

Humphrey[®]

**HK5 SERIES
DIRECT-ACTING SOLENOID DIAPHRAGM VALVES**



www.humphrey-products.com

HK5 FEATURES

The Humphrey HK5 Series® 2-way and 3-way, single solenoid valve provides outstanding performance, versatility and value. Its inert construction makes it an ideal choice for many types of multi-media use.

Here are a few of its many benefits:

- Diaphragm poppet design.
- Versatile plumbing, electrical and mounting features.
- Quiet operation.
- Multi-function: 2-way or 3-way, normally closed or normally open.
- Excellent flow characteristics for a small, light, compact component: Cv .05 provides 3 scfm @ 100 psig. (85 Lpm).
- Direct operating: functions throughout the spectrum of 28" Hg to 100 psig.
- Multi-million life cycle. Tested to 100 million cycles. Should service ever be necessary, valves can be changed on the spot, in seconds.
- RoHS compliant.
- Made in the USA.

The HKL5 diaphragm valve is a compact flexible solution for controlling reagents and corrosive fluids.

- Diaphragm construction for positive separation of media from solenoid.
- All wetted surfaces are inert materials.
- Low leakage (bubble tight available – consult factory.)

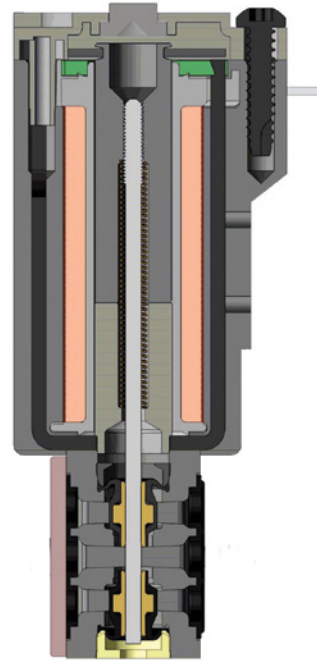
Typical applications:

- Remote pilot operation of specialty gas and liquid valves.
- Direct control of air and inert gases.
- Vacuum applications.
- Operation of small bore cylinders.
- Applications in which media must remain unaffected.

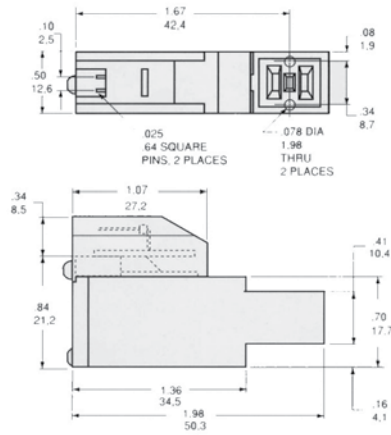
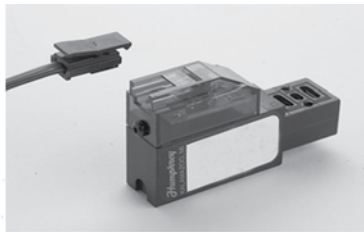
Minimal armature travel and fast electrical response assure rapid cycling.

HK5 isolates coil operation from the media, heightening reliability and providing for multi-media use.

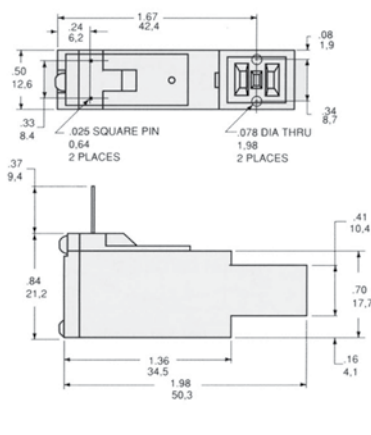
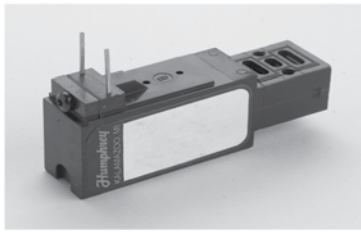
Proven Humphrey diaphragm poppet design. No required lubrication and long trouble-free performance due to no metal-to-metal contact and no sliding seals.



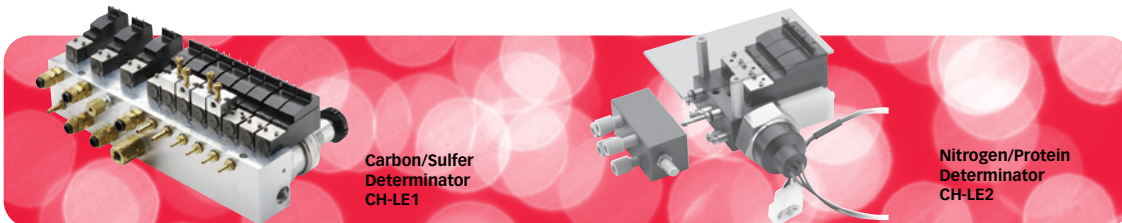
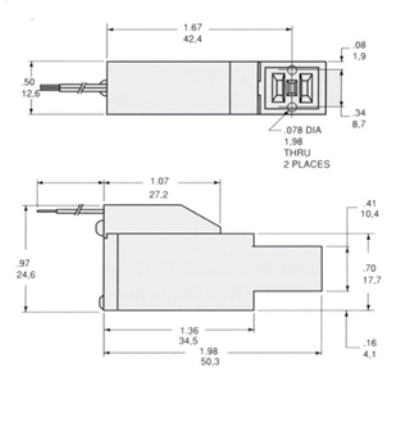
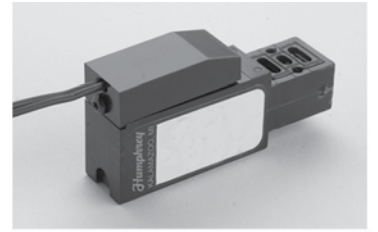
Plug-in Connector LED and Diodes electrical connections order code C/CL



Square Pins electrical connections order code P



Wire Lead electrical connections order code A/AL



Carbon/Sulfur Determinator CH-LE1

Nitrogen/Protein Determinator CH-LE2

Custom Solutions were developed from the HK5.

HK5 SPECIFICATIONS

Mechanical Specs

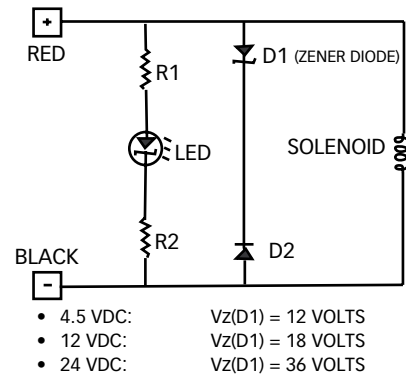
Media	Liquid, air, vacuum or inert gases <i>(consult factory for other gas and liquid media)</i>		
Vacuum/Pressure Range			
B and H seal material	28" Hg to 100 psig (6.8 bar)		
E and F seal material	28" Hg to 60 psig (4.1 bar)		
HKL5 (all elastomers)	28" Hg to 30 psig (2.0 bar)		
Ambient Temp. Range			
B seal material	32° to 125° F (0° to 50° C)		
F seal material	32° to 212° F (0° to 100° C)		
E and H seal material	32° to 175° F (0° to 80° C)		
Flow @ 100 psig	3.0 SCFM [85 Lpm] standard power		
Flow @ 60 psig	1.5 SCFM [42 Lpm] low power option		
C.			
Standard power	.05		
Low power option	.035		
Fill Time [sec.] 0 to 80 psig [standard power]	1 cu.in.	10 cu.in.	100 cu.in.
	.06 sec.	.60 sec.	6.0 sec.
Exhaust Time [sec.] 100 to 20 psig [standard power]	1 cu.in.	10 cu.in.	100 cu.in.
	.10 sec.	1.0 sec.	10.0 sec.
Leak Rate [Max. Allowed]	Gas: 2 cc/minute; Liquid: Minimal		
Type of Operation	Direct solenoid		
Effective Area	.0020 inch ² standard power .0014 inch ² low power option		
Lubrication	None required (if used, must be compatible with seal materials)		
Filtration	40 Micron Recommended		
Weight	35 gm (1.2 oz)		
Valve Wetted Materials	Thermoset Epoxy, Peek®, 304 and 303 stainless steel, seal material as specified. HKL5: 316 stainless steel stem RoHS compliant		
Valve Function	2-way or 3-way, normally closed or normally open		

Electrical Specs

Coil Temp. Rise (any voltage single valve on subbase)	45° F (25°C) standard power 32° F (18°C) low power option	
Response Time (on/off)	.010/.004 (sec.)	
Voltage Tolerance	Plus 10%, minus 15% of rated voltage	
Coil Voltages	4.5VDC, 12VDC, 24VDC	
Power	1.7 watt .9 watt	Standard Low Watt Option

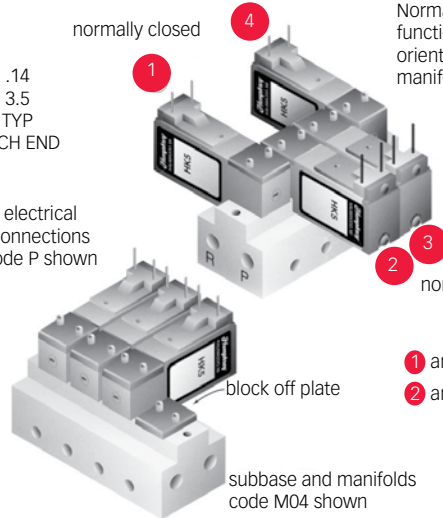
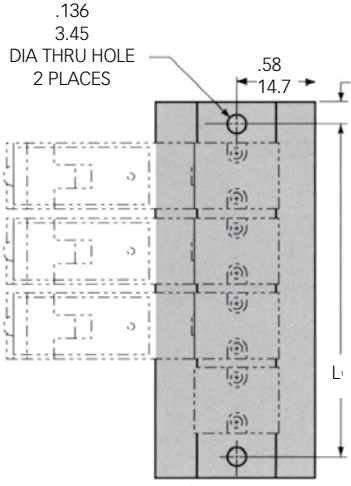
- All coils conform to class B insulation systems.
- Resistance and current are nominal values.
- Ensure proper voltage supply per voltage level rating, +10%, -15%.

Surge suppression (zener diodes) available with electrical connections order code C and CL.



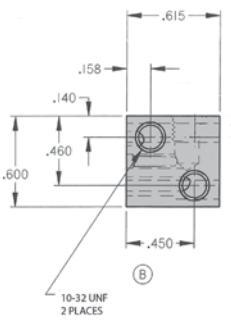
Industries affected by the HK5 Engineered Solutions: medical, laboratories, recycling and more.

# stations	L1	L2
HK5M04	4	2.480 2.76
HK5M06	6	3.582 3.86
HK5M08	8	4.684 4.96
HK5M10	10	5.786 6.06
HK5M12	12	6.888 7.16
HK5MM02	2	- 1.25
HK5MM03	3	- 1.80

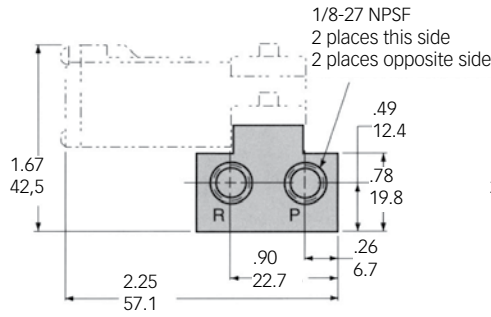


Normally closed or normally open function is determined by the orientation of the valve on the manifold.

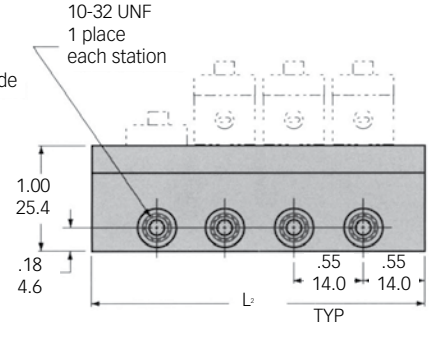
1 and 4 are normally closed
2 and 3 are normally open



MM02 & MM03

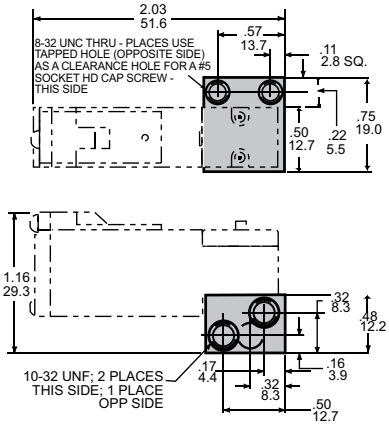


M04-M12



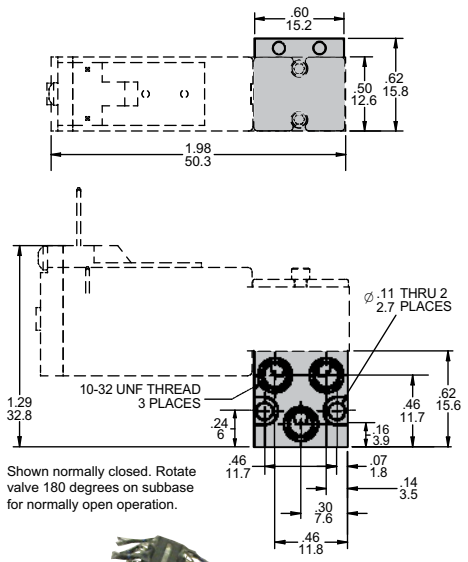
S Subbase

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



Y Subbase

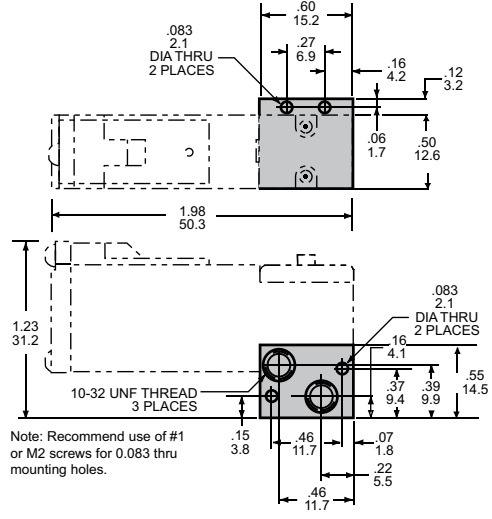
2- or 3-way with 10-32 UNF ports



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

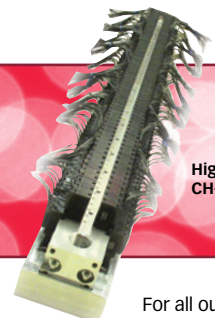
Z Subbase

2-way with 10-32 UNF ports



Note: Recommend use of #1 or M2 screws for 0.083 thru mounting holes.

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



High Volume Recycled Glass Processing System CH-EC1

For all our Engineered Solutions, visit:

www.humphrey-products.com/content/engineered-solutions-case-histories

HOW TO ORDER

HK5 H 2 24 AL NR S R (example)
HKL5

OPTIONS

O NORMALLY OPEN - SEE NOTE
R ROTATED COIL

ASSEMBLED SUBBASES - SEE NOTE

Y 3 WAY 10-32 UNF PORTS ON ONE SURFACE
S 3 WAY, 10-32 UNF PORTS ON TWO SURFACES
Z 2 WAY 10-32 UNF PORTS

OVERRIDES

NR NO OVERRIDE
NL NON-LOCKING OVERRIDE

ELECTRICAL CONNECTIONS

P .025 SQUARE PINS
A WIRE LEADS (50 CM)
AL WIRE LEADS (100 CM)
C LED W/ZENERS & CONNECTOR (30 CM)
CL LED W/ZENERS & CONNECTOR (100 CM)

VOLTAGE

04 4.5V DC
L04 4.5V DC LOW WATT
12 12V DC
L12 12V DC LOW WATT
24 24V DC
L24 24V DC LOW WATT

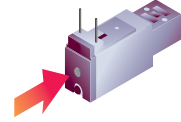
PORTING (determines type of gasket supplied with valve)

3 3 WAY, 3 PORT
2 2 WAY, 2 PORT

SEAL MATERIAL

B NBR [BUNA NITRILE] 32° F TO 125° F (0° C TO 50° C)
E EPDM [ETHYLENE PROPYLENE] 32° F TO 175° F (0° C TO 80° C)
F FKM [FLUOROCARBON] 32° F TO 212° F (0° C TO 100° C)
H HNBR [HIGHLY SATURATED NITRILE] 32° F TO 175° F (0° C TO 80° C)

Override Code NL



Gasket: Furnished with 3-way Valve
NBR P/N: 31799
EPDM P/N: 33795
Fluorocarbon P/N: 32725
HNBR P/N: 33796



Gasket: Furnished with 2-way Valve
NBR P/N: 33801
EPDM P/N: 33804
Fluorocarbon P/N: 33802
HNBR P/N: 33805



Block Off Plate/Screws:
Furnished with Valve
P/N: HK5-BOP



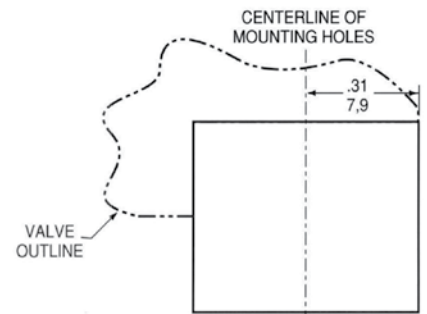
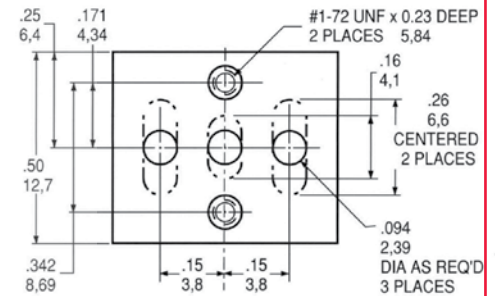
SUBBASE AND MANIFOLDS

HK5 or HKL5	MO6 (example)	
	025Y	3 WAY 10-32 UNF PORTS ON ONE SURFACE
	025Z	2 WAY 10-32 UNF PORTS
	MM02	2 STN MANIFOLD
	MO4	4 STN MANIFOLD
	M06	6 STN MANIFOLD
	M08	8 STN MANIFOLD
	M10	10 STN MANIFOLD
	M12	12 STN MANIFOLD
	BOP	BLOCK OFF PLATE, NBR GASKET
	BOP-HNBR	GASKETS BAG OF 10

ACCESSORIES

ORDER CODE	DESCRIPTION
35000B	NBR GASKET (BOP) BAG OF 10
35000E	EPDM GASKET (BOP) BAG OF 10
35000F	FKM GASKET (BOP) BAG OF 10
35000H	HNBR GASKET (BOP) BAG OF 10
35002B	NBR GASKET (VALVE, 2-WAY), BAG OF 10
35002E	EPDM GASKET (VALVE, 2-WAY), BAG OF 10
35002F	FKM GASKET (VALVE, 2-WAY), BAG OF 10
35002H	HNBR GASKET (VALVE, 2-WAY), BAG OF 10
35003B	NBR GASKET (VALVE, 3-WAY), BAG OF 10
35003E	EPDM GASKET (VALVE, 3-WAY), BAG OF 10
35003F	FKM GASKET (VALVE, 3-WAY), BAG OF 10
35003H	HNBR GASKET (VALVE, 3-WAY), BAG OF 10
35006	PLUG-IN CONNECTOR (30 CM), ELECTRICAL CONNECTIONS ORDER CODE C
35007	PLUG-IN CONNECTOR (100 CM), ELECTRICAL CONNECTIONS ORDER CODE CL
35008L	.025 SQUARE PINS IDC CONNECTOR WITH 50 CM LEADS, BAG OF 10
35008LL	.025 SQUARE PINS IDC CONNECTOR WITH 100 CM LEADS BAG OF 10

To adapt valve to your own manifold or subbase, use this porting footprint.



NOTE: ALL VALVES ARE ASSEMBLED NORMALLY CLOSED TO MANIFOLDS AND SUBBASES, UNLESS OPTION "O", NORMALLY OPEN, IS SPECIFIED.



Portable Oxygen Concentrator CH-IV1

The Humphrey Engineered Solutions team has utilized HK5 Series® 2-way and 3-way, single solenoid valves to develop numerous successful custom products. While the medical, analytical instrumentation and health care industries have achieved optimum results from the valves' flexible features, the HK5 valves will work for many other market segments. Its flexible design along with its inert construction, fast response time, compact size, low leakage and compatibility for several forms of media make it the key to many Engineered Solutions successes. For more information on Engineered Solutions, please visit www.humphrey-products.com.

Your Engineered Solution



Humphrey®

A privately owned US company since 1901.

Humphrey Products Company • P.O. Box 2008 • Kalamazoo, MI 49003 USA • www.humphrey-products.com • P.269.381.5500 • F.269.381.4113

HK5-2020 Copyright © 2020 Humphrey Products Company, Inc. Printed in U.S.A.