*
- *Electrical connection options include plug-in or plug-in manifold.*
- *Tandem 3-port, 4-position valve optional.*



Base Model	Nominal Dim. (inch) L	H	W
HJA10__ single solenoid replacement	3.87	0.98	0.39
HJA10__ double solenoid replacement	4.02		
HJA10__ 3-position replacement	4.34		
HJA10__ on single subbase	*see above*	1.8	0.94



HJA10A



HJA10A on Subbase

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return
Porting Type:	2-, 3- or 4-Way
Port Size:	1/8 PIPE (5/32 and 1/4 tube size)
Media:	Air
Pressure Range:	29–102 PSIG
Temperature Range:	41ºF to 122ºF
Flow @100 PSIG:	11 CFM, 311 LPM (Cv=0.19)
Power:	0.5 W
Available Voltages:	12VDC, 24VDC

AVAILABLE VALVE TYPES – HJA SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

For Base Piping, or Manifold Mount:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*
- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*

For Base Piping, or Manifold Mount:

- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*
- *4-position, tandem 3-ports, NC/NC*
- *4-position, tandem 3-ports, NO/NO*
- *4-position, tandem 3-ports, NC/NO*



HJA Series on Split Manifold Plug-in Type, Model HJAM8PJ

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
AJ Type (HJAM_AJ): Extruded Aluminum. Delivery ports 2 and 4 located on manifold. Accepts base piping HJA10A_-PS valve models.	Two Station (___M2AJ)	1.91	1.02	2.08
	Each Additional station	0.41		
	Max # of stations	20		
NJ Type (HJAM_NJ): Split, DIN-Rail Mount Type, for Non-Plug-in valves. Delivery ports 2 and 4 located in manifold. Accepts HJA10A_-PS valve models.	Two Station (___M2NJ)	2.95	1.97	3.74
	Each Additional station	0.41		
	Max # of stations	20		
PJ Type (HJAM_PJ): Split, DIN-Rail Mount Type, for Plug-in Valves. Valves pre-wired to multi-pin electrical connector. Delivery ports 2 and 4 located in manifold. Accepts HJA10A_ valve models.	Two Station (___M2PJ)	3.74	1.97	3.74
	Each Additional station	0.41		
	Max # of stations	16		
Consult website for exact dimensions and additional manifold configurations.				

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- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS Humphrey

F10T (0,1,2,3,4,5); F15T (0,1,2,3,4,5)

F10 and F15 Series Indirect-Acting Solenoid, directional control valves achieve 0.28 and 0.56 Cv flow capacity in a 10mm and 15mm width. These valves are a popular choice for operating small to medium size cylinders, up to 2.5" bore. Ultra low (0.1 Watt) current consumption solenoids and IP65 protection are optional. Available as inline, subbase mount, or as manifold mount in several configurations, including monoblock, non plug-in, or pre-wired plug-in. Consult factory representative for serial transmission manifolds.

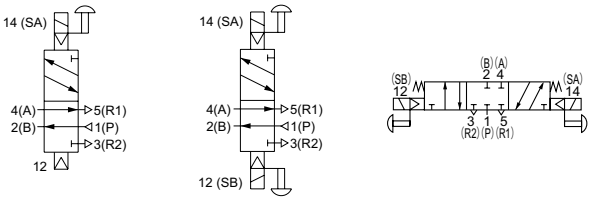
4-way models available as inline valves or manifold mount on two manifold configurations, A or F type.

Base Models

- *4-Way, 2- or 3-Position and Tandem Port (**F10T**)*
- *4-Way, 2- or 3-Position and Tandem Port (**F15T**)*

Features and Benefits

- *Small, compact 10 and 15mm size.*
- *Low power consumption, as low as 0.1 W.*
- *High flow.*
- *Quiet operation. No AC hum.*
- *DC voltages.*
- *Manual override standard.*
- *Electrical connection options include plug-in or plug-in manifold.*
- *Two-position, double solenoids can be converted to single solenoid function.*
- *Clean appearance.*
- *Valves with IP65 offer moisture proof specification – optional.*



Base Model	Nominal Dimensions (inch) L	H	W
F10T0-F4H-__	4.02	1.4	0.39
F10T__F4H-__ (double solenoid)	4.33		
F10T__F4H-__ (3-position)			
F15T0-F4H-__	4.75	1.83	0.59
F15T__F4H-__ (double solenoid)	5.14		
F15T__F4H-__ (3-position)			



F10



F15

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return	Temperature Range:	41°F to 122°F
Porting Type:	4-Way	Flow @100 PSIG:	F10: 16 CFM, 453 LPM (Cv=0.3)
Port Size:	F10: 10–32 UNF; F15: 1/8 PIPE		F15: 33 CFM, 934 LPM (Cv=0.6)
Media:	Air	Power:	0.4 W (0.1 W optional)
Pressure Range:	29–102 PSIG	Available Voltages:	12VDC, 24VDC, 100VAC

AVAILABLE VALVE TYPES – F10 AND F15 SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

Operation Types:

- *Internal pilot type*
- *External pilot type, low positive pressure*
- *External pilot type, vacuum pressure*

For Base Piping, or Manifold Mount:

- *2-position, single solenoid only, 4-way*
- *2-position, two coil, single solenoid, 4-way*
- *2-position, two coil, double solenoid, 4-way*

For Base Piping, or Manifold Mount:

- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*
- *4-position, tandem 3-ports, NC/NC*
- *4-position, tandem 3-ports, NO/NO*
- *4-position, tandem 3-ports, NC/NO*



F10T Series on F10M4PH Manifold



F15T Series on F15M4A Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (F10M_A, F15M_A): Extruded Aluminum. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F10 (F15) valve models.	Two Station (___M2A)	1.52 (1.89)	1.26 (1.81)	2.40 (2.91)
	Each Additional station	0.41 (0.63)		
	Max # of stations	20		
F Type (F10M_F, F15M_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts F10 (F15) valve models.	Two Station (___M2F)	1.91 (2.44)	1.02 (1.18)	1.93 (2.40)
	Each Additional station	0.41 (0.63)		
	Max # of stations	20		
NH Type (F10M_NH, F15M_NH): Split, DIN-Rail Mount, for Non-Plug-in Valves. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F10 (F15) valve models.	Two Station (___M2NH)	3.07 (3.98)	2.28 (2.64)	3.86 (4.53)
	Each Additional station	0.41 (0.63)		
	Max # of stations	20		
PH Type (F10M_PH, F15M_PH): Split, DIN-Rail Mount, for Plug-in Valves. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F10 (F15) valve models.	Two Station (___M2PH)	3.90 (4.81)	2.28 (2.64)	3.86 (4.53)
	Each Additional station	0.41 (0.63)		
	Max # of stations	16		
Consult website for exact dimensions and additional manifold configurations, including serial transmission.				

How To Order Valves & Manifolds...Pages 102 & 103

HOW TO OBTAIN VALVE SPECIFICATIONS

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F18T (0,1,2,3,4,5)

F18 Series Indirect-Acting Solenoid, directional control valves achieve 1.0 Cv flow capacity in a 18mm width. These valves are a popular choice for operating medium-size cylinders, up to 4" bore. Low (0.9 W) current consumption solenoids are standard. Valves are available as inline, subbase mount, or as manifold mount in several configurations, including monoblock, non plug-in, or pre-wired plug-in. Consult factory representative for serial transmission manifolds.

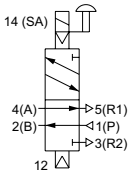
4-way models available as inline valves or manifold mount on two manifold configurations, A or F type.

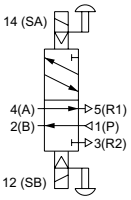
Base Models

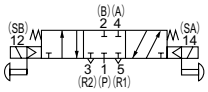
- *4-Way, 2- or 3-Position (**F18T**)*

Features and Benefits

- *Small, compact 18mm size.*
- *Low power consumption.*
- *High flow.*
- *Quiet operation. No AC hum.*
- *DC voltages.*
- *Manual override standard.*
- *Electrical connection options include plug-in or plug-in manifold.*
- *Two-position, double solenoids can be converted to single solenoid function.*
- *Clean appearance.*







Base Model	Nominal Dimensions (inch) L	H	W
F18T0-F4H-__	5.18	2.19	0.71
F18T__F4H-__ (double solenoid)	5.65		
F18T__F4H-__ (3-position)			



F18

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air
Pressure Range:	29–102 PSIG
Temperature Range:	41ºF to 122ºF
Flow @100 PSIG:	60 CFM, 1699 LPM (Cv=1.0)
Power:	0.9 W
Available Voltages:	12VDC, 24VDC, 100VAC

AVAILABLE VALVE TYPES – F18 SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

Operation Types

- *Internal pilot type*
- *External pilot type, low positive pressure*
- *External pilot type, vacuum pressure*

For Base Piping, or Manifold Mount:

- *2-position, single solenoid only, 4-way*
- *2-position, two coil, single solenoid, 4-way*
- *2-position, two coil, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*



F18T Series on F18M4PH Manifold



F18T Series on Monoblock F18M4A Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (F18M_A): Extruded Aluminum. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F18 valve models.	Two Station (F18M2A)	2.24	2.09	3.51
	Each Additional station	0.75		
	Max # of stations	20		
F Type (F18M_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts F18 valve models.	Two Station (F18M2F)	2.24	1.34	2.96
	Each Additional station	0.75		
	Max # of stations	20		
NH Type (F18M_NH): Split, DIN-Rail Mount, for Non-Plug-in Valves. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F18 valve models.	Two Station (F18M2NH)	3.58	2.99	3.55
	Each Additional station	0.75		
	Max # of stations	20		
PH Type (F18M_PH): Split, DIN-Rail Mount, for Plug-in Valves. Delivery ports 2 and 4 located in manifold, but transferable to valves. Accepts F18 valve models.	Two Station (F18M2PH)	4.41	2.99	3.55
	Each Additional station	0.75		
	Max # of stations	16		
Consult website for exact dimensions and additional manifold configurations, including serial transmission.				

How To Order Valves & Manifolds...Pages 102 & 103

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H110-4E1(2), HA110-4E1(2), H113-4E2, HA113-4E2, H180-4E1(2), HA180-4E1(2), H183-4E2, HA183-4E2

H110 and H180 Series Indirect-Acting Solenoid, directional control valves achieve 0.23 and 0.57 Cv flow capacity in a 15mm and 18mm width. These valves are a popular choice for operating medium size cylinders, up to 2.5" bore. Low (1.6 Watt) power consumption solenoids are standard. Valves are available as inline, subbase mount, or as manifold mount.

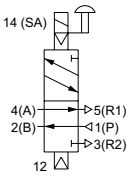
2-, 3- or 4-way models available as inline valves or manifold mount on two manifold configurations, A or F type.

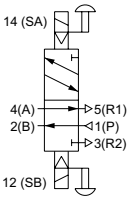
Base Models

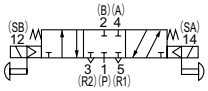
- *4-Way, Single Solenoid, Inline (**H110-4E1, H180-4E1**)*
- *4-Way, Double Solenoid, Inline (**H110-4E2, H180-4E2**)*
- *3-Position, 4-Way, Inline (**H113-4E2, H183-4E2**)*
- *4-Way, Single Solenoid, Manifold Mount (**HA110-4E1**)*
- *4-Way, Single Solenoid, Inline or Manifold Mount (**HA180-4E1**)*
- *4-Way, Double Solenoid, Inline or Manifold Mount (**HA110-4E2, HA180-4E2**)*
- *3-Position, 4-Way, Inline or Manifold Mount (**HA113-4E2, HA183-4E2**)*

Features and Benefits

- *Compact 15mm and 18mm size.*
- *Low power consumption.*
- *High flow.*
- *Quiet operation. No AC hum.*
- *Manual override standard.*
- *Grommet, plug-in and DIN type electrical connector – standard.*







Base Model	Nominal Dimensions (inch) L	H	W
H(A)110__ single solenoid	3.18	0.95	0.59
H(A)110__ double solenoid	4.66		
H(A)113__ 3-position	5.14		
H(A)180__ single solenoid	3.81	0.95	0.71
H(A)180__ double solenoid	5.31		
H(A)183__ 3-position	5.93		



H110-4E1



H180-4E1

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return
Porting Type:	4-Way (2- and 3-Way available for manifold)
Port Size:	H110: 10-32 UNF; H180: 1/8 PIPE
Media:	Air
Pressure Range:	22–102 PSIG
Temperature Range:	41ºF to 122ºF
Flow @100 PSIG:	H110: 14 CFM, 396 LPM (Cv=0.2) H180: 33 CFM, 934 LPM (Cv=0.6)
Power:	1.6 W
Available Voltages:	12VDC, 24VDC, 24VAC, 120VAC, 240VAC

H110-4E1(2), HA110-4E1(2), H113-4E2, HA113-4E2, H180-4E1(2), HA180-4E1(2), H183-4E2, HA183-4E2

AVAILABLE VALVE TYPES – H110 AND H180 SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

For Direct Piping, or F Type Manifold:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*
- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*

For Base Piping, or A-Type Manifolds:

- *Normally closed, single solenoid, 2-way*
- *Normally open, single solenoid, 2-way*
- *Normally closed, single solenoid, 3-way*
- *Normally open, single solenoid, 3-way*
- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*
- *3-position, 4-way, pressure center*



HA110 Series on H110M4A Manifold



H180 Series on H180M4F Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (H110M_A, H180M_A): Extruded Aluminum. Delivery ports 2 and 4 located on manifold. Accepts HA110 (HA180) valve models.	Two Station (___M2A)	1.89 (2.25)	1.38 (1.58)	2.09 (2.92)
	Each Additional station	0.63 (0.75)		
	Max # of stations	20		
F Type (H110M_F, H180M_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts H110 (H180) valve models.	Two Station (___M2F)	1.89 (2.25)	0.71 (0.99)	1.81 (2.29)
	Each Additional station	0.63 (0.75)		
	Max # of stations	20		
Consult website for exact dimensions and additional manifold configurations.				

How To Order Valves & Manifolds…Pages 104 & 106

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H240-4E1, H240-4E2, HA240-4E1, HA240-4E2, H243-4E2, HA243-4E2, HW240-4E1, HW240-4E2, HW243-4E

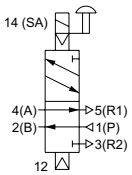
H240 Series Indirect-Acting Solenoid, directional control valves achieve 0.88 Cv flow capacity in a 24mm width. These pressure balanced spool/ air spring return valves are suitable for operating medium size cylinders, up to 3" bore. Low (1.6 Watt) power consumption solenoids are standard. Two- or three-position, 4-way models available as inline valves or manifold mount F-Type, stacking manifold A-Type or plug-in Type AW.

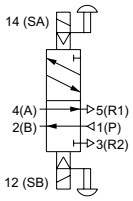
Base Models

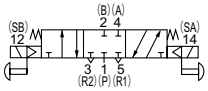
- *4-Way, Single Solenoid, Inline (**H240-4E1**)*
- *4-Way, Double Solenoid, Inline (**H240-4E2**)*
- *3-Position, 4-Way, Inline (**H243-4E2**)*
- *4-Way, Single Solenoid, Manifold Mount (**HA240-4E1**)*
- *4-Way, Double Solenoid, Manifold Mount (**HA240-4E2**)*
- *3-Position, 4-Way, Manifold Mount (**HA243-4E2**)*
- *4-Way, Single Solenoid, Plug-In Manifold Mount (**HW240-4E1**)*
- *4-Way, Double Solenoid, Plug-In Manifold Mount (**HW240-4E2**)*
- *3-Position, 4-Way, Plug-In Manifold Mount (**HW243-4E2**)*

Features and Benefits

- *Compact 24mm size.*
- *Low power consumption.*
- *High flow.*
- *Quiet operation. No AC hum.*
- *AC and DC voltages.*
- *Manual override standard.*
- *Grommet, plug-in and DIN type electrical connector – standard.*
- *Clean appearance.*







Base Model	Nominal Dimensions (inch) L	H	W
H(A)240__ single solenoid	4.07	1.38	0.91
H(A)240__ double solenoid	5.33		
H(A)243__ 3-position	6.52		



H240-4E1



H240-4E2

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return, Spring Assist	Pressure Range:	25–100 PSIG
Porting Type:	4-Way	Temperature Range:	41ºF to 122ºF
Port Size:	1/4 PIPE	Flow @100 PSIG:	53 CFM, 1500 LPM (Cv=0.9)
Media:	Air	Power:	1.6 W
		Available Voltages:	12VDC, 24VDC, 120VAC, 240VAC, 24VAC

H240-4E1, H240-4E2, HA240-4E1, HA240-4E2, H243-4E2, HA243-4E2, HW240-4E1, HW240-4E2, HW243-4E

AVAILABLE VALVE TYPES – H240 SERIES ... CONSULT WEBSITE FOR MODEL NUMBERS

For Direct Piping, or F Type Manifold:

- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*

For Base Piping, or A(AW)-Type Manifolds:

- *2-position, single solenoid, 4-way*
- *2-position, double solenoid, 4-way*
- *3-position, 4-way, closed center*
- *3-position, 4-way, exhaust center*



HA240 Series on H240M4A Manifold



HW240 Series on H240M4AW Manifold

Manifold Types Available	Overall Size (valves not mounted)	Nominal Dimensions (inch) L	H	D
A Type (H240M_A): Stacking diecast manifold (assembled). Delivery ports 2 and 4 located on manifold. Accepts HA240 valve models.	Two Station (H240M2A)	4.6	1.87	3.35
	Each Additional station	1.1		
	Max # of stations	10		
AW Type (H240M_AW): Stacking diecast, plug-in manifold (assembled). Delivery ports 2 and 4 located on manifold. Accepts HW240 plug-in type valve models.	Two Station (H240M2AW)	4.6	1.87	5.06
	Each Additional station	1.1		
	Max # of stations	10		
F Type (H240M_F): Extruded Aluminum. Delivery ports 2 and 4 located on valve. Accepts H240 valve models.	Two Station (H240M2F)	2.84	1.1	2.44
	Each Additional station	0.95		
	Max # of stations	10		
Consult website for exact dimensions and additional manifold configurations.				

How To Order Valves & Manifolds...Page 106

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250E1, 250AE1, 250E2, 250AE2

The classic Humphrey diaphragm poppet, 1/4 PIPE port solenoid valve 250 series, is a workhorse, whether the media and ambient conditions are clean or harsh. The pressure unbalanced diaphragm-poppet design has no metal-to-metal contact or sliding seals, thus millions of trouble-free cycling are expected, whether air is dirty, lubricated or not.

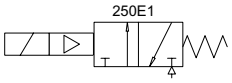
Available as 2- or 3-way models, normally open or normally closed, single or double solenoid.

Base Models

- *3-Way, Single Solenoid, Inline (**250E1**)*
- *3-Way, Single Solenoid, External Pilot, Inline (**250AE1**)*
- *3-Way, Double Solenoid, Inline (**250E2**)*
- *3-Way, Double Solenoid, External Pilot, Inline (**250AE2**)*

Features and Benefits

- *Low leak rate.*
- *Full ported 1/4" orifice, 1/4 PIPE ports.*
- *Impervious to air quality, lubricated or not lubricated.*
- *Quiet operation. No AC hum.*
- *Short stroke and quick exhaust permits fast cycling.*
- *Class B-rated, Continuous-Duty coils.*
- *Electrical connections include grommet cover, conduit or DIN type connector.*
- *For low pressure or alternate media, select external piloted "AE" type.*
- *Optional brass body available.*
- *Design characteristics translate to excellent vacuum valve, see Vacuum, p. 78.*

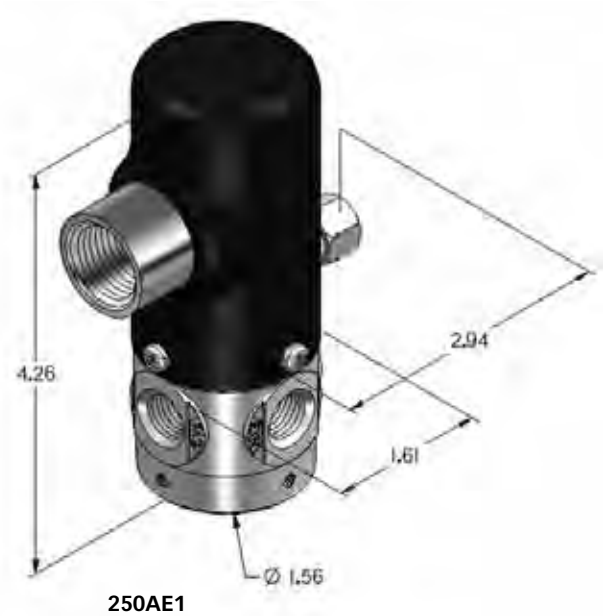




250E1



250AE1



250AE1

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas, Liquid (brass body including AE1 and AE2)
Pressure Range:	30–125 PSIG; AE 0–125 PSIG
Temperature Range:	0ºF to 125ºF
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)
Power:	6.7/8.2 W
Available Voltages:	12 VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

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HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

The classic Humphrey diaphragm poppet, 1/4 PIPE port solenoid valve 250-4 series, is a workhorse, whether the media and ambient conditions are clean or harsh. The pressure unbalanced diaphragm-poppet design has no metal-to-metal contact or sliding seals, thus millions of trouble-free cycling are expected, whether air is dirty, lubricated or not.

Available as 4-way models, single or double solenoid, 2- or 3-position.

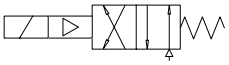
Base Models

- *4-Way, Single Solenoid, Inline (**250-4E1**)*
- *4-Way, Double Solenoid, Inline (**250-4E2**)*

Features and Benefits

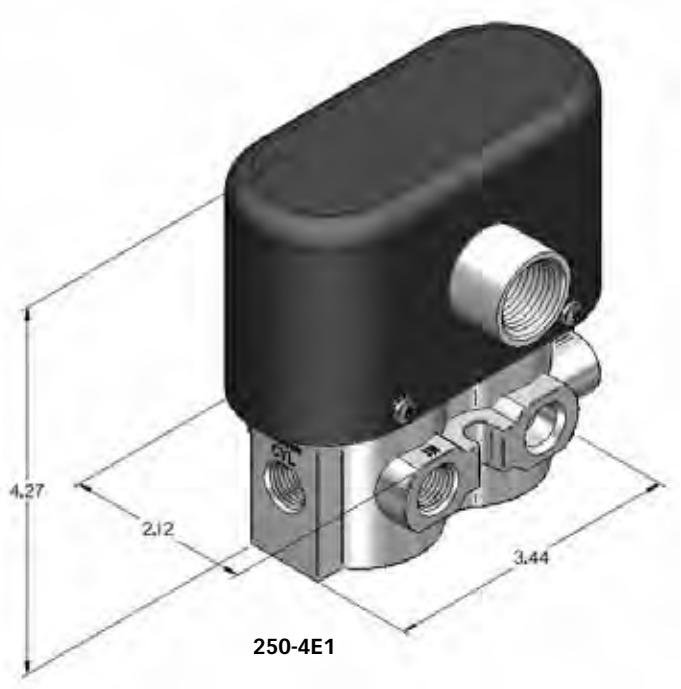
- *Low leak rate.*
- *Full ported 1/4" orifice, 1/4 PIPE ports.*
- *Impervious to air quality, lubricated or not lubricated.*
- *Quiet operation. No AC hum.*
- *Electrical connections include grommet cover, conduit or DIN type connector.*
- *Short stroke and quick exhaust permits fast cycling.*
- *Class B-rated, Continuous-Duty coils.*

250-4E1





250-4E2



250-4E1

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HOW TO OBTAIN VALVE SPECIFICATIONS

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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air
Pressure Range:	30–125 PSIG
Temperature Range:	0ºF to 125ºF
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)
Power:	6.7/8.2 W
Available Voltages:	12 VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

500E1, 500AE1, 500E2, 500AE2, 590E1, 590AE1, 590E2, 590AE2

Large 1/2 PIPE port and 3/4 PIPE port sizes of the classic Humphrey diaphragm-poppet, solenoid valve series, the 500E and 590E are proven workhorses, whether the media and ambient conditions are clean or harsh. The pressure unbalanced diaphragm-poppet design has no metal-to-metal contact or sliding seals, thus millions of trouble-free cycling are expected, whether air is lubricated or not.

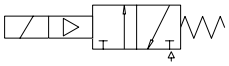
Available as 2- or 3-way models, normally open or normally closed, single or double solenoid. For low pressure or alternate media, select external piloted "AE" type.

Base Models

- *3-Way, Single Solenoid, Inline (**500E1, 590E1**)*
- *3-Way, Single Solenoid, External Pilot, Inline (**500AE1, 590AE1**)*
- *3-Way, Double Solenoid, Inline (**500E2, 590E2**)*
- *3-Way, Double Solenoid, External Pilot, Inline (**500AE2, 590AE2**)*

Features and Benefits

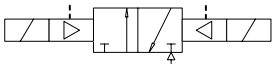
- *Low leak rate.*
- *1/2" orifice, 1/2 PIPE, or 5/8" orifice, 3/4 PIPE.*
- *Impervious to air quality, lubricated or not lubricated.*
- *Quiet operation. No AC hum.*
- *Short stroke and quick exhaust permits fast cycling.*
- *Class B-rated, Continuous-Duty coils.*
- *Electrical connections include grommet cover, conduit or DIN type connector.*
- *Design characteristics translate to excellent vacuum valve, see Vacuum, p. 79.*



500E1







590E1





SPECIFICATIONS FOR 500E AND 590E

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	500E: 1/2 PIPE; 590E: 3/4 PIPE
Media:	Air, Inert Gas, Liquid (brass body including AE1 and AE2)
Pressure Range:	30–125 PSIG; 0–125 PSIG (AE)
Temperature Range:	0°F to 125°F
Flow @100 PSIG:	500E: 160 CFM, 4530 LPM (Cv=2.7) 590E: 260 CFM, 7362 LPM (Cv=3.7)
Power:	4.5/6.7/8.2 W
Available Voltages:	12 VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

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Humphrey piston-poppet, 501E and 501-4E, 1/2 PIPE port solenoid valve series, achieves fully ported, high flow relative to overall size. Hard coated, cast aluminum body permits resistance to wear and easy mounting/plumbing. The pressure unbalanced piston-poppet design achieves greater flow than comparable 1/2" orifice valves and millions of trouble-free cycles.

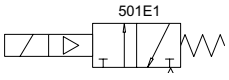
Available as 2- or 3-way models, normally open or normally closed, single or double solenoid, and 4-way models, single or double solenoid. Mount in any position via body mounting holes or base (3-way), or body mounting lugs (4-way).

Models

- *3-Way, Single Solenoid, Inline (**501E1**)*
- *4-Way, Single Solenoid, Inline (**501-4E1**)*
- *3-Way, Double Solenoid, Inline (**501E2**)*
- *4-Way, Double Solenoid, Inline (**501-4E2**)*

Features and Benefits

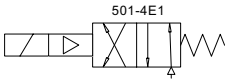
- *Low leak rate.*
- *"Flow through" construction achieves greater flow than competition.*
- *Quiet operation. No AC hum.*
- *Short stroke and quick exhaust permits fast cycling.*
- *Class B-rated, Continuous-Duty coils.*
- *Electrical connections include grommet cover, conduit or DIN type connector.*



501E1

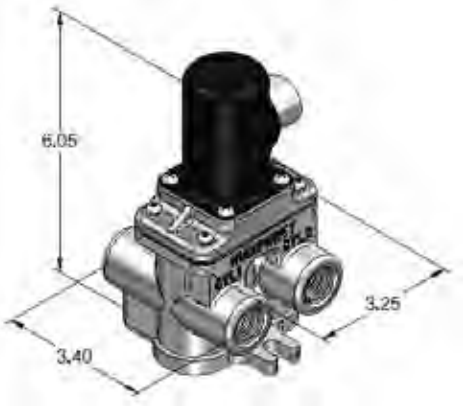






501-4E1





How To Order Valves & Manifolds…Page 105

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SPECIFICATIONS FOR 501E AND 501-4E

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2-, 3- or 4-Way
Port Size:	1/2 PIPE
Media:	Air, Inert Gas
Pressure Range:	30–125 PSIG
Temperature Range:	-30ºF to 125ºF
Flow @100 PSIG:	501: 220 CFM, 6229 LPM (Cv=3.5) 501-4: 170 CFM, 4814 LPM (Cv=2.5)
Power:	6.7/8.2 W
Available Voltages:	12 VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

42E1, 42E2, 42AE1, 42AE2, M42E1, M42E2, M42AE1, M42AE2

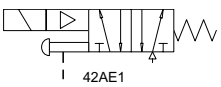
TAC3 Electric 42E Series are directional control valves that achieve 0.5 Cv flow capacity. These pressure unbalanced spool/air-spring return valves are suitable for operating medium size cylinders, up to 2" bore. Low power consumption solenoids are standard. Two-position, 4-way models available as inline valves or manifold mount and internal or external pilot.

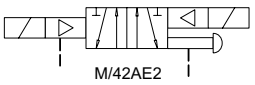
Base Models

- *Single Solenoid, Inline (**42E1**)*
- *Double Solenoid, Inline (**42E2**)*
- *Single Solenoid, External Pilot Inline (**42AE1**)*
- *Double Solenoid, External Pilot Inline (**42AE2**)*
- *Single Solenoid, Manifold Mount (**M42E1**)*
- *Double Solenoid, Manifold Mount (**M42E2**)*
- *Single Solenoid, External Pilot, Manifold Mount (**M42AE1**)*
- *Double Solenoid, External Pilot, Manifold Mount (**M42AE2**)*

Features and Benefits

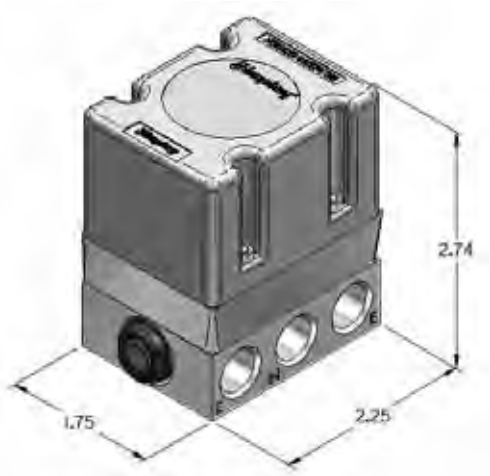
- *Low leak rate.*
- *High flow. Small size.*
- *Quiet operation. No AC hum.*
- *Manual override standard.*
- *Grommet – standard or DIN type electrical connector – optional.*





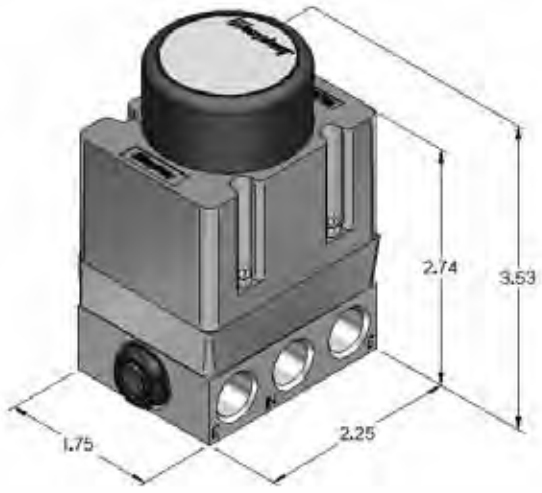


42E1





42E2



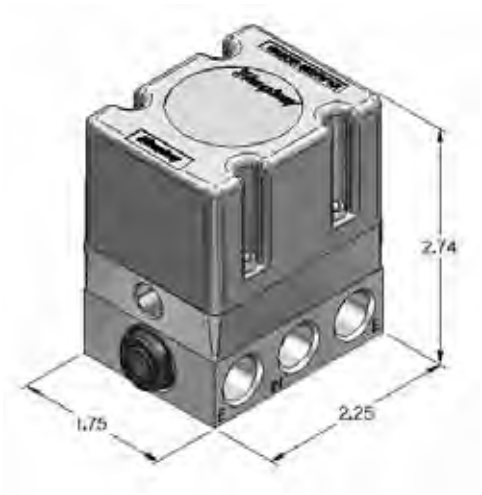
SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	30–125 PSIG (AE: 0–125 PSIG)

Temperature Range:	-20ºF to 150ºF
Flow @100 PSIG:	31 CFM, 877 LPM (Cv=0.5)
Power:	7.1/8.2 W
Available Voltages:	12 VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60

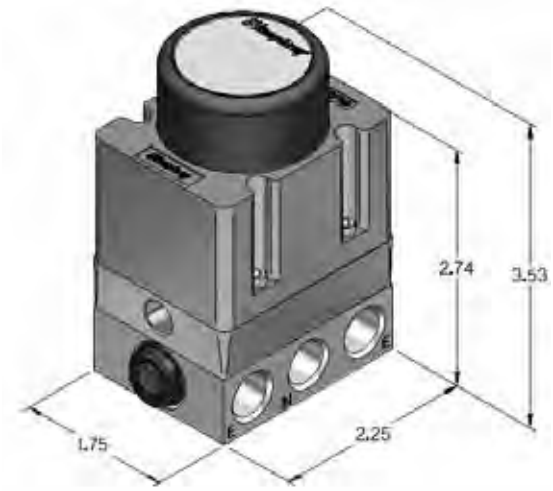


42AE1





42AE2





MC Manifold

Manifold Types Available			
MC Type: Extruded Aluminum. Delivery ports C1 and C2 located on manifold. Accepts M42(A)E1 and M42(A)E2 valve models.			
Overall Size (valves not mounted)	**Nominal Dimensions (inch) L**	**H**	**D**
Two Station (MC2)	3.63	2.02	2.25
Each Additional station	1.88		
Max # of stations	7		
Consult website for exact dimensions and additional manifold configurations.			

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HOW TO OBTAIN VALVE SPECIFICATIONS

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- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

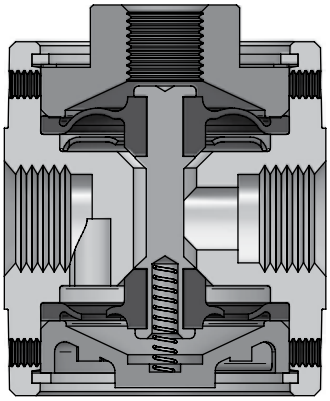
- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS Humphrey

INTRODUCTION

Air-Pilot Valves use a remote air signal to shift the valve. A single Air-Pilot Valve uses one air-pilot signal to shift the valve and internal air pressure, or spring, to return it when the signal is removed. A double Air-Pilot Valve uses a momentary air-pilot signal to shift the valve to one position and a second momentary air-pilot signal to return it to its original position.

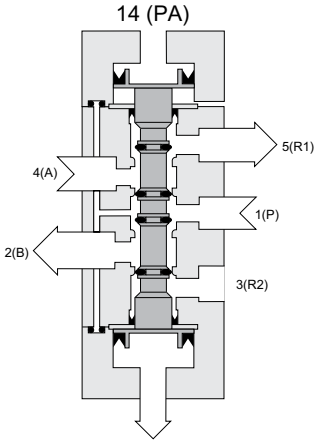
Since Air-Pilot Valves use air piping only, they are inherently explosion-proof or can be mounted close to work, isolating operators or electrical signals away from the environment. Further, less expensive, smaller electrical or manual operators can be used as pilots for one or several air-piloted valves in a system, reducing overall cost.



250A-3-10-20
Single Air Pilot, Unactuated

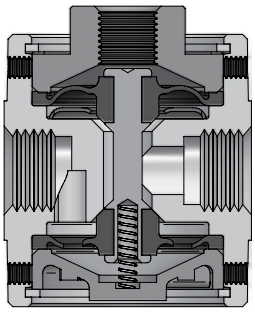
AIR-PILOTED VALVE FEATURES:

- Simple construction.
- No lubrication.
- Reliable operation.
- Compact and light weight.
- Mount in any direction.
- Cost effective.

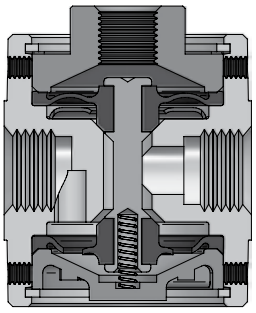


H180-4A2
Double Air Pilot

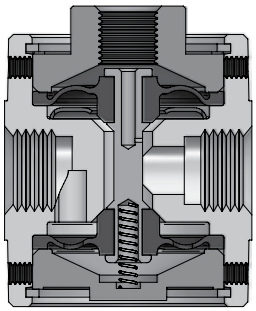
DIFFERENCE BETWEEN "A" TYPE AND "AA" TYPE AIR-PILOT VALVES



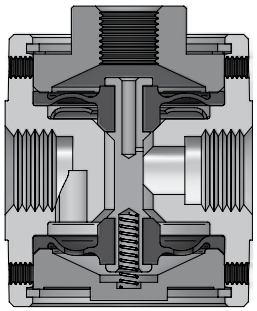
250A
Normal Position



250A
Operating Position



250AA
Normal Position



250AA
Operating Position

Round "A" type valves require continuous pilot pressure to maintain the operating condition. Round "AA" type valves incorporate a bypass hole on the main stem and are for compressed air only. The bypass hole speeds up the valve and also helps the piloting valve maintain its operating condition during a momentary operation, even if there are small air leaks within the pilot line.

EXAMPLES OF AIR-PILOT VALVES



Round Type Valve Offering



Square Type Valve Offering



Specialty Round Type

	2-, 3-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	125A Series	1/8	18	125A	44
	125AA Series	1/8	18	125AA	46
	125 Interface Series	1/8	14	125LA, 125AH,	48
	Glue Valve Series	1/8	–	R322C, R561	53
LARGE	250A Series	1/4	50	250A	44
	250AA Series	1/4	50	250AA	46
	250 Interface Series	1/4	40	250AL, 250AH	49
	500 Series	1/2	160	500A, 500AB	50
	501 Series	1/2	220	501A, 501AA	51
	590 Series	3/4	260	590A, 590AB	50
	Glue Valve Series	1/4	–	R332	53

	4-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	H110 Series	10-32	14	H110-4A, H110-4A2, HA110-4A, HA110-4A2	52
	H180 Series	1/8	33	H180-4A, H180-4A2, HA180-4A, HA180-4A2	52
LARGE	TAC3 Series	1/4	31	42A, 42A2, 42PA	70
	250-4A Series	1/4	50	250-4A	45
	250-4AA Series	1/4	50	250-4AA	47
	501-4 Series	1/2	170	501-4A, 501-4AA	51

**Nominal flow @100 psi*



125A, 250A

125 and 250 Series Air-Pilot Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air-spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass body construction (for alternate media).

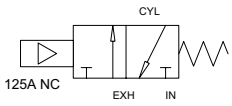
An all stainless steel and Flourocarbon seal, normally closed model is available. Order SS250A.

Base Models

- *125 Series, 3-Way, Air Pilot (**125A**)*
- *250 Series, 3-Way, Air Pilot (**250A**)*

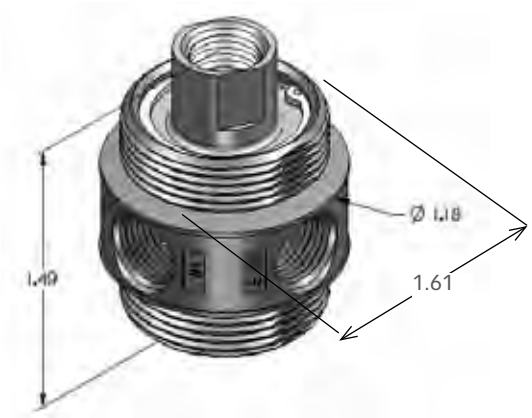
Features and Benefits

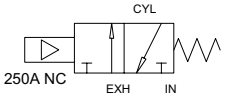
- *"Bubble Tight" seal.*
- *Full ported 1/8" orifice, 1/8 PIPE ports, and 1/4" orifice, 1/4 PIPE ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Hard plumb mount, base mount, or panel mount (use panel mount nuts for 125 series or inverted mounting base for 250 series).*
- *Buna-N seals standard. Fluorocarbon seals optional.*





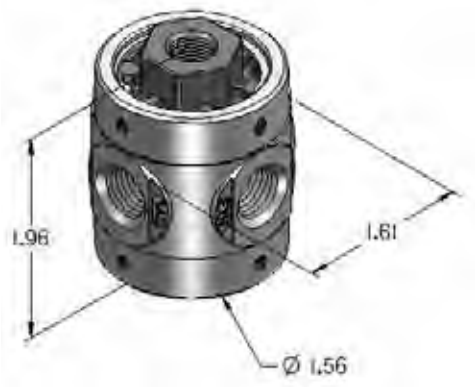
125A-NC







250A-NC



SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	125: 1/8 PIPE; 250: 1/4 PIPE
Media:	Air, Inert Gas, Liquid (brass body)
Pressure Range:	0–125 PSIG
Temperature Range:	-20ºF to 225ºF
Flow @100 PSIG:	125: 18 CFM, 509 LPM (Cv=0.3) 250: 50 CFM, 1415 LPM (Cv=0.8)

How To Order Valves & Manifolds…Page 107

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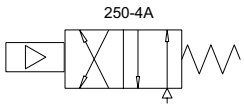
250-4 Series Air-Pilot 4-Way Valves feature the classic Humphrey diaphragm-poppet principle, essentially two 3-way 250 series in a common body. The unbalanced, air-spring return design assures bubble-tight sealing actuated, or unactuated. Full porting permits fast cycling and quick exhaust.

Base Model

- *250 Series, 4-Way, Air Pilot (**250-4A**)*

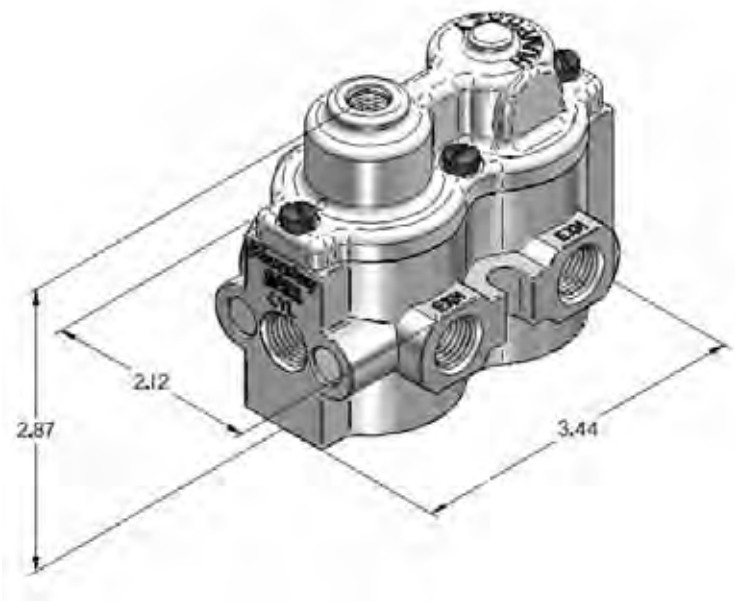
Features and Benefits

- *"Bubble Tight" seal.*
- *Full ported 1/4" orifice, 1/4 PIPE ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Hard plumb mount, use body threads or mounting base.*
- *Buna-N seals standard. Fluorocarbon seals optional.*





250-4A



How To Order Valves & Manifolds…Page 108

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	10–125 PSIG
Temperature Range:	-20ºF to 225ºF
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)

125AA, 250AA

125 and 250 "AA" Series Air-Pilot Valves feature the classic Humphrey diaphragm-poppet principle, but incorporates an internal compensating orifice to achieve faster response and/or a momentary signal/maintained position functionality (see Air-Pilot Valves introduction page). The unbalanced, air-spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work.

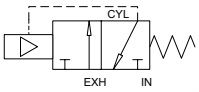
These rugged 2- or 3-way valves are available normally closed.

Base Models

- *125 Series, 3-Way, Air Pilot with Internal Orifice (**125AA**)*
- *250 Series, 3-Way, Air Pilot with Internal Orifice (**250AA**)*

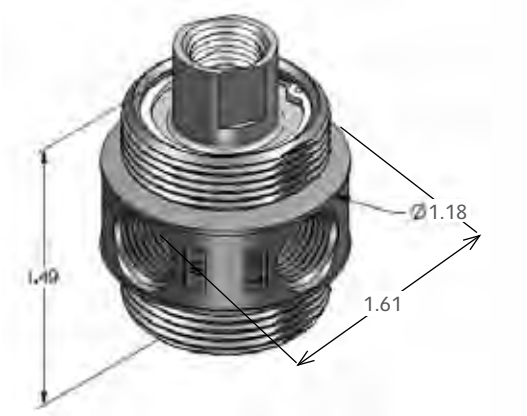
Features and Benefits

- *"Bubble Tight" seal.*
- *Full ported 1/8" orifice, 1/8 PIPE, and 1/4" orifice, 1/4 PIPE.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Hard plumb mount, base mount, or panel mount (use panel mount nuts for 125 series or inverted mounting base for 250 series).*
- *Excellent for interlocking or sequencing applications.*
- *Buna-N seals standard. Fluorocarbon seals optional.*



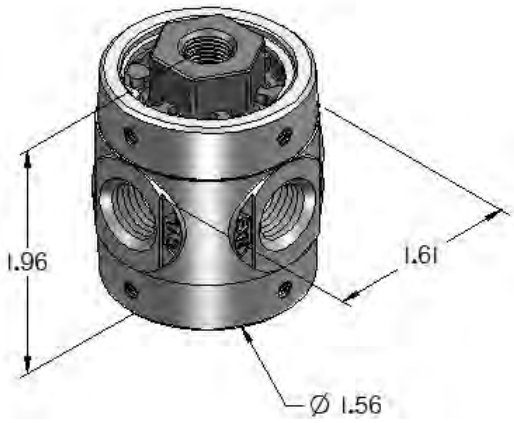


125AA





250AA



SPECIFICATIONS FOR 125AA AND 250AA

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	125: 1/8 PIPE; 250: 1/4 PIPE
Media:	Air
Pressure Range:	125AA: 10–125 PSIG; 250AA: 15–125 PSIG
Temperature Range:	-20ºF to 225ºF
Flow @100 PSIG:	125AA: 18 CFM, 509 LPM (Cv=0.3) 250AA: 50 CFM, 1415 LPM (Cv=0.8)

How To Order Valves & Manifolds…Page 107

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
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- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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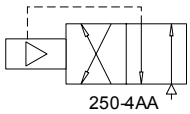
250-4 "AA" Series Air-Pilot 4-Way Valves feature the classic Humphrey diaphragm-poppet principle, essentially two 3-way 250 series in a common body, but incorporates an internal compensating orifice to achieve faster response and/or a momentary signal/maintained position functionality (see Air-Pilot Valves introduction page). The unbalanced, air-spring return design assures bubble-tight sealing actuated, or unactuated. Full porting permits fast cycling and quick exhaust.

Base Model

- *250 Series, 4-Way, Air Pilot with Internal Orifice (**250-4AA**)*

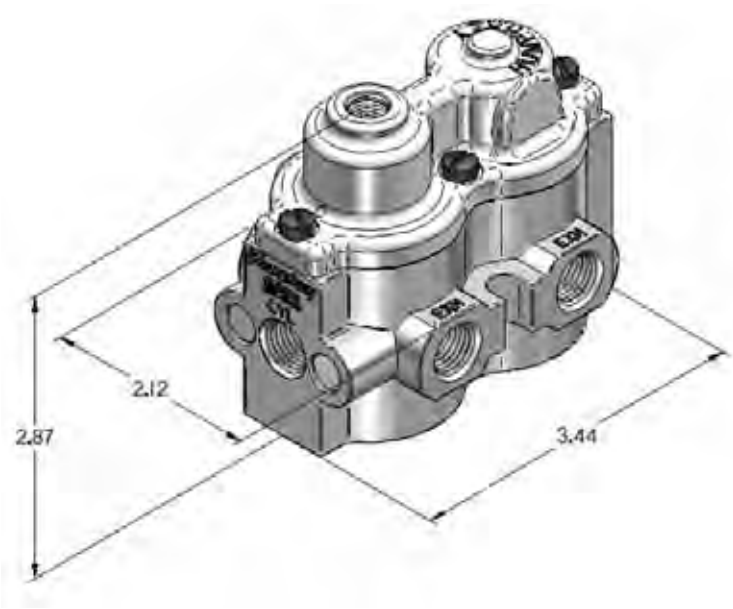
Features and Benefits

- *"Bubble Tight" seal.*
- *Full ported 1/4" orifice, 1/4 pipe ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Hard plumb mount, body threads, or use mounting base.*
- *Excellent for interlocking or sequencing applications.*
- *Buna-N seals standard. Fluorocarbon seals optional.*





250-4AA



How To Order Valves & Manifolds…Page 108

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air
Pressure Range:	15–125 PSIG
Temperature Range:	-20ºF to 225ºF
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)

125LA, 125AH

125 Series "Interface" Valves are ultra-low pilot pressure bleed valves. Pilot signaling pressures as low as 0.1 PSIG effectively blocks the bleed orifice and the internal, full pressure completes the shift to the actuated position. Primary valve is classic Humphrey diaphragm-poppet principle.

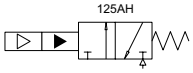
Ideal for fluidics, proximity switching and air jet sensing.

Base Models

- *125 Series, 3-Way, Low Pilot Interface Valve (**125LA**)*
- *125 Series, 3-Way, Higher Pilot Interface Valve (**125AH**)*

Features and Benefits

- *Very fast cycling speeds.*
- *Super sensitive 125LA responds to 0.10–10 PSIG pilot pressure.*
- *Sensitive 125AH responds to 0.33–30 PSIG pilot pressure.*
- *Primary valve is 1/8" orifice, 1/8 PIPE ports.*
- *Threaded bottom for panel mount or optional subbase.*
- *Optional brass body.*
- *Optional bottom inlet.*





125LA





125AH

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	1/8 PIPE
Media:	Air
Pressure Range:	30–125 PSIG
Temperature Range:	40ºF to 125ºF
Flow @100 PSIG:	14 CFM, 396 LPM (Cv=0.2)

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HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
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- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

250 Series "Interface" Valves are ultra-low pilot pressure valves. Pilot signaling pressures as low as 0.1 PSIG effectively blocks the bleed orifice and the internal, full pressure completes the shift to the actuated position. Primary valve is classic Humphrey diaphragm-poppet principle.

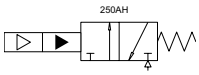
Ideal for fluidics, proximity switching and air jet sensing.

Base Models

- *250 Series, 3-Way, Low Pilot Interface Valve (**250AL**)*
- *250 Series, 3-Way, Higher Pilot Interface Valve (**250AH**)*

Features and Benefits

- *Very fast cycling speeds.*
- *Super sensitive 250AL responds to 0.10–10 PSIG pilot pressure.*
- *Sensitive 250AH responds to 0.33–30 PSIG pilot pressure.*
- *Primary valve is 1/4" orifice, 1/4 PIPE ports.*
- *Optional brass body.*
- *Optional bottom inlet.*

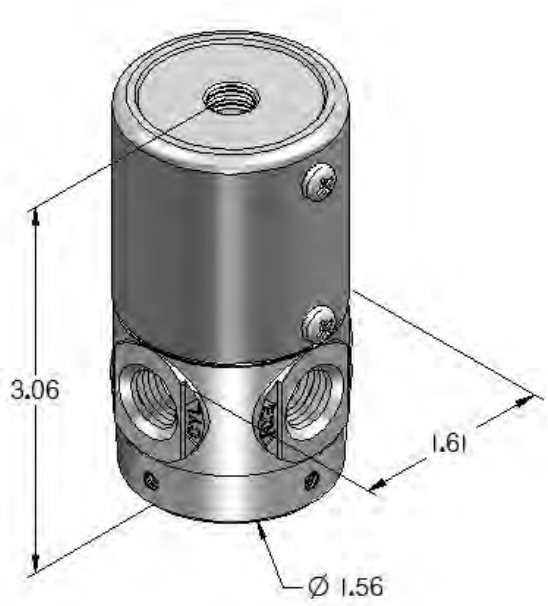




250AH



250AL



How To Order Valves & Manifolds…Page 107

HOW TO OBTAIN VALVE SPECIFICATIONS

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- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	1/4 PIPE
Media:	Air
Pressure Range:	30–125 PSIG
Temperature Range:	40ºF to 125ºF
Flow @100 PSIG:	40 CFM, 1132 LPM (Cv=0.7)

500A, 500AB, 590A, 590AB

500 and 590 Series Air-Pilot Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

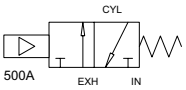
These rugged 2- or 3-way valves are available normally closed, in cast aluminum or brass body construction. Consult factory representative for normally open.

Base Models

- *500 or 590 Series, 3-Way, Air Pilot (**500A, 590A**)*
- *500 or 590 Series, 3-Way, Air Pilot with Booster (**500AB, 590AB**)*

Features and Benefits

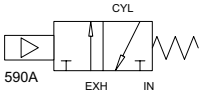
- *"Bubble Tight" seal.*
- *Full ported 1/2" orifice, 1/2 PIPE ports, and 5/8" orifice, 3/4 PIPE ports.*
- *Fast cycling, high flow.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Hard plumb mount, or use body mounting holes.*
- *Buna-N seals standard. Fluorocarbon seals optional.*
- *Booster type available for reduced pilot pressure (500AB, 590AB).*





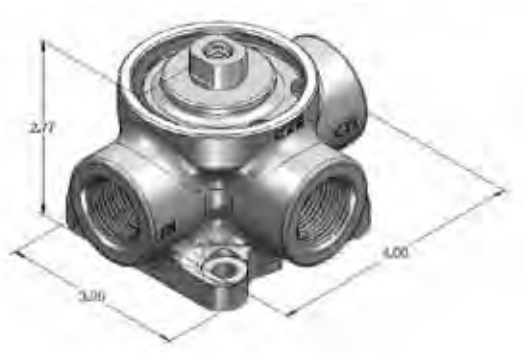
500A







590A



SPECIFICATIONS FOR 500A AND 590A

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	500: 1/2 PIPE; 590: 3/4 PIPE
Media:	Air, Inert Gas, Liquid (brass body)
Pressure Range:	0–125 PSIG
Temperature Range:	0ºF to 225ºF
Flow @100 PSIG:	500: 160 CFM, 4530 LPM (Cv=2.7) 590: 260 CFM, 7362 LPM (Cv=3.7)

How To Order Valves & Manifolds…Page 107

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

HOW TO FIND A DISTRIBUTOR

- Visit www.humphrey-products.com, select "Find A Distributor," and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

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Humphrey piston-poppet, 501A and 501-4A, 1/2 PIPE port, Air-Pilot Valve series, achieves fully ported, high flow relative to overall size. Hard coated, cast aluminum body permits resistance to wear and easy mounting/plumbing. The pressure unbalanced piston poppet design achieves greater flow than comparable 1/2" valves and millions of trouble-free cycles.

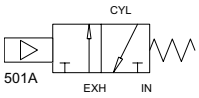
Available as 2- or 3-way models, normally open or normally closed, and 4-way models.

Base Models

- *501 Series, 3-way, Air Pilot (**501A**)*
- *501 Series, 3-way, Air Pilot with Internal Orifice (**501AA**)*
- *501 Series, 4-way, Air Pilot (**501-4A**)*
- *501 Series, 4-way, Air Pilot with Internal Orifice (**501-4AA**)*

Features and Benefits

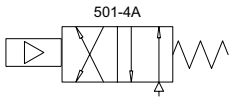
- *Low leak rate.*
- *Full ported 1/2" orifice, 1/2 PIPE ports.*
- *"Flow through" construction achieves greater flow than competition.*
- *Short stroke and quick exhaust permits fast cycling.*
- *Mount in any position, via body mounting holes or base (3-way) or body mounting lugs (4-way).*
- *Plug for 2-way service.*
- *Also available as "AA" functionality (air only, see "Introduction," p. 42).*





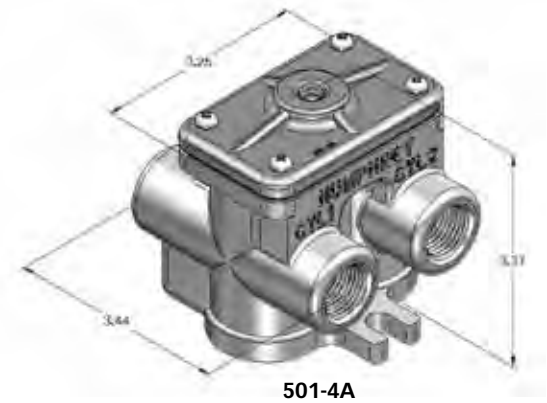
501A







501-4AA



501-4A

How To Order Valves & Manifolds…Pages 107 & 108

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS FOR 501A(A) AND 501-4A(A)

Design Principle:	Pressure Unbalanced – Air Return, Spring Assist
Porting Type:	2-, 3- or 4-Way
Port Size:	1/2 PIPE
Media:	Air, Inert Gas
Pressure Range:	A=0–125 PSIG; AA=15–125 PSIG
Temperature Range:	-30ºF to 225ºF
Flow @100 PSIG:	501: 220 CFM, 6229 LPM (Cv=3.5) 501-4: 170 CFM, 4813 LPM (Cv=2.5)

H110-4A and H180-4A Valves

H110-4A, H110-4A2, HA110-4A, HA110-4A2, H180-4A, H180-4A2, HA180-4A, HA180-4A2

H110 and H180 Series Air-Pilot directional control valves achieve 0.23 and 0.57 Cv flow capacity in a 15mm and 18mm width. These valves are a popular choice for operating medium-size cylinders, up to 2.5" bore.

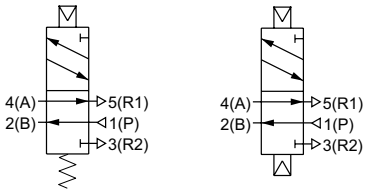
5-port models available as inline valves or manifold mount on two manifold configurations, A or F type.

Base Models

- *Single Air Pilot, Inline (**H110-4A, H180-4A**)*
- *Double Air Pilot, Inline (**H110-4A2, H180-4A2**)*
- *Single Air Pilot, Manifold Mount (**HA110-4A, HA180-4A**)*
- *Double Air Pilot, Manifold Mount (**HA110-4A2, HA180-4A2**)*

Features and Benefits

- *Compact 15mm and 18mm size.*
- *High flow.*
- *Clean appearance.*



Base Model	Nominal Dimensions (inch) L	H	W
H(A)110-4A	1.83	0.95	0.59
H(A)110-4A2	1.97		
H(A)180-4A	2.54	1.06	0.71
H(A)180-4A2	2.76		

For technical information on manifolds for either of these valve series, please refer to pages 32-33.



H110-4A2, H110-4A, HA110-4A



HA180-4A2, HA180-4A, H180-4A

SPECIFICATIONS

Design Principle:	Pressure Balanced – Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	H110: 10-32 UNF; H180: 1/8 PIPE
Media:	Air, Inert Gas
Pressure Range:	22–102 PSIG
Temperature Range:	41ºF to 122ºF
Flow @100 PSIG:	H110: 14 CFM, 396 LPM (Cv=0.2) H180: 33 CFM, 934 LPM (Cv=0.6)

How To Order Valves & Manifolds…Page 108

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
- From the search options provided, choose the valve you want and the details for that product.
- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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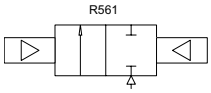
125 and 250 Series Air-Pilot "Glue" valves feature the classic Humphrey diaphragm-poppet in a double air-pilot, 2-way configuration. The design assures a tight seal actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling, clean performance, "suck back" when closing.

Base Models

- *1/8" Glue Valve with Fluorocarbon Seals (**R322C**)*
- *1/8" Glue Valve with Teflon Coated Seals (**R561**)*
- *1/4" Glue Valve with Fluorocarbon Seals (**R332**)*

Features and Benefits

- *Full ported R561, R322C 1/8" orifice and 1/8 PIPE ports, and R332 1/4" orifice, 1/4 PIPE ports.*
- *Fast cycling, high flow.*
- *Hard plumb mount, or panel mount using nuts or mounting base, via the 1"-20 UNEF body mounting threads (125 series) or mounting base (250 series).*





R561, R322C





R332



How To Order Valves & Manifolds…Page 107

HOW TO OBTAIN VALVE SPECIFICATIONS

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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

SPECIFICATIONS

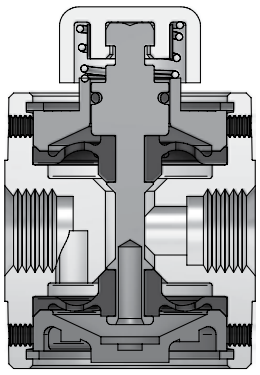
Design Principle:	Pressure Unbalanced – Double Air-Pilot
Porting Type:	2-Way
Port Size:	R322C, R561: 1/8 PIPE R332: 1/4 PIPE
Media:	Glue; Consult factory representative for others
Pressure Range:	0–35 PSIG (pilot pressure: maintained and =/> body pressure)
Temperature Range:	-20ºF to 225ºF
Flow @100 PSIG:	R322C, R561: Cv=0.3, LPM=7.6 R332: Cv=0.8, LPM=22.5

INTRODUCTION

Humphrey Manual and Mechanical Air Valves feature the exclusive diaphragm-poppet design originated by Humphrey. The design consists of two specially contoured diaphragms mounted to an axial stem within a full orifice valve body. This classic design is simple, versatile, and highly reliable. Valves of this design perform equally well with or without air supply lubrication, and better than competitive products when under poor air conditions.

Humphrey Manual and Mechanical valves are available in 2-, 3- and 4-way porting types, and in a variety of rugged actuator styles.

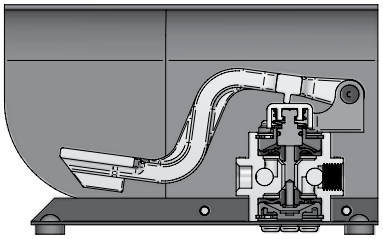
- Manual actuator styles: Push Button, Palm Button, Low-Force Palm, Detented Palm, Foot, Finger Tip, Toggle and Hand.
- Mechanical actuator styles: Ball, Plunger, Cam and Overstroke-Compensated Cam.



250P-3-10-20
Push Button, Unactuated

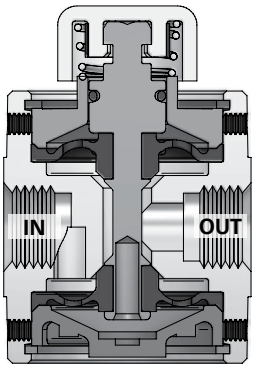
MANUAL/MECHANICAL VALVE FEATURES:

- Simple construction
- No lubrication
- Reliable Operation
- Compact and Lightweight
- Rugged
- Cost effective



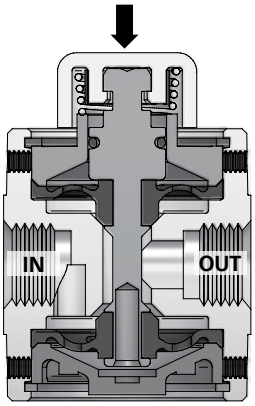
250-4F
Four-Way Foot, Unactuated

FLOW PATH, BASIC NORMALLY CLOSED (NC) AND NORMALLY OPEN (NO) VALVES



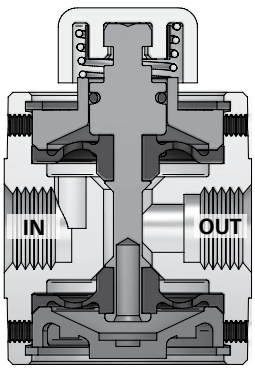
250 NC, Unactuated

Media applied to IN routes down, passing through perforations in bottom diaphragm-poppet and becomes primary force holding valve closed. Top diaphragm-poppet is not seated, so OUT port is open to EXHAUST port (backside, not shown).



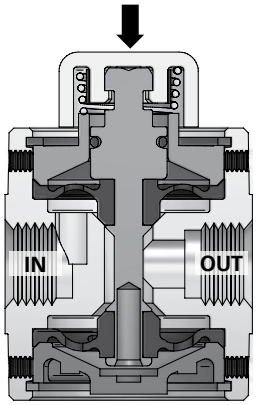
250 NC, Actuated

When the button is depressed, the top diaphragm-poppet seats, while bottom diaphragm-poppet opens, allowing media to pass through to OUT port, while EXHAUST port (backside, not shown), becomes blocked.



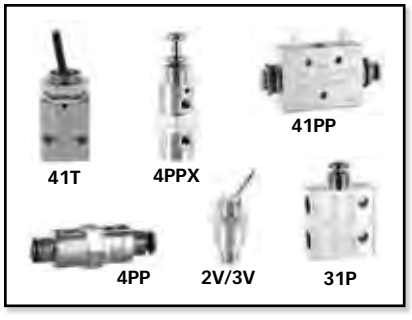
250 NO, Unactuated

Media applied to IN routes up, passing by unseated diaphragm-poppet to OUT port, and becomes primary force holding valve open. Bottom diaphragm-poppet is seated and OUT port is blocked from the EXHAUST port (backside, not shown).



250 NO, Actuated

When the button is depressed, the top diaphragm-poppet seats, while bottom diaphragm-poppet opens, allowing media to become blocked from OUT port, while EXHAUST port (backside, not shown), becomes open to OUT port.



TAC Valves



Three-Way Valves



Four-Way Valves

	2-, 3-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	TAC	10-32	6	2P, 3P, 2V, 3V, 2VR, 3VR	66-67
	TAC2	1/8	18	31P, 31PPX, 31V, 31VR	68-69
	125 Series Manual	1/8	18	125PLG, 125P, 125HO, 125T, 125V	56-57
	125 Series Mechanical	1/8	18	125B, 125MP, 125MC	62-63
LARGE	250 Series Manual	1/4	50	250P, 250PL, 250F, 250V, 250HO, 250T	58-59
	250 Series Mechanical	1/4	50	250C	62-63
	501 Series Manual	1/2	220	501V	61
	500 Series Mechanical	1/2	160	500C	61

	4-WAY VALVES	Ports	CFM*	Valves	Page
SMALL	TAC	10-32	9	4P, 4PP, 4PPX, 4V	66-67
	TAC2	1/8	18	41P, 41PP, 41PPX, 41V, 41VR	68-69
	TAC three-position	1/8	6	41R-D(S)3, 41T-D(S)3	68-69
LARGE	TAC3	1/4	31	42P, 42PP, 42PA, 42A, 42A2	70
	250-4 Series	1/4	50	250-4F, 250-4H	60

**Nominal flow @100 psi*



Force to Actuate @100 PSIG (lbs.) Manual or Mechanical Actuator Code	B	C	F	H	HO	MC	MP	P	PL	PLG	T	V
125	8				7	5	8	8		3	4	2
250		11	5		14			23	21		5	3
250-4			13	4								
501												4

125PLG, 125P, 125HO, 125T, 125V

125 Series Manual Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

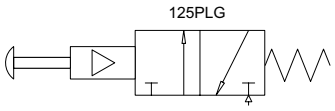
These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass body construction (for alternate media).

Base Models

- *3-way Large Palm Button with Light Touch (**125PLG**)*
- *3-Way Push Button (**125P**)*
- *3-Way Hold On/Detented (**125HO**)*
- *3-Way Finger Tip (**125T**)*
- *3-Way Toggle (**125V**)*

Features and Benefits

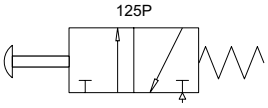
- *"Bubble Tight" seal.*
- *Full ported 1/8" orifice, 1/8 PIPE ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.*
- *Hard plumb mount, base mount, or panel mount using nuts or mounting base, via the 1"-20 UNEF body mounting threads or mounting base.*
- *Buna-N seals standard. Fluorocarbon seals optional.*





125PLG – Large, Easy Actuation, Push Button





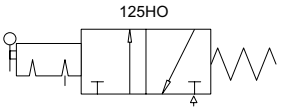


125P – Push Button



SPECIFICATIONS

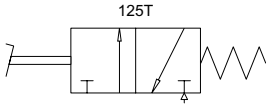
Design Principle:	Pressure Unbalanced, Air Return, Spring Assist	Media:	Air, Inert Gas
Porting Type:	2- or 3-Way	Pressure Range:	0–125 PSIG; PLG: 30–125 PSIG
Port Size:	1/8 PIPE	Temperature Range:	-20°F to 225°F
		Flow @100 PSIG:	18 CFM, 509 LPM (Cv=0.3)





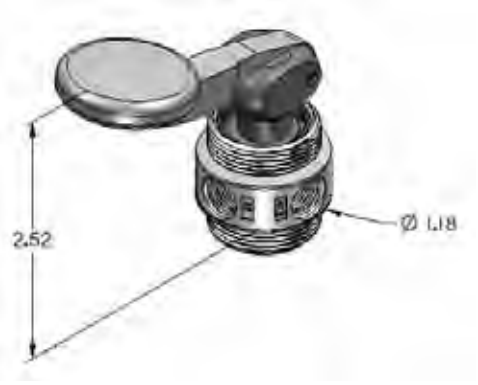
125HO – Hold On

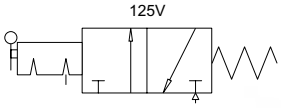






125T – Finger Tip







125V – Toggle



How To Order Valves & Manifolds…Page 109

HOW TO OBTAIN VALVE SPECIFICATIONS

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250P, 250PL, 250F, 250V, 250HO, 250T

250 Series Manual Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

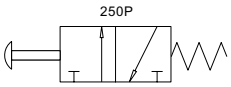
These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass-body construction (for alternate media).

Base Models

- *3-Way Push Button (**250P**)*
- *3-Way Large Push Button (**250PL**)*
- *3-Way Foot Operated (**250F**)*
- *3-Way Toggle (**250V**)*
- *3-Way Push and Hold On/Detented (**250HO**)*
- *3-Way Finger Tip (**250T**)*

Features and Benefits

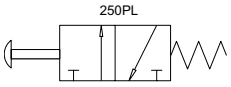
- *"Bubble Tight" seal*
- *Full ported 1/4" orifice, 1/4 PIPE ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.*
- *Hard plumb mount, or panel mount using mounting base or mounting base.*
- *Buna-N seals standard. Fluorocarbon seals optional.*





250P – Push Button

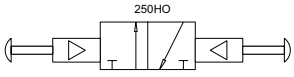






250PL – Large Push Button





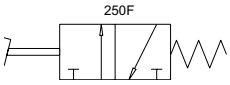


250HO – Hold On



SPECIFICATIONS

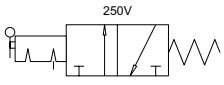
Design Principle:	Pressure Unbalanced, Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	0–125 PSIG; HO: 25–125 PSIG
Temperature Range:	-20° to 225°F
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)





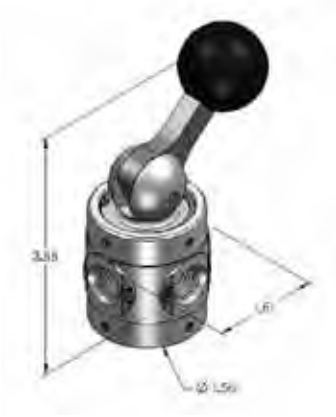
250F – Foot Valve

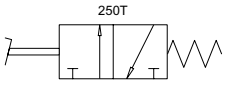






250V – Toggle







250T – Finger Tip



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250-4F, 250-4H

250-4F Series Foot Valve features the classic Humphrey diaphragm-poppet principle in a two position, 4-way configuration. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Rugged 12-gauge steel guard protects valve and foot from falling objects. Peddle bottoms out, preventing over stroke and valve damage.

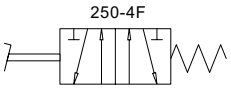
250-4H Series Hand/Lever Valve in the diaphragm poppet series achieves three position, 4-way function. Shipped normally closed/normally closed (Exhaust Center position) as standard.

Base Models

- *4-Way Foot Operated (**250-4F**)*
- *3-Position, 4-Way Hand Operated (**250-4H**)*

Features and Benefits

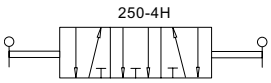
- *"Bubble Tight" seal.*
- *Great value compared to competitive models.*
- *Full ported 1/4" orifice, 1/4 PIPE ports.*
- *High flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated systems. No sliding seals.*
- *Foot Valve requires no mount. Remove grommets to hard mount.*
- *Mount Hand Valve via body threads or mounting base.*
- *Buna-N seals standard. Fluorocarbon seals optional.*





250-4F – Foot Valve







250-4H – Hand Valve



SPECIFICATIONS

Design Principle:	Pressure Unbalanced, Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	0–125 PSIG
Temperature Range:	-20°F to 225°F
Flow @100 PSIG:	50 CFM, 1415 LPM (Cv=0.8)

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The Humphrey piston-poppet, 501V Series 1/2 PIPE port, detented lever valve, achieves fully ported, high flow relative to overall size. Hard coated, cast aluminum body permits resistance to wear and easy mounting/plumbing. The pressure unbalanced piston-poppet design achieves greater flow than comparable 1/2″ orifice valves and millions of trouble-free cycles.

500C Series Cam Operated Mechanical Valves feature the classic Humphrey diaphragm-poppet principle in high-low design. The unbalanced, air spring return design assures bubble-tight sealing actuated, or unactuated.

Base Models

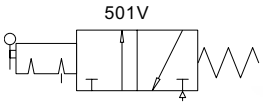
- *3-Way Toggle (**501V**)*
- *3-Way Roller Cam Operated (**500C**)*

501V Features and Benefits

- *Low leak rate.*
- *1/2″ orifice, 1/2 PIPE ports.*
- *High flow, quick exhaust.*
- *Buna-N seals standard. Fluorocarbon seals optional.*

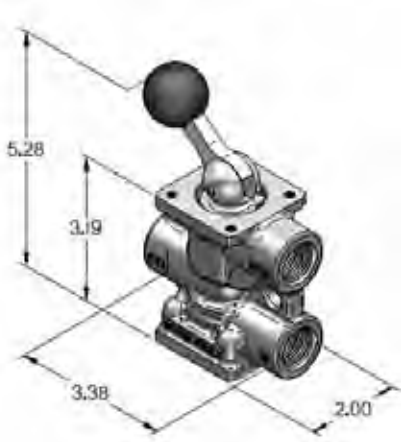
500C Features and Benefits

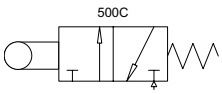
- *Low leak rate.*
- *1/2″ orifice, 1/2 PIPE ports.*
- *High flow, quick exhaust.*
- *Buna-N seals standard. Fluorocarbon seals optional.*
- *Mount with body mounting holes.*





501V







50OC



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SPECIFICATIONS FOR 501V AND 500C

Design Principle:	Pressure Unbalanced, Air Return, Spring Assist
Porting Type:	3-Way
Port Size:	1/2 PIPE
Media:	Air, Inert Gas
Pressure Range:	0–125 PSIG
Temperature Range:	-20°F to 225°F
Flow @100 PSIG:	501: 220 CFM, 6229 LPM (Cv=3.5) 500: 160 CFM, 4530 LPM (Cv=2.7)

125/250 Mechanical Valves

125B, 125MP, 125MC, 250C

125/250 Series Mechanical Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

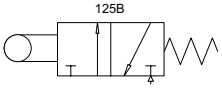
These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass-body construction (for alternate media).

Base Models

- *1/8" 3-Way Ball Operated (**125B**)*
- *1/8" 3-Way Plunger Operated (**125MP**)*
- *1/8" 3-Way Roller Cam Operated (**125MC**)*
- *1/4" 3-Way Roller Cam Operated (**250C**)*

Features and Benefits

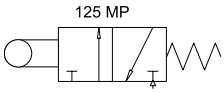
- *"Bubble Tight" seal.*
- *Full ported 1/8" or 1/4" orifice, 1/8 or 1/4 PIPE ports.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.*
- *Hard plumb mount, or panel mount using nuts or mounting base, via the 1"-20 UNEF body mounting threads (125 series) or mounting base (250 series).*
- *Buna-N seals standard. Fluorocarbon seals optional.*





125B – Ball Cam





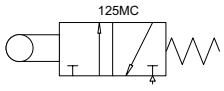


125MP – Plunger



SPECIFICATIONS FOR 125 MECHANICAL AND 250 MECHANICAL

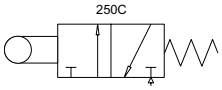
Design Principle:	Pressure Unbalanced, Air Return, Spring Assist
Porting Type:	2- or 3-Way
Port Size:	125: 1/8 PIPE; 250: 1/4 PIPE
Media:	Air, Inert Gas, Liquid
Pressure Range:	0–125 PSIG
Temperature Range:	-20°F to 225°F
Flow @100 PSIG:	125: 18 CFM, 509 LPM (Cv=0.3) 250: 50 CFM, 1415 LPM (Cv=0.8)





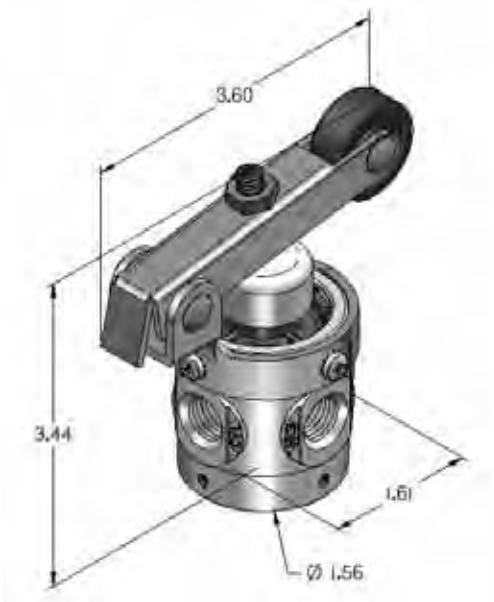
125MC – Roller Cam







250C – Roller Cam



MANUAL AND MECHANICAL VALVES

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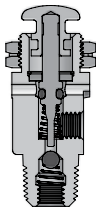
HOW TO FIND A DISTRIBUTOR

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- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS Humphrey

INTRODUCTION

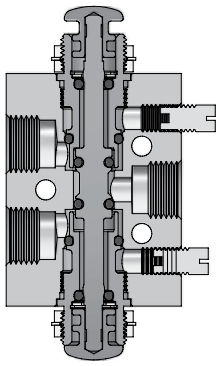
Based on their long life, small size, rugged construction and attractive appearance, the Humphrey TAC, TAC2 and TAC3 family of manual/mechanical air valves are popular choices by design automation engineers. The small stainless steel push button or plated-steel toggle are popular for panel mounting solutions to start, sequence or control equipment with the same outward appearance as traditional electric-style machine controls. The wide variety of valves is available as 2-, 3- and 4-way, in three sizes, and either spring return or detent function. Unique and miniature, three-position, 4-way, exhaust-center valves, in toggle or rocker operator, are also available.



3P

TAC VALVE FEATURES:

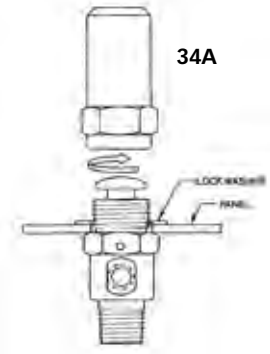
- Work-hardened, SST button attached, as standard.
- Button bottoms out, limits overstroke/internal damage.
- TAC bodies include hex for wrench engagement.
- Electric style, 15/32-32 threaded collar for panel mount.
- "Building block" approach to pneumatic automation.
- Unique "Air Operators" simplify pneumatic circuitry.



41PP

HUMPHREY TAC "TOTAL AIR CONTROL" SYSTEM

Humphrey asserts pneumatic logic and sequencing provides a simple, reliable, cost effective alternative to PC or PLC control. Many of today's simpler machine control, secondary operations, and assembly fixtures do not require, or sometimes even permit expensive PC or PLC control, particularly in hazardous environments.

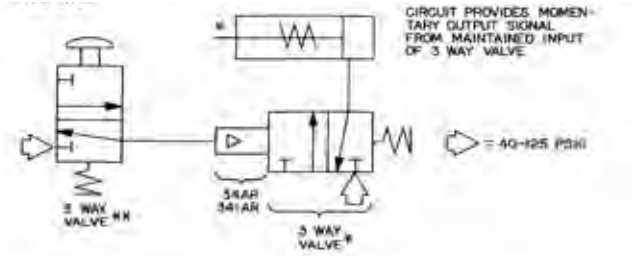


34A

3P Push Button

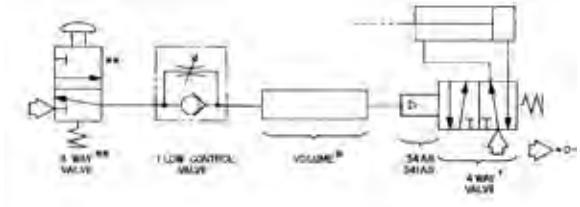
The heart of Humphrey TAC "Total Air Control" system is the push button valve. All TAC/TAC2 push button valves are produced with a single-button operator design, such that a variety of manual, mechanical, or air-pilot operators can be added with ease (i.e., thread-on air operator, 34A, to 3P valve, and 3P push button valve becomes air-pilot valve). Consult factory representative for TAC3 push button valves.

Complementing the TAC and TAC2 valve line-up, Humphrey offers a variety of valve operators, auxiliary items, and miniature fittings, effectively "arming" the engineer technician with a complete toolbox of logic items to resolve factory automation problems pneumatically.



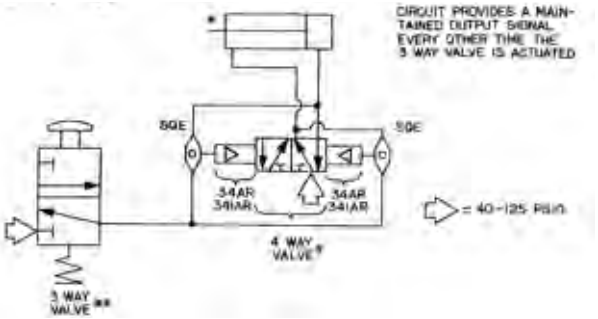
* Single acting cylinder shown.
**Valve used can be any 3-way or from one side of any 4-way.
† Valve used with 34AR or 341AR operator must be TAC Series but can be 2-, 3-, or 4-way depending on work function.

One Shot



* One cubic inch of volume equals approximately two seconds delay.
† Valve used with 34AS or 341AS actuator must be TAC Series but can either 2-, 3- or 4-way depending on work function (Double Acting Cylinder shown).
**Valve used can be any 3-way or from one side of any 4-way.

Time Delay Circuit



* Double acting cylinder shown. Single acting cylinder can be used.
† Valve used with 34AR or 341AR operator must be TAC Series 4-way model; 4PP, 41PP, or 42PP.
**Valve used can be any 3-way or from one side of any 4-way.

Ball Point Pen Circuit

2-, 3-WAY VALVES	Ports	CFM*	Valves	Page
TAC	10-32	6	2P, 3P, 2V, 3V, 2VR, 3VR	66-67
TAC2	1/8	18	31P, 31PPX, 31V, 31VR	68-69

4-WAY VALVES	Ports	CFM*	Valves	Page
TAC	10-32	9	4P, 4PP, 4PPX, 4V, 4VR	66-67
TAC2	1/8	18	41P, 41PP, 41PPX, 41V, 41VR	68-69
TAC3	1/4	31	42P, 42PP, 42PA, 42A, 42A2	70
TAC three-position	1/8	6	41R-D(S)3, 41T-D(S)3	68-69

**Nominal flow @100 psi*

Air Operators		Part No.	Page
A	Air-Pilot	34, 341	71
AR	Air-Pilot with Reset	34, 341	71
AS	Air-Pilot with Time Delay	34, 341	71
ASR	Air-Pilot with Rest and Time Delay	34, 341	71

Operators		Part No.	Page
B	Ball Mechanical	34	72
C	Cam Mechanical	34	72
CH	Heavy Duty Cam Mechanical	34	72
CW	One Way Trip Cam Mechanical	34	72
F	Foot (Knee) Manual	34	72
T	Finger Tip Manual	34	72

Auxiliary Equipment		Page
C1	10-32 UNF Check Valve	73
C125	1/8 PIPE Check Valve	73
RSR	Air Pressure Regulator	73
S125	1/8 PIPE Shuttle Valve	73
SC1	10-32 UNF Speed Control	73
SQE	10-32 UNF Shuttle/Quick Exhaust Valve	73

Fittings	Description	Page
150-30A	Exhaust Muffler	72
150-31A	Exhaust Muffler	72
BF	Straight Fitting	72
BF1	Straight Fitting	72
PBF1	Straight Fitting	72
SF	Swivel Fitting	72
UEF	Elbow Fitting	72
URTF	Running Tee Fitting	72
UTF	Tee Fitting	72

HUMPHREY "TOTAL AIR CONTROL" LINE UP:

- **Air Valves**: Manual/Mechanical 2-, 3- or 4-way, spring return or detent. 3 sizes.
- **Air Operators:** Standard, Air Reset, Air Snap, Air Reset/Snap.
- **Manual Operators:** Finger Tip, Foot/ Knee/Hand.
- **Mechanical Operators**: Ball, Cam, Cam-One Way Trip, Cam-Heavy Duty.
- **Auxiliary Items**: Air Regulator; Flow Control, Check, Shuttle and Quick Exhaust Valves.
- **Barbed Fittings:** Straight, Elbow, Tee, Reducer, Bulkhead, Plug, Extension, Swivel.



2P, 3P, 4P, 2VR, 3VR, 4VR, 4PP, 2V, 3V, 4V, 4PPX

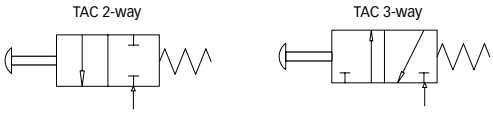
Humphrey TAC, 10-32 UNF ported, 2-, 3- or 4-way, manual/mechanical air valves are attractive, compact and rugged. Available as spring return or detent functionality, TAC valves provide excellent flow for their relative size, and are ideal for panel-mount signaling or small-cylinder control, leaving pneumatic plumbing and tubing "behind the scenes."

Base Models

- *2-, 3-, 4-Way, Push Button (**2P, 3P, 4P, 2VR, 3VR, 4VR**)*
- *4-Way, Detented Push/Push Button (**4PP**)*
- *2-, 3-, 4-Way, Detented Toggle (**2V, 3V, 4V**)*
- *4-Way, Detented Push/Pull Button (**4PPX**)*

Features and Benefits

- *Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.*
- *Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.*
- *Hex feature on valve body assists with mounting.*
- *Standard panel-mount button design permits addition of various manual, mechanical or air operators.*

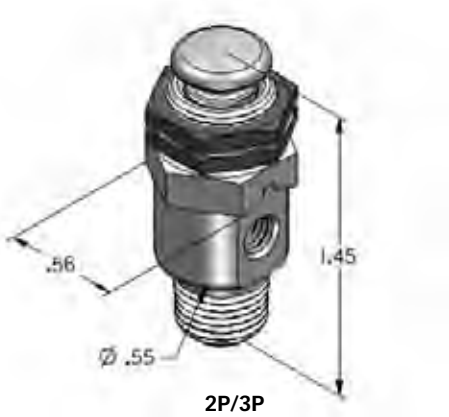




2P/3P



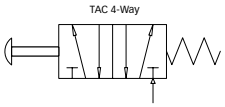
2V/3V



2P/3P
(3P shown)

SPECIFICATIONS

Design Principle:	Pressure Unbalanced, Air Return, Spring Assist (2-,3-Way); Pressure Balanced, Spring Return (4-Way)
Porting Type:	2-, 3- or 4-Way
Port Size:	10-32 UNF
Media:	Air, Inert Gases
Pressure Range:	0–125 PSIG
Temperature Range:	-20°F to 180°F
Flow @100 PSIG:	2-,3-Way: 6 CFM, 169 LPM (Cv=0.1) 4-Way: 9 CFM, 254 LPM (Cv=0.2)





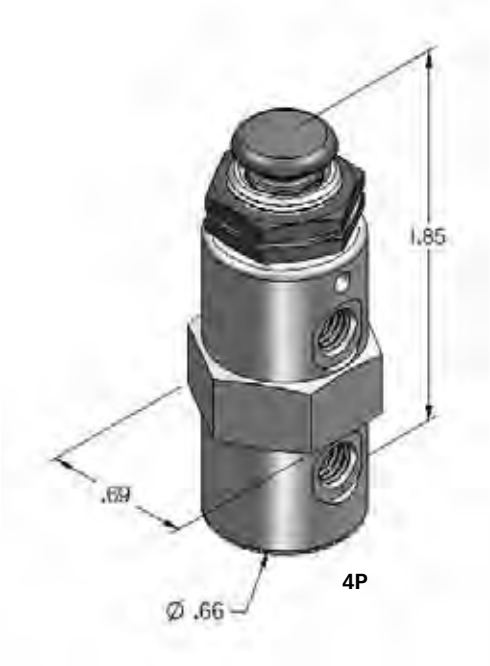
4V



4PPX



4P



4P



4PP

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31P, 41P, 31VR, 41VR, 41PP, 31V, 41V, 31PPX, 41PPX, 41R-D(S)3, 41T-D(S)3

Humphrey TAC2, 1/8 PIPE port, 3- or 4-way, manual/mechanical air valves are attractive, compact and rugged. Available as spring return or detent functionality, TAC2 valves provide excellent flow, and are ideal for panel-mount signaling or cylinder control, leaving pneumatic plumbing and tubing "behind the scenes."

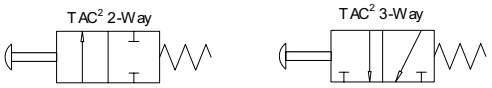
Plug 3-way for 2-way service; 4-ways include exhaust speed controllers, standard. Aluminum body standard; brass body option.

Base Models

- *3-, 4-Way, Push Button (**31P, 41P, 31VR, 41VR**)*
- *4-Way, Detented Push/Push Button (**41PP**)*
- *3-, 4-Way, Detented Toggle (**31V, 41V**)*
- *3-, 4-Way, Detented Push/Pull Button (**31PPX, 41PPX**)*
- *3-Position, 4-Way, Rocker or Toggle (**41R, 41T**)*

Features and Benefits

- *Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.*
- *Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.*
- *31P is multi-purpose. Use as 2- or 3-way, normally closed or open, diverter, selector.*
- *Standard panel-mount button design permits addition of various manual, mechanical or air operators.*
- *Exhaust port speed controller also sold separately in bags of 10. (PN: 97-21-Bagof10)*
- *See TAC Operators and Fittings, p. 72.*





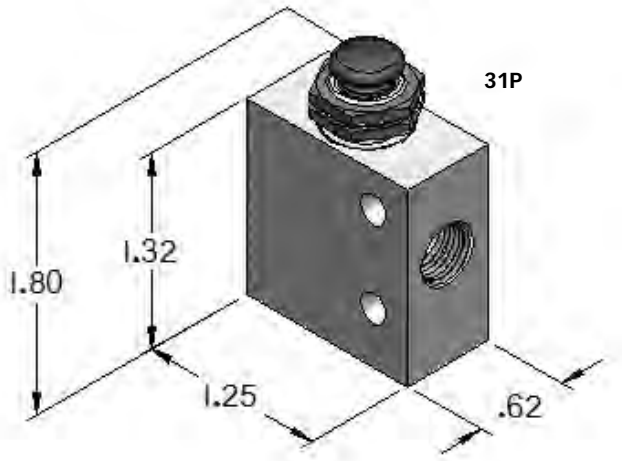
31P



31PPX



31V



SPECIFICATIONS

Design Principle:	Pressure Balanced, Air Return, Spring Assist
Porting Type:	2-, 3- or 4-Way
Port Size:	1/8 PIPE
Media:	Air, Inert Gases
Pressure Range:	0–125 PSIG
Temperature Range:	-20°F to 180°F
Flow @100 PSIG:	18 CFM, 509 LPM (Cv=0.3) 41R/T: 6 CFM, 169 LPM (Cv=0.1)

31P, 41P, 31VR, 41VR, 41PP, 31V, 41V, 31PPX, 41PPX, 41R-D(S)3, 41T-D(S)3

TAC² 4-Way





41P



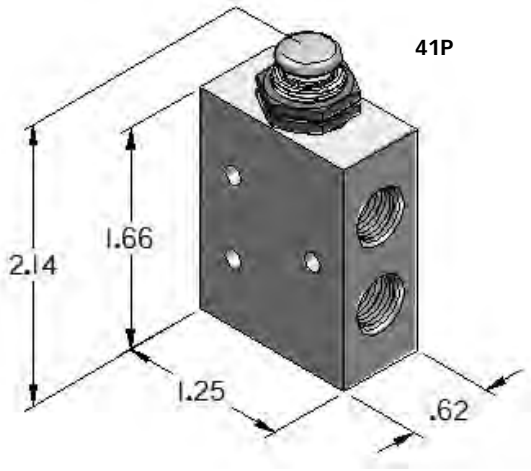
41PPX



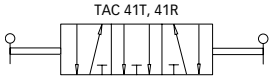
41V



41PP



TAC 41T, 41R





41T



41R

Model	Description	Dimensions (inch)			Action at Position		
		H	W	D	Left	Center	Right
41T-D3, 41R-D3	3-position, exhaust center, 4-way, manual valve	2.38 (T) 1.91 (R)	0.88	0.63	Detent	Detent	Detent
41T-S3, 41R-S3					Spring Return		Spring Return
41T-DS3, 41R-DS3					Detent		Spring Return

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42P, 42PP, 42PA, 42A, 42A2

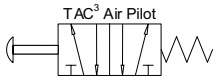
Humphrey TAC3, 1/4 PIPE port, 4-way, manual/ mechanical and air-operated valves are attractive, compact and rugged. Available as air spring return or detent functionality, TAC3 valves provide excellent flow, and are ideal for cylinder control.

Base Models

- *4-Way, Push Button (**42P**)*
- *4-Way, Air Pilot (**42A**)*
- *4-Way, Detented Push/Push Button (**412PP**)*
- *4-Way, Detented Double Air Pilot (**42A2**)*
- *4-Way, Detented Push Button/Air Pilot (**42PA**)*

Features and Benefits

- *Hardened, stainless steel button bottoms out on valve collar, preventing overstroke and internal valve damage.*
- *Emulating similar styled electric buttons and toggles, the operators and 15/32-32 threaded collar, enhances machine appearance.*
- *Standard panel mount button design (P models) permits addition of various manual, mechanical or air operators. Consult factory representative.*





42P



42PP



42PA

42PP



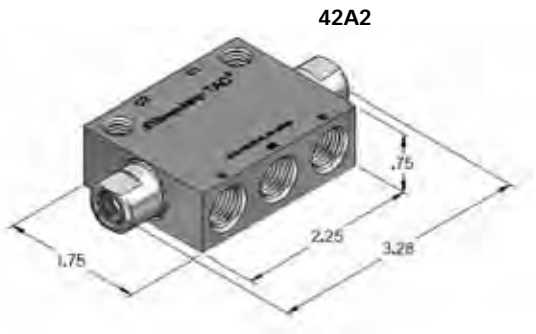


42A



42A2

42A2



SPECIFICATIONS

Design Principle:	Pressure Balanced, Air Return, Spring Assist
Porting Type:	4-Way
Port Size:	1/4 PIPE
Media:	Air, Inert Gas
Pressure Range:	0–125 PSIG
Temperature Range:	-20ºF to 150ºF
Flow @100 PSIG:	31 CFM, 877 LPM (Cv=0.5)

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Humphrey **HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS**

34A, 341A, 34AS, 341AS, 34AR, 341AR, 34ASR, 341ASR

A variety of TAC Operators complement TAC, TAC2 and TAC3 Push Button air valves, easily mounting and thereby converting them to manual, cam, air-pilot and specialty air-pilot valves.

Operators are designed to easily mate to the valve collar feature in a "building block" approach to miniature pneumatic automation. Two valve locknuts and one lock washer are supplied with valve to secure operators.

Variety of valve mounting brackets are also available.

Features and Benefits

- *While stainless steel push buttons can be directly activated manually or mechanically, TAC operators can enhance performance.*
- *Actuators are highlighted by unique, specialty air operators AS (Air-Pilot Operators with Snap Action), AR (Air-Pilot Operators with Reset) and ASR (Air-Pilot Operators with Snap Action and Reset), renowned as problem solvers for simplifying pneumatic logic circuit design.*
- *Low cost, light weight.*
- *Available in 10-32 UNF and 1/8 PIPE porting.*



34AR
34AS
34ASR



34A
341A



341AR
341AS
341ASR

Operator Type	Model	Pilot Port	Hex	H	Dia	Function
Air Pilot	**34A**	10-32 UNF	9/16"	1.25"	0.56"	Thread onto any push button valve and convert manual valve to air pilot valve.
	341A	1/8 PIPE		1.38"	0.63"	
Air Pilot with Snap Action	**34AS**	10-32 UNF	13/16"	2.34"	0.86"	Actuation of valve is delayed until pilot pressure reaches 35 +/-5 PSIG, then snaps forward to activate valve.
	341AS	1/8 PIPE		2.44"		
Air Pilot with Reset	**34AR**	10-32 UNF		2.34"		Sharply applied pilot signal of 40 PSIG (min) shifts valve, then operator resets though the pilot pressure remains "ON."
	341AR	1/8 PIPE		2.44"		
Air Pilot with Snap Action and Reset	**34ASR**	10-32 UNF		2.34"		Combines the functions of the "Air Pilot with Snap Action" and the "Air Pilot with Reset" in one operator.
	341ASR	1/8 PIPE		2.44"		

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TAC Operators and Fittings

150-30A,150-31A, 34B, 34C, 34CH, 34CW, 34F, 34T, BF, BF1, PBF1, SF, UEF, URTF, UTF

A variety of Manual and Mechanical Operators complement TAC, TAC2 and TAC3 Push Button air valves, easily mounting and thereby converting them to manual or cam-operated valves

Operators are designed to easily mate to the valve collar feature in a "building block" approach to miniature pneumatic automation. Two valve locknuts and one lock washer are supplied with valve to secure operators.

Variety of valve mounting brackets are also available.

Miniature barbed fitting selection has variety to meet all needs.

Features and Benefits

- *While stainless steel push buttons can be directly activated manually or mechanically, TAC operators can enhance performance.*
- *Low cost, light weight.*



34B Ball Operator



34C Cam Operator



34CW Cam Operator with One-Way Actuation



34CH Heavy Duty Cam Operator



34F Foot, Knee or Hand Operator



34T Finger Tip Operator

TAC MINIATURE FITTINGS



BARBED FITTING CHART

Model	Description
BF	10-32 UNF by 1/8 OD tube, straight fitting.
BF1	10-32 UNF by 1/4 OD tube, straight fitting.
PBF1	1/8 PIPE by 1/4 OD tube, straight fitting.
SF	10-32 UNF male to 10-32 UNF female, swivel fitting.
UEF	10-32 UNF male to 10-32 UNF female, universal elbow fitting.
UTF	10-32 UNF male to 10-32 UNF female, universal tee fitting.
URTF	10-32 UNF male to 10-32 UNF female, universal running tee fitting.
150-30A	10-32 UNF sintered bronze muffler.
150-31A	1/8 PIPE sintered bronze muffler.

How To Order Valves & Manifolds…Page 112

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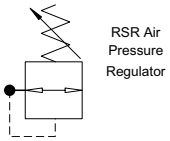
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TAC Auxiliary Devices complement TAC valves and TAC Operators in pneumatic logic design and solutions. Miniature and rugged, the line up is also used commonly by instrument and device makers as stand-alone items.

Available in 10-32 UNF ported or 1/8 PIPE port sizes.

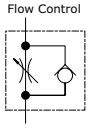
Features and Benefits

- *Miniaturization. Small and compact.*
- *RSR self relieving regulator is designed for panel mounting, and achieves 22 CFM at 100 PSIG output pressure.*
- *SC1 flow control allows full flow on one direction and controlled return flow. Is unaffected by vibration, maintaining an accurate setting.*
- *Two sizes of check and shuttle valves (10-32 UNF & 1/8 PIPE).*
- *Model SQE can be used as shuttle or quick exhaust.*



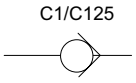


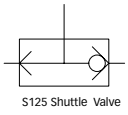
RSR Air Pressure Regulator

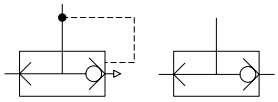




SC1 Speed Control









C125 Check Valve



C1 Check Valve



S125 Shuttle Valve



SQE Shuttle and Quick Exhaust Valve

How To Order Valves & Manifolds…Page 112

HOW TO OBTAIN VALVE SPECIFICATIONS

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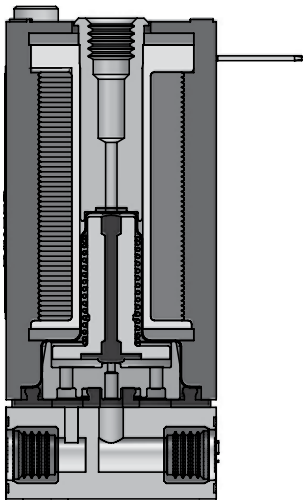
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INTRODUCTION

Vacuum Valves control the flow of vacuum for material handling or process control where other mechanical methods may not be suitable. Various Humphrey valves may be used for vacuum but the poppet and diaphragm poppet designs shown below offer unique advantages versus competitive models that are not specifically modified for vacuum use.

The advantages of vacuum valves are the following:

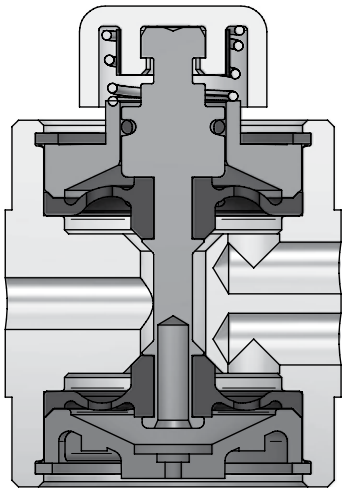
- Poppet design offers small Direct-Operating Solenoid Valves requiring no air or vacuum pilot.
- Diaphragm poppet design offers unique construction that uses the vacuum to assist sealing resulting in a condition where the higher the vacuum the tighter the valve's seal.



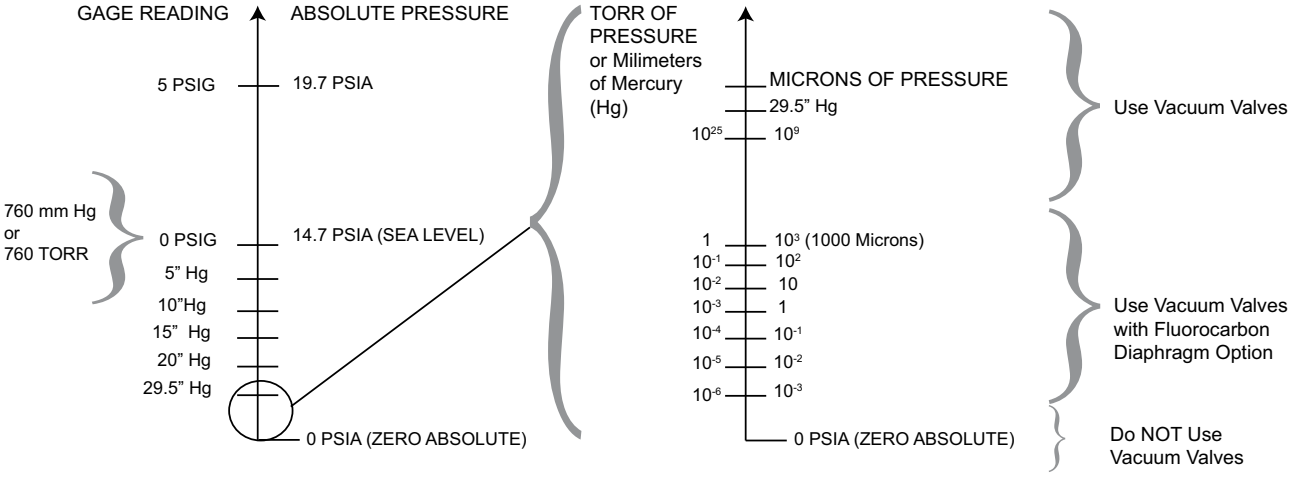
B3E1 - Poppet Valve

VACUUM VALVE FEATURES:

- Small Size – mount close to work.
- No Lubrication.
- Contamination tolerant.
- No sliding seals.
- No sticking.
- Full orifice.
- Multi media/vacuum and air/gas.
- Various types of actuation.



V250P - Diaphragm Poppet Valve



GENERAL VACUUM INFORMATION

	SOLENOID 2-, 3-WAY VALVES	Ports	Valves	Page
SMALL	Mini Mizer Series	10-32	B3E1-11, MB3E1-11	76-77
	HK5 Series	10-32	HK5	76-77
	310 Series	1/8	V310, SV310, MV310	76-77
	Tyna Myte 062 Series	1/4	V062E1, VT062E1	76-77
LARGE	320 Series	1/4	320	76-77
	250 Series	1/4	VA250AE1(2), VV250AE1	78-79
	500 Series	1/2	VA500AE1(2), VV500AE1	78-79
	590 Series	3/4	VA590AE1(2), VV590AE1	78-79

	AIR-PILOT 2-, 3-WAY VALVES	Ports	Valves	Page
SMALL	125 Series	1/8	VA125A, VV125A	80-81
LARGE	250 Series	1/4	VA250A, VV250A	80-81
	500 Series	1/2	VA500A, VV500A	80-81
	590 Series	3/4	VA590A, VV590A	80-81

	MANUAL/MECHANICAL 2-, 3-WAY VALVES	Ports	Valves	Page
SMALL	125 Series	1/8	V125B, V125HO, V125P, V125V	82-83
LARGE	250 Series	1/4	V250C, V250F, V250P, V250V	82-83
	500 Series	1/2	V500C	82-83



Direct-Acting Solenoid Vacuum Valves

MINI MIZER B3E1-11, MB3E1-11, HK5, V310, SV310, MV310, V062E1, VT062E1, 320

Most Humphrey Direct-Acting 3-Way Valves work reliably as vacuum valves. For those models, no "vacuum service" call out is required. Thus, features and benefits of many models listed here can be found in the Direct-Acting Valves section of this catalog.

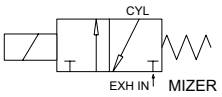
Humphrey models V310 and V062 are the exceptions. Mini Mizer, multi-purpose, model B3E1-11 performs well in vacuum applications.

Base Models

- *10-32 Ported, Air or Vacuum Service, Inline (**B3E1-11**)*
- *10-32 Ported, Air or Vacuum Service, Manifold Mount (**MB3E1-11**)*
- *10-32 Ported, Air or Vacuum Service, Subbase or Manifold (**HK5**)*
- *1/8 Ported, Air or Vacuum Service, Inline (**V310, SV310, MV310**)*
- *1/4 Ported, Vacuum Service, Inline (**V062E1, VT062E1**)*
- *1/4 Ported, Air or Vacuum Service, Inline (**320**)*

Features and Benefits

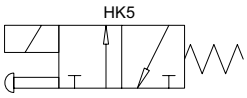
- *Small and compact. Ideal for small vacuum cups, instrumentation and process control applications.*
- *Fully operational regardless of vacuum level. No minimum vacuum pressure required.*
- *Excellent as low positive pressure/vacuum pressure, selector valves. Low air pressure allows for quick vacuum level neutralizer.*
- *Use as vacuum diverter valve.*





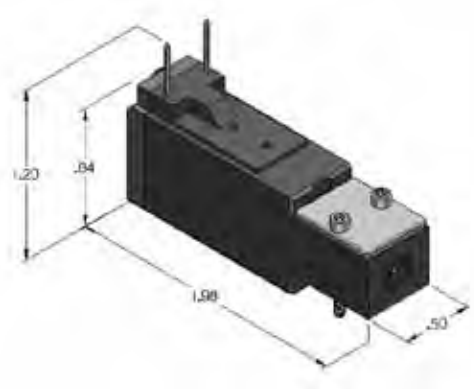
B3E1





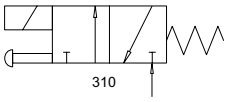


HK5



VACUUM VALVES PRESSURE RATING

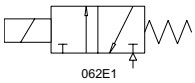
MINI MIZER B3E1-11, MB3E1-11	28" Hg to 100 PSIG
HK5	28" Hg to 100 PSIG (B and H seals) 28" Hg to 60 PSIG (E and F seals) 28" Hg to 30 PSIG (All Elastomers)
V310, SV310, MV310	0 to 28" Hg
V062E1, VT062E1	0 to 28" Hg
320	0 to 28" Hg





V310

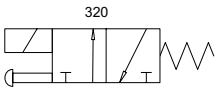






VT062E1
(V062E1 shown at right)







320



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Indirect-Acting Solenoid Vacuum Valves

VA250AE1(2), VV250AE1, VA500AE1(2), VV500AE1, VA590AE1(2), VV590AE1

Indirect-Acting Solenoid Humphrey Vacuum Valves feature our classic diaphragm-poppet principle. The 3-way, normally closed or normally open valves are available in 1/4, 1/2 and 3/4 PIPE port sizes. Reliable shifts whether vacuum system is clean and dry or dirty. The unbalanced, air spring return design assures vacuum tight-sealing actuated, or unactuated.

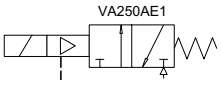
These rugged 2- or 3-way valves are available as single or double solenoid, in standard or optional brass body construction (for alternate media). Vacuum pilot models also available.

Base Models

- *1/4" External Air Pilot, Single Solenoid (**VA250AE1**)*
- *1/4" External Air Pilot, Double Solenoid (**VA250AE2**)*
- *1/4" External Vacuum Pilot, Single Solenoid (**VV250AE1**)*
- *1/2" External Air Pilot, Single Solenoid (**VA500AE1**)*
- *1/2" External Air Pilot, Double Solenoid (**VA500AE2**)*
- *1/2" External Vacuum Pilot, Single Solenoid (**VV500AE1**)*
- *3/4" External Air Pilot, Single Solenoid (**VA590AE1**)*
- *3/4" External Air Pilot, Double Solenoid (**VA590AE2**)*
- *3/4" External Vacuum Pilot, Single Solenoid (**VV590AE1**)*

Features and Benefits

- *Based on diaphragm-poppet, unbalanced principle, "the higher the vacuum, the tighter the seal."*
- *No sliding seals or metal-to-metal contact results in valves that are unaffected by ingest of dirt or dust, typically troublesome to competitive vacuum valves.*
- *Fluorocarbon seals available for high temperature resistance and/or high vacuum levels.*
- *Class B-rated, Continuous-Duty coil.*





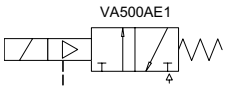
VA250AE1



VACUUM VALVES PRESSURE RATING

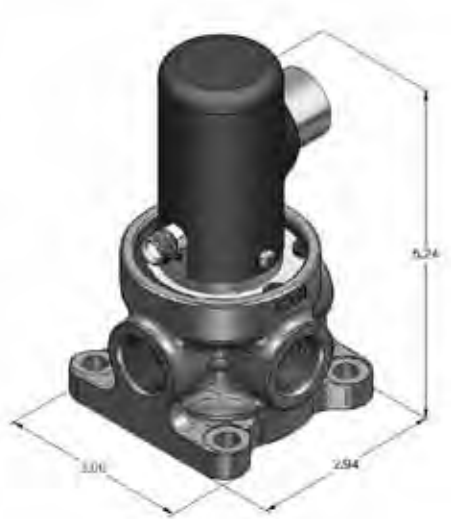
VA250AE1, VA250AE2	0 to 29.5" Hg	VV500AE1	20 to 29.5" Hg
VV250AE1	20 to 29.5" Hg	VA590AE1, VA590AE2	0 to 29.5" Hg
VA500AE1, VA500AE2	0 to 29.5" Hg	VV590AE1	0 to 29.5" Hg

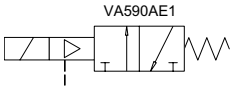
VA250AE1(2), VV250AE1, VA500AE1(2), VV500AE1, VA590AE1(2), VV590AE1





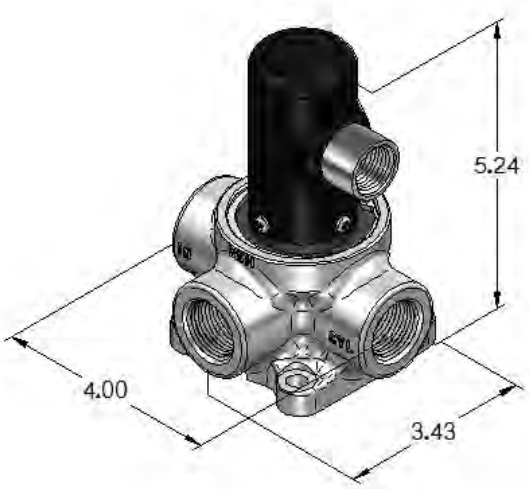
VA500AE1







VA590AE1



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Air-Pilot Vacuum Valves

VA125A, VV125A, VA250A, VV250A, VA500A, VV500A, VA590A, VV590A

Air-Pilot Humphrey Vacuum Valves feature our classic diaphragm-poppet principle. The 3-way, normally closed valves are available in 1/8, 1/4, 1/2 and 3/4 PIPE port sizes. Reliable shifts whether vacuum system is clean and dry or dirty. The unbalanced air spring return design assures vacuum tight sealing actuated, or unactuated.

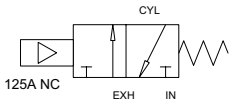
These rugged 2- or 3-way, normally closed valves are available in standard or optional brass body construction (for alternate media). Vacuum pilot models also available in 1/4 PIPE and 1/2 PIPE.

Base Models

- *1/8" 3-Way, Air or Vacuum Piloted (**VA125A, VV125A**)*
- *1/4" 3-Way, Air or Vacuum Piloted (**VA250A, VV250A**)*
- *1/2" 3-Way, Air or Vacuum Piloted (**VA500A, VV500A**)*
- *3/4" 3-Way, Air or Vacuum Piloted (**VA590A, VV590A**)*

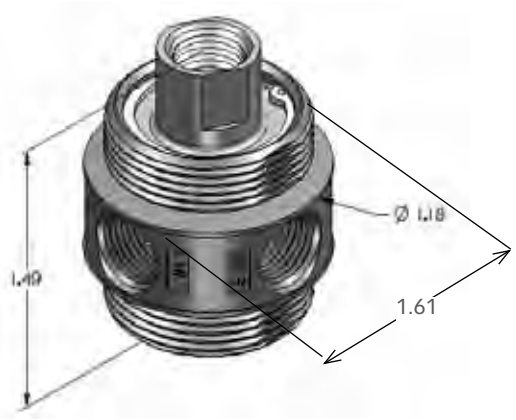
Features

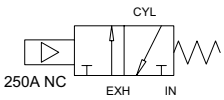
- *Based on diaphragm-poppet unbalanced principle, "the higher the vacuum, the tighter the seal."*
- *No sliding seals or metal-to-metal contact results in valves that are unaffected by ingest of dirt or dust, typically troublesome to competitive vacuum valves.*
- *Fluorocarbon seals available for high temperature resistance and/or high vacuum levels.*





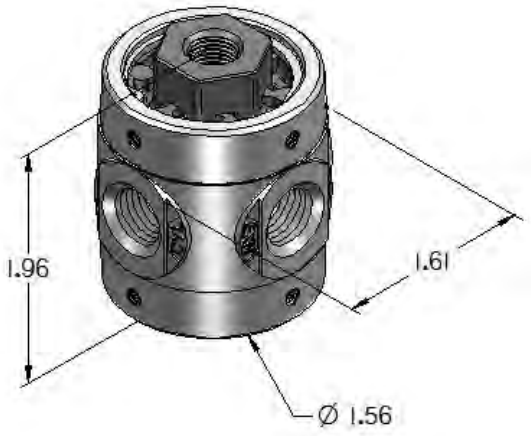
VA/VV125A







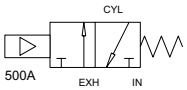
VA/VV250A



VACUUM VALVES PRESSURE RATING

VA125A	0 to 29.5" Hg	VA500A	0 to 29.5" Hg
VV125A	20 to 29.5" Hg	VV500A	20 to 29.5" Hg
VA250A	0 to 29.5" Hg	VA590A	0 to 29.5" Hg
VV250A	20 to 29.5" Hg	VV590A	20 to 29.5" Hg

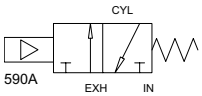
VA125A, VV125A, VA250A, VV250A, VA500A, VV500A, VA590A, VV590A





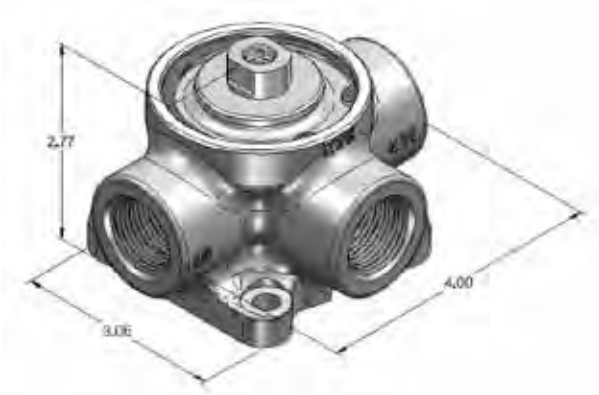
VA/VV500A







VA/VV590A



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V125B, V125HO, V125P, V125V, V250C, V250F, V250P, V250V, V500C

Manual and Mechanical Operated Humphrey Vacuum Valves feature our classic diaphragm-poppet principle. The 3-way, normally closed valves are available in 1/8, 1/4, and 1/2 PIPE port sizes. Reliable shifts whether vacuum system is clean and dry or dirty. The unbalanced air spring return design assures vacuum tight sealing actuated, or unactuated.

These rugged 2- or 3-way valves are available normally closed, in spring return or detent functions.

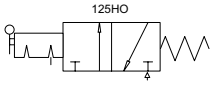
Consult factory representative or website for other models.

Base Models

- *1/8" 3-Way Ball Operated (**V125B**)*
- *1/8" 3-Way Hold On/Detented (**V125HO**)*
- *1/8" 3-Way Push Button (**V125P**)*
- *1/8" 3-Way Toggle (**V125V**)*
- *1/4" 3-Way Roller Cam Operated (**V250C**)*
- *1/4" 3-Way Foot Operated (**V250F**)*
- *1/4" 3-Way Push Button (**V250P**)*
- *1/4" 3-Way Toggle (**V250V**)*
- *1/2" 3-Way Roller Cam Operated (**V500C**)*

Features and Benefits

- *Based on diaphragm-poppet, unbalanced principle, "the higher the vacuum, the tighter the seal."*
- *No sliding seals or metal-to-metal contact results in valves that are unaffected by ingest of dirt or dust, typically troublesome to competitive vacuum valves.*
- *Fluorocarbon seals available for high temperature resistance and/or high vacuum levels.*

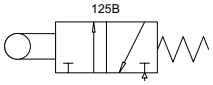


125 Manual Series



V125HO – Hold On





125 Mechanical Series

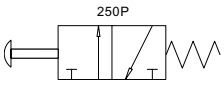


V125B – Ball Cam



VACUUM VALVES PRESSURE RATING

V125B, HO, P, V	0 to 29.5" Hg	V500C	0 to 29.5" Hg
V250P, C, F, V	0 to 29.5" Hg		

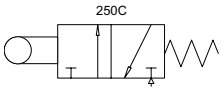


250 Manual Series



V250P – Push Button

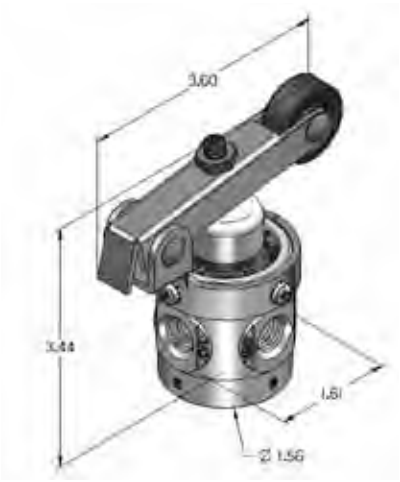


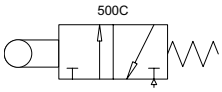


250 Mechanical Series



V250C – Cam Roller

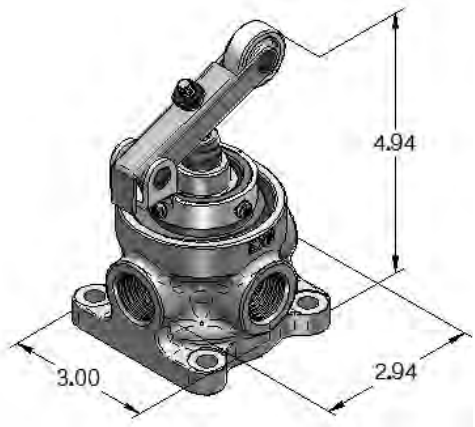




500 Mechanical Series



V500C – Cam Roller



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CARTRIDGE INSERT VALVES

INTRODUCTION

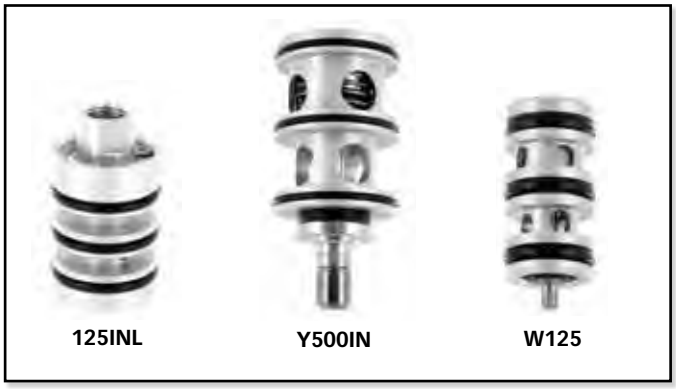
Cartridge Insert Valves use the proven designs and principles of Humphrey inline and manifold valves with valve bodies that permit insertion into a custom manifold. These manifolds can be designed by the customer or Humphrey's Engineered Solutions capabilities to satisfy the function and shape of each customer's design requirements.

The advantages of Cartridge Insert Valves are the following:

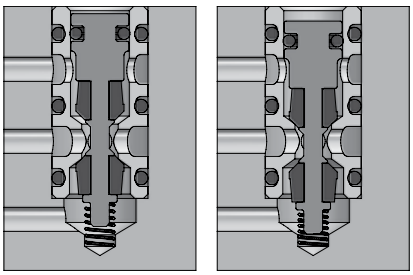
- Incorporation into customer's own product vs "hanging on" as an external component.
- Insert valve becomes unrecognizable element of customer's own product.
- Insert valve become a proprietary element for service control by customer.
- Combinations of insert valves permit various and multiple valve configurations.



Two-Way Valves



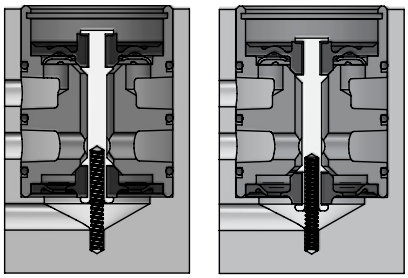
Three-Way Valves



Piston Poppet Type
(J, W and Y Series)

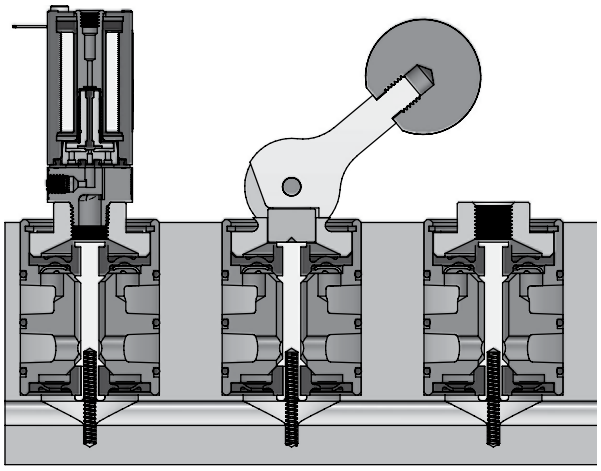
INSERT VALVE FEATURES:

- Various orifices (1/16″ thru 1/2″).
- Various functions (2-, 3- and 4-way).
- Small size.
- Short stroke.
- Fast response.
- Simple construction.
- Reliability.
- Multi media.
- Various types of actuation (See below).



Diaphragm Poppet Type
(125INS, 125INL and 250IN Series)

VARIOUS TYPES OF ACTUATION



	2-WAY VALVES	Ports	CFM*	Page
AIR, MANUAL, OR MECHANICAL	125INS Diaphragm Poppet Series	1/8″	22	86-87
	J125IN Poppet Series	1/8″	15	88-89

	3-WAY VALVES	Ports	CFM*	Page
AIR, MANUAL, OR MECHANICAL	125INL Diaphragm Poppet Series	1/8″	22	86-87
	Y125IN Poppet Series	1/8″	15	88-89
	250IN Diaphragm Poppet Series	1/4″	60	86-87
	Y250IN Poppet Series	1/4″	50	88-89
	Y500IN Poppet Series	1/2″	190	88-89

	3-WAY VALVES	Ports	CFM*	Page
MANUAL OR MECHANICAL	W125IN Poppet Series	1/8″	15	88-89
	W250IN Poppet Series	1/4″	50	88-89

**Nominal flow @100 psi*



125INS, 125INL, 250IN

The Humphrey 125INS and 125INL (1/8") Series, and 250IN (1/4") Series Cartridge Insert Valves incorporate the diaphragm-poppet principle in a 2- or 3-way configuration. The pressure-unbalanced, air spring return design assures bubble-tight sealing actuated, and unactuated. The compact design permits limited space occupied by the valve within your product.

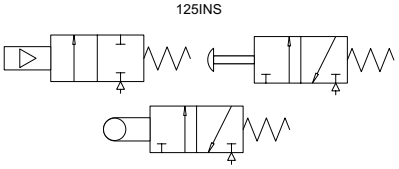
Multiple manual, mechanical or air-pilot operators available, or simply apply direct force to the valve stem.

Base Models

- *1/8" 2-Way (**125INS**)*
- *1/8" 3-Way (**125INL**)*
- *1/4" 2- or 3-Way (**250IN**)*

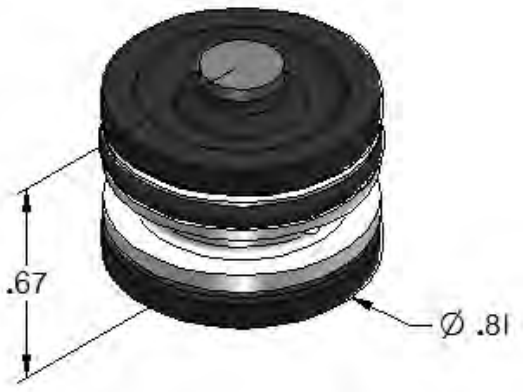
Features

- *Full ported 1/8" orifice, and 1/4" orifice.*
- *Fast cycling, high flow, quick exhaust.*
- *Reliable operation in lubricated or not lubricated air supply systems whether media is clean or dirty. No sliding seals.*
- *Buna-N seals standard. Fluorocarbon seals optional.*
- *Solenoid pilot operators available. Consult factory representative.*





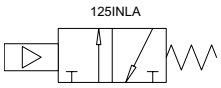
125INS



SPECIFICATIONS (Please consult factory representative prior to use with oxygen.)

Design Principle:	Pressure Unbalanced – Spring Return	Pressure Range:	0–125 PSIG
Porting Type:	2- or 3-Way	Temperature Range:	-10°F to 125°F
Port Size:	125INS, 125INL: 1/8"; 250IN: 1/4"	Flow @100 PSIG:	125INS, 125INL: 22 CFM, 622 LPM (Cv=0.4)
Media:	Air, Inert Gases, Liquid		250IN: 60 CFM, 1699 LPM (Cv=1.0)

125INLA

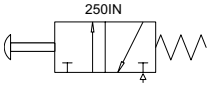




125INL



250IN





250IN



CARTRIDGE INSERT VALVES

How To Order Valves & Manifolds…Page 115

HOW TO OBTAIN VALVE SPECIFICATIONS

- Visit www.humphrey-products.com and select "Online Product Guide."
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- Once completed, select "Spec Sheet" to create a PDF of the valve, which you may save and print at your convenience.

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Cartridge Insert Valves

J125IN, Y125IN, Y250IN, Y500IN, W125IN, W250IN

The Humphrey J, W and Y Series, piston-poppet valves are the smallest of the Humphrey Cartridge Insert Valve family. The pressure unbalanced, 2- and 3-way design uses the air supply to seal the valve closed in the normal, unactuated position. The two sizes are operated via manual or mechanical means.

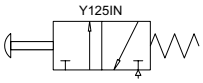
Y Series piston-poppet, Cartridge Insert Valves have a captured exhaust, and can be plumbed normally closed or open. Large flow capacity, Y500IN, 3-way Cartridge Insert Valve with captured exhaust also available. Actuate via manual, mechanical or air-pilot means.

Base Models

- *1/8" 2-Way (**J125IN**)*
- *1/8" 1/4" and 1/2", 3-Way, Captured Exhaust (**Y125IN, Y250IN, Y500IN**)*
- *1/8" and 1/4" Normally Closed 3-Way, Vented Exhaust (**W125IN, W250IN**)*

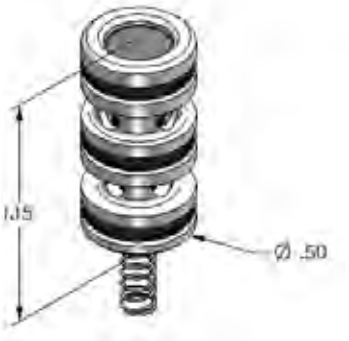
Features

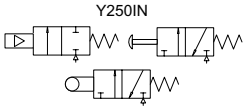
- *Full ported 1/8", 1/4" and 1/2" orifice sizes.*
- *Small, thin body takes up little space within your product.*
- *Incorporate multiple cartridge valves within your manifold and eliminate external pneumatic fittings and tubing.*
- *Solenoid pilot operators available. Consult factory representative.*





J125 **Y125**





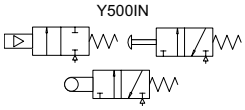


Y250IN



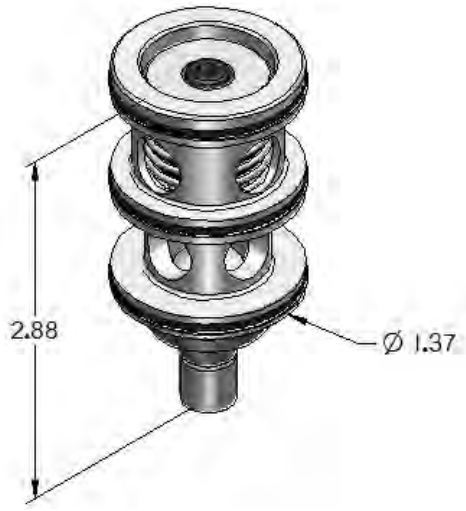
SPECIFICATIONS (Please consult factory representative prior to use with oxygen.)

Design Principle:	Pressure Unbalanced – Spring Return	Pressure Range:	0–125 PSIG
Porting Type:	2- or 3-Way	Temperature Range:	-10°F to 225°F
Port Size:	J, W and Y125IN: 1/8"; W and Y250IN: 1/4"; Y500IN: 1/2"	Flow @100 PSIG:	J, W and Y125IN: 15 CFM, 424 LPM (Cv=0.3) W and Y250IN: 50 CFM, 1415 LPM (Cv=0.8) Y500IN: 190 CFM, 5380 LPM (Cv=3.2)
Media:	Air, Inert Gas, Liquid		



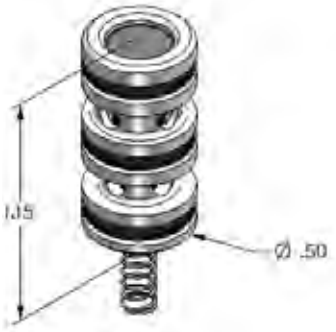


Y500IN



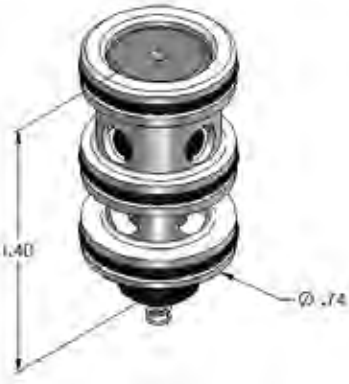


W125





W250



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INTRODUCTION

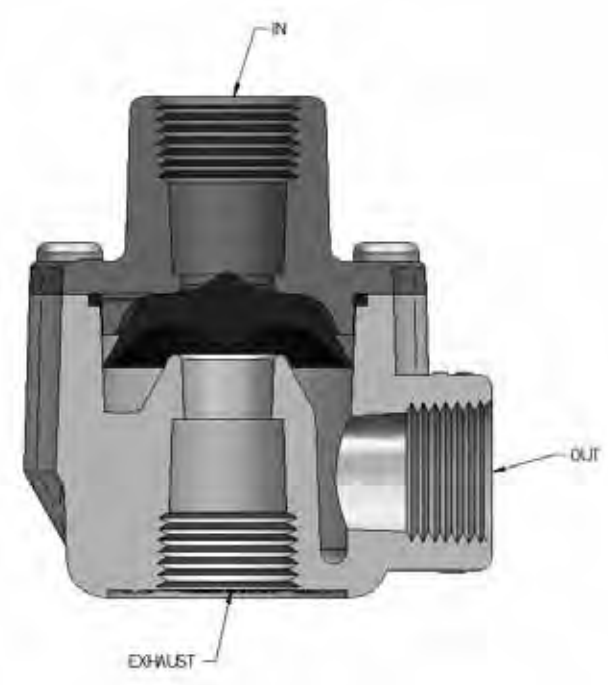
Quick Exhaust Valves accelerate the speed of pneumatic functions. The valves release pneumatic pressure to atmosphere at a point close to the functioning device (such as linear cylinders, rotary actuators, and volume chambers) versus at the remotely placed control valve.

THE ADVANTAGES OF HUMPHREY'S SUPER QUICK EXHAUSTS ARE THE FOLLOWING:

- Special molded shuttled designed especially for quick exhaust valve service.
- Shuttle's full-formed seating surface provides:
  - Long cycle life.
  - Outperforms flat-disk (sheet stock) diaphragms found in competitive designs.
- Shuttle's reinforced center section eliminates flow restricting metal body webbing of flat-disk designs.

QUICK EXHAUST VALVES CAN ALSO BE USED AS:

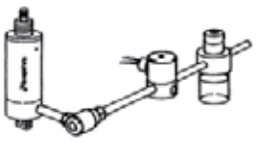
- Shuttle valves.
- Check valves.
- Flow/speed control valves.



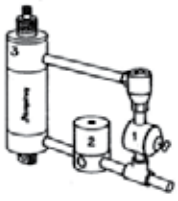
How Super Quick Exhaust Valves are used to enhance the performance of air cylinders

Lubrication Problem. Small bore cylinders are often poorly lubricated due to the small displacement of air per cycle. Lubricant back-flows through control valve on the exhaust cycle without reaching cylinder. Oil traces at the valve exhaust port does not prove proper cylinder lubrication.

Solution: Close nipple Super Quick Exhaust to cylinder. This stops back-flow and allows progressive oil flow to cylinder. Oil traces at the Super QE exhaust port prove cylinder lubrication.

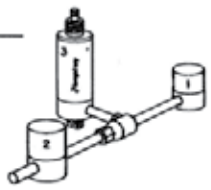


"Air Spring" Return. Provides controlled "air spring" return, a potential advantage over standard spring return cylinders in that the "air spring" return force can be adjusted by a regulator. Also provides a method of controlling double acting cylinders with a 3-way valve. Return-regulator (1) set at selected pressure. (2) Normally closed 3-way valve. (3) Double acting cylinder. Example of use: Cylinder rod extends with high pressure for impact. Rod retracts under low pressure.



Super Quick Exhaust used as a shuttle valve. Air from 3-way valves (1 or 2) always directed to cylinder (3).

High-Low Pressure. Reduce noise, shock, and stress on cylinder. Extend rod with low pressure (2) to position, hold, etc. Switch to high pressure (1) to lock, bend, reposition, etc. Return to low pressure by closing (1), or retract rod by closing (1) and (2).



	QUICK EXHAUST VALVES	Ports	CFM*	Page
SMALL	SQE	10-32	7	92-93
	SQE1	1/8	63	92-93
	SQE2	1/4	85	92-93
LARGE	QE2	1/4	120	92-93
	QE3	3/8	155	92-93
	QE4	1/2	373	92-93
	QE5	3/4	395	92-93

**Nominal flow @100 psi*



Quick Exhaust Valves

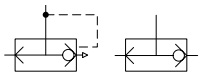
SQE, SQE1, SQE2, QE2, QE3, QE4, QE5

The Humphrey family of Super Quick Exhaust Valves are world renowned for service life and high flow. Available in seven sizes from 10-32 UNF porting to 3/4 PIPE port, Humphrey Quick Exhaust Valves have a bat wing, molded shuttle that totally outperforms competitive flat-disc, sheet stock diaphragm types.

Miniature, brass SQE model, with 10-32 ports, available. See TAC section, pages 72-73.

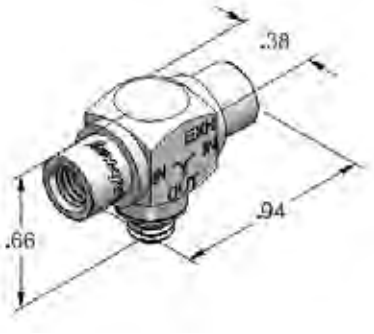
Features

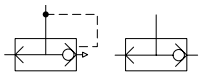
- *Mount close nipple to cylinder/actuator port and short circuit exhausting air for super high speed cycling.*
- *Compact size, high flow.*
- *Outperforms all others.*
- *Outlasts all others.*
- *Also use as a shuttle valve, or plug exhaust port for check valve function.*





SQE







SQE1, SQE2

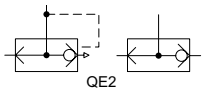


SQE1, SQE2

SPECIFICATIONS

Design Principle:	Quick Exhaust
Port Size:	10-32 UNF to 3/4 PIPE
Media:	Air, Inert Gases
Pressure Range:	0–150 PSIG
Temperature Range:	-25° to 180°F

Flow @100 PSIG:	SQE: 7 CFM (Cv=0.1)
	SQE1: 63 CFM (Cv=1.1)
	SQE2: 85 CFM (Cv=1.4)
	QE2: 120 CFM (Cv=2.0)
	QE3: 155 CFM (Cv=2.6)
	QE4: 373 CFM (Cv=6.2)
	QE5: 395 CFM (Cv=6.6)

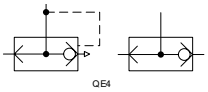




QE2, QE3



QE2, QE3





QE4, QE5



QE4, QE5

QUICK EXHAUST VALVES

How To Order Valves & Manifolds…Page 116

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WHEN ORDERING HUMPHREY VALVES, MANIFOLDS AND ACCESSORIES, PLEASE CONSIDER THE FOLLOWING:

❶ Each technical page of the catalog refers to a corresponding "How to Order" page, and each "How to Order" page references back to the corresponding technical page.

❷ Some models are available as inline and manifold mount types. Multiple valve manifolds are offered for all manifold mount valves. Order codes can be found on the valve page or on the last page of the "How to Order" section.

❸ Base Models (first few characters of the part number) are described in detail on the technical page of the catalog.

❹ When a choice is required between option codes, those choices will reside in consecutive columns under a common header description. Select one code from the choices.

❺ If the ordering code includes a hyphen, the hyphen is part of the code and should be included in the part number.

❻ For certain applications, Humphrey will manufacture special valves. Special valve models have been assigned a unique code, not found in this catalog. Those models are custom built products and have a model numbering scheme shown at right (consult factory for more details).

DECADE COMPLETED (19__ , 20__)							YEAR OF DECADE	PROJECT NUMBER	REVISION LETTER
50-59	60-69	70-79	80-89	90-99	00-09	10-19			
EX	R	X	N	P	D	F	0 – 9	001...999	A...Z
Example: X453B. The B revision of the 53rd special for year 1974.									

ORDER CHART & EXAMPLE:

FOR EACH HEADER, SELECT ONE OPTION FROM CHOICES OFFERED

BASE MODEL	PORTING		FUNCTION		MOUNTING			ELECTRICAL ENTRY				OVERRIDE		VOLTAGE				
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base **	With Subbase	Flying Lead Wires*	Straight Plug-In w/Leads *	L-Type Plug-In w/Leads *	DIN Type	Non-Locking	Locking	-5VDC	-12VDC	-24VDC	-120/50/60 (120VAC)	-240/50/60 (240VAC)
HG010E1	-2	•	•	-11	•	-21	—	•	-PS	-PL	—	•	-83	Specify Voltage	Specify Voltage		Specify Voltage	Specify Voltage
HG010LE1														—			—	
HG010HE1														Specify Voltage				
HGA010E1						—	-25										Specify Voltage	Specify Voltage
HGA010LE1														—			—	
HGA010HE1																		
H030E1	-2	•	•	—	•	※	—	•	-PSL	-PLL	-39	•	-83	—	Specify Voltage			

Descriptions of Valve Models are found on appropriate product pages in the catalog

Each page contains an ordering code legend

ORDER EXAMPLE

HGA010LE1-2-25-PS-24VDC

Low Current, Manifold Mount - Normally Closed, 2-Way Valve - Mounted on a Single Station Subbase - with a Straight Plug-In Electrical Entry - Non-Locking Type Override - 24VDC Voltage

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

HG010, HGA010 & H030 SERIES

ORDER EXAMPLE

HG010LE1-2-21-83-24VDC

(Low Current Type - 2-Way - Normally Closed - Porting Block - Mounting Base - Locking Override - 24VDC Voltage)

BASE MODEL	PORTING		FUNCTION		MOUNTING			ELECTRICAL ENTRY				OVERRIDE		VOLTAGE				
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base**	With Subbase	Flying Lead Wires*	Straight Plug-In w/Leads*	L-Type Plug-In w/Leads*	DIN Type	Non-Locking	Locking	-5VDC	-12VDC	-24VDC	-120VAC	-240VAC
HG010E1	-2	•	•	-11	•	-21	—	•	-PS	-PL	—	•	-83	Specify Voltage	Specify Voltage		Specify Voltage	
HG010LE1																	—	
HG010HE1														—				
HGA010E1						—	-25							Specify Voltage			Specify Voltage	
HGA010LE1																	—	
HGA010HE1														—				
H030E1	-2	•	•	—	•	※	—	•	-PSL	-PLL	-39	•	-83	—	Specify Voltage			

NOTE: * Lead wire length is 11.8". Consult factory for longer lead wire lengths. Available on most models.

** For HG010 series, mounting option -21 includes "Porting Block" piping for valve ports 1, 3.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

310 & 315 SERIES

ORDER EXAMPLE

S310-39-RC-VAI-12VDC

(Stackable 310 - DIN Electrical Entry - Non-Locking Override - Coil Rotated 180° - FKM (Fluorocarbon) Seals - 12VDC Voltage)

BASE MODEL	PORTING		FUNCTION		MOUNTING		ELECTRICAL ENTRY			OVERRIDE		ROTATE COIL 180°	FKM SEALS OPTION	VOLTAGE					
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base	Flying Lead Wires*	Conduit*	DIN Type	Non-Locking	No Override			-5VDC	-12VDC	-24VDC	-24/50/60	-120/50/60	-240/50/60
310**	※	•	•		•	※	•	-36	-39	•	-87	-RC	-VAI	Specify Voltage					
V310**																			
S310					—	—		—											
M310																			
315	※	•	•		•	※	•	—	-39	•	—	-RC	—	—	Specify Voltage				—

NOTE: * Lead wire length is 24". Consult factory for longer lead wire lengths. Available on most models.

** For metric porting, order E310/EV310.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

ORDER EXAMPLE

B3E1-11-21-RC-VAI-24/50/60

(Inline Mini-Mizer - Normally Open - Mounting Base - Spade Terminal Electrical Entry - No Override - Coil Rotated 180° - FKM (Fluorocarbon) Seals - 24/50/60 Voltage)

MINI-MIZER (B3E1) & MINI-MYTE (31E1) SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING			ELECTRICAL ENTRY				OVERRIDE		ROTATE COIL 180°	FKM SEALS OPTION	VOLTAGE					
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base	With Subbase	Flying Lead Wires*	Spade Terminal	Conduit	DIN Type	Non-Locking	No Override			-5VDC	-12VDC	-24VDC	-24/50/60	-120/50/60	-240/50/60
B3E1	※	•	•	-11	•	-21	•	-38	•	—	-39	—	•	-RC	-VAI	Specify Voltage					
MB3E1					—									—							
31E1	※	•	•		•	※	—	•	—	•	—	•	—	•	-VAI	—	Specify Voltage				
M31E1					—																

NOTE: * Consult factory for longer lead wire lengths. Available on most models.

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS
MB3E1	MTL, DMTL	2 ... 20
M31E1, M41E1, MC41E1	MM, MMC	2 ... 7



M41E1, M31E1
MMC-3



(3) MB3E1 on
4 station
MTL Manifold

ORDER EXAMPLE

HKL5F212CNL

(Liquid use HK5 - FKM (Fluorocarbon) Seals, 2-Way - Standard Watt 12VDC Voltage - Plug-in Electrical Entry with 50cm Leads - Non-Locking Override)

HK5, HKL5 SERIES

BASE MODEL	SEAL MATERIAL				PORTING		VOLTAGE						ELECTRICAL ENTRY					OVERRIDE		OPTIONAL SUBBASE		
	NBR	EPDM	FKM	HNBR	2-way	3-way	Low Watt 4.5VDC	Standard Watt 4.5VDC	Low Watt 12VDC	Standard Watt 12VDC	Low Watt 24VDC	Standard Watt 24VDC	Pins	50cm Lead Wires	100cm Lead Wires	Plug-In w/50cm Leads	Plug-In w/100cm Leads	Non-Locking	No Override	No Subbase	3-Port Subbase	2-Port Subbase
HK5	B	E	F	H	2	3	L04	04	L12	12	L24	24	P	A	AL	C	CL	NL	NR	•	Y	Z
HKL5																						

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS
HK5, HKL5	HK5-MM_	02, 03, 04
	HK5-M_	02, 04, 06, 07, 08, 10, 12



HK5
Manifold

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

ORDER EXAMPLE

125E1-2-11-20-36-VAI-12VDC
(125 Series Single Solenoid - 2-Way - Normally Open - No Base - Conduit Electrical Entry - FKM (Fluorocarbon) Seals - 12VDC Voltage)

320 & TYNA-MYTE (062 &125) SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING		ELECTRICAL ENTRY			OVERRIDE		ROTATE COIL 180°	COVER SEAL	FKM SEALS OPTION	CONTIN. DUTY AC COIL	VOLTAGE				
	2-way	*3-way*	*Normally Closed*	*Normally Open*	*No Base*	*Mounting Base*	*Flying Lead Wires**	*Conduit**	*DIN Type*	*Non-Locking*	*No Override*					*-12VDC*	*-24VDC*	*-24/50/60*	*-120/50/60*	*-240/50/60*
320**	※	•	•	•	•	※	•	-36	-39	•	-87	-RC	—	-VAI	•	Specify Voltage				
062E1	-2	-3	-10	-11	-20	-21	-35	-36	—	—	•	•	-61	-VAI	•	Specify Voltage				
062E2			—	—			—								-CD					
125E1			-10	-11			-35						•		•					
125E2			—	—			—								-CD					
T062E1	-2	-3	-10	-11	—	—	-35	-36	—	—	•	•	-61	-VAI	•	Specify Voltage				
T062E2			—	—			—								-CD					
T125E1			-10	-11			-35						•		•					
T125E2			—	—			—								-CD					

NOTES: * Lead wire length is 18". Consult factory for longer lead wire lengths. Available on most models. ** For metric porting, order E320.

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS
T062, T125	TM	2 ... 7



T062E1



320

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

401, H030-4, 410 & 41E1 SERIES (SMALL)

ORDER EXAMPLE

410-39-70-87-VAI-120/50/60

(410 Series - DIN Type Electrical Entry - Exhaust Speed Controls - No Override - FKM (Fluorocarbon) Seals - 120/50/60 Voltage)

BASE MODEL	MOUNTING		ELECTRICAL ENTRY					EXHAUST SPEED CONTROLS	OVERRIDE		ROTATE COIL 180°	FKM SEALS OPTION	VOLTAGE				
	No Base	Mounting Base	Lead Wires*	Conduit*	Straight Plug-In w/lead wires	L Type Plug-In w/lead wires	DIN Type		Non-Locking	No Override			-12VDC	-24VDC	-24/50/60 (24VAC)	-120/50/60 (120VAC)	-240/50/60 (240VAC)
401	•	—	•	—	-37	—		※	•	—	—	—	Specify Voltage		—	Specify Voltage	—
M401																	
H030-4E1	•	※	•	—	-PSL	-PLL	-39	—	•	—	—	—	Specify Voltage		—	Specify Voltage	
410**	•	※	•	-36	—		-39	-70	•	-87	-RC	-VAI	Specify Voltage				
S410	—			—													
M410																	
41E1	•	※	•	•	—			•	•	—	•	-VAI	Specify Voltage				
M41E1	—							—									
MC41E1																	

NOTE: * Standard lead wire lenght is 12". Consult factory for longer than standard lead wire lengths. ** For metric porting, order E410.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

420 & TYNA-MYTE (062-4 &125-4) SERIES (LARGE)

ORDER EXAMPLE

T062-4E2-36-70-VAI-120/50/60

(062 Series, 4-Way, Double Solenoid - Conduit Electrical Entry - Flow Controls - FKM (Fluorocarbon) Seals - 120/50/60 Voltage)

BASE MODEL	MOUNTING		ELECTRICAL ENTRY			COVER SEAL	FLOW CONTROLS	OVERRIDE		ROTATE COIL 180°	FKM SEALS OPTION	CONTIN. DUTY AC COIL	VOLTAGE				
	No Base	Mounting Base	Lead Wires*	Conduit*	DIN Type			Non-Locking	No Override				-12VDC	-24VDC	-24/50/60	-120/50/6	-240/50/6
420**	•	※	•	-36	-39	—	—	•	-87	-RC	-VAI	•	Specify Voltage				
M420	—			—													
062-4E1	•	-21	•	-36	—	-61	-70	—	•	•	-VAI	•	Specify Voltage				
062-4E2			—									-CD					
125-4E1			•			•						•					
T062-4E1	—		•	-36	—	-61	-70	—	•	•	-VAI	•	Specify Voltage				
T062-4E2			—									-CD					
T125-4E1			•			•						•					

NOTE: * Standard lead wire length is 18". Consult factory for longer than standard lead wire lengths. ** For metric porting, order E420.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

HEA & HEB SERIES

ORDER EXAMPLE

HEA10F4-21-GL-D4

(Standard Valve Model, Direct Piping, 4-Way Normally Open - Mounting Base, Non-Locking Override - Grommet Electrical Entry with Lead Wires - 24VDC Voltage)

BASE MODEL	VALVE MODEL			PIPING		VALVE FUNCTION						MOUNTING BASE**	SUBBASE^	OVERRIDE		ELECTRICAL ENTRY			VOLTAGE	
	Standard Current and Speed	Low Current	Fast Response	Direct	Base	2-way Normally Closed	2-way Normally Open	3-way Normally Closed	3-way Normally Open	5-port, 2-position, single solenoid	5-port, 2-position, double solenoid			Non-Locking	Locking^^ (Detented)	Straight Plug-In w/lead wires	L Type Plug-In w/lead wires	Grommet w/Lead Wires‡	24VDC	12VDC
HEB10	•	L	S	F	A	1	2	3	4	—		-21	-25	•	-81	-PS	-PL	-GL	-D4	-D5
HEA10						1*	2*	3*	4*	5	6									

NOTES: * All 2, 3 port models for HEA10 may be mounted on F or A style manifolds only. Use HEA10F5 plug port for "Inline" 3 port function.
** Code "-21" Mounting base not available with HEA10F6 type.
^ Code "-25" individual valve subbase available with Base Piping (Code A) Valves only.
^^ Code "-81" locking/detented manual override not available with Fast Response (Code S) Valves.
‡ Code "-GL" grommet-type electrical entry not available with Low Current (Code L) or Fast Response (Code S) Valve Models.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

HJC & HJE SERIES

ORDER EXAMPLE

HJC10LF7-PS-D5

(Low Current Valve Model, 5-Port, 3-Position, Closed Center - Non-Locking Override - Straight Plug-In Electrical Entry with Lead Wires - 12VDC Voltage)

BASE MODEL	VALVE MODEL			PIPING		VALVE FUNCTION									MOUNTING BASE**	SUBBASE^	OVERRIDE		ELECTRICAL ENTRY			VOLTAGE	
	Standard Current and Speed	Low Current	Fast Response	Direct	Base	2-way Normally Closed	2-way Normally Open	3-way Normally Closed	3-way Normally Open	5-port, 2-position, single solenoid	5-port, 2-position, double solenoid	5-port, 3-position, closed center	5-port, 3-position, exhaust center	5-port, 3-position, pressure center			Non-Locking	Locking^^ (Detented)	Straight Plug-In w/lead wires	L Type Plug-In w/lead wires	Grommet w/Lead Wires‡	24VDC	12VDC
HJC10	•	L	S	F	A	1*	2*	3*	4*	5	6	7	8	9	-21	-25	•	-81	-PS	-PL	-GL	-D4	-D5
HJE12																							

NOTES: * All 2-, 3-port models for HJC10, HJE12 may be mounted on F or A style manifolds only. Use HJC10F5 or HJE12F5 and plug port for "Inline" 3 port function.
** Code "-21" Mounting base not available with HJC10F6,7, 8, or 9, and HJE10F6, 7, 8, or 9 types.
^ Code "-25" Individual valve Subbase available with Base Piping (Code A) Valves only.
^^ Code "-81" locking/detented manual override not available with Fast Response (Code S) Valves.
‡ Code "-GL" grommet-type electrical entry not available with Low Current (Code L) or Fast Response (Code S) Valve Models.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

HJA SERIES: MONOBLOCK MANIFOLD

BASE MODEL	QUANTITY OF STATIONS	TYPE
		Ports 2 & 4 reside on base
HJAM	2 ... 20	AJ

HJAM6NJ-MR3/8-F200-D-D4

- 6-Station Split Manifold
- Plug-In Type
- Piping Block, Right End
- 20-pin Ribbon Cable Wiring Connection
- Wired for Double Solenoid
- 24VDC

-stn1~3: HJA10A5-J4-D4
-stn4 & 5: HJA10AA-J4-D4
-stn6: HJABPP

Station 1~3: Single Solenoid, 4-Way Valves - 24VDC voltage
Stations 4 & 5: Tandem 3-port, NC/NC valve - 24VDC voltage
Station 6: Block Off Plate

HJA SERIES: SPLIT MANIFOLD ASSEMBLY (INCLUDE VALVES ON FACING PAGE)

BASE MODEL	QTY OF STNS ^^	TYPE		PNEUMATIC CONNECTIVITY								ELECTRICAL CONNECTIVITY (FOR PJ TYPE ONLY)								ASSEMBLED VALVES	
		Non-Plug In	Plug In	Port 3, 5 Exhaust Method		Piping Block Location			1, 3, 5 Port Quick Fitting OD Tube Size			Wiring Connection Specification				Wired for Double Solenoid	Common Negative (Standard: Common Positive)	Voltage		List each of the total quantity of stations	List each station with valve models from opposite page, or Block-off Plate Model^
				Piped	Muffler	Left End	Right End	Both Ends	8mm	1/4 inch	3/8 inch	20-pin Flat Ribbon*	26-pin Flat Ribbon*	25-pin dSub**	37-pin dSub			24VDC	12VDC		
HJAM	2 ... ☐	NJ	PJ	-J	-M	L	R	D	•	1/4	3/8	-F200 -F201	-F260	-D250 -D251	-D370U	-D	-CM	-D4	-D5	STN 1: STN 2: ... STN N:	MODEL MODEL ... MODEL

NOTES: * For side position connector, add suffix code "E" to option code. (Ex: -F200E)
** For side position connector, add suffix code "E" to option code. For 4-40UNC mounting screws, add "U". For side position connector and 4-40UNC mounting screw, add suffix code "EU". (Ex: -D250U)

^ Block-Off Plate model HJABP is applicable for NJ Manifold Types, and HJABPP is applicable for PJ Manifold Types.
^^ On NJ Types, the maximum number of stations is 20. On PJ Types, the maximum number of stations varies from 8 ~ 20, depending on "Electrical Connectivity" selections. Consult factory.

HJA SERIES: SERIAL MANIFOLD ASSEMBLY (INCLUDE VALVES ON FACING PAGE)

BASE MODEL	QTY OF STNS *	SERIAL PLUG IN	PNEUMATIC CONNECTIVITY								ELECTRICAL CONNECTIVITY					ASSEMBLED VALVES	
			Port 3, 5 Exhaust Method		Piping Block Location			1, 3, 5 Port Quick Fitting OD Tube Size			Serial Protocol				Wired for Double Solenoid	List each of the total quantity of stations	List each station with valve models from opposite page, or Block-off Plate Model JABPP
			Piped	Muffler	Left End	Right End	Both Ends	8mm	1/4 inch	3/8 inch	Compobus/S (16 pt)	Compobus/S (8 pt)	CC-Link (16 pt)	DeviceNet (16 pt)			
HJAM	2 ... ☐	SJ	-J	-M	L	R	D	•	1/4	3/8	-A1	-A2	-B1	-D1	-D	STN 1: STN 2: ... STN N:	MODEL MODEL ... MODEL

NOTE: * The maximum number of stations varies from 4 ~ 16, depending on "Electrical Connectivity" selections. Consult factory.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

HJA SERIES

BASE MODEL	TYPE		VALVE FUNCTION												MOUNT		OVERRIDE		ELECTRICAL ENTRY*			MANIFOLD "PER STATION" CODES (BELOW)						VOLTAGE	
	Standard Current, Subbase A-Type Mount	*Low Current, Subbase A-Type Mount**	*2-way Normally Closed*	*2-way Normally Open*	*3-way Normally Closed*	*3-way Normally Open*	*5-port, 2-position, single solenoid*	*5-port, 2-position, double solenoid*	*5-port, 3-position, closed center*	*5-port, 3-position, exhaust center*	*5-port, 3-position, pressure center*	*Tandem 3-way NC NC*	*Tandem 3-way NO NO*	*Tandem 3-way NC NO*	*For Manifold Mount*	*Individual Valve, Piping via Subbase*	*Non-Locking*	*Locking*	*Straight Plug-In, less receptical*	*Straight Plug-In w/300mm long lead wires*	*For Plug-In type manifold*	*Manifold Quick Fitting, OD Tube Specification*			*Isolate port from previous station (Smaller Stn#)*			*24VDC*	*12VDC*
																						5/32 inch	*1/8 inch*	*1/4 inch*	*1 (Pressure)*	*3,5 (Exhaust)*	*1,3,5 Ports*		
HJA10	**A**	**LA**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	•	-25	•	-83	-PN	-PS	•							-D4	-D5
HJABP																						**-J4**	**-J1/8**	**-J1/4**	**-S1**	**-S3**	**-SA**		
HJABPP																												—	

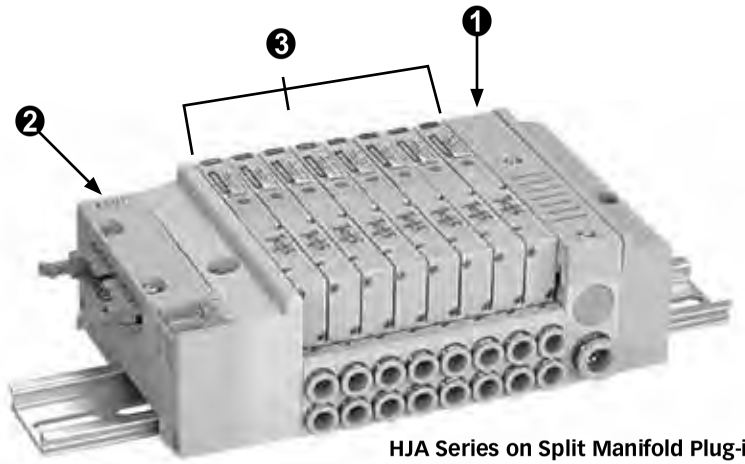
NOTE: * Low Current type available with 24VDC voltage only (Code "-D4").

❶ ❷

HJAM8PJ-MR3/8-F200E-D4

❸

-stn1~4: HJA10A5-J1/4-D4
-stn5~8: HJA10AA-J1/4-D4



HJA Series on Split Manifold Plug-in Type, Model HJAM8PJ

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

REFERENCE PAGE 26

F SERIES: MONOBLOCK MANIFOLD

BASE MODEL	QTY OF STATIONS	TYPE	
		Ports 2 & 4 reside on valve only	*Ports 2 & 4 can reside on base or on valve*
F10M F15M F18M	2 ... 20	FH	AH

ORDER EXAMPLE

F15M8PH-MLH-D250U-DC24V

- F15M8 — *8-Station Split Manifold*
- PH — *Plug-In Type*
- MLH — *Piping Block, Left End*
- D250U — *25-pin d-Sub Wiring Connection*
- DC24V

-stn1~3: F15T0-A1-MH-DC24V
-stn4~7: F15TA-A1-MH-DC24V
-stn8: F15T2-A1-MH-DC24V

Station 1~3: Single Solenoid, 4-Way Valve, 10-32 Delivery Ports - 24VDC voltage
Stations 4~7: Tandem 3-port, NC/NC Valve, 10-32 Delivery Ports - 24VDC voltage
Station 8: Double Solenoid, 4-Way Valve, 10-32 Delivery Ports - 24VDC voltage

F SERIES: SPLIT MANIFOLD ASSEMBLY (INCLUDE VALVES ON FACING PAGE)

BASE MODEL	QTY OF STNS ^^	TYPE		PNEUMATIC CONNECTIVITY					ELECTRICAL CONNECTIVITY (FOR PH TYPE ONLY)									ASSEMBLED VALVES	
						Piping Block Location (F10/F15: 1/4NPT, F18: 3/8NPT)			Wiring Connection Specification					Wired for Double Solenoid	Right Side Wiring (Standard: Left side)	Voltage^			List each of the total quantity of stations	List each station with valve models from facing page
		Non-Plug In	*Plug In*	*Locate ports 2,4 in base*	*External Air Pilot Manifold*	*Left End*	*Right End*	*Both Ends*	*10-pin Flat Ribbon***	*20-pin Flat Ribbon***	*26-pin Flat Ribbon***	*25-pin dSub***	*37-pin dSub (without Power Terminal)*			*-DC24V*	*-DC12V*	*-AC120V*		
F10M F15M F18M	2 ... ☐	NH	PH	L	G	-MLH	-MRH	-MDH	-F100_* -F101_	-F200_ -F201_	-F260_	-D250_U -D251_U	-D370NU	-W	-R	Specify Voltage			STN 1: STN 2: ... STN N:	MODEL MODEL ... MODEL

NOTES: * To supply power, use choice of connector pins as specified, or power terminals on all types except -F100. Supply power to power terminals only on -F100.
** Top side connector entry is standard. Add code "E" for side connector entry (Examples: -F200E, -D251EU).
^ Standard (default) wiring is positive common. For negative common, add code -129W immediately following manifold voltage.
^^ On NH Types, the maximum number of stations is 20. On PH Types, the maximum number of stations varies from 8 ~ 20, depending on "Electrical Connectivity" selections. Consult factory.

F SERIES: SERIAL MANIFOLD ASSEMBLY (INCLUDE VALVES ON FACING PAGE)

BASE MODEL	QTY OF STNS *	SERIAL PLUG IN	PNEUMATIC CONNECTIVITY					ELECTRICAL CONNECTIVITY				ASSEMBLED VALVES	
			Locate ports 2,4 in base	*External Air Pilot Manifold*	Piping Block Location (F10/F15: 1/4NPT; F18: 3/8NPT)			*Integrated and Ribbon Cable Linked.** Please refer website for details (Choose from Omron, DeviceNet, CC-Link, CompoNet, Uniline and SUNX)*	*Wired for Double Solenoid*	*Right Side Wiring (Standard: Left side)*	*-DC24V*	*List each of the total quantity of stations*	*List each station with valve models from facing page*
					Left End	*Right End*	*Both Ends*						
F10M F15M F18M	2 ... ☐	SH	L	G	-MLH	-MRH	-MDH	-01 -02 -31 -32 -51 -52 -A1 -B1 -B3 -D1 -D3 -H1	-W	-R	Specify Voltage	STN 1: STN 2: ... STN N:	MODEL MODEL ... MODEL

NOTES: * The maximum number of stations varies from 4 ~ 16, depending on "Electrical Connectivity" selections. Consult factory.
** All option codes are listed. Integrated blocks have numerical code, Ribbon cable linked blocks are alpha-numeric codes.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

F SERIES – F10, F15, F18

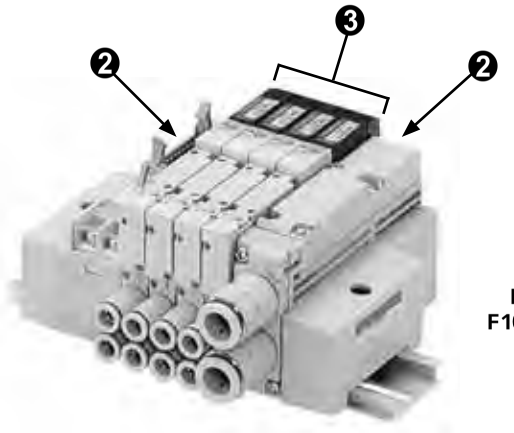
BASE MODEL	0.1W LOW CURRENT OPTION	VALVE FUNCTION									EXTERNAL PILOT OPTIONS (Standard: Internal)		IP65 RATED SOLENOID PROTECTION^^	LOCKING OVERRIDE (Standard: Non-Locking Override)	VALVE PORT CONNECTION*				ELECTRICAL ENTRY				WHEN ASSY TO SPLIT TYPE MANIFOLD*				VOLTAGE		
															• : No Ports, Replacement Valve	FMAH: F-Type, w/3-Port NC, Threaded Port	FMBH: F-Type, w/3-Port NO, Threaded Port	FJ5: F-Type, w/(2) 5/32 OD Tube Quick Fittings	DIN – Type. w/o receptical (order separately)^	Straight Plug-In w/lead wires‡	L-Type Plug-In, w/ lead wires‡	For Plug-In type manifold	Base Porting Ports 2, 4 Refer to Manifold Ordering, Code "L"		Isolate from Previous Station (from smaller station#)				
		5/2 Single Solenoid	5/2 Single/Double Solenoid	5/2 Double Solenoid	5/3 Closed Center	5/3 Exhaust Center	5/3 Pressure Center	Tandem 3-Port NC NC	Tandem 3-Port NO NO	Tandem 3-Port NC NO	External Pilot Operated	External Air Pilot, Vacuum			A1: A-type Manifold Cover. Ports in Manifold	FMH: F-Type, w/(2) Threaded Ports	F4AH: Individual 3-port NC Valve w/Threaded Port	FJ5A: F-Type, w/3-Port NC, 5/32 OD Fitting					A-Type, w/(2) 5/32 OD Tube Quick Fittings	A-Type, w/(2) Threaded Ports	1 (Pressure)	3,5 (Exhaust)	1,3,5 Ports	-DC24V	-DC12V	-AC120V
															A2H: A-Type, w/Individual Subbase	F4H: Individual valve, w/Threaded Ports	F4BH: Individual 3-Port NO valve w/Threaded Port	FJ5B: F-Type, w/3-Port NO, 5/32 OD Fitting														
F10	L	T0	T1	T2	T3	T4	T5	TA	TB	TC	G	V	P	-R	•	-FMAH	-FMBH	-FJ5	—	-PS	-PL	•	-J5	-MH	-S1	-S3	-SA	Specify Voltage		
F15															-A1	-FMH	-F4AH	-FJ5A												
															-A2H	-F4H	-F4BH	-FJ5B	-39N											
F18	—	—											—				—	—												

NOTES:
* Select from these choices only when Valve Port Connection "A1" is selected.
* 3-port fitting connections only available on T0, T1 and T2 Valve functions.
^ Not available on T1, TA, TB, and TC Valve Functions, and with locking overrides.
^^ Available only with individual valves, and valves mounted to A-Type and F-Type Monoblock manifolds.
‡ Lead Wire length is 11.8 inches. Select "-PS3" for 118" lead wire lengths.
‡‡ Standard (default) wiring is positive common. For negative common, add code "-129W" to end of valve model number.

❶ ❷ ❸

F10M4PHL-MRH-F201-DC24V

-stn1~3: F10TA-A1-J5-DC24V
-stn4: F10T2-A1-J5-DC24V



F10T Series on F10M4PH Manifold

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

ORDER EXAMPLE

H041E1-PSL-24VDC

(041 Series 3-Way Inline Valve - Straight Plug-In Electrical Entry - 24VDC Voltage)

H040, H110 & H180 SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING		ELECTRICAL ENTRY				OVERRIDE		VOLTAGE				
	2-way	*3-way*	*Normally Closed*	*Normally Open*	*No Base*	*Mounting Base*	*Grommet Lead Wires w/LED***	*Straight Plug-In w/11.8" wires***	*L Type Plug-In w/11.8" wires***	*DIN Type*	*Non-Locking*	*Locking*	*-12VDC*	*-24VDC*	*-24VAC*	*-120VAC*	*-240VAC*
H041E1	-2	•	•	-11	•	※	-L	-PSL	-PLL	-39	•	—	Specify Voltage		—		
HA041E1																	
H040E1*					—												
HA040E1*																	
H111E1	-2	•	•	-11	•	※	-L	-PSL	-PLL	-39	•	-83	Specify Voltage				
HA111E1																	
H181E1																	
HA181E1																	
H110E1*					—												
HA110E1*																	
H180E1*																	
HA180E1*																	

NOTES: * For mounting on 4-way manifolds only, specifically manifold models H040M_F, H040M_A, H110M_F, H110M_A, H180M_F, and H180M_A.
** Consult factory for longer lead wire lengths. Available on most models.

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS	PIPING	
			Direct	*Base*
H040, HA40	H040M	2 ... 20	F	A
H041	H041M			

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS	PIPING	
			Direct	*Base*
H110, HA110	H110M	2 ... 20	F	A
H180, HA180	H180M			

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

ORDER EXAMPLE

500E2-2-36-VAI-24VDC
(500 Series Double Solenoid - 2-Way - Conduit Electrical Entry - FKM (Fluorocarbon) Seals - 24VDC Voltage)

250, 500, 501 & 590 SERIES – 3-WAY

BASE MODEL	PORTING		FUNCTION		MOUNTING		ELECTRICAL ENTRY			COVER SEAL	FKM SEALS OPTION	BRASS BODY	VOLTAGE				
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base*	Flying Lead Wires*	Conduit*	DIN Type				-12VDC	-24VDC	-24/50/60	-120/50/60	-240/50/60
250E1	-2	-3	-10	-11	-20	-21	-35	-36	-39	-61	-VAI	-BRB	Specify Voltage				
250E2			—							—							
250AE1			-10	-11			—			-61							
250AE2			—							—							
500E1	-2	-3	-10	-11	—	•	-35	-36	-39	-61	-VAI	•	Specify Voltage				
500E2			—							—							
500AE1			-10	-11			—			-61							
500AE2			—							—							
501E1	-2	-3	-10	-11	—	-21	-35	-36	-39	-61	-VAI	—	Specify Voltage				
501E2			—				—										
590E1	-2	-3	-10	-11	—	•	-35	-36	-39	-61	-VAI	-BRB	Specify Voltage				
590E2			—							—							
590AE1			-10	-11			—			-61							
590AE2			—							—							

NOTE: * Standard lead wire length is 18". Consult factory for longer lead wire lengths. Available on most models.

ORDER EXAMPLE

250-4E1-36-120/50/60
(Inline 250 Series - Single Solenoid - Conduit Electrical Entry - 120/50/60 Voltage)

250-4 & 501-4 SERIES – 4-WAY

BASE MODEL	VALVE TYPE			3-POS FUNCTION			MOUNTING BASE OPTION	ELECTRICAL ENTRY			FKM SEALS OPTION	CONT. DUTY AC COIL	VOLTAGE				
	Single Solenoid	Double Solenoid	3- Position	Closed Center	Pressure Center	Exhaust Center		Lead Wires*	Conduit*	DIN Type			-12VDC	-24VDC	-24/50/60	-120/50/60	-240/50/60
250	-4E1	-4E2	—	—			-21	—	-36	-39	-VAI	-CD	Specify Voltage				
	—		-4E1	—	-NONO	-NCNC											
501	-4E1	-4E2	—	—			•										

NOTE: * Standard lead wire length is 18". Consult factory for longer lead wire lengths. Available on most models.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

ORDER EXAMPLE

H243-4E2-13-PLL-12VDC

(Inline 240 Series - 3-Position, 4-Way Model - Exhaust Center Position - L-Type Plug-In Electrical Entry - 12VDC Voltage)

H040, H110, H180 & H240 SERIES; TAC3 SERIES

MOUNT		BASE MODEL	VALVE TYPE			3-POS FUNCTION			MOUNTING BASE^	SINGLE STATION, SUBBASE INCLUDED	ELECTRICAL ENTRY				EXHAUST PORT FLOW CONTROL	OVERRIDE		VOLTAGE				
Inline	*Manifold*		*Single Solenoid*	*Double Solenoid*	*3-Position*	*Closed Center*	*Exhaust Center*	*Pressure Center*			*Lead Wires w/LED*	*Plug-In* (w/11.8"leads)* Straight	*Plug-In* (w/11.8"leads)* L-Type	*DIN Type*		*Non-Locking*	*Locking*	*-12VDC*	*-24VDC*	*-24/50/60 (24VAC)*	*-120/50/60 (120VAC)*	*-240/50/60 (240VAC)*
H		040	-4E1	-4E2	—	—			※	—	-L	-PSL	-PLL	-39	—	•	—	Specify Voltage	—			
	HA								—	-25												
H		110 180	-4E1	-4E2	—	—			※	—	-L	-PSL	-PLL	-39	※	•	-83	Specify Voltage				
	HA									-25					—							
H		113 183	—		-4E2	•	-13	—	—	—					※							
	HA									-25					—							
H		240	-4E1	-4E2	—	—			※	—	-L	-PSL	-PLL	-39	※	•	-83	Specify Voltage				
	HA HW									-25					—							
H		243	—		-4E2	•	-13	—	—	—					※							
	HA HW									-25 -26					—							
•		42	E1	E2	—	—			※	—	•	—		-39	—	•	—	Specify Voltage				
	M	42A**							—													

NOTES: * Standard lead wire length is 11.8". Consult factory for longer than standard lead wire lengths.
** External Air Pilot, for body pressures 0~125PSI (Pilot pressure 30~125PSI).

^ Available with Single Solenoid models only ("-4E1").

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)	VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS	PIPING		
			Direct	*Base*	*Plug-In Base*
H040-4, HA40	H040M	2 ... 20	F	A	—
H110-4, HA110-4	H110M				
H180-4, HA180-4	H180M				
H240-4, HA240-4	H240M	2 ... 10			
HW240-4			—		AW
M42	MC	2 ... 7	—		

PARTS

MODEL	DESCRIPTION
___ -21	Mounting base; All Inline models, except 42(A). Enter VALVE MODEL as prefix code.
8-25A	Mounting base; Models 42 and 42A.
HSCE-M5	10-32 or M5 Exhaust Port Flow Control
HSCE-01	1/8 PIPE Exhaust Port Flow Control
HSCE-02	1/4 PIPE Exhaust Port Flow Control

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

ORDER EXAMPLE

250A-3-11-21-BRB

(250 Series - 3-Way - Normally Open - with Mounting Base - with Brass Body)

125, 250, 500, 590 & 501 SERIES; GLUE VALVES

BASE MODEL	PORTING		FUNCTION			MOUNTING			BOOSTER (Standard: NO)	FKM SEALS OPTION	TEFLON PROFILE ELASTOMER	BRASS BODY	1/8 PIPE BOTTOM INLET (NC only)
	2-way	3-way	Normally Closed	Normally Open	Multi-Purpose	No Base	Mounting Base	Panel Mount					
125A	-2	-3	-10	-11	•	-20	-21	-22	-BOS	-VAI	—	-BRB	-BIN
250A								—					
SS250A	—	•	•	—	—	•	—		—	•		—	—
125AA	—	•	-10	—	—	-20	-21	-22	-BOS	-VAI	—	-BRB	-BIN
250AA								—					
125LA	-2	-3	-10	—	—	-20	-21	—	—	—	—	•	-BIN
125AH													
250AL													
250AH												—	
500A	-2	-3	-10	—	—	•	•	—	—	-VAI	—	•	—
500AB									•				
590A									—			-BRB	
590AB									•				
501A	-2	-3	•	•	-12	-20	-21	—	—	-VAI	—	—	—
501AA	—	•	-10	—	—								
R322C	•	—	•	—		•	—		—	•	—	•	—
R561						A				—	•		
R332										•	—		

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

ORDER EXAMPLE

HA110-4A
(Manifold Mount 110 Series - Single Air-Piloted Type)

H110-4, H180-4, TAC3 SERIES

MOUNT		BASE MODEL	VALVE TYPE			FKM SEALS OPTION	MOUNTING BASE
Inline	*Manifold*		*Single Air Pilot*	*Double Air Pilot*	*Push Button, One End*		
H		110 180 240	-4A	-4A2	—	—	※ * —
	HA						
•		42	-A	-A2	-PA	-VAI	※ —
	M						

NOTE: * Not available on double air-pilot types.

VALVE MANIFOLDS

APPLICABLE VALVE MODEL(S)		VALVE MANIFOLD BASE MODEL	QUANTITY OF STATIONS	PIPING		
				Direct	*Base*	*Plug-In Base*
H110-4, HA110-4		H110M	2 ... 20	-F	-A	—
H180-4, HA180-4		H180M				
H240-4, HA240-4		H240M	2 ... 10			
HW240-4				—		-AW
M42		MC	2 ... 7	—		

PARTS

MODEL	DESCRIPTION
____ -21	Mounting base; All Inline models, except 42. Enter VALVE MODEL as prefix code.
8-25A	Mounting base; Model 42.
HSCE-M5	10-32 or M5 Exhaust Port Flow Control
HSCE-01	1/8 PIPE Exhaust Port Flow Control
HSCE-02	1/4 PIPE Exhaust Port Flow Control

250-4 & 501-4 SERIES

BASE MODEL	MOUNTING BASE OPTION	FKM SEALS OPTION
250-4A	-21	-VAI
250-4AA		
501-4A	•	
501-4AA		



250-4A

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

ORDER EXAMPLE

250T-3-10-21-VAI

(250 Series "Finger Tip" Operated Valve - 3-Way - Normally Closed - with Mounting Base - with FKM (Fluorocarbon) Seals)

125, 250 & 501 MANUAL SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING			BUTTON MATERIAL		FKM SEALS OPTION	BRASS BODY	1/8 PIPE BOTTOM INLET (NC only)
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base	Panel Mount	Nylon	Steel			
125P	-2	-3	-10	-11	-20	-21	-22	-40	-41	-VAI	-BRB	-BIN
125PLG	—	•		—	•	•	•	—	—	—	•	
125HO	-2	-3			-20	-21	-22			-VAI	-BRB	
125T				-11			—					
125V				—			-22					
250HO	-2	-3	-10	—	-20	-21	—	—	—	-VAI	-BRB	-BIN
250P				-11	—			•				
250PL					•			—				—
250F					—	•		•				
250T					-20	-21		—				-BIN
250V				—								
501V	-2	-3	-12		•	-21	—	—	—	-VAI	—	—



125PLG – Large Push Button



125V – Toggle



250F – Foot Valve



250PL – Large Push Button



501V

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

125, 250 & 500 MECHANICAL SERIES

ORDER EXAMPLE

250C-3-10-21-BIN

(250 Series "Cam" Operated Valve - 3-Way - Normally Closed - with Mounting Base - with Bottom Inlet port)

BASE MODEL	PORTING		FUNCTION		MOUNTING			BUTTON MATERIAL	FKM SEAL OPTION	BRASS BODY	1/8 PIPE BOTTOM INLET (NC only)
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base	Panel Mount	Nylon			
125B	-2	-3	-10	-11	-20	-21	-22	—	-VAI	-BRB	-BIN
125MC							—				
125MP							-22				
250C	-2	-3	-10	-11	—	-21	—	•	-VAI	-BRB	-BIN
500C	-2	-3	•	—	•	•	—	—	-VAI	•	—

250-4 MANUAL SERIES

ORDER EXAMPLE

250-4H-21-NCNC

(250 series, 4-way, "Hand" Valve - with Mounting Base - Exhaust Center Position)

BASE MODEL	MOUNTING BASE OPTION	FKM SEALS OPTION	3-POSITION FUNCTION		
			Closed Center	Pressure Center	Exhaust Center
250-4F	•	-VAI	—		
250-4H	-21		—	-NONO	-NCNC



250-4H – Hand Valve



250C – Roller Cam



125B – Ball Cam

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

TAC, TAC2, TAC3 SERIES

NOTE: BUNA seals are standard on all models.

TAC – 3-WAY

BASE MODEL	FKM SEALS OPTION
2P	-VAI
2V	
2VR	
3P	
3V	
3VR	

TAC2 – 3-WAY

BASE MODEL	FKM SEALS OPTION
31P	-VAI
31PPX	
31V	
31VR	

TAC – 4-WAY

BASE MODEL	FKM SEALS OPTION
4P	-VAI
4PP	
4PPX	
4V	

TAC2 – 4-WAY

BASE MODEL	FKM SEALS OPTION
41P	-VAI
41PP	
41PPX	
41V	

TAC – 3-POSITION, 4-WAY

BASE MODEL	FKM SEALS OPTION
41TD3	-VAI
41TS3	
41TDS3	
41RD3	
41RS3	
41RDS3	

TAC3 – 4-WAY

BASE MODEL	FKM SEALS OPTION
42P	-VAI
42PP	
42PA	
42A	
42A2	


3V


3P


31V


4P


42PP


41T


41P

— Not Applicable or Not Available

● Standard Offering (no code necessary)

※ Order separately (brackets, bases, port plugs, etc.)

ALL OTHERS *Enter code choice, if desired.*

REFERENCE PAGES 66, 68 & 70

TAC, TAC2, TAC3 SERIES

ORDER EXAMPLE

341AS-VAI

Tac Air Operator with Air Snap - with FKM (Fluorocarbon) Seals

AIR OPERATORS FOR PUSH BUTTON VALVES

BASE MODEL	PIPING PORT		OPERATOR FUNCTION				FKM SEALS OPTION
	10-32	*1/8 PIPE*	*Air Pilot*	*Air Reset*	*Air Snap*	*Air Snap & Reset*	
34	•	—	A	AR	AS	ASR	—
341	—	•					-VAI



34T
Finger Tip
Operator



34A



341ASR

MANUAL AND MECHANICAL OPERATORS FOR PUSH BUTTON VALVES

BASE MODEL	OPERATOR FUNCTION					
	Ball	*Cam*	*Cam-One Way*	*Cam-Heavy Duty*	*Finger Tip*	*Foot (Knee, Hand)*
34	B	C	CW	CH	T	F

ELECTRIC SWITCH

BASE MODEL	DESCRIPTION
BA-2R-A2	*Electric Switch*
ESB	*Adaptor to "34 type" Operators*

MUFFLERS, FITTINGS *(Sold in "Bags," ex. "BF1 Bag of 10")*

FITTING, MUFFLER, & METERING SCREW MODELS				SHIP QUANTITY *(always add this code)*
97-21	150-30A		150-31A	BAG OF 10
BF	BF1	BHF	CF	
EF	EXF	MBTF	NF	
PBF1	PF	RBF	RBF1	
SEF	SF	TCF	TCF1	
TF	UEF	URTF	UXF	

DEVICES

MODEL	FKM SEALS OPTION
SQE	—
RSR	
SC1	
C1	
C125	-VAI
S125	

MOUNTING BRACKETS

MODEL	DESCRIPTION
8-60	*Flat*
8-600	*90° Angle*
8-70	*Multiple Valve*
8-55A	*Adaptor Bracket*

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

DIRECT-ACTING

ORDER EXAMPLE

V062E1-3-10-20-35-24VDC

(062 Series, Single Solenoid, Vacuum Type - 3-Way - Normally Cosed - without Base - Flying Lead Wire Electrical Entry - No Override - 24VDC Voltage)

BASE MODEL	PORTING		FUNCTION		MOUNTING BASE		ELECTRICAL ENTRY			OVERRIDE		FKM SEALS OPTION	VOLTAGE				
	2-way	*3-way*	*Normally Closed*	*Normally Open*	*No Base*	*Mounting Base*	*Flying Lead Wires**	*Conduit**	*DIN Type*	*Non-Locking*	*No Override*		*-12VDC*	*-24VDC*	*-24/50/60*	*-120/50/60*	*-240/50/60*
V062E1	**-2**	**-3**	**-10**	**-11**	**-20**	**-21**	**-35**	**-36**	**-39**	**-80**	•	**-VAI**	Specify Voltage				
VT062E1					—												

NOTE: * Standard lead wire length is 18". Consult factory for longer lead wire lengths. Available on most models.

VALVE MANIFOLDS AVAILABLE. SEE PAGE 117.

INDIRECT-ACTING

ORDER EXAMPLE

VA590AE1-3-10-36-12VDC

(590 Series, Single Solenoid, Vacuum Valve with External Pilot - 3-Way - Normally Closed - Conduit Electrical Entry - 12VDC Voltage)

BASE MODEL	PORTING		FUNCTION		MOUNTING BASE		ELECTRICAL ENTRY			FKM SEALS OPTION	BRASS BODY	VOLTAGE				
	2-way	*3-way*	*Normally Closed*	*Normally Open*	*No Base*	*Mounting Base*	*Flying Lead Wires**	*Conduit**	*DIN Type*			*-12VDC*	*-24VDC*	*-24/50/60*	*-120/50/60*	*-240/50/60*
VA250AE1	**-2**	**-3**	**-10**	**-11**	**-20**	**-21**	**-35**	**-36**	**-39**	**-VAI**	**-BRB**	Specify Voltage				
VV250AE1																
VA500AE1					•						•					
VV500AE1																
VA590AE1																
VV590AE1											**-BRB**					
VA250AE2			—	—	**-20**	**-21**	—									
VA500AE2					•						•					
VA590AE2											**-BRB**					

NOTE: * Standard lead wire length is 18". Consult factory for longer lead wire lengths. Available on most models.

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

AIR-PILOT SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING BASE		FKM SEALS OPTION	BRASS BODY
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base		
VA125A	-2	-3	-10	—	-20	-21	-VAI	-BRB
VA250A								
VV250A								
VA500A					•			•
VV500A								
VA590A								-BRB
VV590A								

ORDER EXAMPLE

VA125A-3-10-20

(125 Series Air-Pilot Operated Vacuum Valve - 3-Way - Normally Closed - without Mounting Base)



VA125A

MANUAL AND MECHANICAL SERIES

BASE MODEL	PORTING		FUNCTION		MOUNTING BASE			FKM SEALS OPTION	BRASS BODY
	2-way	3-way	Normally Closed	Normally Open	No Base	Mounting Base	Panel Mounting Nut		
V125B	-2	-3	-10	—	-20	-21	-22	-VAI	-BRB
V125HO									
V125P									
V125V									
V250P							—		
V250V									
V250C									
V250F									
V500C					•				•

ORDER EXAMPLE

V125V-3-10-20

(125 Series Toggle Operated Vacuum Valve - 3-Way - Normally Closed - without Mounting Base)



V250V – Toggle

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

CARTRIDGE INSERT SERIES

2-WAY POPPET

BASE MODEL	FKM SEALS OPTION
J125IN	-VAI
J250IN	

3-WAY POPPET

BASE MODEL	FKM SEALS OPTION
W125IN	-VAI
W250IN	

BASE MODEL	FKM *(Standard: Buna)*
Y125IN	-VAI
Y250IN	
Y500IN	

2-WAY DIAPHRAGM POPPET

BASE MODEL	PORTING		FUNCTION		BUTTON MATERIAL		FKM SEALS OPTION
	2-way	*3-way*	*Normally Closed*	*Normally Open*	*Nylon*	*Steel*	
125INS	-2	-3	-10	—	—		-VAI
125INS-A		—					
125INS-B		-3					
125INS-HO							
125INS-P					•	-41	
125INS-V					—		

3-WAY DIAPHRAGM POPPET

BASE MODEL	PORTING		FUNCTION		BOOSTER	FKM SEALS OPTION	VOLTAGE				
	*2-way**	*3-way*	*Normally Closed*	*Normally Open*			*-12VDC*	*-24VDC*	*-24/50/60*	*-120/50/60*	*-240/50/60*
125INL	—	-3	-10	—	—	-VAI	—				
125INL-P											
125INL-B				-11	-BOOST						
125INL-A				—	—						
125INL-AA					-BOOST						
250IN-BASIC				-11							
250IN-A			-NC	-NO	—		Specify Voltage				
250IN-P			—								
250IN-E1											
250IN-E2											

NOTE: * Incorporated into manifold porting/design (consult factory).



J125



125INS



Y500IN

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

QUICK EXHAUST SERIES

BASE MODEL	SEALS			MOUNTING BRACKET	PORT SIZE DESCRIPTION
	Buna	*Polyurethane*	*FKM*		
SQE	•	—		—	10-32 Miniature
SQE1	—	•	-VAI		1/8 PIPE Small
SQE2					1/4 PIPE Small
QE2	•	-POLY		※	1/4 PIPE Medium
QE3					3/8 PIPE Medium
QE4	—	•			1/2 PIPE Large
QE5					3/4 PIPE Large



QE3

PARTS

MODEL	DESCRIPTION
8-1A	Mounting bracket; Models QE2 and QE3.
8-12	Mounting bracket; Models QE4 and QE5.



SQE2



QE4

— *Not Applicable or Not Available* ● *Standard Offering (no code necessary)* ※ *Order separately (brackets, bases, port plugs, etc.)* **ALL OTHERS** *Enter code choice, if desired.*

310, 410 & 420 SERIES

APPLICABLE VALVE MODEL(S)	BASE MODEL	QTY OF STATIONS	DESCRIPTION
310, 410	410M	2 ... 12	—
M310, M410	SM		
STACKABLE VALVE END PLATES			
S310, S410	7-900A	—	One 7-900A end plate kit required per assembly.
STACKING SUBBASE, WITH END PLATE KIT, MANIFOLD ASSY			
M420	7-200A	—	One 7-200A end plate kit required per assembly.
	SB-2	—	Stacking subbase. Up to twelve (12) per assembly.

HG010, HGA010, H030, HEB, HEA, HJC & HJE SERIES

APPLICABLE VALVE MODEL(S)	BASE MODEL	QTY OF STATIONS	PIPING	
			Direct	*Base*
H030, H030-4	HYM	2 ... 10	F	—
HG010	HG010M	2 ... 20		A
HGA010	HGA010M			
HEB10	HEBM			
HEA10	HEAM			
HJC10	HJCM			
HJE10	HJEM			



410M Assembly

401, MINI-MYTE SERIES & TYNA-MYTE SERIES

APPLICABLE VALVE MODEL(S)	BASE MODEL	QTY OF STATIONS	SPEED CONTROL
401	MO	2 ... 16	-70
M401	MOC		
M31E1, M41E1 MC41E1	MM	2 ... 7	—
	MMC		
T062, T125, T062-4, T125-4	TM		

MOUNTING BASES FOR INLINE VALVES

APPLICABLE VALVE MODELS	MODEL NUMBER
H030E1, H030-4E1	030-21
310, 410	8-288A
B3E1, 31E1, 41E1	8-5A
320, 420	8-388A
125 Diaphragm	8-10
062E, 125E	8-15A
125 Diaphragm	8-20A
250-4 Diaphragm	8-40A
501	8-50A
F10 (Individual Valve)	F10Z-21
F15 (individual valve)	F15Z-21
F18 (individual valve)	F18Z-21

PORT PLUGS (FOR 2-WAY OPERATION)

THREAD SIZE	MODEL NUMBER
M3X0.5	PF-M3 BAG OF 10
10-32 UNF	PF BAG OF 10
1/8 PIPE	130-31
1/4 PIPE	130-15
1/2 PIPE	130-20
3/4 PIPE	130-24

— *Not Applicable or Not Available*

● *Standard Offering (no code necessary)*

※ *Order separately (brackets, bases, port plugs, etc.)*

ALL OTHERS *Enter code choice, if desired.*

BUILD ON OUR EXPERIENCE

Humphrey brings over 50 years of valve design and fluid control experience to our valued customers, and over 20 years of custom tailored products through our Engineered Solutions team. With Engineered Solutions, our clients effectively outsource the design and manufacture of the fluid control, or fluid power element, of their product to Humphrey. In turn, they are able to focus a greater amount of their time and resources on what they do best — what actually differentiates them more from their competitors. Our engineers carefully select from a variety of proven Humphrey valve designs and years of application experience to tailor the best component or system for our clients. That combination results in a better, often simpler, product and faster time to market, at a lower total cost.

THE ENGINEERED SOLUTIONS PROCESS

Challenge

We begin working closely on a peer-to-peer basis with your engineers early in the design process to understand your needs.

Concept

Often we present multiple concepts and will recommend a design that provides maximum benefits to you.

Solution

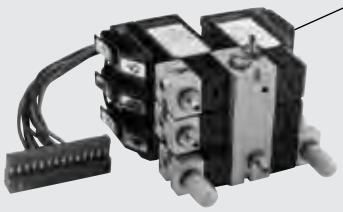
We finalize the design using proven reliable Humphrey valve technology and assist you in moving quickly from prototype, through pilot production, to production.

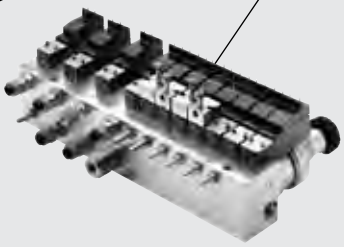
Results

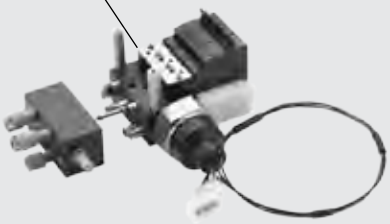
We implement your solution, measuring results against your original request, and continue to explore ways to help you further reduce your costs.



Example:
Humphrey HK5 Solenoid Valve was the key to numerous Engineered Solutions successes.







TESTING & MEASUREMENT

CASE HISTORY CH-BK1

Ultra-Low Leakage Custom Manifold Assembly

Humphrey engineers utilized the proven HK5 valve to achieve virtually zero leakage to meet the customer's critical specifications. Then they designed a custom valve assembly to fit inside an extremely small envelope. The special manifold design interconnects certain valves.

CASE HISTORY CH-LE1

Custom Manifold Assembly Improves Performance

To improve the performance and reduce costs in a portable test unit, Humphrey engineers integrated separate components into a single package. Utilizing the proven HK5 valve that functions with a wide range of gases enabled Humphrey to reduce the size and complexity of the pneumatic control valve manifold.

CASE HISTORY CH-LE2

Unique Miniature Dockable Valve Module

Utilizing the proven HK5 valve, to achieve ultra-low leak rates, Humphrey engineers developed the unique docking station design that provides a positive seal and fast, easy separation. This turned a four-hour service call into a ten-minute replacement process. Humphrey reduced the overall size by 75%, enabling the customer to shrink the product from a desktop unit down to the size of briefcase.

HUMPHREY ENGINEERED SOLUTIONS — CASE HISTORIES



Case History CH-SP1: Air Bed Mattress
A manufacturer of special mattress systems for pressure management and patient repositioning to help prevent the formation of pressure ulcers had a concern about leak rates. Humphrey designed a custom valve assembly utilizing its proven 310 valves to create a unit that not only reduced the leak rates, but made installation easier thus reducing assembly costs.



Case History CH-TH1: Heart Assist Device
A manufacturer of a range of Ventricular Assist Devices need a valve manifold system that was reliable. Humphrey designed a complete assembly that greatly improved reliability by utilizing the proven 320 valve. Humphrey also accelerated the development process, delivering functioning products in an exceptionally short period of time.

Case History CH-CH1: Oxygen Concentrator
A manufacturer of O_2 concentrators for in-home oxygen therapy wanted a design that would increase flow rate. Starting with Humphrey's proven 320 and Mizer valves, Humphrey engineers designed a low pressure pilot valve that increased the flow rate by 20%.

Case History CH-VI1: Respiratory Care
A manufacturer of respiratory care and critical care products wanted to introduce a portable rebreather for emergency medical treatment of victims of toxic gas or smoke inhalation. Humphrey designed a valve/manifold assembly using pilot-operated 310 valves that met the critical response time and desired size requirements for portability.

Case History CH-AB1: Heart Assist Valve/Pump
Humphrey developed a custom valve manifold assembly to power and control the operation of a critical medical device. Humphrey engineers also developed a special hand pump with a unique tube-inside-a-tube design. The hand pump can be used when the patient needs to be untethered from the powered unit.



Case History CH-AMT-01: Bus Door Operator
A school bus manufacturer needed a compact manifold assembly for the door operator on a new vehicle design. Humphrey utilized their proven 310 and 410 valves and created a special manifold that was simple and easy to install in the restricted space.

Case History CH-WB1: Truck Trailer Control
A manufacturer of trailers that can operate on the highway or be coupled together on wheelsets to make up a train wanted to reduce the time and cost of the process. Humphrey redesigned their valve module utilizing the proven Cartridge Insert valves to lower the unit cost, increase air flow to speed up the process and make the module far more robust.



Case History: Conveyor System
A major manufacturer of accumulation conveyor systems wanted to replace its existing mechanically actuated pneumatic valve controls system with a photoelectric sensor-actuated valve control. Humphrey designed a valve assembly that incorporated DIP switches to enable a user to also manually change the conveyor logic mode.

Case History CH-PE1: Pendant Control
A manufacturer of air balancing equipment wanted to enhance its existing control handle. Using Humphrey's proven pendant control valve, Humphrey engineers designed a modular system that could scale to virtually any control requirement.



Case History CH-SM1: Paintball Marker
A major manufacturer of pneumatically-powered paintball markers wanted to introduce a new product having faster firing rate. Working in conjunction with Japanese partner, Koganei, Humphrey was able to offer a new valve with fewer parts, less weight, lower manufacturing costs, more reliable operation and a standard operation pressure at 225 psig.



Case History CH-FA1: Firearm Simulator
A manufacturer of simulated firearms training systems wanted to provide the same recoil ("kick") that the trainee would experience firing a real weapon. Humphrey designed a custom valve manifold/cylinder assembly that fits in the stock of laser-emitting firearms. Humphrey engineers utilized a proven 310 valve on a custom manifold and modified a Humphrey air cylinder to reduce friction.



Case History CH-BRA-01: Ultrasonic Welder
A manufacturer of ultrasonic welding equipment needed a custom flow control to improve product performance. Humphrey developed a compact custom valve assembly to meet the exacting design and performance specifications.



Case History CH-SAF-01: Air Motor Control
A manufacturer of automotive parts cleaning systems wanted a rugged, dual-function control valve. Humphrey engineers designed a valve assembly with a single shaft for both on/off control and pressure regulation.

HOW TO OBTAIN THE COMPLETE CASE HISTORIES OF THESE AND OUR OTHER ENGINEERED SOLUTIONS

Go directly to www.humphrey-products.com

- Select "Applications" and then click on "Do I Need an Engineered Solution?"
- Choose from any of the icons, each representing the following categories: Medical, Healthcare Rehabilitation, Oxygen Delivery Equipment, Testing & Measurement, Materials Handling, Transportation, Food Automation, Process Control, Manufacturing Equipment, Small Arms/Air, Firearms Solution, Railroad Equipment, or Environmental.
- Each category contains a list of related case histories, which are available for you to download in a PDF format at your convenience.

DON'T TAKE CHANCES

Compressed air is an extremely powerful medium. Always take maximum precautions when handling any component of a compressed air system.

Never attempt to construct, replace, operate or service any component of a compressed air system unless you have been specifically and properly trained to do so. Always disconnect the supply air and exhaust the air system before attempting to remove or service a component of that system.

Failure to heed these warnings could result in SERIOUS, EVEN FATAL, PERSONAL INJURY.

USE THE RIGHT VALVE

Humphrey valves are general purpose air valves designed for use in general industrial applications in accordance with the limitations described in this catalog for each valve. The specifications of individual products are subject to change without notice. Consult factory representative for specific information concerning valve/application compatibility. Each Humphrey valve is tested before it leaves our factory to assure the valve's conformance to catalog specifications. Any use or application which deviates from the valve's specifications will void the warranty unless Humphrey has provided specific and written authorization beforehand.

USE THE RIGHT LUBRICATION

Except where model specifications state "No lubrication required," all Humphrey valves require appropriate lubrication. Humphrey recommends a non-detergent, 20 W or 30 W, mineral-based petroleum oil for most of its valves. Some lubricants may cause swelling or deterioration of the valve's seals, therefore lubricant/seal compatibility must be confirmed. Read specifications carefully. If there is any doubt, Consult factory representative.

USE THE RIGHT AIR SUPPLY

The valved medium, including the lubricants and other substances it may contain, must be compatible with the materials of which the valve is constructed. Read the specifications carefully; if there is any doubt, consult factory representative. Some valve models are vulnerable to contaminated or moisture-laden compressed air. To promote proper functioning and long life in such instances, appropriate air treatment equipment should be installed. Consult your supplier of air filters, regulators, and lubricators.

USE PROPER SERVICE PROCEDURES

Never attempt to service a Humphrey valve or any system component unless you have been properly trained to do so. A properly trained person will never attempt to remove or service a component of a compressed air system unless the compressed air has been disconnected and the system thoroughly exhausted.

Some Humphrey valves can be repaired in the field. Humphrey makes available factory seal repair kits (SRKs) and individual valve components for this purpose. All repaired valves should be tested for conformance to specifications before they are returned to service. Field repairing of Humphrey valves voids their warranty.

DESIGN A PROPER SYSTEM

Always strive to design systems which are safe as well as efficient. Either eliminate potential hazards completely or install safety features which neutralize them.

Give special consideration to any potential for accidental actuation of a valve. Either select a model that resists accidental actuation or mount the valve to prevent unintended actuation.

Consider the adverse consequences of individual component failure and design to prevent or minimize these consequences. Design a system that will fail safe under conditions of pressure variation, pressure loss, or other system failures.

Read the component literature carefully. If a model is not completely understood, do not apply it without first consulting the factory.

Size valves properly. A model having a capacity insufficient to the system may cause the entire system to be inefficient. Always note the size of the valve orifice – this is often more important than the PIPE connection.

The circuit drawings in this catalog are intended only as examples of circuits in which certain components might typically be used. They are not to be considered recommendations of specific applications. The proper, safe functioning of any system must be insured by the system's designer or user.

Specifications subject to change without notice.

ORDERS: All orders are subject to final approval by the Manufacturer.

QUOTATIONS: Special pricing on standard or custom products is available and subject to situational-based terms and conditions.

CREDIT: Written consent from Manufacturer must be obtained on all credits. Include purchase order number used when goods were ordered. A handling fee will be charged. Additional fees may be charged dependent on age and resalability of returned merchandise, etc.

CANCELLATIONS: Written consent from the Manufacturer must be obtained on all cancellations, and a cancellation fee may be charged at time cancellation is authorized.

SHIPMENTS: The Manufacturer will ship all goods via the most economical carrier unless otherwise instructed.

DELAYED DELIVERY: The Manufacturer shall not be liable for delays, damage, loss of goods in transit, or inability to supply goods for any reason at any time.

BONDS, INSURANCE, OR SPECIAL WARRANTIES, ETC.: The Buyer agrees to pay all costs in obtaining same.

CHANGES: The Manufacturer reserves the right to make changes in specifications and design, etc., and is not liable for any inconvenience or damage whatsoever caused by such design or specification changes.

DIES AND FIXTURES, ETC.: All dies, jigs and fixtures etc. shall be the property of the Manufacturer.

PRICES: The Manufacturer reserves the right to change prices without notice.

INSPECTION: Buyer waives any claims for shipping errors, shortages, non conformance of goods to order, and defective goods, unless Manufacturer receives written notice of same within ten (10) days after delivery of goods.

DESIGN AND SPECIFICATIONS: The design and specifications and other product information contained in this catalog is for general reference purposes based upon customary and usual manufacturing standards and product applications. However, it is difficult to predict or to anticipate the functioning or suitability of the product for any particular application or use. Therefore, nothing herein shall be deemed a representation or warranty of the product design or specifications and Buyer shall have the responsibility for investigating and testing the product in any particular application or use and all risks attendant in such use.

PRODUCT LIMITED WARRANTY: Manufacturer Humphrey Products Company warranties its product to be free from defects in workmanship and/or material for one (1) year from date of shipment from factory. Manufacturer shall have no liability under the warranty or otherwise if:

1. The product is not inspected by Buyer within ten (10) days after delivery;
2. The product is used other than in accordance with current operating instructions;
3. The product is subjected to any abuse or abnormal or unintended use;
4. A claim in writing under this warranty is not presented to manufacturer at Kalamazoo, Michigan address on or before ninety (90) days after the date of any alleged defect was first known or could reasonably have been known, whichever is sooner, or;
5. The product is not returned unaltered to Manufacturer within such ninety (90) day period for inspection. Any warranty extends only to the first user of the product.

DISCLAIMER: The above Limited Warranty is EXCLUSIVE of any and all other warranties, liabilities or obligations of Manufacturer. MANUFACTURER DISCLAIMS ANY OTHER WARRANTY AND MAKES NO REPRESENTATIONS OR WARRANTY OF ANY KIND EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHER MATTER.

Manufacturer neither authorizes nor assumes responsibility for any other affirmation of fact, description or other representation with respect to its product.

LIMITATIONS OF LIABILITY: Manufacturer's liability shall be limited to: 1. product replacement, 2. product repair, or 3. a refund of the product purchase price F.O.B. point of manufacture, and as Manufacturer, at its option may elect. The above remedies shall be Buyer's exclusive remedies for any and all loss or damage claimed by or through Buyer from any cause whatsoever including, without limitation, inability to supply product, errors or delays in shipment, Manufacturer's negligence, or any other matter. Manufacturer shall not be liable for any incidental, special, or consequential damages.

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Humphrey has a rich history of valve design for industry, including but not limited to, the products shown here. Our design variety allows us to apply the best solution to each application, based on your specific requirements, such as flow, pressure, media, porting, ambient/temperature environment, etc. Many designs are flexible, and can be customized for exact or difficult requirements. Please contact a factory representative for more details.

Please refer to the facing page for the corresponding illustrations.

Diaphragm-Poppet



250A

Two, molded diaphragm-poppet elastomers pressed on to the common stem. In operation, poppets shuttle between mating seats within the valve body. Simple design has short stroke, high flow and tight sealing characteristics. No sliding seals, or metal to metal contact, results in excellent performance whether media is gas or liquid, instrument clean and dry, or dirty and contaminated. Rugged, reliable. A classic Humphrey original.

Quick Exhaust



QE3

World's best. Beefed up "umbrella" shaped shuttle allows supply air to pass easily from IN to OUT port. When upstream supplied pressure drops, shuttle shifts, sealing off IN port, via lip seals, and media quick exhausts to piped exhaust port. Shuttle is the only moving part and lasts longer than competitive sheet stock designs.

Mini-Mizer: Solenoid Operated Plunger



B3E1

Simple, unbalanced solenoid plunger design was the first solenoid valve to offer low 0.5 Watt power consumption. Plunger shifts from sealing at bottom seat to sealing at top seat when coil is energized. Spring returns plunger to bottom seat when coil is de-energized. Design is flexible, and can be tailored to exact requirements.

HK5: Balanced Diaphragm-Poppet



HK5

Design is based on our heritage, the diaphragm-poppet principle, but in a miniature, balanced design. Result is a multi-purpose, multi-media valve unmatched in the market. Solenoid directly operates main stem and the opposing diaphragm-poppets as they shuttle between valve seats. The injection molded body is designed for maximum mounting and porting flexibility.

310/320: Balanced Poppet, 3-port



310

Internal forces from the supplied media are neutralized, based on the principle of opposing forces. Thus, force from the solenoid's magnetic field must overcome only the force of the return spring. Result is a fast response, full pressure range valve with high flow and low current consumption. Humphrey's most popular seller.

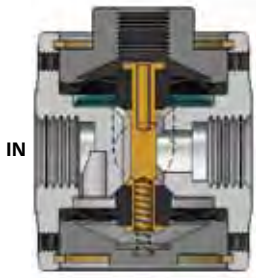
410/420: Balanced Double Poppet, 4-port



420

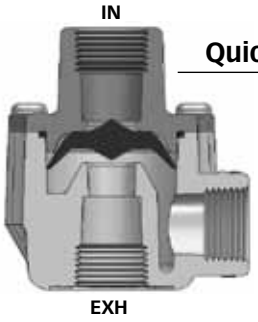
Internal forces from the supplied media are neutralized based on the principle of opposing forces in a 4-port, multi-purpose design. Force from the solenoid's magnetic field must overcome only the force of the return spring. Result is a fast response, full pressure range valve with high flow and relatively low current consumption. Each valve can be used as 2-, 3- or 4-way, diverter or selector function.

HUMPHREY VALVES – DESIGN PRINCIPLES



Diaphragm–Poppet

250A

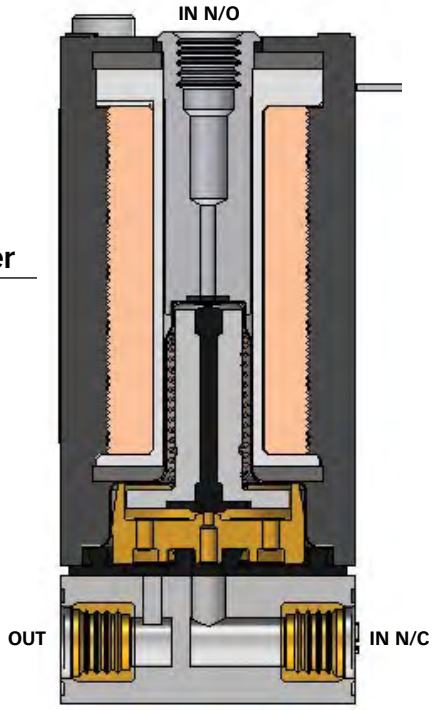


Quick Exhaust

QE3

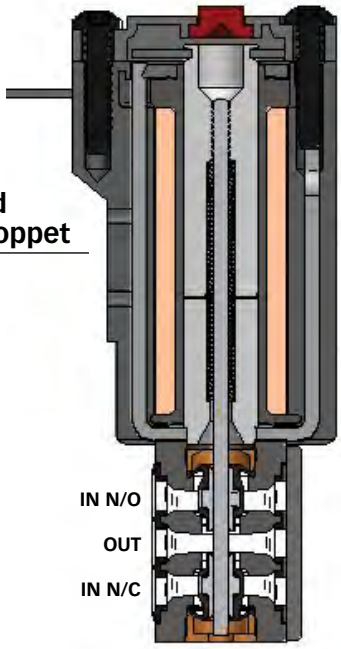
Solenoid Operated Plunger

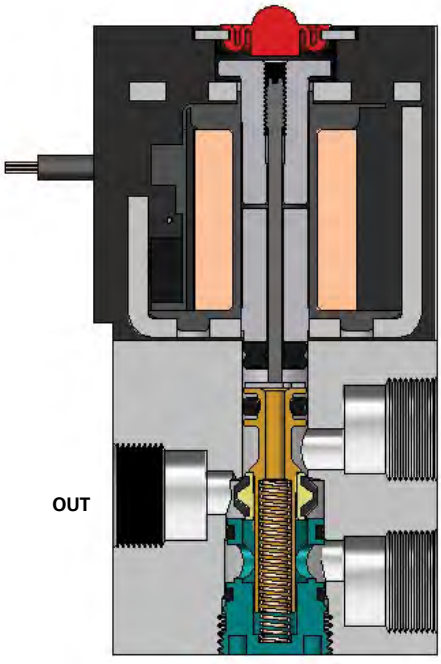
Mini Mizer, B3E1



Balanced Diaphragm-Poppet

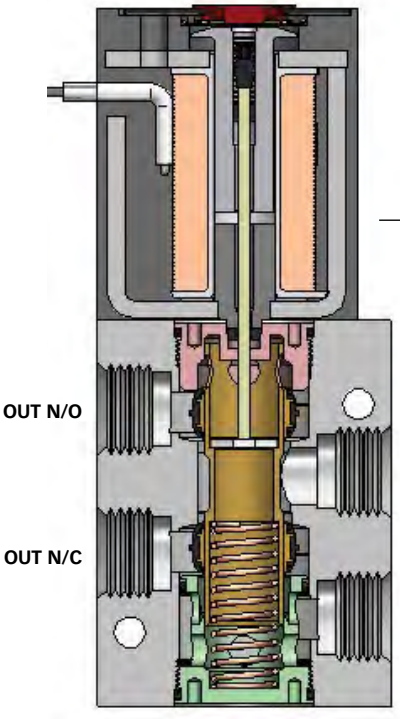
HK5





Balanced Poppet, 3-port

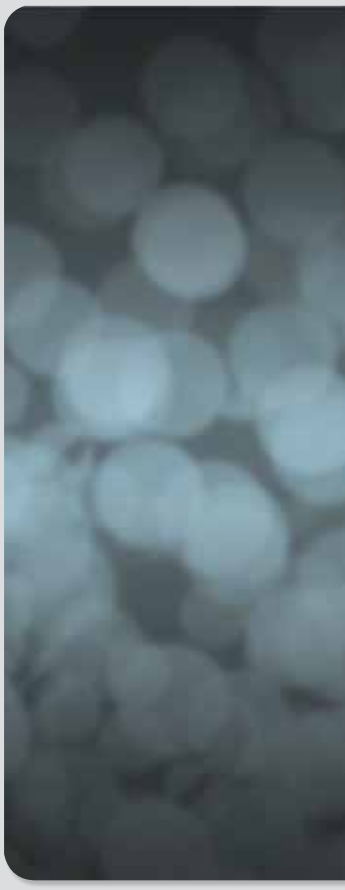
310/320



Balanced Double Poppet, 4-port

410/420





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