

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 HK5 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.)

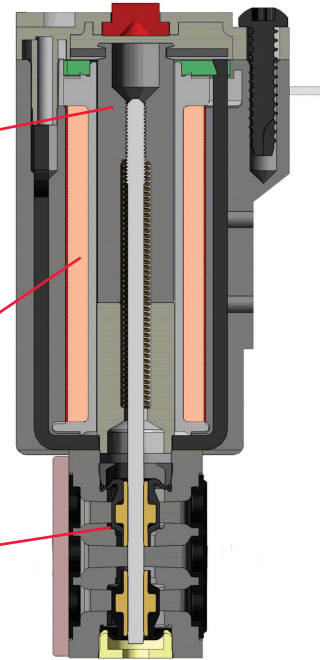
Typical applications:

- 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.

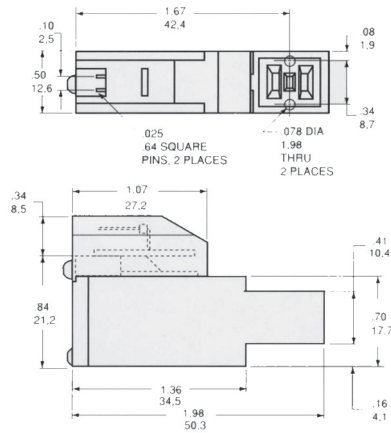
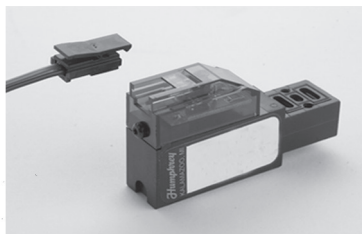
Minimal armature travel and fast electrical response assure rapid cycling.

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

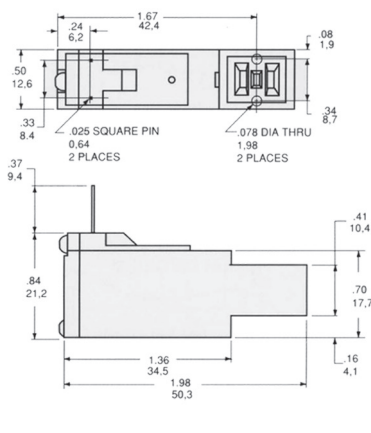
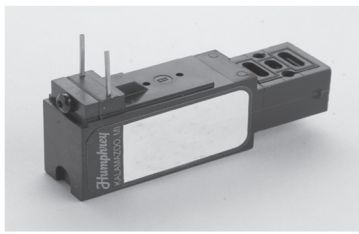
Proven Humphrey diaphragm poppet design. No required lubrication and long trouble-free performance due to no metal-to-metal contact and no sliding seals.



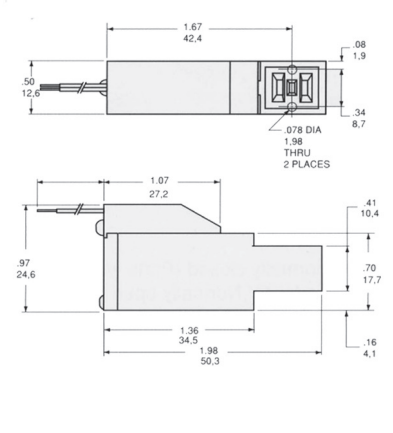
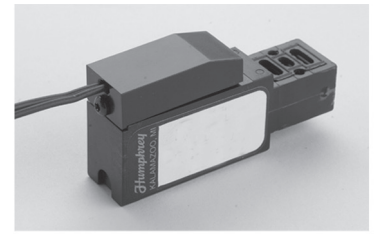
Plug-in Connector LED and Diodes
electrical connections order code C/CL



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
(consult factory for other gas and liquid media)

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 inch² standard power
 .0014 inch² 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.)

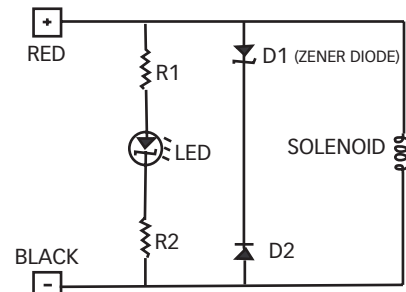
Voltage Tolerance Plus 10%, minus 15% of rated voltage

Coil Voltages 4.5VDC, 12VDC, 24VDC

Power 1.7 watt Standard
.9 watt 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.

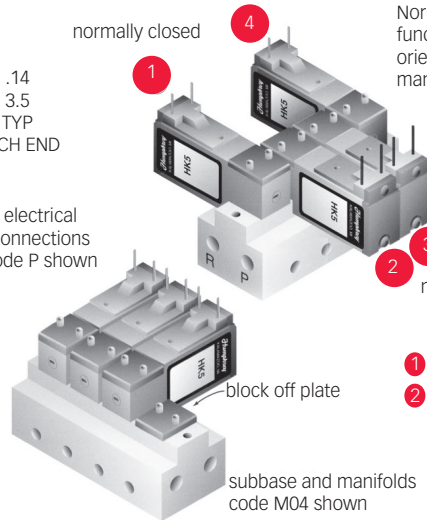
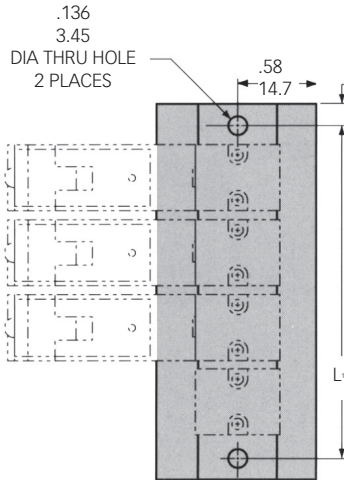


- 4.5 VDC: Vz(D1) = 12 VOLTS
- 12 VDC: Vz(D1) = 18 VOLTS
- 24 VDC: Vz(D1) = 36 VOLTS



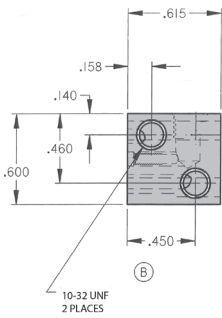
Industries affected by the HK5 Engineered Solutions: medical, laboratories, recycling and more.

# 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

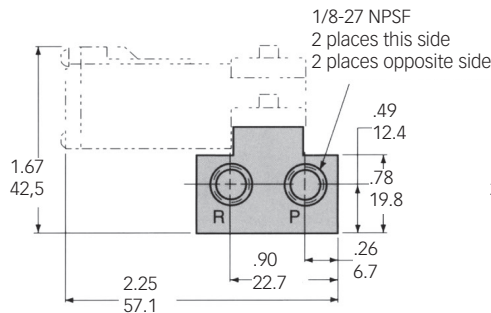


Normally closed or normally open function is determined by the orientation of the valve on the manifold.

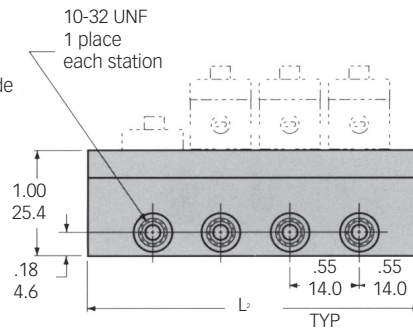
1 and 4 are normally closed
2 and 3 are normally open



MM02 & MM03

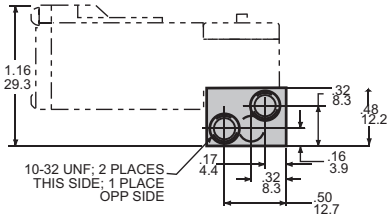
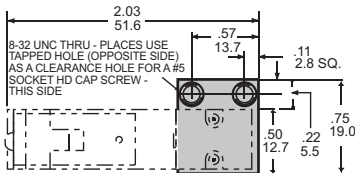


M04-M12



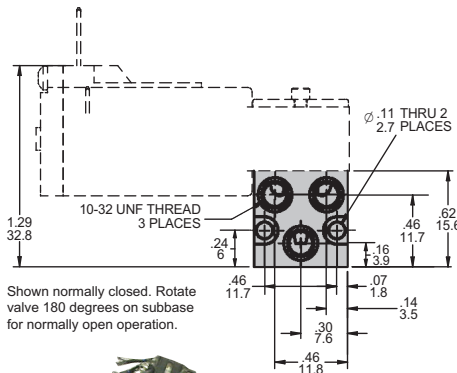
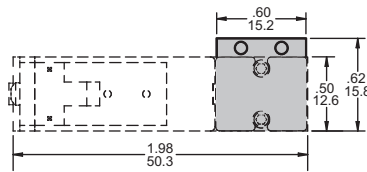
S Subbase

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



Y Subbase

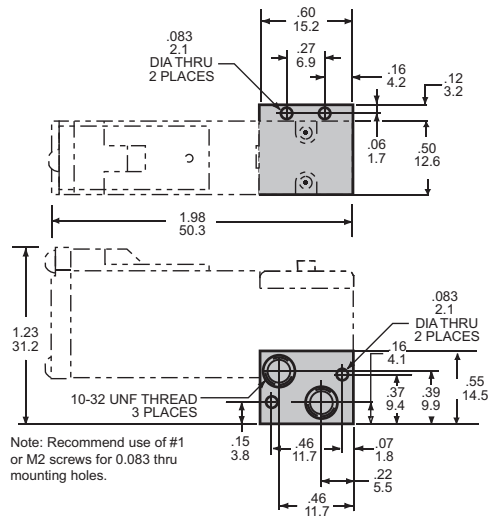
2- or 3-way with 10-32 UNF ports



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

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

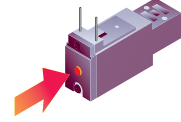
PORTING (determines type of gasket supplied with valve)

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



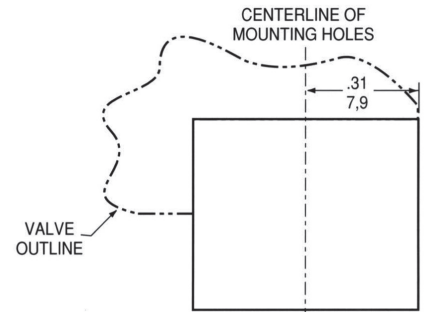
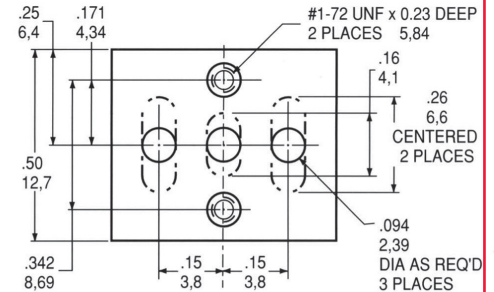
SUBBASE AND MANIFOLDS

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

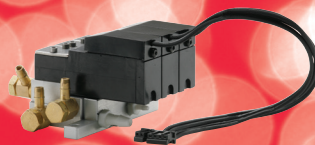
ACCESSORIES

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.

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