

ProSeries-M[®] Multi-Diaphragm Metering Pump

by Blue-White Ind. | Engineering and Technical Data

CHEM-PRO[®] MD-3

- 2,000:1 Turndown ratio
- 50% more energy efficient, Patent Pending Design
- Revolution Count Display & Alarm
- Brushless DC Motor
- NEMA 4X (IP 66) Washdown
- NSF Listed Std. 61
- 5 Year Warranty
- Multi-diaphragm technology eliminates vapor locking

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



Multiple Patents Pending in USA and UK



Applications:

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

Features:

- Hybrid diaphragm metering with industry best turndown at 2000:1
- Smooth chemical dosing, no pulsation dampener needed
- Simple installation and setup with built-in controls, Drop-in-place
- Built for long life at high pressures, 5 year warranty
- Output rates to: 53 GPH (201 LPH) and pressures to 145 PSI (10 Bar)
- 2,000:1 turndown ratio with high resolution motor speed adjustment.
- No maintenance brushless variable speed motor.
- Included wetted end fittings allow for more than 14 inlet and outlet configurations
- Quick visual inspection with built in LED light.
- Control Inputs include: 4-20mA, 0-10Vdc, and Pulse inputs for remote external speed or batch control and 0-30 VDC / contact closure remote start/stop.
- Stroke count display with user programmable alarm set-point for diaphragm maintenance.
- VGA Graphic multi-color backlit LCD displays remote/local control status, motor speed, output rate, input signal values, service and alarm status in three easy to see colors.
- Outputs include: Scalable 4-20mA or pulse, one 250V/6A relay and three 115V/1A contact closures assignable to monitor various pump functions including DFD, FVS, revolution counter, remote/local, input signals, output signals, motor, on, motor fault, operating mode setting, and others.
- Wetted ends constructed out of PVDF
- Compatible with Blue-White's output Flow Verification Sensor (FVS) system.

Engineering Specifications:

Maximum Working Pressure

145 psig (10 bar)

Maximum Fluid Temperature

PVDF connections: 185°F (85°C)

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

96 to 264VAC-50/60Hz, 220 VA

Power Cord Options

115V60Hz = NEMA 5/15 (USA)

230V60Hz = NEMA 6/15 (USA)

220V50Hz = CEE 7/III (EU)

240V50Hz = AS 3112 (Australia/New Zealand)

230V50Hz = BS 1363/A plug (United Kingdom)

Enclosure

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

Maximum Overall Dimensions

16-1/8"W x 15-1/4"H x 15-5/16"D (40.9W x 38.7H x 38.9D cm)

Approximate Shipping WT

53 lb. (24.04 Kg)

Motor

1/4 HP Brushless DC motor

Motor Speed Adjustment Range

2,000:1 (0.05% - 100% motor speed)

Motor Speed Adjustment Resolution

0.1% increments > 10% motor speed

0.01% increments > 1% motor speed and < 10%

0.001% increments < 1% motor speed

Maximum Viscosity

1,000 Centipoise

Maximum Suction Lift

23 ft. Water, 0 psig (7 m, 0 bar)

Display

3 color VGA backlit LCD, UV resistant.

Display Resolution

0.0 > 10% motor speed

0.00 > 1% motor speed and < 10%

0.000 < 1% motor speed

Display Languages

English, Spanish, French or German selectable.

Keypad

Eleven button positive action tactile switch keypad.

Security

Programmable 4-digit password.

Materials of Construction:

Wetted components:

Pump Head Assembly:

Pump Head:PVDF

Adapter Connections:PVDF

Valve Cartridges:PVDF

Valve Balls:Ceramic

Elastomers:TFE/P Tetrafluorethylene/propylene

Static Seals:TFE/P (optional EP)

Diaphragm:PVDF (optional Flex-A-Prene®)

Non-Wetted components:

Enclosure

413 Aluminum (Polyester powder coated)

Drive Enclosure

Valox® (PBT) thermoplastic

Permanently lubricated sealed motor shaft support ball bearing.

Drive Enclosure Cover

Polycarbonate for added strength and chemical resistance.

Cover Screws

300 Series Stainless Steel

Pump Head Cover

316 Stainless Steel

Motor Shaft

Chrome plated steel

DFD System Sensor pins

Hastelloy C-276

Power Cord

3 conductor, SJTW-A Water-resistant

Mounting Brackets and Hardware:

316 Stainless Steel

Recommended Ancillary Items Sold Separately

Injection / Back-flow Check valve:

Body & insert:PVDF

Check Ball:Ceramic

Spring:Hastelloy C-276, 6 lbs.

O-ring seals:TFE/P (optional EP)

Foot Valve / Strainer:

Body & Adapter:PVDF

Check Ball:Ceramic

Spring:Hastelloy C-276, 6 lbs.

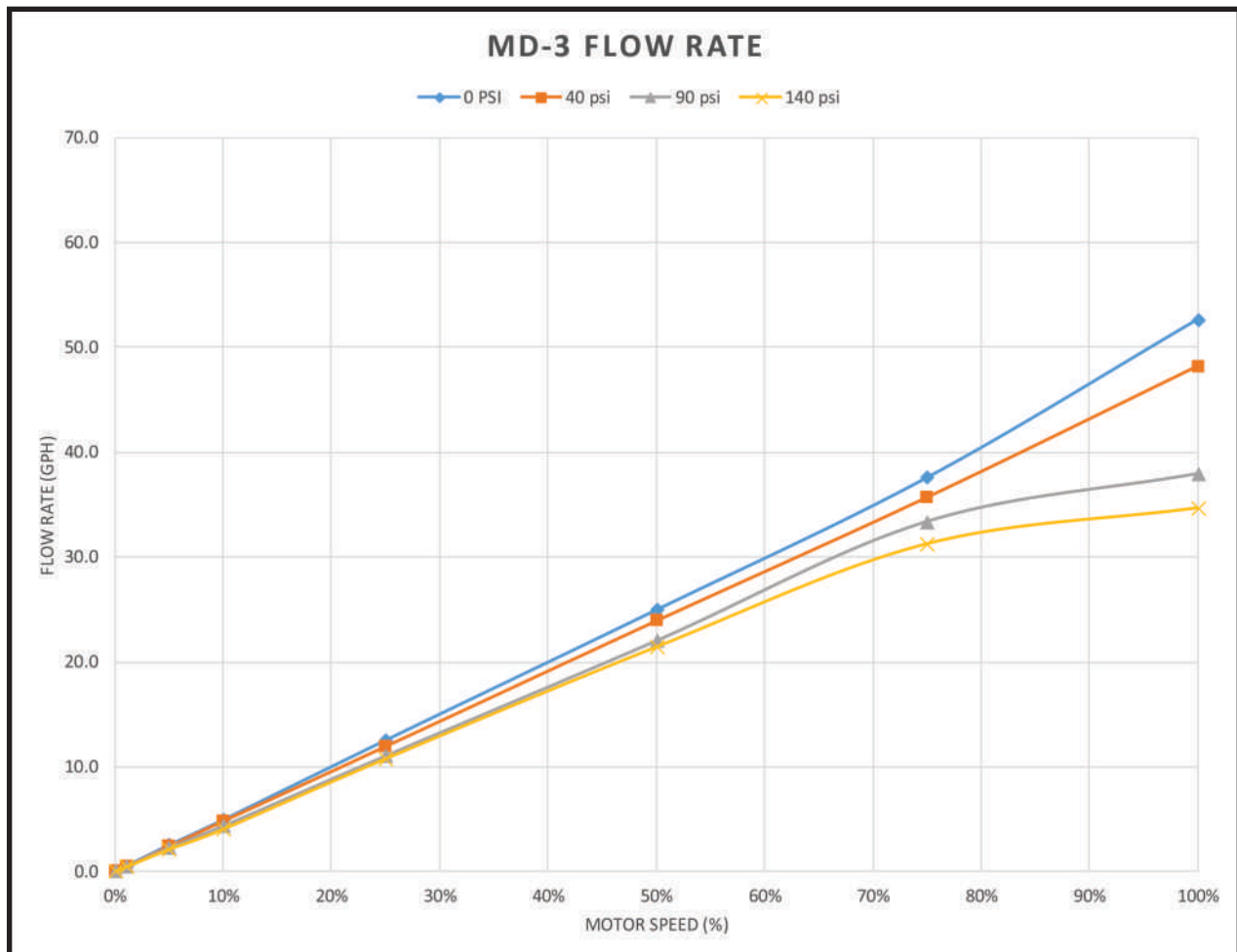
O-ring seals:TFE/P (optional EP)

Filter screen:PVDF

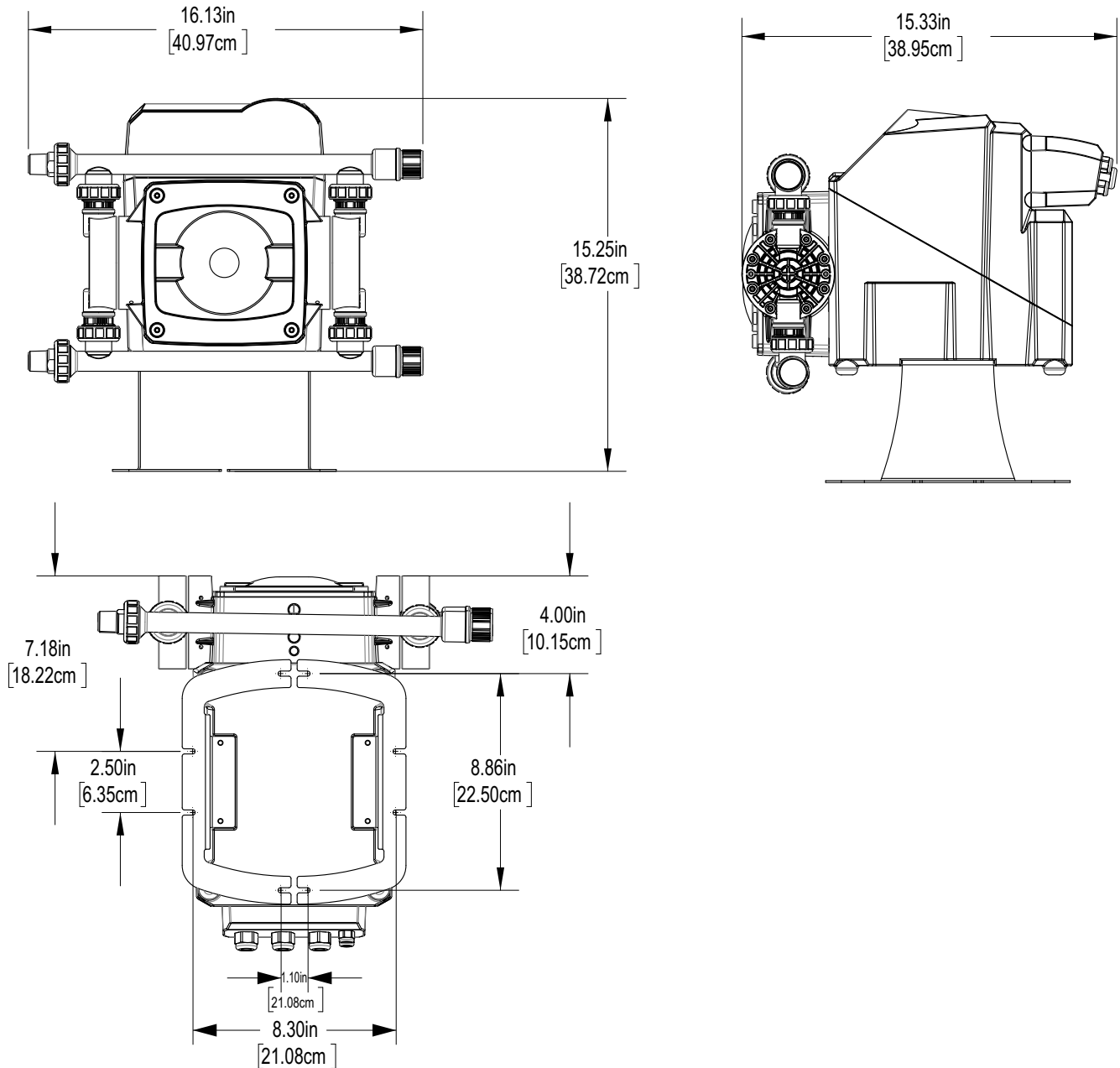
MD-3 Hybrid Metering Pump

190 Strokes per minute

Motor Speed (%)	Feed Rate at 0 PSIG			Feed Rate at 40 PSIG			Feed Rate at 90 PSIG			Feed Rate at 140 PSIG		
	RPM	ML/MIN	GPH	RPM	ML/MIN	GPH	RPM	ML/MIN	GPH	RPM	ML/MIN	GPH
1	1.3	32	0.5	1.3	32	0.5	1.3	25	0.4	1.3	25	0.4
5	10	164	2.6	10	151	2.4	10	145	2.3	10	132	2.1
10	19	315	5.0	19	303	4.8	19	278	4.4	19	259	4.1
25	48	789	12.5	48	751	11.9	48	694	11.0	48	681	10.8
50	95	1577	25.0	95	1508	23.9	95	1388	22.0	95	1350	21.4
75	142	2372	37.6	142	2252	35.7	142	2107	33.4	142	1968	31.2
100	190	3318	52.6	190	3041	48.2	190	2391	37.9	190	2182	34.6



Dimensions:



Extended Brackets

Stainless Steel extended brackets allow the pump to be securely mounted to most any surface; floor, shelf, or skid.

- Made out of tough Stainless Steel.
- Provides a stable mounting surface.



Model Number Matrix:

Multi-Diaphragm Model Number									
MD-3	Multi-Diaphragm Metering Pump								
Maximum Strokes per Minute									
2	190 RPM								
Input Voltage / Power Cord									
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/A plug (United Kingdom)								
X	No Power Cord								
Stroke Length / Diaphragm size									
4	.090" stroke / large diaphragm								
Electrical Options									
X	Standard Equipment - includes power cord and field wiring box								
Elastomer Material (O-Rings)									
V	TFE/P								
E	EP								
Pump Head Fittings and Footvalve									
X	Standard Equipment - Includes 1/2" Barb Fittings (Straight & Elbow Adapters), 1/2" MPT Fittings (Straight and Elbow Adapters) & 1/2" MPT Footvalve								
Miscellaneous Options (Leave Blank If Not Used)									
S	Flex-a-prene® Diaphragms (Caustic Soda resistant diaphragms)								

MD - 3	2	4	4	X	V	X	-	S	Sample Model Number
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CHEM-PRO® ProSeries-M® Multi-Diaphragm Metering Pump

Engineering and Technical Data

Features list:

Features

DFD (Diaphragm Failure Detection) System Alarm
FVS (Flow Verification System) Alarm - Requires Micro-Flo Sensor (sold separately)
2,000:1 turndown reversible motor
Automated PPM chemical dosing system
Revolution counter with user programmable alarm set-point.
Set maximum motor RPM limit
Power interruption re-start options
Four output contacts can be triggered by DFD (Diaphragm Failure Detection) System Alarm, FVS system, general alarm, motor run/stop, revolution count, motor fail, remote/local setting, input signal failure, output signal failure, and currently active operating mode.
Output: One, 6 amp alarm relay (NO/NC)
Output: Three, dry contact or maximum 30VDC/115VAC 1 amp contact closures (NO/NC)
Output: Programmable 4-20mA signal or high speed pulse, proportional to pump output
Input: One, contact closure (remote start / stop)
Input: Remote speed control via 4-20mA, 0-10VDC, high speed digital pulse, contact closure pulse
Remote/Local control settings
Password protection
Display: Motor speed, Flow Verification System (FVS) alarm status, Diaphragm Failure Detection System (DFD) alarm status
Display: Output in ml/min, oz/min, L/hr, Gal/hr, Gal/day, RPM, and input signal values

Available Operating Modes:

Manual (local): speed adjustment
Remote input: 4-20mA
Remote input: 0-10 VDC
Remote input: high speed frequency (pulse) input
Remote input: pulse triggered batch dispensing
Remote input: proportional PPM (parts per million) dosing with high speed frequency (pulse) input
Manual (local): batch dispensing
Manual (local): repeating cycle timer
Manual (local): fixed speed PPM (parts per million) dosing

Factory Authorized Representative:

ProSeries-M
by Blue-White Ind.

5300 Business Drive, Huntington Beach, CA 92649
Tel: 714-893-8529 Fax: 714-894-9492
www.ProSeries-M.com Email: sales@blue-white.com