

# HUMPHREY SELECTION GUIDE

Organized by Port Size

## SOLENOID

### 2-, 3-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
H010E1	0.01	3E1	0.01	31E1	0.09	(V)062E1	0.12			(VA/VV)500(A)E1	2.16	(VA)590(A)E1	2.56
H041E1	0.08	M3E1	0.01	M31E1	0.06	T062E1	0.11			500E2	2.16	(VA)590(A)E2	2.56
H040 E1	0.08	M3E1-81-MTL	0.01	310	0.12	125E1	0.19			501E1	2.20		
		3E1-PCM	0.01	S310	0.15	T125E1	0.17			501E2	2.20		
		3E1-39-BOU	0.01	M310	0.12	(VA/VV)250(A)E	0.63						
		3E1-TSD	0.01	(VA)125(A)E1L	0.24	250E2	0.63						
		H(V)030E1	0.03	M125E1LW	0.17	320	1.00						
		H110E1	0.23	H181E1	0.57								
		H111E1	0.23										

### 4-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
H040 4E1	0.08	401	0.05	41E1	0.03	42E1	0.43			501-4E1	1.80		
H040 4E2	0.08	M401	0.05	M41E1	0.03	M42E1	0.39			501-4E2	1.80		
		402	0.04	MC41E1	0.03	42E2	0.43						
		M402	0.04	410	0.14	062-4E1	0.07						
		H030-4E1	0.03	410-70	0.14	125-4E1	0.11						
		H110-4E1	0.23	S410	0.13	T062-4E1	0.07						
		H110-4E2	0.23	S410-70	0.13	T125-4E1	0.11						
		H113-4E2	0.21	M410	0.13	M42E2	0.39						
				M410-70	0.13	250-4E1	0.58						
				H180-4E1	0.57	250-4E2	0.88						
				H180-4E2	0.57	H240-4E1	0.88						
				H183-4E2	0.50	H243-4E2	0.83						
						S420	1.00						
						M420	1.00						

## AIR PILOTED

### 2-, 3-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
		2P	0.09	31P	0.29	(VA/VV)250A	0.63			(VA)500A	2.20	(VA)590A	3.73
		3P	0.09	(VA)125A	0.22	250AA	0.85			500AB	2.20	590AB	3.73
				125AA	0.23	250AL	0.65			500AG	2.20	590AG	3.73
				125LA	0.15	250AH	0.50			501A	2.41		
				125AH	0.17					501AA	2.49		

### 4-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
		4P	0.11	41P	0.29	42A	0.38			501-4A	1.89		
		4PP	0.11	41PP	0.28	42A2	0.35			501-4AA	1.89		
		110-4A	0.23	H180-4A	0.50	M42A2	0.32						
		110-4A2	0.23	H180-4A2	0.50	250-4A	0.49						
						250-4AA	0.75						

## MANUAL/MECHANICAL

### 2-, 3-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
		2P	0.09	31P	0.29	250PL	0.83			501V	2.20	590C	3.85
		2V	0.09	31V	0.29	250P	0.84			(V)500C	2.20		
		3P	0.09	125PLG	0.22	250HO	0.83						
		3V	0.09	125P	0.22	250F	0.83						
				125HO	0.22	(V)250C	0.83						
				125B	0.23	250T	0.83						
				125MP	0.22	(V)250V	0.83						
				125MC	0.22								
				125MOC	0.22								
				125C	0.22								
				125T	0.22								
				(V)125V	0.22								

### 4-way

M3	C <sub>v</sub>	10-32	C <sub>v</sub>	1/8"	C <sub>v</sub>	1/4"	C <sub>v</sub>	3/8"	C <sub>v</sub>	1/2"	C <sub>v</sub>	3/4"	C <sub>v</sub>
		4P	0.11	41P	0.29	42P	0.39						
		4PP	0.11	41PP	0.29	42PP	0.39						
		4PPX	0.29	41PPX	0.29	M42P	0.32						
		4PP/PPX	0.29	41PP/PPX	0.29	M42PP	0.29						
		4V	0.11	41V	0.29	M42PA	0.29						
				41T	0.09	250-4F	0.75						
				41R	0.09	250-4H	0.75						

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# Humphrey General Guidelines

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## 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 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, 20w or 30w, 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.

## 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.

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.

The following are registered trademarks of the companies indicated: Delrin, Zytel, E.I., duPont; Rylton, Phillips Petroleum.

Specifications subject to change without notice.

All port connections are available in metric sizes. Specify metric port threads by using letter E as a model number prefix. The bottom number in all drawing dimensions is shown in millimeters.

**HUMPHREY PRODUCTS** **MH6681 (N)**  
**KILGORE AND SPRINKLE ROADS P O BOX 2008,** **CSA LR41336**  
**KALAMAZOO MI 49003**

The following models are UL RECOGNIZED for component use.

Models 3E1, M3E1 valves; Models DMZ1, MZ1 manifolds.

Models 31E1, 41E1, M31E1, M41E1, MC41E1 valves; Models MM-2 through -7, MMC-2 through -7 manifolds.

Models 062-4E1, 062-4E2, 062E1, 062E2, VO62E1 valves, may be prefixed by T. Models TM-1R through -12R manifolds.

Models 125-4E1, 125E1, V125E1 valves, may be prefixed by T. Models TM-1R through -12R manifolds.

Model 310 may be prefixed by E, EM, ES, ESMP, EV, EVM, EVS, EVSMP, M, S, SMP, V, VM, VS, VSMP, may be suffixed by 2, 21, 39, 50, 81, 87, LL, MOV, RC, or SA, suffixed by UR.

Model 410 may be prefixed by E, EM, ES, ESMP, M, S, SMP, may be suffixed by 21, 39, 50, 70, 81, 87, LL, MOV, RC, or SA, suffixed by UR.

Models 250E1, 250E2.

The following models are UL LISTED for General use.

Model 062-4E1 with or without suffix 21, followed by 36, with or without suffixes 61 and/or 70.

Models 062E1, VO62E1 followed by 2 or 3, followed by 10 or 11, with or without suffix 20 or 21, followed by 36, with or without suffix 61.

Model 125-4E1 may be prefixed by T, with or without suffix 21, followed by 36, with or without suffix 60 or 70,

Model 125E1 may be prefixed by T, suffixed by 2 or 3, followed by 10 or 11, with or without suffix 20 or 21, followed by 36, may be followed by 60.

Model V125E1 followed by 2 or 3, followed by 10 or 11, with or without suffix 20 or 21, followed by 36, may be followed by 60.

Model V125E1 followed by 2 or 3, followed by 10 or 11, with or without suffix 20 or 21, followed by 36.

Models 250-4E1, 250-4E2 with or without suffix 21.

Model 250E1 followed by 2 or 3, followed by 10 or 11, followed by 20 or 21, followed by 36, with or without suffix 61.

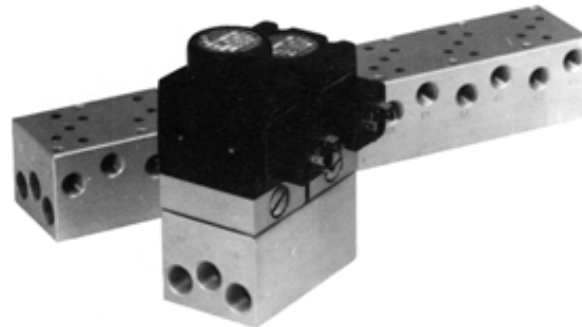
Models TM-1L thru -12L manifolds.





**42E1-39**

Model 42E1-39 is identical to 42E1. Code 39 is a plug-in (DIN) electrical connector. Code 39 is also available for models M42E1, 42E2, and M42E2. Example: M42E2-39.



**TAC<sup>3</sup> MC Manifolds**

Manifolds permit centralized location of control valves, simplify plumbing, and reduce installation and maintenance costs. Valves and manifolds can be sub-assembled and placed in the end-product as a complete control unit, thereby saving the time and labor involved when installing valves individually.

MC Series manifolds are of rugged, one-piece extruded aluminum construction and are available two to seven stations. An MC

manifold has common inlet and two common (captured) exhausts. Captured exhaust is desirable when the exhausting medium must be piped away to avoid contamination of the ambient area, as in clean rooms.

Valves mount in one of two positions by reversing the valve on the manifold.

Manifold is furnished with mounting brackets and screws, permitting four mounting options.



**Mounting Bracket 8-25A**

Z-type mounting bracket with two 5/16-18 x 3/8 screws, and two 1/4-20 x 1 screws (not shown). Provides four different mounting possibilities. Bracket and screws are zinc plated steel.



**Block-Off Plate 8-38A**

Suspends use of station. Use in advance to provide for future addition of valves.



**Speed Control Code 73**

Provides controlled exhaust flow in both modes of valve operation. Exhaust is ported into manifold and may be captured.

**Specifications**

**MEDIA:**  
Compressed Air (Consult factory for others)

**PRESSURE RANGE:**  
**E1/E2:** 30 to 100 psig (2.1 to 7.0 bars)  
**AE1/AE2:** 0 to 125 psig (0 to 8.6 bars) (body), 30 to 100 psig (2.1 to 7.0 bars) (pilot)

**TEMPERATURE RANGE:**  
-20 to 150°F (-28.9 to 65.6°C)

**OPERATING SPEEDS:**  
To 600 CPM

**MATERIALS:**  
Zinc Die Cast, Aluminum, Brass, Stainless Steel, Zinc Plated Steel, Delrin, Buna N

**LUBRICATION:** Recommended

**FILTRATION:** Recommended, 40 Microns Minimum

**Electrical Specifications**

MODEL	VOLTAGE	COIL NUMBER	WATTS	AMPS	OHMS	HEAT RISE (°C)	ON TIME SECONDS	OFF TIME SECONDS
42E1	24 DC	46-8A	6.7	0.296	86	85.9	0.023	0.025
	120 AC	46-4	8.2	0.161	255	102.0	0.009	0.027
42E2	24 DC	46-8A	6.7	0.296	86	85.9	0.013	0.022
	120 AC	46-3	23.0	0.236	105	77.8	0.009	0.016

Lead Wire: # 18 AWG, 16-30 TC, 1/32, 105°C, PVC, UL & CSA.

**Air Flow to Atmosphere**

MODEL	Weight				ACTUAL LBS	KGS
	25 PSIG CFM	(1.7 BARS) LPM	125 PSIG CFM	(8.6 BARS) LPM		
All	11.0	311.0	40.0	1132.0	1.3	0.63

**Fill/Exhaust Times (Seconds)**

MODEL	SUPPLY PRESSURE							
	At 50 psig (3.5 bars)				At 100 psig (7.0 bars)			
	Chamber Fill 0-40 psig (0-2.8 bars)		Exhaust 50-10 psig (3.5-.7 bars)		Chamber Fill 0-80 psig (0-5.5 bars)		Exhaust 100-20 psig (7.0-1.4 bars)	
	10 Cubic Inches (164cc)		100 Cubic Inches (1640cc)		10 Cubic Inches (164cc)		100 Cubic Inches (1640cc)	
	FILL	EXHAUST	FILL	EXHAUST	FILL	EXHAUST	FILL	EXHAUST
42E1/E2	0.067	0.120	0.475	0.991	0.074	0.142	0.524	1.170

# Humphrey Electric Air Valves

## Order Information

### TAC<sup>3</sup> Electric & 42LW Series 1/4-inch ports, 4-way

#### VALVES

Option Code	Mount. Base	Spade Terminals	Grommet Conduit Leads (18")	Flying Leads (18")	Grommet/Conduit Leads (72")	DIN Connector	Pilot Manual Override		FKM** Seals	Specify Voltage with option Code				
							non-locking	locking		12VDC, 24VDC 24/50/60	120/50/60	240/50/60	Specify Voltage	
				38	LL	39	80	81	w/VAI	CD	ID	CD	ID	Specify Voltage
<b>Model</b>														
<b>42E1</b>	OS	NA	STD	NA	SP	SP	NA	NA	SP	STD	NA	SP	NA	
<b>42AE1</b>	OS	NA	STD	NA	SP	SP	NA	NA	SP	STD	NA	SP	NA	
<b>42E2</b>	OS	NA	STD	NA	SP	SP	NA	NA	SP	SP	STD	SP	SP	
<b>42AE2</b>	OS	NA	STD	NA	SP	SP	NA	NA	SP	SP	STD	SP	SP	
<b>M42E1</b>	NA	NA	STD	NA	SP	SP	NA	NA	SP	STD	NA	SP	NA	
<b>M42AE1</b>	NA	NA	STD	NA	SP	SP	NA	NA	SP	STD	NA	SP	NA	
<b>M42E2</b>	NA	NA	STD	NA	SP	SP	NA	NA	SP	SP	STD	SP		
<b>M42AE2</b>	NA	NA	STD	NA	SP	SP	NA	NA	SP	SP	STD	SP		

CD=Continuous Duty; ID=Intermittent Duty

\*Main Valve body only.

\*\*Fluoroelastomer

#### MANIFOLDS

Model
<b>MC2</b>
<b>MC3</b>
<b>MC4</b>
<b>MC5</b>
<b>MC6</b>
<b>MC7</b>

MC2=2 Station.

MC7=7 station, etc.

#### ACCESSORIES

Model	Description
<b>8-25A</b>	Mounting bracket for in-line Valves and for Manifolds.
<b>HS-4</b>	DIN Connector (42 Series) for use with Code 39 Valves.
<b>Code 73</b>	Speed Control for all Prefix M Valves.
<b>8-38A</b>	Block-off Plate for MC Series Manifolds.

NOTE: Valves, Manifolds, and Accessories are shipped detached, ready to be mounted according to specific application requirements.

#### HOW TO ORDER

Starting with Model Number specify options in order from left to right.

Example: To Order Model 42E2-LL w/VAI 24VDC CD

4-Way Operation, Double Solenoid (42E2)  
 72" Flying Leads (42E2-LL)  
 With fluoroelastomer seals (42E2-LL w/VAI)  
 Voltage 24 VDC 50/60 Continuous Duty Coil (42E2-LL w/VAI 24 VDC 50/60 CD)

Remember: Option Codes marked STD and NA are not used as part of the Model Number when ordering. N/C indicates no charge but Option Code must be included in the Model Number. OS indicates that Option must be ordered separately and is not used as part of the Model Number.

N/C=No charge  
 NA =Not available  
 OS =Order separately, additional charge for this option  
 STD=Standard  
 SP=Specify, additional charge for this option