

FLEX-PRO[®] M-2

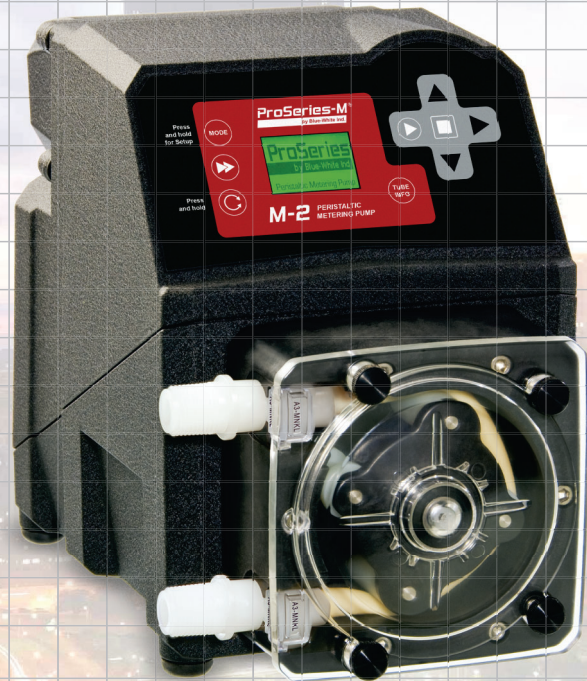
Feed Rates to 17.2 GPH (65.1 LPH)
Pressures to 125 PSI
4-20mA, Pulse Input and Manual Speed Control
200:1 Turndown ratio
Tube Failure Detection System
Tube life hour counter
Variable Speed DC Motor
NEMA 4X (IP 66) Washdown Duty
NSF Listed Std. 61
5 Year Warranty

Sold and serviced exclusively by highly skilled, factory authorized technicians.



NEMA 4X

Patents: 4,496,295 7,001,153 and other patents pending



Applications:

- Municipal Water Treatment
- Municipal Wastewater Treatment
- Chemical Metering
- Chlorination
- Chloramination
- Fluoridation
- Polymer Injection
- Acid Injection
- Alum Injection
- PAC Injection
- Caustic Injection

Features:

- Peristaltic pump design does not have valves that can clog requiring maintenance.
- Self priming - even against maximum line pressure. By-pass valves are not required. Cannot vapor lock, or lose prime. Does not permit syphoning.
- Output rates to: 17.2 GPH (65.1 LPH) and pressures to 125 PSI (8.6 Bar).
- Variable speed DC motor.
- Specially engineered tubing for long life at high pressures. Meets FDA 21 CFR requirements for food contact applications.
- Patented Tube Failure Detection (TFD) system. Senses tube failure by detecting chemical in the pump head. No false triggering.
- 200:1 turndown ratio.
- Inputs: 4-20mA and pulse inputs for remote external speed control and either powered 6-24 VDC or non-powered dry contact closure for remote start/stop.
- Backlit LCD displays motor speed, input signal values, tube life timer, service and alarm status.
- Outputs: one 250V/3A relay to monitor TFD (Tube Failure System) and FVS (Flow Verification System), and 4-20mA analog signal scalable to the motor speed.
- Two molded squeeze rollers and two alignment rollers for optimum squeeze, unparalleled accuracy, and tube life.
- Heavy duty rotor - single piece plastic rotor means no flexing and increased accuracy with no metal springs or hinges to corrode.
- Inject at maximum pressure in either direction (clockwise and counter clockwise).
- Compatible with Blue-White's output Flow Verification Sensor (FVS) system. Sensor is sold separately.

Engineering Specifications:

Maximum working pressure (excluding pump tubes):

125 psig (8.6 bar)

Note: see individual pump tube assembly maximum pressure ratings.

Maximum Fluid temperature (excluding pump tubes):

3/8" OD x 1/4" ID tubing connections: 130° F (54° C)

M/NPT connections: 185° F (85° C)

Note: see individual pump tube assembly maximum temperature ratings.

Maximum fluid viscosity:

12,000 Centipoise

Maximum suction lift:

30 ft. of water at sea level (14.7 atm psi)

Ambient Operating Temperature

14°F to 115°F (-10°C to 46°C)

Ambient Storage Temperature

-40°F to 158°F (-40°C to 70°C)

Operating Voltage:

115VAC/60Hz, 1ph (1.5 Amp Maximum)

230VAC/60Hz, 1ph (0.7 Amp Maximum)

220VAC/50Hz, 1ph (1.0 Amp Maximum)

240VAC/50Hz, 1ph (1.0 Amp Maximum)

Power Cord Options:

115V60Hz = NEMA 5/15 (USA)

230V60Hz = NEMA 6/15 (USA)

220V50Hz = CEE 7/II (EU)

240V50Hz = AS 3112 (Australia/New Zealand)

Motor:

Brushed DC, 1/8 H.P.

Duty cycle:

Continuous

Motor speed adjustment range 200:1:

0.5% - 100% motor speed (0.7 to 130 RPM)

Motor speed adjustment resolution:

0.1% increments

Display

Backlit LCD, UV resistant.

Keypad

Eight button positive action tactile switch keypad.

Enclosure:

NEMA 4X (IP66), Polyester powder coated aluminum.

Maximum Overall Dimensions:

7-1/2" W x 10-1/4" H x 14" D (19 W x 26 H x 35.6 D cm)

Product weight:

28.4lb. (12.9 Kg)

Approximate shipping wt:

35 lb. (15.9 Kg)

Materials of Construction:

Wetted components:**Pump Tube Assembly (Model Specific - 2 provided):**

Tubing: Flex-A-Prene® or Flex-A-Chem® Flex-A-Thane®

Adapter fittings: .PVDF

Recommended Ancillary Items Sold Separately:**Injection / Back-flow Check valve:**

Body & insert: PVDF

Check Ball: Ceramic

Spring: Hastelloy C-276

Ball Seat O-ring: FKM (optional EP)

Static Seal O-ring: FKM (optional EP)

For "S" tubing type connections only:

Suction Tubing: 3/8" OD x 1/4" ID x 10' Clear PVC

Discharge Tubing: 3/8" OD x 1/4" ID x 10' Polyethylene (LLDPE)

Suction Strainer: Polypropylene

For "M" M/NPT connections only:**Suction Strainer:**

Body: PVDF

Check Ball: Ceramic

Ball Seat O-ring: FKM (optional EP)

For "C" Tri-clamp and "Q" Quick Disconnect connections* only:

(Available for ND, NEE, NGG, and G2G only)

Suction Strainer: Polypropylene

*Quick Disconnect Valves sold separately

Non-Wetted components:**Enclosure:**

413 Aluminum (Polyester powder coated)

Pump Head:

Valox® (PBT) thermoplastic

Pump Head Cover:

Polycarbonate for added strength and chemical resistance.

Permanently lubricated sealed motor shaft support ball bearing.

Cover Screws:

Stainless Steel

Roller Assembly:

Rotor:.....Valox® (PBT)

Rollers:.....PVDF/Nylon

Roller Bearings:.....SS Ball Bearings

Roller Shaft:.....316 Stainless Steel

Motor Shaft:

Chrome plated steel

TFD System Sensor pins:

Hastelloy C-276

Power Cord:

3 conductor, SJTW-A Water-resistant

Tube Installation Tool:

Glass Filled Nylon

Mounting Brackets and Hardware:

316 Stainless Steel

Output Specifications:

Feed Rate			Max Speed	Max Pressure	Max Temperature	M-2 Model Numbers		
Flex-A-Prene® M-2 Tube Pumps								
Meets FDA criteria for food Excellent chemical resistance CIP SIP								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.01 - 1.7	.03 - 6.5	.54 - 108	130	125 (8.6)	185 (85)	M-224-*ND	M-225-*ND	M-226-*ND
Flex-A-Prene® M-2 Tube Pumps								
Meets FDA criteria for food Excellent chemical resistance CIP SIP								
GPH	LPH	ML/Min	RPM	PSI (bar)	F(C)	115V AC	230V AC	220V AC
.022 - 4.44	.084 - 16.8	1.4 - 280	130	110 (7.6)	185 (85)	M-224-*NEE	M-225-*NEE	M-226-*NEE
.086 - 17.2	.325 - 65.1	5.4 - 1085	130	110 (7.6)	185 (85)	M-224-*NGG	M-225-*NGG	M-226-*NGG
Flex-A-Chem® M-2 Tube Pumps								
Meets FDA criteria for food Superb chemical resistance								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.07 - 14.3	.27 - 54	4.5 - 900	130	50 (3.4)	130 (54)	M-224-*TH	M-225-*TH	M-226-*TH
Flex-A-Thane® M-2 Tube Pumps								
Meets FDA criteria for food Resistant to oils, greases and fuels								
GPH	LPH	ML/Min	RPM	PSI (bar)	F (C)	115V AC	230V AC	220V AC
.02 - 4.0	.08 - 15.2	1 - 253	130	65 (4.5)	130 (54)	M-224-*GE	M-225-*GE	M-226-*GE
.05 - 9.3	.17 - 35.2	3 - 587	130	65 (4.5)	130 (54)	M-224-*GG	M-225-*GG	M-226-*GG
.07 - 14.98	.03 - 56.7	4.7 - 945	130	65 (4.5)	130 (54)	M-224-*G2G	M-225-*G2G	M-226-*G2G

* Inlet/outlet connection type
 S = 3/8" OD x 1/4" ID tubing compressions type connections
 M = 1/2" male NPT
 MB = 1/2" male BSPT
 B = 1/2" Hose barb, Natural PVDF (Kynar), (ND, NEE, NGG, and G2G only)
 C = 1/2" - 3/4" tri-clamp connections (ND, NEE, NGG, and G2G only)
 Q = Quick Disconnect (ND, NEE, NGG, and G2G only) (Valves sold separately)

- The Flex-Pro Pump's motor speed is linear over the entire 0.5% to 100% adjustment range.
- Output versus pressure is nearly linear in all models. Larger tubes exhibit greater losses.
- For optimum tube life, specify the pump to operate at the lowest possible RPM and pressure.

Quick-Disconnect Valve Kits (Sold Separately)

For use with the Quick-Disconnect Flex-A-Prene Tube Assembly

3/8" OD, 1/4" Tubing



Part #	O-ring
KIT-QSV	FKM
KIT-QSE	EP

1/2" Hose Barb



Part #	O-ring
KIT-QBV	FKM
KIT-QBE	EP

1/2" M/NPT



Part #	O-ring
KIT-QMV	FKM
KIT-QME	EP

Chemical Resistance of Tubing:

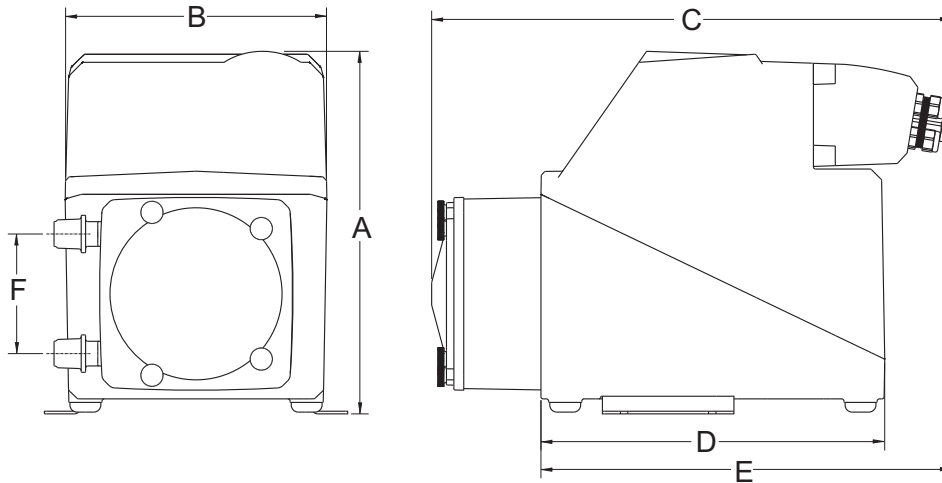
Flex-A-Prene® Tubing			
Meets FDA criteria for food Excellent chemical resistance CIP SIP			
Alcohol general	Ethylene glycol	Hydrochloric acid 33%	Potassium hydroxide
Aluminum Sulfate (Alum)	Ferric chloride	Hydrocyanic acid	Propylene glycol
Ammonium chloride	Ferric nitrate	Hydrogen peroxide	Sodium hydroxide 50%
Ammonium hydroxide	Ferric sulfate	Hypochlorous acid	Sodium Bisulfite
Ammonium Sulfate (LAS)	Ferrous chloride - 43% in water	Iodine	Sodium Hypochlorite 12.5%
Benzyl alcohol	Ferrous sulfate	Magnesium chloride	Sodium sulfide
Bleach	Fluosilicic Acid (up to 25%)	Magnesium sulfate	Sulfuric acid up to 50%
Brine solutions	Formic acid	Phosphoric acid	Tannic acid
Calcium hypochlorite 20%	Glucose	Plating solutions	

Flex-A-Chem® Tubing - Ultra smooth plasticizer-free bore (inner liner)			
Meets FDA criteria for food Superb chemical resistance			
Ferrous Chloride (up to 40%)	Phosphoric Acid (up to 85%)	Bases	Applications:
Fluoboric Acid (up to 48%)	Potassium Hypochlorite (up to 70%)	Salts	Ink and solvent production
Fluosilicic Acid (up to 25%)	Potassium permanganate (up to 6%)	Ketones	Battery acid filling
Hydrofluoric Acid (up to 48%)	Sodium Phosphate (up to 30%)	Alcohols	Specialty chemical production / processing
Nitric Acid (up to 71%)	Sulfuric Acid (up to 98%)	Isobutyl Alcohol	Sensitive fluid transfer

Flex-A-Thane® Tubing			
Meets FDA criteria for food Resistant to oils, greases and fuels			
Cyclohexane	Kerosene	Oils:	Oils:
Diesel Fuel	Lard	ASTM reference No. 1,2,3	Linseed
Fatty acids	Mineral spirits	Castor	Lubricating
Gasoline	Soap solutions	Coconut	Mineral
Heptane	Turpentine	Fuel	
Hexane	Polymers		

Note: Data shown at 72 degrees F.

Dimensions:



M-2 Series		
Dim	Inches	cm
A	10-1/4"	26
B	7-1/2"	19
C	14"	35.6
D	9-1/2"	24.1
E	11"	27.9
F	3-3/8"	8.6

Model Number Matrix:

M	Flex-Pro ProSeries-M Model Number									
	Maximum Output Range									
	2	Flex-Pro M-2								
	Maximum Motor Speed									
	2	130 RPM (maximum rotor rotation speed)								
	Power Cord (operating voltage user selectable 115V/240 Vac 50/60Hz)									
	4	115V / 60Hz, power cord NEMA 5/15 plug (US)								
	5	230V / 60Hz, power cord NEMA 6/15 plug (US)								
	6	220V / 50HZ, power cord CEE 7/VII plug (EU)								
	8	240V / 50HZ, power cord AS 3112 plug (Australia/New Zealand)								
	9	230V / 50HZ, power cord BS 1363 plug (UK)								
	X	No Power Cord								
	Inlet/Outlet Connection Size, Connection Type, Connection Material									
	S	3/8" OD x 1/4" ID Tube Compression Fitting, Natural PVDF (Kynar)								
	M	1/2" Male NPT Fitting, Natural PVDF (Kynar)								
	B	1/2" Hose Barb, Natural PVDF (Kynar), available for ND, NEE, NGG, and G2G only								
	C	1/2" - 3/4" Tri-clamp connections, Natural PVDF (Kynar), available for ND, NEE, NGG, and G2G only								
	Q	Quick Disconnect, Natural PVDF (Kynar), available for NDD, NEE, NGG, and G2G only (valves sold separately)								
	MB	1/2" Male BSPT Fitting, Natural PVDF (Kynar)								
	Pump Tube Material, Pump Tube Size, Output Range									
	ND	Flex-A-Prene® .078 ID, 0.01 to 1.7 GPH	GE	Flex-A-Thane® .125 ID, 0.02 to 4.0 GPH						
	NEE	Flex-A-Prene® .093 ID, 0.022 to 4.44 GPH	GG	Flex-A-Thane® .187 ID, 0.05 to 9.3 GPH						
	NGG	Flex-A-Prene® .187 ID, 0.086 to 17.2 GPH	TH	Flex-A-Chem® .250 ID, 0.08 to 14.9 GPH						
	G2G	Flex-A-Thane® .187 ID, 0.07 - 14.98 GPH								
	Options (leave this blank for standard model with left facing pump head inlet/outlet)									
	R	Right facing pump head, input / output (Left facing fluid input / output is standard)								
	D	Down facing pump head, input / output (Left facing fluid input / output is standard)								
M	-	2	2	4	-	S	NH	-	R	Sample Model Number

Features list:

Features:
TFD (Tube Failure Detection) System Alarm
FVS (Flow Verification System) Alarm *
Motor reverse (rotor reversible)
Three position pump head rotation
Output: One, 3 amp alarm relay, 1 amp motor run status
Output: Analog 4-20mA
Input: One, dry contact closure 6-24 Vdc powered loop for remote start / stop
Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse
Display: Motor speed, Input signal values, Tube life timer, Tube Failure Detection (TFD) system and Flow Verification System (FVS) alarm status

* Requires Micro-Flo Sensor sold separately

Available Operating Modes:
Manual (local): speed adjustment
Remote input: 4-20mA
Remote input: high speed frequency (pulse) input
Remote input: pulse triggered batch dispensing

Factory Authorized Representative: