Humphrey® iDP Series

IN CONTROL OF YOUR DIFFICULT MEDIA



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Humphrey iDP INERT DIAPHRAGM-POPPET VALVES

Introducing Humphrey iDP, a series of inert media separation valves, specifically designed for aggressive liquids and gases.



Humphrey iDP 300 SERIES

Small 2- and 3-Port Type Inline or Manifold Mount Pin or Lead Wire Coil Connection



Humphrey iDP 350/351 SERIES

2-Port Type Barb or 8mm Porting Spade or Lead Wire Coil Connection



Humphrey iDP 370/371 SERIES

3-Port Type Barb or 8mm Porting Spade or Lead Wire Coil Connection



Humphrey iDP 390/391 SERIES

2-Port Type Barb or 8mm Porting Spade or Lead Wire **Coil Connection**

TYPICAL MARKETS AND **APPLICATIONS**

- Clinical Diagnostics
- Analytical Chemistry
- · Agent Detection
- Environmental Monitoring
- · Food and Beverage
- Gaseous Flow Control

ENGINEERED SOLUTION WITH MEDIA SEPARATION VALVES

- Custom Proportional diaphragm isolation valve (390 series) option
- Body rotation configurations
- Multiple "wetted" material choices
- Custom wire termination
- Valve integration into your custom system
- Value added designs integrating multiple valves and/or sensors





EXAMPLES OF COMPATIBLE MEDIA

Blood and Bio-Fluids Reagents and Solvents Ultra Pure Water Ethyl, Methyl Alcohols Sodium Hypochlorite Lye (Sodium Hydroxide) Ethylene Glycol Formaldehyde

Biological Solutions

Renaline® Formaldehyde Saline Dextrose/Sugars Hydrogen Peroxide Citric Acid Acetic Acid Others

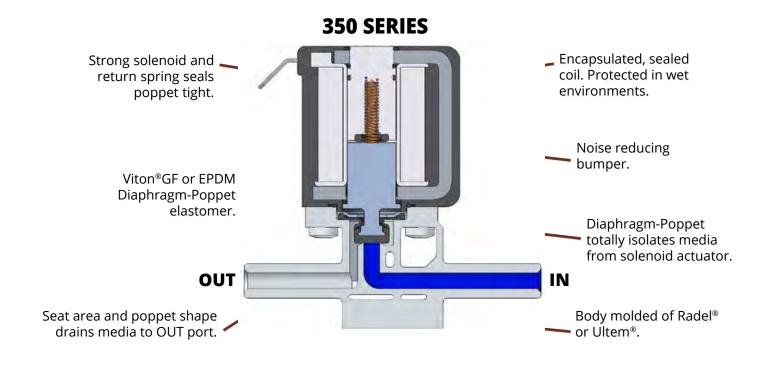
Dialysate

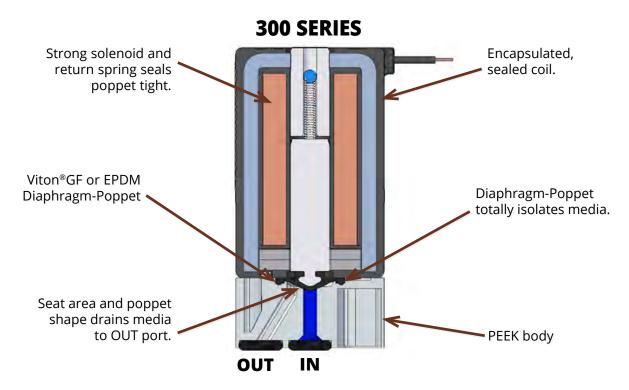






Humphrey iDP are efficient 2- and 3-port valves containing features ideal for aggressive media applications. Valves are constructed of materials suitable for bodily fluids, aggressive chemicals and cleaning fluids, and elevated fluid temperatures. The flexing diaphragm-poppet design isolates the solenoid from media penetration, while the inert body material ensures long life and sustained performance.





300 SERIES

PRODUCT FEATURES

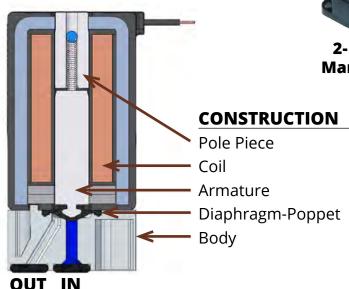
- Inert wetted materials provide broad chemical compatibility Body/Fitting Elements – PEEK (Polyethylethylketone) Diaphragm-Poppet/Seals – Viton®-GF or EPDM
- Max pressure: 40 PSI [2.4 bar] standard
- Flow: Up to 1830 ml/min of water or similar fluid,
 Up to 62 lpm of air or similar gas
- Integral diaphragm-poppet isolates flow path from solenoid
- Coil encapsulation protects from corrosive external fluid exposure
- Suitable for high fluid temperatures up to 203°F (95°C)
- Various port types and manifold mounting provides design flexibility
- Robust design; Tested to beyond 20 million cycles

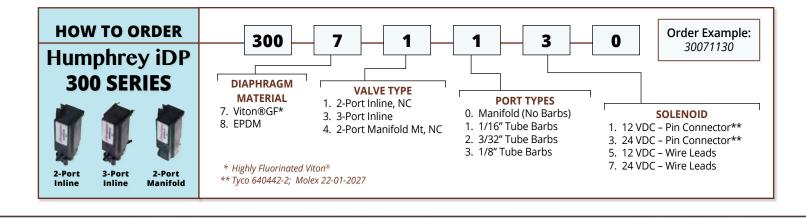
2-Port 3-Port Inline Inline

2-Port Manifold

TYPICAL FLUIDS

Blood and Bio-fluids Reagents and Solvents Ultra Pure Water Sodium Hypochlorite Lye (Sodium Hydroxide) Ethylene Glycol Formaldehyde Ethyl, Methyl Alcohols





2-PORT MANIFOLD

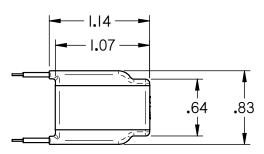




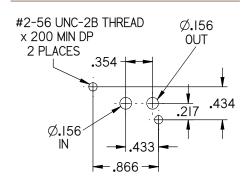


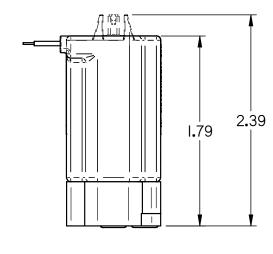
Humphrey 300 MANIFOLD SPECIFICATIONS

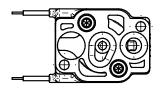
Valve Function:	Normally Closed	
Wetted Parts (Body and Diaphragm-Poppet):	PEEK, Viton®GF or EPDM	
Number of Ports:	2	
Number of Positions:	2	
Type of Operation:	Direct Solenoid, Media Separated	
Piping Type:	Manifold, Sub-base Piping	
Media:	Aggressive Liquids (Gases)	
Internal Volume:	Unactuated Under Poppet: 0.004in³ Actuated: 0.012in³	
Max Flow (Water) @ 40 PSI:	1.83 LPM	
Max Flow (Air) @ 40 PSI:	62 LPM	
Pressure Range:	Vacuum to 40 PSI	
Fluid Temp Range:	-20°C to 95°C	
Ambient Temp Range:	-20°C to 65°C	
Max Cycles/Min:	300	
Response Time:	25msec @ 40 PSI	
Electrical Entry:	Plug-In or Lead Wires	
Available Voltages:	12VDC, 24VDC	
Voltage Tolerance:	±10%	
Power Consumption:	3.5W	
Weight:	0.27 lbs	

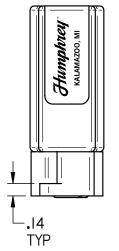


FOOTPRINT









RECOMMENDED MOUNTING HARDWARE:

Screws: SHCS #2-56 x 5/16 with 5/64 Hex Head

Screw Install

Tool: 5/64 Hex Head Ball End Screw Driver (McMaster-Carr 5497A24; Grainger 29RU75)

RECOMMENDED MATING ELECTRICAL CONNECTION:

Pins: Tyco 640442-2; Molex 22-01-2027 **Lead Wire**: Connect to 22 AWG x 24" length

2-PORT INLINE





3-PORT INLINE

►NO ►NC





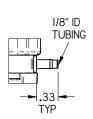
Humphrey 300 2-,3-PORT INLINE SPECIFICATIONS

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Valve Function:	Normally Closed	
Wetted Parts (Body and Diaphragm-Poppet):	PEEK, Viton®GF or EPDM	
Number of Ports:	2	3
Number of Positions:	2	2
Type of Operation:	Direct Solenoid, Media Separated	
Piping Type:	Inline, Direct Piping	
Media:	Aggressive Liqu	uids and Gases
Max Flow (Water) @ 40 PSI:	1.45 LPM	
Max Flow (Air) @ 40 PSI:	50 LPM	
Pressure Range (Common 2-, 3-Port):	Vacuum to 40 PSI	
Reverse Pressure Range, 3-Port (NO or NC):	Vacuum to 10 PSI	
Fluid Temp Range:	-20°C to 95°C	
Ambient Temp Range:	-20°C to 65°C	
Maximum Cycles/Min:	300	
Response Time:	25msec @ 40 PSI	
Port Size (Barbs, Tubing ID):	1/16", 3/32" or 1/8"	
Electrical Entry:	Plug-In or Lead Wires	
Available Voltages:	12VDC,	24VDC
Voltage Tolerance:	±10	0%
Power Consumption:	3.5W	
Weight:	0.22	lbs

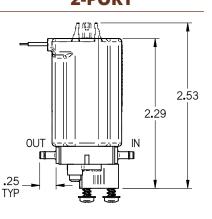
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Internal Volumes	1/16" Barb Body	3/32" Barb Body	1/8" Barb Body
2-Way Unactuated Under Poppet	0.007in ³	0.007in ³	0.009in ³
2-Way Actuated	0.013in ³	0.014in³	0.017in ³
3-Way Unactuated (Common & NO)	0.010in³	0.012in³	0.014in³
3-Way Unactuated (Common & NC)	0.009in ³	0.010in ³	0.022in³

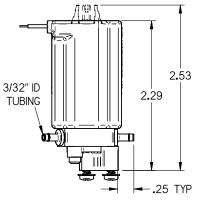
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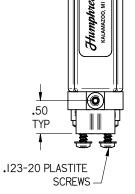


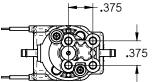
2-PORT



3-PORT







RECOMMENDED MATING ELECTRICAL CONNECTION:

Pins: Tyco 640442-2; Molex 22-01-2027 Lead Wire: Connect to 22 AWG x 24" length

350 SERIES

PRODUCT FEATURES

- Inert wetted materials provide broad chemical compatibility
- Max pressure: 40 PSI (2.76 bar) standard
- Flow rates @ 40 PSI: 0 220 slpm air or 0 5.3 lpm water
- Integral diaphragm-poppet isolates flow path from solenoid
- Continuous-duty encapsulated coil for operation in wet environments
- Suitable for high fluid temperatures up to 203°F (95°C)
- Robust design; Long service life
- Factory testing ensures reliability and repeatability
- Porting and mounting options offer design flexibility
- Manifold version available (see iDP 351)



350 2-Port Inline



351 2-Port Manifold

TYPICAL FLUIDS*

Biological Solutions

Dialysate

Renaline®

Formaldehyde

Saline

Dextrose/Sugars

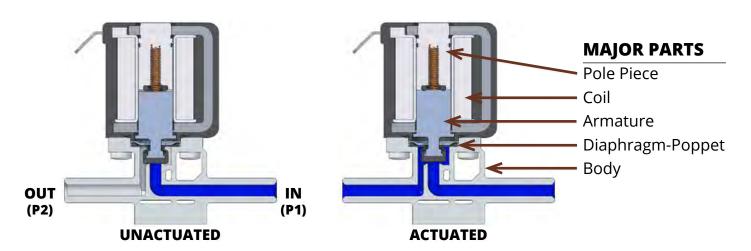
Hydrogen Peroxide

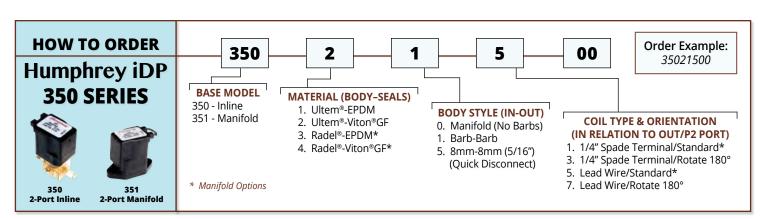
Citric Acid

Acetic Acid

Sodium Hypochlorite

*Consult factory for assistance.

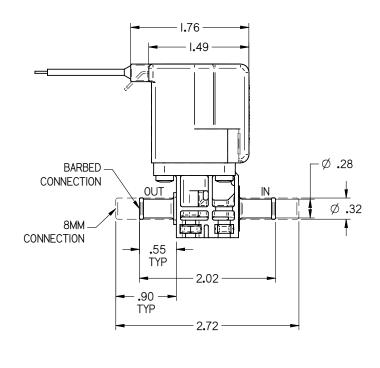


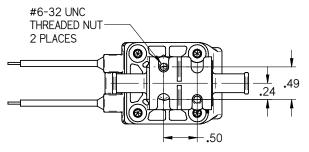


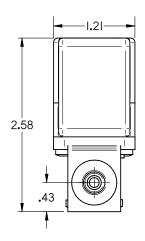


Humphrey 350 SERIES SPECIFICATIONS

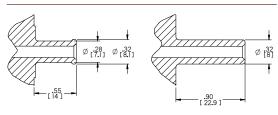
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Valve Function:	Normally Closed	
Wetted Parts (Body & Diaphragm-Poppet):	Radel® or Ultem® and Viton®GF or EPDM	
Number of Ports:	2	
Number of Positions:	2	
Type of Operation:	Direct Solenoid, Media Separated	
Piping Type:	Inline, Direct Piping	
Media:	Aggressive Liquids (Gases)	
Internal Volume (Barb Body):	Unactuated Under Poppet: 0.026in³ Actuated: 0.062in³	
Max Flow (Water) @ 40 PSI:	5.3 LPM	
Max Flow (Air) @ 40 PSI:	220 LPM	
Pressure Range:	Vacuum to 40 PSI	
Fluid Temp Range:	-20°C to 95°C	
Ambient Temp Range:	-20°C to 65°C	
Max Cycles/Min:	300	
Response Time:	16msec @ 40 PSI	
Port Size:	5/16" Barb; 8mm Quick Disconnection	
Electrical Entry:	Spade Terminals or Lead Wires	
Voltage:	24VDC	
Voltage Tolerance:	±10%	
Power Consumption:	8.3W	
Weight:	0.38 lbs	







BODY STYLE OPTIONS



5/16" Barb

8mm Quick Disconnection

RECOMMENDED MATING ELECTRICAL CONNECTION:

Spade Size: 1/4 inch Terminal

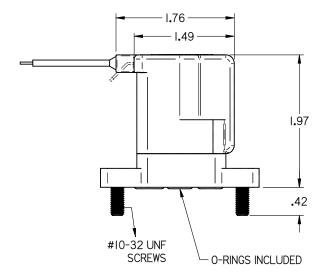


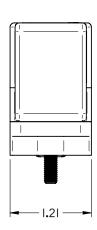


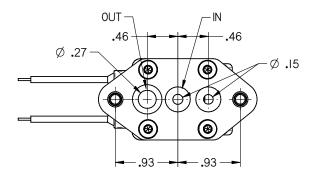


Humphrey 351 SERIES SPECIFICATIONS

Valve Function:	Normally Closed
Wetted Parts (Body & Diaphragm-Poppet):	Radel® and Viton®GF or EPDM
Number of Ports:	2
Number of Positions:	2
Type of Operation:	Direct Solenoid, Media Separated
Piping Type:	Manifold Mount
Media:	Aggressive Liquids (Gases)
Internal Volume:	Unactuated Under Poppet: 0.004in³ Actuated: 0.037in³
Max Flow (Water) @ 40 PSI:	5.3 LPM
Max Flow (Air) @ 40 PSI:	220 LPM
Pressure Range:	Vacuum to 40 PSI
Fluid Temp Range:	-20°C to 95°C
Ambient Temp Range:	-20°C to 65°C
Max Cycles/Min:	300
Response Time:	16msec @ 40 PSI
Electrical Entry:	Spade Terminals or Lead Wires
Voltage:	24VDC
Voltage Tolerance:	±10%
Power Consumption:	8.3W
Weight:	0.39 lbs







RECOMMENDED MATING ELECTRICAL CONNECTION:

Spade Size: 1/4 inch Terminal

370 SERIES

PRODUCT FEATURES

- Inert wetted materials provide broad chemical compatibility
- Max pressure: 40 PSI (2.76 bar) standard
- Flow rates @ 40 PSI: 0 220 slpm air or 0 5.3 lpm water
- Integral diaphragm-poppet isolates flow path from solenoid
- Continuous-duty encapsulated coil for operation in wet environments
- Suitable for high fluid temperatures up to 203°F (95°C)
- Robust design; Long service life
- Factory testing ensures reliability and repeatability
- Porting and mounting options offer design flexibility
- Manifold version available (see iDP 371)





371 3-Port Manifold

TYPICAL FLUIDS

Biological Solutions

Dialysate

Renaline®

Formaldehyde

Saline

Dextrose/Sugars

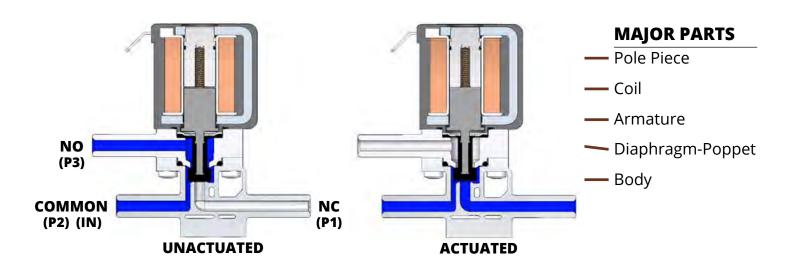
Hydrogen Peroxide

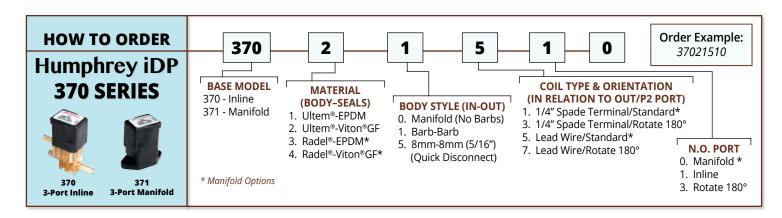
Citric Acid

Acetic Acid

Sodium Hypochlorite

*Consult factory for assistance.

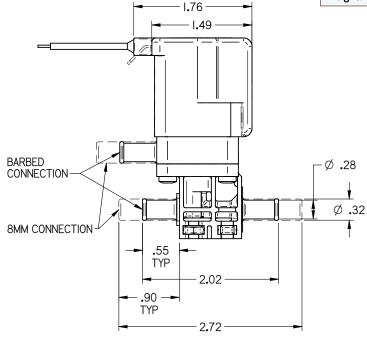


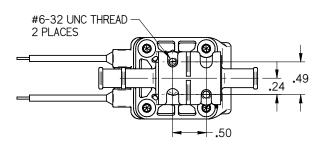


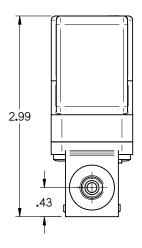


Humphrey 370 SERIES SPECIFICATIONS

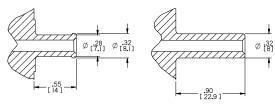
O Jumpitudy 370 SERIES SI ECH ICATIONS		
Valve Function:	Normally Closed	
Wetted Parts (Body & Diaphragm-Poppet):	Radel® or Ultem® and Viton®GF or EPDM	
Number of Ports:	3	
Number of Positions:	2	
Type of Operation:	Direct Solenoid, Media Separated	
Piping Type:	Inline, Direct Piping	
Media:	Aggressive Liquids (Gases)	
Internal Volume (Barb Body):	Unactuated (Common & NO): 0.086in ³ Actuated (Common & NC): 0.062in ³	
Max Flow (Water) @ 40 PSI:	5.3 LPM	
Max Flow (Air) @ 40 PSI:	220 LPM	
Pressure Range (common):	Vacuum to 40 PSI	
Reverse Pressure Range (NO or NC):	Vacuum to 20 PSI	
Fluid Temp Range:	-20°C to 95°C	
Ambient Temp Range:	-20°C to 65°C	
Max Cycles/Min:	300	
Response Time:	20msec @ 40 PSI	
Port Size:	5/16" Barb; 8mm Quick Disconnection	
Electrical Entry:	Spade Terminals or Lead Wires	
Voltage:	24VDC	
Voltage Tolerance:	±10%	
Power Consumption:	8.3W	
Weight:	0.40 lbs	







BODY STYLE OPTIONS



5/16" Barb

8mm Quick Disconnection

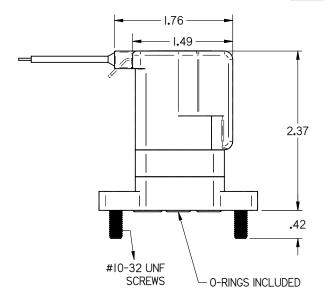
RECOMMENDED MATING ELECTRICAL CONNECTION:

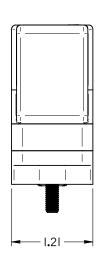
Spade Size: 1/4 inch Terminal

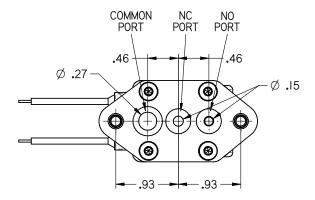


Humphrey 371 SERIES SPECIFICATIONS

Valve Function:	Normally Closed
Wetted Parts (Body & Diaphragm-Poppet):	Radel® and Viton®GF or EPDM
Number of Ports:	3
Number of Positions:	2
Type of Operation:	Direct Solenoid, Media Separated
Piping Type:	Inline, Direct Piping
Media:	Aggressive Liquids (Gases)
Internal Volume:	Unactuated (Common & NO): 0.077in ³ Actuated (Common & NC): 0.035in ³
Max Flow (Water) @ 40 PSI:	5.3 LPM
Max Flow (Air) @ 40 PSI:	220 LPM
Pressure Range (common):	Vacuum to 40 PSI
Reverse Pressure Range (NO or NC):	Vacuum to 20 PSI
Fluid Temp Range:	-20℃ to 95℃
Ambient Temp Range:	-20°C to 65°C
Max Cycles/Min:	300
Response Time:	20msec @ 40 PSI
Electrical Entry:	Spade Terminals or Lead Wires
Voltage:	24VDC
Voltage Tolerance:	±10%
Power Consumption:	8.3W
Weight:	0.42 lbs







RECOMMENDED MATING ELECTRICAL CONNECTION:

Spade Size: 1/4 inch Terminal

390 SERIES

PRODUCT FEATURES

Proportional Diaphragm Isolation Valve

- Flow increase proportional to current increase
- Inert wetted materials provide broad chemical compatibility
- Max pressure: 40 PSI (2.76 bar) standard Consult factory for higher pressure applications
- Flow rates: 0 80 SLPM air or 0 1.5 LPM water
- Integral diaphragm-poppet isolates flow path from solenoid
- Encapsulated coil for operation in wet environments
- Suitable for high fluid temperatures up to 203°F (95°C)
- Individual testing insures reliability and repeatability
- Porting and mounting design flexibility



390 2-Port Inline



391 2-Port Manifold

TYPICAL FLUIDS*

Biological solutions Dialysate

Renaline®

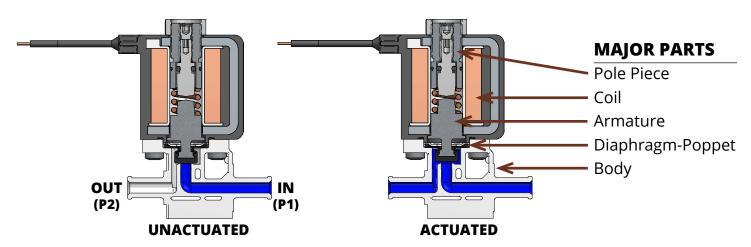
Formaldehyde

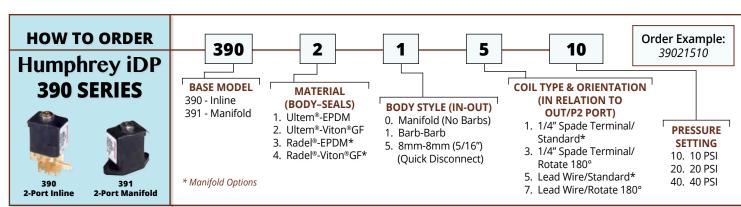
Saline

Dextrose/Sugars Hydrogen Peroxide

Citric Acid

Acetic Acid Sodium Hypochlorite *Consult factory for assistance.

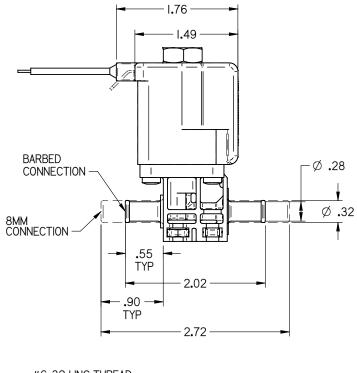


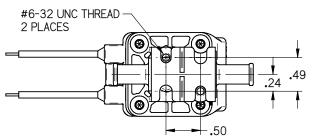


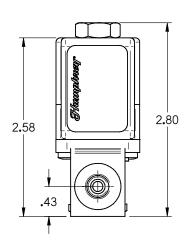


Humphrey 390 SERIES SPECIFICATIONS

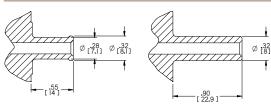
Valve Function:	Normally Closed
Wetted Parts (Body &	Ultem® or Radel® and
Diaphragm-Poppet):	Viton®GF or EPDM
Number of Ports:	2
Type of Operation:	Direct Solenoid, Media Separated
Piping Type:	Inline, Direct Piping
Media:	Aggressive Liquids (Gasses)
Internal Volume (Barb Body):	Unactuated Under Poppet: 0.026in³ Actuated: 0.062in ⁸
Internal Volume (8mm Male Body):	Unactuated Under Poppet: 0.026in³ Actuated: 0.074in ⁸
Max Flow (Water) @ 40 PSI:	1.5 LPM
Max Flow (Air) @ 40 PSI:	80 LPM
Pressure Range:	Vacuum to 40 PSI
Fluid Temp Range:	-20°C to 95°C
Ambient Temp Range:	-20°C to 65°C
Port Size:	5/16" Barb; 8mm Quick Disconnection
Electrical Entry:	Spade Terminals or Lead Wires
Voltage:	24VDC
Operating Current Range:	0–250 mA
Voltage Tolerance:	±10%
Power Consumption:	8.3W
Weight:	0.42 lbs







BODY STYLE OPTIONS



5/16" Barb

8mm Quick Disconnection

RECOMMENDED MATING ELECTRICAL CONNECTION:

Spade Size: 1/4 inch Terminal

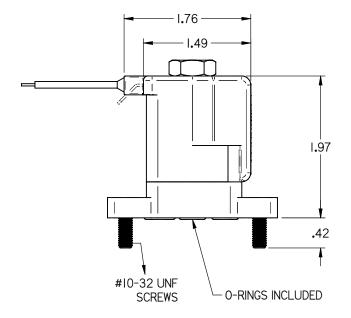


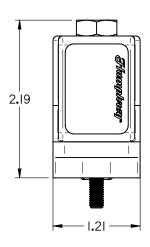


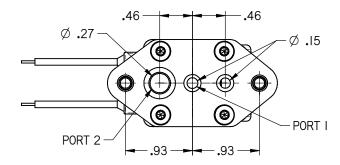


Humphrey 391 SERIES SPECIFICATIONS

O Junique 39 I 3L	
Valve Function:	Normally Closed
Wetted Parts (Body & Diaphragm-Poppet):	Ultem [®] or Radel [®] and Viton [®] GF or EPDM
Number of Positions:	2
Type of Operation:	Direct Solenoid, Media Separated
Piping Type:	Manifold
Media:	Aggressive Liquids (Gasses)
Max Flow (Water) @ 40 PSI:	1.5 LPM
Max Flow (Air) @ 40 PSI:	80 LPM
Pressure Range:	Vacuum to 40 PSI
Fluid Temp Range:	-20°C to 95°C
Ambient Temp Range:	-20°C to 65°C
Electrical Entry:	Spade Terminals or Lead Wires
Voltage:	24VDC
Operating Current Range:	0-250 mA
Voltage Tolerance:	±10%
Power Consumption:	8.3W
Weight:	0.42 lbs





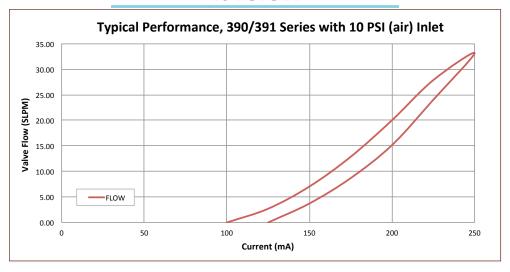


RECOMMENDED MATING ELECTRICAL CONNECTION:

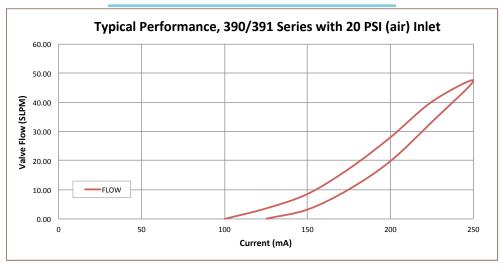
Spade Size: 1/4 inch Terminal **Lead Wires**: Connect to 20 AWG x 45" length

390 SERIES

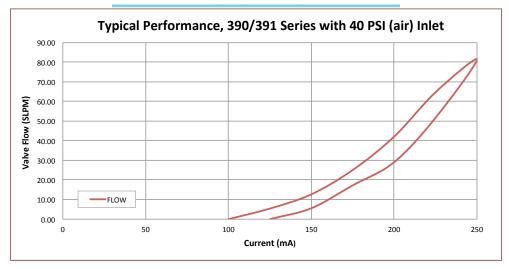
10 PSI SET



20 PSI SET



40 PSI SET



390/391 series valves are 100% factory calibrated and tested utilizing pneumatic DAQ driven system. This process insures a more stringent evaluation and precision calibration utilizing higher fidelity pneumatic instrumentation.