



Electronic Metering Pumps

Series MP

Key Features

- Automatic Control, Fully scalable 4-20mA current signal that can also be calibrated to precisely match the current signal reading of the sending device.
- Manual Control allows for a combined 1000:1 turndown resulting in accurate metering for critical applications.
- Flow Verification option is available on select sizes.
- Relay Output for computer interface or AC power allows for external control.
- Six-button Touch Pad Control with internationally recognized symbols for simplified programming.
- Simple Prompts in plain language allow for easy-to-understand instructions for programming. Available in three languages.
- Alarm Signals for signal loss, full count, circuit failure, pulse overflow and pulse rate high. Liquid low level indicator capability is standard.
- Timed Sequences can be set for selected intervals and rate for repetitive metering.
- Pulse Signals can be multiplied or divided by 1 to 999 allowing for pumps to handle peak requirements.
- LCD, 3 line backlit multi-lingual display allows for easy reading and user-friendly programming.
- Calibrated Flow Rate display with total volume pumped last day, month and since last reset.



Pressure and Flow Rate Capacity

MODEL		LMK2	LMB2	LMA2	LMD3	LMB3	LMA3	LMK3	LMF4	LMD4	LMB4	LMH4	LMG4	LME4	LMK5	LMH5	LMH6	LMK7	LMH7	LMH8
Capacity nominal (max.)	GPH	0.13	0.21	0.25	0.50	0.50	0.50	0.60	0.85	0.90	1.00	1.70	1.75	1.85	2.50	3.15	5.00	8.00	10.00	21.00
	GPD	3	5	6	12	12	12	14	20	22	24	41	42	44	60	76	120	192	240	504
	LPH	0.5	0.8	0.9	1.9	1.9	1.9	2.3	3.2	3.4	3.8	6.4	6.6	7.0	9.5	11.9	18.9	30.3	37.9	79.5
Pressure (max.)	PSIG	300	250	150	250	150	100	100	250	150	100	250	150	100	150	150	100	50	35	20
	BAR	21	17	10	17	10	7	7	17	10	7	17	10	7	10	10	7	3.3	2.4	1.3
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD													3/8" ID X 1/2" OD 1/2" ID X 3/4" OD (LPH8 ONLY) FLOW VERIFICATION (See Note)					
	Piping	1/4" FNPT													1/4" FNPT 1/2" FNPT					

Note: Flow Verification: Available on K3, B4 and E4 with connection code 1; H6, K7 and H7 with connection code H; 1/4" ID x 3/8" OD only.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.

Controls: 6-Station Membrane Switch

Status Display: 16-Position LCD Dot Matrix Backlight

LED Indicator Lights, Panel Mount: Power On - Green
Pulsing - Green Flashing
Stop - Red

Stroke Frequency Max SPM: 125

External Stroke Frequency Control (Automatic): 4-20 mADC, 20-4 mADC External Pacing

Output Relay (Signal Level Option): 24 VDC, 10 mA

Output Relay (Power Option): 250 VAC, 50/60 HZ, 0.5A

Stroke Frequency Turn-Down Ratio: 100:1

Stroke Length Turn-Down Ratio: 10:1

Engineering Data

Power Input: 115 VAC/50-60 HZ/1 ph
230 VAC/50-60 HZ/1 ph

Average Current Draw: @ 115 VAC; Amps: 1.0 Amps
@ 230 VAC; Amps: 0.5 Amps

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts



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Pulsatron Series MP Model Selection Matrix

PULSAtron Series MP Selection Guide

MODELS:	K2	= 0.13 gph / 3 gpd (0.5 lph) max pres.: 300 PSI (21 BAR)
	B2	= 0.21 gph / 5 gpd (0.8 lph) max pres.: 250 PSI (17 BAR)
	D3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 250 PSI (17 BAR)
	F4	= 0.85 gph / 20 gpd (3.2 lph) max pres.: 250 PSI (17 BAR)
	H4	= 1.70 gph / 41 gpd (6.4 lph) max pres.: 250 PSI (17 BAR)
	A2	= 0.25 gph / 6 gpd (0.9 lph) max pres.: 150 PSI (10 BAR)
	B3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 150 PSI (10 BAR)
	D4	= 0.90 gph / 22 gpd (3.4 lph) max pres.: 150 PSI (10 BAR)
	G4	= 1.75 gph / 42 gpd (6.6 lph) max pres.: 150 PSI (10 BAR)
	K5	= 2.50 gph / 60 gpd (9.5 lph) max pres.: 150 PSI (10 BAR)
	H5	= 3.15 gph / 76 gpd (11.9 lph) max pres.: 150 PSI (10 BAR)
	A3	= 0.50 gph / 12 gpd (1.9 lph) max pres.: 100 PSI (7 BAR)
	K3	= 0.60 gph / 14 gpd (2.3 lph) max pres.: 100 PSI (7 BAR)
	B4	= 1.00 gph / 24 gpd (3.8 lph) max pres.: 100 PSI (7 BAR)
	E4	= 1.85 gph / 44 gpd (7.0 lph) max pres.: 100 PSI (7 BAR)
	H6	= 5.00 gph / 120 gpd (18.9 lph) max pres.: 100 PSI (7 BAR)
	K7	= 8.00 gph / 192 gpd (30.3 lph) max pres.: 50 PSI (3.3 BAR)
	H7	= 10.0 gph / 240 gpd (37.9 lph) max pres.: 35 PSI (2.4 BAR)
	H8	= 21.0 gph / 504 gpd (79.5 lph) max pres.: 20 PSI (1.3 BAR)

CONTROLS:	T	= Signal Level Output Relay
	K	= Power Level Output Relay

ELECTRICAL:	A	= 115 Volt / 50-60Hz
	1	= 115 Volt / 50-60Hz (w ithout agency approvals)
	B	= 230 Volt / 50-60Hz / 1ph w ith 6' (1.8m) 3-w ire US Plug
	2	= 230 Volt / 50-60Hz (w ithout agency approvals)

LIQUID END MATERIALS:	PTC	= GPPPL / TFE / Ceramic
	KTC	= PVDF / TFE / Ceramic (Consult factory for H8)
Pump Head & Fittings/Seats & O-rings/Balls	VHC	= PVC / CSPE / Ceramic (not available on H7, H8, K7)
	VTC	= PVC / TFE / Ceramic (models <= 150 psi excluding H7, H8, K7)
	WTC	= PVC / TFE / Ceramic (models > 150 psi and H7, H8, K7)
	VVC	= PVC / Viton / Ceramic (not available on H8)
	ATS	= 316 S.S. / TFE / 316 S.S. (must use FNPT piping connection) (not available on H8)

See page 4 for additional liquid end materials.

CONNECTION SIZES:	1	= Tubing .25" I.D. x .38" O.D. / .25" Ball, 0 - 1.88 GPH
	3	= Tubing .38" I.D. x .50" O.D. / .38" Ball, 1.63 - 10 GPH
	9	= Degas Head: .25" I.D. x .38" O.D. / 0-1.83 GPH
	J	= Tubing, .25" I.D. x .38" O.D. / .19 Ball; 0 - 1.04 GPH
	METRIC:	
	M	= G 1/2 A Threads, .38" Ball, 6.15 - 37.85 LPH
	R	= G 1/2 A Threads, .25" Ball, 0 - 7.10 LPH
	Y	= 6 x 12mm, .25" Ball, 0 - 7.10 LPH

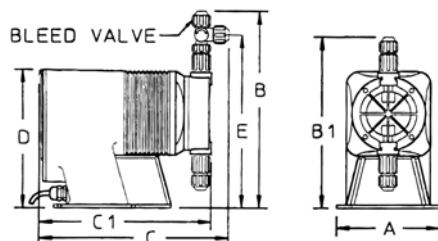
Please Refer to page 5 for additional connection sizes. All pumps with tubing connections come with the following items (except for LMH8, LPH8, LEH8, HV series pumps and pumps >150PSI in PVC): 4' Suction, 4' Return, 8' discharge tubing, footvalve/strainer assy., injection valve and bleed valve.

SUFFIX CODES:	XXX	= No Additional Options
	130	= PVDF Tubing
	500	= Five Function Valve
	520	= Five Function Degas Valve
	FVE	= Flow Verification / EPDM (not available on pumps greater than 100 psi)
	FVV	= Flow Verification / Viton (not available on pumps greater than 100 psi)
	ITS	= 15 gal. ITS Tank System (ITS Tank not available on LM, LP, LT, and LE: H4, H5, H6, H7, H8, J7, K7 models)
	CZXXX	= CE Approval (5 digits used for this suffix code)

See pages 7, 8 & 9 for additional information and specs.

A completed model number should look like 'LMB3TA-PTC1-XXX'

Dimensions



Series MP Dimensions (inches)

Model No.	A	B	B1	C	C1	D	E	Shpg Wt	Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LMA2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH4	6.2	10.9	-	11.2	-	8.2	9.5	21
LMA3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH5	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB2	5.4	10.3	-	10.8	-	7.5	8.9	13	LMH6	6.2	11.3	-	11.2	-	8.2	9.9	21
LMB3	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMB4	5.4	10.6	-	10.7	-	7.5	9.2	13	LMH8*	6.1	-	10.9	-	10.6	8.2	-	25
LMC3	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK2	5.4	10.3	-	10.8	-	7.5	8.9	13
LMC4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK3	5.4	10.6	-	10.7	-	7.5	9.2	13
LME4	5.4	10.6	-	11.2	-	7.5	9.2	15	LMK5	5.4	10.9	-	11.7	-	7.5	9.5	18
LMF4	5.4	10.6	-	11.7	-	7.5	9.2	18	LMK7	6.1	11.7	-	11.2	-	8.2	10.3	21
LMG4	5.4	10.6	-	11.7	-	7.5	9.2	18									

NOTE: Inches X 2.54 = cm / * the LMH8 is designed without a bleed valve available

PULSAtron® *Model Selection Guide*

Once you have selected the appropriate Series, you must configure the model so that it is built with the features you desire. The Configuration Guide associated with each Series will present the most popular selections. Select one code from each category to build up a complete model string.

To help you better understand the model string, in the following pages, we will explain what each of the digits represent and provide you some additional charts to help you select options not found in the Configuration Guides.

Model Selection:

The first four digits represent the Series and Flow/Pressure Selection.

LMK2



The first digit will always start with the letter 'L'.

LMK2



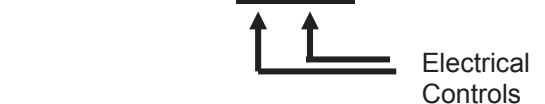
All PULSAtron models begin with this letter. The second letter designates the Series (e.g. Series MP, Series E+, Series A+, etc.). Each series has a different set of features that are available in terms of control and flow/pressure capacity. The next two digits represent the flow/pressure capacity of the pump.

Digits 3 & 4 represent the Flow/Pressure Code.

This code represents the specific flow/pressure rating for the model and can be found in the specification for each Series.

Series Code Designator	
Series MP	M
Series E Plus	P
Series HV	V
Series E	E
Series E-DC	S
Series D	F
Series A Plus	B
Series C Plus	D
Series C & T7	C
Series CW	W
Series CL	L
Series WT	Q
Series ET	T

LMK2TA



Digits 5 & 6 represent the Controls and Electrical selections.

These selections are explained for each model in the Configuration Guide.



Selection Guide cont'd.

Selecting the Wet-End Code & Connection Type:

Digits 7-10 in the string represent the wet-end code. It is the group of four digits set apart by the dash lines.

LMK2TA-PTC1



These four digits represent your wet-end code and connection type.

The four digits in the wet-end code represent the Head Material, Seats & O-Rings, Ball Material and Connection type. Using the above example, the code breaks down as follows:

- P** - Head Material, including fittings. In this example, the P represents GFPL.
- T** - Seat & O-Ring Material. In this example, the T represents TFE.
- C** - Types of Balls used in the valves. In this example, the C represents Ceramic.
- 1** - Connection type. In this example, the 1 represents tubing connections for 3/8" OD tubing.

In the configuration Guide, we have listed the most popular Wet-End codes. If you don't find the materials or connection selection to meet your needs, refer to the following selection guides to configure the proper Wet-End Code.

Selecting the Wet-End Code:

The wet-end code represents the materials of construction that will be in contact with the chemical you are pumping. It is critical that the materials selected are compatible. If you do not find the wet-end code to meet your application in the configuration guides, you can use the Wet-End Code Selection Guide to determine the correct Head Material, Seats & O-Rings and Balls. If you do not know what materials are compatible with the chemicals you are pumping, refer to the chemical compatibility chart below. We have identified the proper wet-end code for the chemicals in the list. If your chemical is not found in the list, please contact your chemical supplier or visit www.pulsatron.com for a complete listing.

PULSAtron Wet-End Code Selection

Head & Fittings

- A** = 316 Stainless Steel (All models except H8)
- K** = PVDF (Kynar) (Consult factory for J7, H8 models)
- P** = GFPL (Polypropylene)
- V** = PVC (Poly Vinyl Chloride) (for models rated < 150 psi excluding K7, H7, H8)
- W** = PVC (for models > 150 psi and K7, H7, H8)

Seats

- H** = CSPE
- T** = TFE (not available with TFE ball over 150 psi)
- V** = Viton (150 psi max.)

Balls

- C** = Ceramic
- H** = Alloy C (Hastelloy)
- S** = 316 Stainless Steel
- T** = TFE (not available with TFE seat over 150 psi)

Chemical Compatibility Chart

Chemical	Liquid End Code
ACETIC ACID, 5 - 10%	PHC
ALUMINUM SULFATE	VHC
AMMONIA, 10%	PHC
BROMINE	KTC
CALCIUM HYPOCHLORITE	VVC
CITRIC ACID, 10 - 20%	PHC
DEAE - Steamline Treatment	ATS
ETHYLENE GLYCOL	PTC
FERRIC CHLORIDE	VTC
FERRIC SULFATE	PTC
FLUOSILICIC ACID	PTT
HYDROCHLORIC ACID, 0 - 37%	PTC
HYDROCHLORIC ACID, 37 - 100%	KTT
HYDROFLUOSILICIC ACID, 20%	PTT
HYDROGEN PEROXIDE, 0 - 30%	VVC
LACTIC ACID	PTC
NITRIC ACID, 0 - 20%	PVC
PHOSPHORIC ACID, 0 - 100%	KTC
POTASSIUM CHLORIDE	PTC
POTASSIUM PERMANGANATE	PTC
SODIUM BI-CARBONATE	PTC
SODIUM BI-SULFATE	PTC
SODIUM BI-SULFITE	PTC
SODIUM CARBONATE	PTC
SODIUM HYDROXIDE, 0 - 50%	PHC
SODIUM HYPOCHLORITE	VVC
SODIUM NITRATE	PTC
SODIUM SILICATE	PHC
SODIUM SULFATE	PHC
SODIUM SULFIDE	PHC
SULFURIC ACID, 0 - 10%	PTC
SULFURIC ACID, 10 - 75%	PTC
SULFURIC ACID, 95 - 100%	KTC

This is an abbreviated version using most common chemicals. Refer to the Chemical Resistance Guide (EMP-030) for a more detailed listing.

Model Selection Guide (Connection Size Codes)

Selecting the Connection Code:

Selecting the proper connection code is probably the most difficult part of choosing a PULSAtron pump. Because of the flexibility built into this product line to meet a large variety of applications, the connection codes are determined by a lot more factors than just the size of the tubing. Connection code is probably the wrong name for this selection because you are selecting more than just the tubing size. This code also determines the type of valves used in the pump. The valve type is determined by factors such as flow rate of the pump, ball type selected and viscosity of the fluid you will be pumping.

Flow Rate:

The pump you select is rated to pump a certain number of gallons per hour (GPH). When selecting the connection code, please note the GPH limitations and select a connection that fits within the parameters of the pump model that you selected.

Ball Type:

If the material selected for the balls used in the check valves is TFE, you will probably need to use a spring-loaded connection. This is due to the fact that the weight of the balls will not allow them to seat properly without the spring. See the connection chart for a list of spring loaded connection types.

Viscosity:

Viscosity of the fluid you are pumping impacts the connection. The higher viscosity fluids (>3000 cps) require larger connection types and spring-loaded valves. Medium viscosity fluids (1000 to 3000 cps) can be pumped without the spring-loaded valves but you must use SS balls with these connections in order for the balls to seat properly in the valve.

Connection Codes

Code	Connect Type	Suction	Discharge	Spring	GPH Flow Limitations	Viscosity	Other Factors
2	Piping	.25" FNPT	.25" FNPT		0 - 1.88	1000 up to 3000 cps w / SS balls	No Bleed Valve
4	Piping	.25" FNPT	.25" FNPT		1.63 - 10	1000 up to 3000 cps w / SS balls	No Bleed Valve
6	Piping	.25" FNPT	.25" FNPT	Yes	Up to 10	less than 10,000 cps	No Bleed Valve
8	Piping	.50" FNPT	.50" FNPT	Yes	Up to 25	less than 10,000 cps	No Bleed Valve
C	Piping	.50" FNPT	.50" FNPT		25	1000 up to 3000 cps w / SS balls	No Bleed Valve
G	Piping	.25" FNPT	.25" FNPT	Yes	0 - 1.88	1000 up to 3000 cps w / SS balls	No Bleed Valve
I	Piping	.50" MNPT	.50" MNPT	Yes	Up to 10	less than 10,000 cps	No Bleed Valve
L	Piping	.50" MNPT	.50" MNPT		0 - 1.88	1000 up to 3000 cps w / SS balls	No Bleed Valve
X	Piping	.50" MNPT	.50" MNPT		1.63 - 10	1000 up to 3000 cps w / SS balls	No Bleed Valve
1	Tubing	.25" x .38"	.25" x .38"		0 - 1.88	1000 up to 3000 cps w / SS balls	
3	Tubing	.38" x .50"	.38" x .50"		1.63 - 10	1000 up to 3000 cps w / SS balls	
5	Tubing	.50" x .75"	.38" x .50"	Yes	Up to 10	less than 10,000 cps	
7	Tubing	.50" x .75"	.50" FNPT	Yes	Up to 25	less than 10,000 cps	No Bleed Valve
9	Tubing	.25" x .38"	.25" x .38"	Yes	0 - 1.88	1000 up to 3000 cps w / SS balls	Degas Head/No Bleed Valve
A	Tubing	.38" x .50"	.38" x .50"		0 - 1.88	1000 up to 3000 cps w / SS balls	
B	Tubing	.50" x .75"	.50" x .75"		25	1000 up to 3000 cps w / SS balls	No Bleed Valve
D	Tubing	.25" x .38"	.25" x .38"	Yes	0 - 1.88	1000 up to 3000 cps w / SS balls	
E	Tubing	.38" x .50"	.38" x .50"	Yes	0 - 1.88	1000 up to 3000 cps w / SS balls	
F	Tubing	.38" x .50"	.38" x .50"	Yes	1.63 - 10	1000 up to 3000 cps w / SS balls	Not Available In PVDF
H	Tubing	.25" x .38"	.25" x .38"		1.63 - 10	1000 up to 3000 cps w / SS balls	
J	Tubing	.25" x .38"	.25" x .38"		0 - 1.04	1000 up to 3000 cps w / SS balls	
K	Tubing	.50" x .75"	.50" x .75"	Yes	1.88 - 25 (<50 psi)	less than 10,000 cps	No Bleed Valve
					LPH Flow Limitations		
M	Piping	G 1/2 A	G 1/2 A		6.15 - 37.85	1000 up to 3000 cps w / SS balls	
R	Piping	G 1/2 A	G 1/2 A		0 - 7.10	1000 up to 3000 cps w / SS balls	
N	Tubing	4 x 10 mm	4 x 10 mm		0 - 7.10	1000 up to 3000 cps w / SS balls	
P	Tubing	4 x 6 mm	4 x 6 mm		0 - 3.94	1000 up to 3000 cps w / SS balls	
Q	Tubing	10 x 14 mm	10 x 14 mm		6.15 - 37.85	1000 up to 3000 cps w / SS balls	
S	Tubing	6 x 10 mm	6 x 10 mm		> 18.93	1000 up to 3000 cps w / SS balls	
T	Tubing	6 x 10 mm	6 x 10 mm		0 - 7.10	1000 up to 3000 cps w / SS balls	Degas Head/No Bleed Valve
U	Tubing	6 x 10 mm	6 x 10 mm		0 - 7.10	1000 up to 3000 cps w / SS balls	
V	Tubing	12 x 19 mm	12 x 19 mm		> 29.96	1000 up to 3000 cps w / SS balls	No Bleed Valve
W	Tubing	10 x 16 mm	10 x 16 mm		6.15 - 37.85	1000 up to 3000 cps w / SS balls	
Y	Tubing	6 x 12 mm	6 x 12 mm		0 - 7.10	1000 up to 3000 cps w / SS balls	

- Pumps ranging from 0.25 gph (0.9 lph) to 0.90 gph (3.4 lph) with the stainless steel ball option ("S" in the 9th digit of the model number) must select a connection code with a spring.
- Pumps less than or equal to .25 gph (0.9 lph) require a connection code with a spring and must use a ceramic ball in place of stainless steel.
- Stainless steel head assemblies are only available in piping connections.



Selection Guide cont'd.

Suffix Code:

LMK2TA-PTC1-**XXX** ← Suffix Code

The last three digits of the model string are referred to as the Suffix Code. It is through the suffix code that the pump can be customized with optional features or customer specific features, e.g. private labeling. If your company has specific features that will be ordered on every pump, contact customer service with a description of what you want customized. We will then assign a unique suffix code that can be used as the last three digits in the model string when you place an order.

CZXXX = CE Approval

This suffix code tells us that you require CE Approval on the pump you are ordering. This suffix code is five digits and can be used in conjunction with other suffix codes by replacing the XXX after the CZ with another suffix code. For instance, if you require CE Approval and a Five Function Valve (shown below), the suffix code would be CZ500.

Standard Suffix Code Descriptions:

On the following pages are additional features that can be added to your PULSAtron pump through the use of the Suffix Code. Anytime you order a pump with one of these codes, it will be configured with that option.

130 = PVDF Tubing

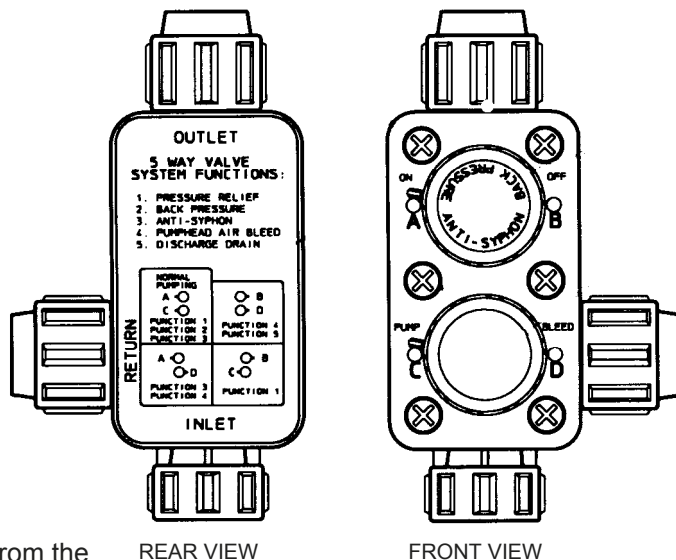
This suffix code will replace the standard pump tubing with PVDF Tubing.

500 = Five Function Valve

The five function valve is easily installed, no tools required. The valve operates with all PULSAtron models up to 240 GPD. The five function valve is packed with features that increase safety, enhance performance and generally improves the convenience of operation.

FEATURES

- Pressure Relief – Allows for relief of excessive pressure in discharge line to protect connections and tubing.
- Back Pressure – Maintains output reproducibility and allows metering into atmospheric discharge.
- Anti-Siphon – Prevents siphoning through the pump when point of injection is lower than the pump or into the suction line of another pump. Rated at total vacuum.
- Air Bleed – Used during priming to manually remove air from the pump head.
- Discharge Drain – Depressurize pump discharge line without loosening tubing or fittings. Protects the operator from chemical exposure.



SPECIFICATIONS

Material Of Construction:

Valve Body	Polyvinylidene Flouride (PVDF)
Diaphragm	TFE faced CSPE
O-Rings	TFE
Hardware	18-8 Stainless Steel (Recessed)

Maximum Operating

Pressure: 300 PSI/21 BAR (except PVC)

Maximum Flow: 10 GPH (37.85 LPH)

Maximum Viscosity: 1000 CPS

Pressure Relief

Settings:
 (nominal cracking pressure)
 275 PSI (17 BAR) - red
 175 PSI (12 BAR) - green
 125 PSI (8.6 BAR) - blue
 50 PSI (2.8 BAR) - black (PVC only)

Note: Pressure relief will occur at no more than 50% above maximum rating of pump.

OPERATION

The functions are selected by setting two dual position selector knobs. The label on the back panel of the valve identifies each function with selector knob positions.

The five function valve is compatible with most PULSAtron pumps. Connected to the existing discharge valve the five function valve is capable of handling a large output flow as well as viscous liquids. A return port located on the side body provides flow of chemical back to the solution tank when in the air bleed or drain discharge mode.



Selection Guide cont'd.

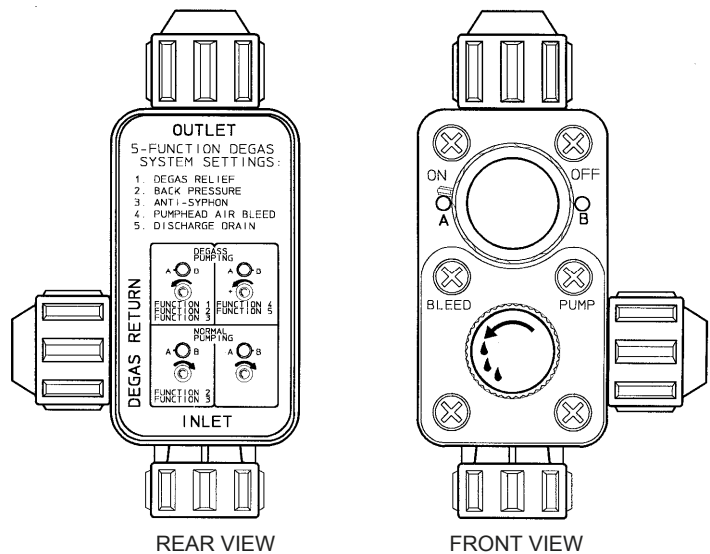
520 = DG/5FV Five Function

Valve with De-Gas

With the DG/5FV you don't have to give up the accuracy and control of a solenoid metering pump in order to pump gaseous solutions. Available in a variety of materials and popular sizes, the DG/5FV is ready to tackle most applications. Not only does the DG/5FV provide degassing, it is packed with features that increase safety, enhance performance and generally improves the convenience of operation.

FEATURES

- De-Gas – Bypass gasses and fluid during normal pump operation. Allows for the constant removal of gases that would otherwise “air bind” the pump.
- Back Pressure – Maintains output reproducibility and allows metering into atmospheric discharge.
- Anti-Siphon – Prevents siphoning through the pump when point of injection is lower than the pump or into the suction line of another pump. Rated at total vacuum.
- Air Bleed – Used during priming to manually remove air from the pump head.
- Discharge Drain – Depressurize pump discharge line without loosening tubing or fittings. Protects the operator from chemical exposure.



SPECIFICATIONS

Material Of Construction:

Valve Body	Polyvinylidene Flouride (PVDF)
Diaphragm	TFE faced CSPE
O-Rings	Viton or CSPE
Hardware	18-8 Stainless Steel (Recessed)

Maximum Flow: 10 GPH (37.85 LPH)

Minimum Flow: 3 GPD (.47LPH)

Maximum Viscosity: 1000 CPS

MAX Pressure Ratings: Up to 250 psi (17 BAR)

Note: Degas/bypass volume is adjustable, typically 1-10% of pump output.

Connections: 1/4" (0.635 cm) Male NPT
1/2" (1.27 cm) OD tubing
3/8" (0.95 cm) OD tubing

All ports (input, output & bypass) on the selected valve will be the same.

OPERATION

The functions are selected by setting two dual position selector knobs. The label on the back panel of the DG/5FV identifies each function with selector knob positions.

The DG/5FV is compatible with most PULSAtron pumps. Connected to the existing discharge valve the GG/5FV is capable of handling a large output flow as well as viscous liquids. A return port located on the side body provides flow of chemical back to the solution tank when in the degas, air bleed or drain discharge mode.

ITS = Integrated Tank System

The ITS System is a completely integrated tank system constructed of high density UV resistant polyethylene (PE) with a 15 gallon capacity. This tank system is translucent with 5 gallon increments and the tank's low level indicator allows visual monitoring of chemicals without opening the tank. The tight fitting child-proof lid keeps the chemical free of contaminants and protects the surrounding area from chemical fumes.

The ITS System also allows for easy access to the liquid end and control panel of the mounted pump.

A system consists of a chemical tank with lid and bulkhead fittings; a liquid level indicator float assembly; and feeder mounting hardware.



ITS Tank not available on LM, LP, LT, and LE: H4, H5, H6, H7, J7, H8, K7 models) If you require a different type or size tank, please refer to our accessory price book.



Selecting a KOPkit:

All KOPkit model strings begin with the letter K. The remainder of the string can be determined by knowing your pump model.

When you select your KOPkit, you will need to build the model number based on the pump model string that you purchased. The two pieces of information you need are the head size and the wet-end code, which is part of the model string of the pump.

The pump head size is the fourth digit in the pump model number.

LMK2TA-PTC1-XXX

The 2 represents your pump head size.

Digits 7-20 in the pump model string represent the wet-end code. It is the group of four digits set apart by the dash lines.

LMK2TA-PTC1-XXX

These four digits represent your wet-end code.

In the following selection guide, you will break down your wet-end code into the four parts to get your total price for the KOPkit. The four digits in the wet-end code represent the Head Material, Seats & O-Rings, Ball Material and Connection Type. Using the above example, the code breaks down as follows:

P - Head Material, including fittings. In this example, the P represents GFPPL.

T - Seat & O-Ring Material. In this example, the T represents Teflon.

C - Types of Balls used in the valves. In this example, the C represents Ceramic.

1 - Connection type. In this example, the 1 represents tubing connections for 3/8" OD tubing.

The completed KOPkit number for the above example is:

K2PTC1

Note: If you do not find your connection size in the following selection guide, please consult the factory for accurate pricing. Our philosophy with the PULSAtron product line is to make it as flexible as our customers need it to be.

Model Selection Guide (KOPkit - Liquid End Parts Kit Matrix)



PULSAtron KOPkit Selection

HEAD SIZE

The digits 2-8 follow ing the K represents the pump head size.

This is represented by the fourth digit in the pump model string.

- 2 =
- 3 =
- 4 =
- 5 =
- 6 =
- 7 =
- 8 = (Applies to WTCB only-for other options Consult factory)

HEAD MATERIALS

- A = 316 Stainless Steel
- K = PVDF (Kynar)
- P = GFPP (Polypropylene)
- V = PVC (Poly Vinyl Chloride) (models <= 150 psi excluding H7, H8, K7)
- W = PVC (models > 150 psi and H7, H8, K7)

SEATS/O-RINGS

- H = CSPE
- V = Viton
- T = TFE

BALLS

- T = TFE
- C = Ceramic
- S = 316 Stainless Steel
- H = Alloy C (Hastelloy)

CONNECTION TYPE

Type	Suction	Discharge	Spring
1 = Tubing	.25" x .38"	.25" x .38"	
2 = Piping	.25" FNPT	.25" FNPT	
3 = Tubing	.38" x .50"	.38" x .50"	
4 = Piping	.25" FNPT	.25" FNPT	
5 = Tubing	.50" x .75"	.38" x .50"	Yes
6 = Piping	.25" FNPT	.25" FNPT	Yes
7 = Tubing	.50" x .75"	.50" FNPT	Yes
8 = Piping	.50" FNPT	.50" FNPT	Yes
9 = Tubing	.25" x .38"	.25" x .38"	Yes Degas
A = Tubing	.38" x .50"	.38" x .50"	
B = Tubing	.50" x .75"	.50" x .75"	
C = Piping	.50" FNPT	.50" FNPT	
D = Tubing	.25" x .38"	.25" x .38"	Yes
E = Tubing	.38" x .50"	.38" x .50"	Yes
F = Tubing	.38" x .50"	.38" x .50"	Yes
G = Piping	.25" FNPT	.25" FNPT	Yes
I = Piping	.50" MNPT	.50" MNPT	Yes
J = Tubing	.25" x .38"	.25" x .38"	
K = Tubing	.50" x .75"	.50" x .75"	Yes
L = Piping	.50" MNPT	.50" MNPT	
M = Piping	G 1/2 A	G 1/2 A	
N = Tubing	4 x 10 mm	4 x 10 mm	
P = Tubing	4 x 6 mm	4 x 6 mm	
Q = Tubing	10 x 14 mm	10 x 14 mm	
R = Piping	G 1/2 A	G 1/2 A	
S = Tubing	6 x 10 mm	6 x 10 mm	
T = Tubing	6 x 10 mm	6 x 10 mm	Degas
U = Tubing	6 x 10 mm	6 x 10 mm	
V = Tubing	12 x 19 mm	12 x 19 mm	
W = Tubing	10 x 16 mm	10 x 16 mm	
Y = Tubing	6 x 12 mm	6 x 12 mm	
X = Piping	.50" MNPT	.50" MNPT	



Suction/Discharge Valves

Suction/Discharge Valve Selection Guide		L3				
VALVE TYPE:	101 = Suction Valve 201 = Discharge Valve					
SEATS:	H = CSPE V = Viton T = TFE					
BALLS:	T = TFE C = Ceramic S = 316 Stainless Steel H = Alloy C (Hastelloy)					
CONNECTION TYPE:	1 = Double Balls w hen TFE seats selected 2 = Double Balls w hen TFE seats selected 3 = Double Balls w hen TFE seats selected 4 = Double Balls w hen TFE seats selected 5* = Available for Discharge Only (L3201) 6 = 7* = Available for Suction Only (L3101) 8 = A = B* = C = D = Spring Loaded w ith SS Balls E = Spring Loaded w ith SS Balls F = Spring Loaded w ith SS Balls G = Spring Loaded w ith SS Balls I = J = K* = L = M = N = P = Q = R = S = U = V* = W = Y = X =					
MATERIALS OF CONSTRUCTION:	FPP = Glass Filled Polypropylene PVC = Poly Vinyl Chloride PVC = Kynar 316 = 316 Stainless Steel					

* Available with Ceramic Balls and PVC Body Only - Consult factory for pricing on other options



Quick Reference Guide

This guide is designed to provide a simple, easy reference for ordering liquid end components used in many standard configurations. To use this chart, simply use positions 7, 8, 9, 10, 11, 12, and 13 from the model number on your pump. Match these digits to the chart below and follow the line across to determine the part numbers of the liquid end components that you need.

EXAMPLE

1	2	3	4	5	6	7	8	9	10	11	12	13
L	P	E	4	S	A	P	H	C	1	X	X	X

Liquid End Code

Positions 7 -13	Suction Valve Assembly	Discharge Valve Assembly	Bleed Valve Assembly	Foot Valve/Strainer Assembly	Injector Back Pressure Valve Assembly	Suction Tubing (by foot)	Discharge Tubing (by foot)
PTC1-XXX	L3101TC1-FPP	L3201TC1-FPP	L3300T01-FPP	J40211	J61098	00007	00010
PHC1-XXX	L3101HC1-FPP	L3201HC1-FPP	L3300H01-FPP	J40116	J41766	00007	00010
PVC1-XXX	L3101VC1-FPP	L3201VC1-FPP	L3300V01-FPP	J60524	41715	00007	00010
KTC1-XXX	L3101TC1-PVD	L3201TC1-PVD	L3300T01-PVD	J60716	J61020	00010	00010
KHC1-XXX	L3101HC1-PVD	L3201HC1-PVD	L3300H01-PVD	J60717	J61110	00010	00010
KVC1-XXX	L3101VC1-PVD	L3201VC1-PVD	L3300V01-PVD	J60718	J61088	00010	00010
VTC1-XXX	L3101TC1-PVC	L3201TC1-PVC	L3300T01-PVC	J60716	J41996	00007	00010
VHC1-XXX	L3101HC1-PVC	L3201HC1-PVC	L3300H01-PVC	J60717	41693	00007	00010
VVC1-XXX	L3101VC1-PVC	L3201VC1-PVC	L3300V01-PVC	J61237	41713	00007	00010
PTC3-XXX	L3101TC3-FPP	L3201TC3-FPP	L3300T03-FPP	J40212	J41872	J00023	00008
PHC3-XXX	L3101HC3-FPP	L3201HC3-FPP	L3300H03-FPP	J40117	J41767	J00023	00008
PVC3-XXX	L3101VC3-FPP	L3201VC3-FPP	L3300V03-FPP	J60509	41716	J00023	00008
KTC3-XXX	L3101TC3-PVD	L3201TC3-PVD	L3300T03-PVD	J60728	J61021	00008	00008
KHC3-XXX	L3101HC3-PVD	L3201HC3-PVD	L3300H03-PVD	J60729	J61201	00008	00008
KVC3-XXX	L3101VC3-PVD	L3201VC3-PVD	L3300V03-PVD	J60730	J61086	00008	00008
VTC3-XXX	L3101TC3-PVC	L3201TC3-PVC	L3300T03-PVC	J60728	J41873	J00023	00008
VHC3-XXX	L3101HC3-PVC	L3201HC3-PVC	L3300H03-PVC	J60729	J41694	J00023	00008
VVC3-XXX	L3101VC3-PVC	L3201VC3-PVC	L3300V03-PVC	J60730	J41714	J00023	00008
PTCJ-XXX	L3101TCJ-FPP	L3201TCJ-FPP	L3300T01-FPP	J40211	J61098	L9904300-PVC	00010
KTCJ-XXX	L3101TCJ-PVD	L3201TCJ-PVD	L3300T01-PVD	J60716	J61020	L9904300-PEW	00010
VTCJ-XXX	L3101TCJ-PVC	L3201TCJ-PVC	L3300T01-PVC	J60716	J41996	L9904300-PVC	00010

NOTE: This guide provides a quick reference and does not cover all configurations or options.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)



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