

HUMPHREY SELECTION GUIDE

Organized by Port Size

SOLENOID

2-, 3-way

M3	C _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
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 _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
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 _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
		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 _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
		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 _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
		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 _v	10-32	C _v	1/8"	C _v	1/4"	C _v	3/8"	C _v	1/2"	C _v	3/4"	C _v
		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						

Humphrey General Guidelines

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.



MC41E1

Model MC41E1 is a manifold-mounted version of the 41E1 valve which has been designed specifically for use on Mini-Myte MMC manifolds with common (captured) exhaust. Captured exhaust is desirable when exhausting media must be piped away to avoid potential contamination of the ambient area, as in clean rooms.



Mini-Myte MM and MMC 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 in installing valves individually.

MM Manifolds

Model MM Manifolds are of sturdy, one-piece extruded aluminum construction. All cylinder outlet ports are conveniently located on one side of the manifold. MM manifolds have a common inlet and accept any combination of Mini-Myte manifold valves. MM manifolds are available in models offering two through seven stations.

MMC Manifolds

Model MMC manifolds are similar to MM manifolds but feature a common (captured) exhaust. Captured exhaust is desirable when exhausting media must be piped away to avoid contamination of the ambient area, as in clean rooms. MMC manifolds are available in models offering two through seven stations.

Specifications

MEDIA:
Compressed Air (Consult factory for others)

PRESSURE RANGE:
0 to 100 psig (0 to 7.0 bars)

TEMPERATURE RANGE:
-30 to 130°F (-34.4 to 54.4°C)

OPERATING SPEEDS:
To 600 CPM

MATERIALS:
Aluminum, Stainless Steel, Buna N, Polyurethane, Polyester Plastic

LUBRICATION 31E1 Not required
41E1 Required

FILTRATION Recommended,
40 Microns Minimum

Electrical Specifications

MODEL	VOLTAGE	COIL NUMBER	WATTS	AMPS	OHMS	HEAT RISE (°C)	ON TIME SECONDS	OFF TIME SECONDS
M/31E1	24 DC	46-51	8.5	0.352	68	113.2	0.009	0.007
M/41E1	120 AC	46-52	7.0	0.084	800	95.2	0.007	0.041
MC/41E1								

Lead Wire: #22 AWG, Temperature Rating 80°C, Voltage Rating: 300 Volts, UL Style: 1007, CSA Type: TR-64, PVC Insulation.

Air Flow to Atmosphere

Weight

MODEL	25 PSIG (1.7 BARS)		100 PSIG (7.0 BARS)		ACTUAL	
	CFM	LPM	CFM	LPM	LBS	KGS
M/MC31E1	1.5	42.4	6.0	169.8	0.30	0.14
M/MC41E1	1.0	28.3	2.1	59.4	0.32	0.15

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
M/MC31E1	0.295	0.364	2.850	3.840	0.316	0.447	3.080	5.990
M/MC41E1	0.837	1.155	8.700	12.758	0.933	1.400	9.560	15.110

Humphrey Mini-Myte Accessories



8-5A Mounting Base
Furnished with two machined screws and two Plastite screws. Use machined screws with Mini-Myte valves.



PF Plug Fitting
A #10-32 screw used to plug unused ports. Furnished with gaskets and sold in bags of 10 each.



97-21 Metering Screw
A #10-32 split nylon screw used for exhaust control. Sold in bags of 10 each.



RBF Reducer Bushing
A 1/8" NPT male to female #10-32 bushing for use with 97-21 Metering Screw to control exhaust of 31E1 valve. Sold in bags of 10 each.



BF Barbed Fitting
#10-32 male to female 1/8" O.D. tubing. Furnished with gaskets and sold in bags of 10 each.



BF1 Barbed Fitting
#10-32 male to female 1/4" O.D. tubing. Use with 1/8" to 3/16" I.D. tubing. Supplied with gaskets and sold in bags of 10 each.



PBF1 Pipe Barbed Fitting
1/8" NPT male to female 1/4" O.D. Use with 1/8" to 3/16" I.D. tubing. Supplied with gaskets and sold in bags of 10 each.



150-30A Muffler
#10-32 male thread. Fabricated of sintered bronze and furnished with gasket. Sold in bags of 10 each.



8-37A BOP Block-Off Plate
For suspending use of any MM or MMC Manifold station or providing for future addition of valves.



31-150A Manifold Port Connector
For linking manifolds together when more than a 7-station manifold is needed. Connects either manifold IN or EXHAUST ports. Does not change dimensions. Consider connecting supply air to IN ports on both ends of manifold to ensure adequate supply of air to valves, especially in rapid cycling applications.



43-42 Block-Off Seal (Red)
Substitute for any black "through" seal to isolate valve/manifold ports. Typical use: to provide separate supply pressure to M31E1 valve. Substitute #43-42 Block-Off Seal for valve "through" seal. The "through" seal is the seal that lines up with the manifold supply

(IN) orifice, which is the smaller unthreaded hole located farthest from the manifold cylinder (NO and NC) ports. The separate supply pressure should be connected to the #10-32 valve port on the blind side of the manifold. Sold in bags of 10 each.

Mini-Myte Series 1/8-inch ports, 3-way & 4-way, Direct operating

VALVES

Option Code	Mounting Base	Flow Controls	Grommet & Conduit Pkg. Leads (18')	Grommet & Conduit Pkg. Leads (72')	Non-Locking Manual Override	Specify Voltage with option code	
						Voltage 12VDC, 24VDC, 24/50/60, 120/50/60, 240/50/60	
				LL		AC	DC
Model 31E1	OS	NA	STD	SP	STD	SP	N/C
M31E1	NA	NA	STD	SP	STD	SP	N/C
41E1	OS	STD	STD	SP	STD	SP	N/C
M41E1	NA	STD	STD	SP	STD	SP	N/C
MC41E1	NA	STD	STD	SP	STD	SP	N/C

MANIFOLDS

MM Series (Common "IN")

MMC Series (Common "IN" & EXHAUST")

Model
MM2
MM3
MM4
MM5
MM6
MM7

Model
MMC2
MMC3
MMC4
MMC5
MMC6
MMC7

Example: MM2=2 station; MMC7=7 station; etc.

ACCESSORIES

Model	Unit	Description
BF**	Box of 10	Barbed Fitting, #10-32 thread to 1/8" O.D. hose.
BF1**	Box of 10	Barbed Fitting, #10-32 thread to 1/4" O.D. hose.
PBF1**	Box of 10	1/8" NPT male to 1/4" (O.D.) hose barbed fitting same as BF1.
RBF**	Box of 10	Reducer bushing 1/8" NPT male to #10-32 female.
BOP 8-37A	ea	Block-off Plate - MM or MMC Manifold.
8-5A	ea	Mount, with 2 screws.
31-150A	ea	Manifold Port Connector.
43-42**	Box of 10	Block-Off Seal (Red) - MM or MMC Manifold.
97-21**	Box of 10	Metering Screw, #10-32 thread.
PF**	Box of 10	Plug Fitting #10-32 thread.
130-31	ea	Pipe Plug, 1/8".
150-30A**	Box of 10	Muffler, #10-32 thread.

**Order by quantity of boxes only.

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 M31E1-LL 24VAC

Manifold Mounting 3-Way Operation	(M31E1)
72" Flying Leads	(M31E1-LL)
Voltage 24VAC	(M31E1-LL 24VAC)

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	STD=Standard
NA =Not available	SP=Specify, additional charge for this option
OS =Order separately, additional charge for this option	