PRECISION CHEMICAL METERING FOR OVER 60 YEARS

ProSeries-M

Blue-White

PRECISION CHEMICAL METERING FOR THE TREATMENT OF MUNICIPAL WATER & WASTEWATER
At Blue-White® Industries we understand the needs of the water treatment industry. After all, we’ve been a leading manufacturer of Chemical Metering Pumps, Flow Instruments and Water Treatment Accessories for more than six decades.

Our ProSeries-M® line was meticulously engineered and designed to meet the very specific and critical needs associated with the treatment of Municipal Water and Wastewater. Each pumping unit is hand assembled by trained technicians and subjected to 24 hours of rigorous testing prior to shipment, ensuring delivery of a unit that’s ready to go to work for you.

Due to the advanced technology of ProSeries-M® Metering Pumps, these units are sold only through our highly trained and knowledgeable network of Municipal Representatives.

For assistance in finding the Representative nearest you, or to inquire about product features and to ask questions, please contact our helpful and courteous in house sales staff.
ProSeries-M® Metering Pumps are well suited to pumping a wide range of the aggressive and viscous chemicals used in water and wastewater treatment. The operator simply changes the pump tube assembly to the appropriate material for the chemical to be injected. This permits standardization to a single pump model for several different chemical applications.

The smooth, quiet, low velocity injection system eliminates the destructive forces that solenoid-type diaphragm pumps can have on piping systems. There is no need for pulsation dampeners or expensive piping systems.

The gentle squeezing action of the valve-less peristaltic pump head design, results in near continuous injection of chemical.

ProSeries-M® Peristaltic Metering Pumps are currently offered in three models, providing a wide range of feed rates and capabilities; M-2, M-3 and M-4.

These pages are designed to give you an overview of each model, as well as Blue-White’s CHEM-FEED® Engineered Skid Systems, Chem-Pro® M Diaphragm Metering Pumps and Sonic-Pro® Ultrasonic Flowmeters.

### Flow Output Range

- **.01–17.2 GPH (.03–65.1 LPH)**
- **.0002–33 GPH (.0007–126 LPH)**
- **.0028–158.5 GPH (.01–600 LPH)**

### Turndown

- **200:1**
- **10,000:1**

### Warranty

- **5 year**

### Component Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>M-2</th>
<th>M-3</th>
<th>M-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Speed DC Motor</td>
<td>Brush</td>
<td>Brush</td>
<td>Brushless</td>
</tr>
<tr>
<td>Maintenance Mode Safety Switch</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Motor reverse</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Tube Info Button</td>
<td>Timer</td>
<td>Revolution Counter &amp; Timer</td>
<td></td>
</tr>
<tr>
<td>Input: Remote Start/Stop</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Input: 4-20mA</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Input: Frequency (Pulsed)</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>Output: 4-20mA</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Output: Pulse</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Proportional Dosing</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Password Protect (PIN)</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Industrial Ethernet (IP) (Optional)</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Profibus (Optional)</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Modbus-TCP or Modbus (Optional)</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>NSF 61 Listed</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

### ProSeries-M® Features Include:

- Gentle, quiet and smooth efficient pumping action.
- Peristaltic pump design does not have valves that can clog and require maintenance procedures.
- Self priming – even against maximum line pressure. By-pass valves are not required.
- Cannot vapor lock or lose prime.
- Exclusive, Patented Peristaltic Pump Safety Switch – For Operator Safety, the pump only operates in maintenance mode while the front cover is removed.
- Patented Tube Failure Detection (TFD) system.
- Flow Verification Sensor (FVS) ready.
- Multiple signal inputs and outputs (4-20mA, etc.).
- Exclusive Patented Features and Multiple Patents Pending.
- Pressures to 125 PSI / 8.6 Bar.
- DC motor.
- Revolution count display & alarm.
- 5 Year Comprehensive Warranty.
Max fluid viscosity: 12,000 Centipoise

All Flex-A-Prene® connections: 185˚ F (85˚ C)
M/NPT connections: 185˚ F (85˚ C)
3/8" OD x 1/4" ID tubing connections: 130˚ F (54˚ C)

Maximum fluid temperature (excluding pump tubes):
Note: see individual pump tube assembly maximum pressure ratings.

• For optimum tube life, specify the pump to operate at the lowest possible RPM and pressure.
• Output versus pressure is nearly linear in all models. Larger tubes exhibit greater losses.

M-2 CAPACITY AND ORDERING GUIDELINES

<table>
<thead>
<tr>
<th>FLEX-A-PRENE® M-2 TUBE PUMPS</th>
<th>Max Flow</th>
<th>Max Speed</th>
<th>Max Pressure</th>
<th>Max Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed rate (GPH)</td>
<td>Feed rate (LPH)</td>
<td>Max Speed (RPM)</td>
<td>Max Pressure (PSI)</td>
<td>Max Temperature (˚F)</td>
</tr>
<tr>
<td>0.01 - 1.7</td>
<td>0.03 - 6.5</td>
<td>1 - 108</td>
<td>130</td>
<td>125 (8.6)</td>
</tr>
</tbody>
</table>

EXCLUSIVE TO M-2:
Optional advanced SCADA communications command and status capabilities include: start, stop, prime, and set point speed, touchpad locking and unlocking, motor status, pump head cover status, tube failure detection status, alarm reset, running hours reset, and many others.

The M-2 pump head roller assembly features two CNC machined squeeze rollers and two alignment rollers for optimum squeeze and tube life.

CONTRUL
- 200:1 turndown ratio.
- AN M-2 EXCLUSIVE: Firmware is field upgradable; always stay up-to-date with latest software.
- Control system designed to permit connection to SCADA systems and other remote controllers for chemical dosing control.
- EXCLUSIVE TO M-2: Optional Communication Protocols: Profinet, Modbus RTU, Modbus-TCP, and EtherNet/IP.
- Optional communications: Start stop, prime, control, lock and unlock clear alarm, run mode set speed etc.

INPUT
- 4-20mA and pulse inputs for remote external speed control, powered by either: powered 6-24VDC, or non-powered dry contact closure for remote start/stop.

OUTPUT
- One 250V/3A relay to monitor TFD (Tube Failure Detection System) and FVS (Flow Verification System).
- 4-20mA analog signal scalable to the motor speed.
M-3

DESIGNED FOR PRECISION TREATMENT OF DRINKING WATER AND WASTEWATER

THE PROSERIES-M® M-3 IS BUILT RUGGED enough to handle the most demanding water and wastewater treatment environments. The M-3 has feed rates from .0002 to 33.3 GPH / .0007 to 126 LPH, and is ideally suited for use in Municipal Treatment operations.

The M-3 provides quiet, smooth, low-velocity pumping action while handling many aggressive and/or viscous chemicals.

The ProSeries-M® M-3 requires a minimal amount of regular maintenance. The only regularly required maintenance is periodic cleaning. The M-3 is equipped with our exclusive, patented TFD Tube Failure Detection System – built right in (U.S. Patents 7,001,153 and 7,284,964). Find out more about the TFD system and other exclusive features on page six.

Thoughtfully Designed and Carefully Engineered.

CONTROL
Hardwired.
10,000:1 Turndown Ratio with high resolution motor speed adjustment – Highest Turndown Ratio in the Industry!

INPUT
4-20mA, 0-10Vdc, and Pulse inputs for remote external or batch operation, control and 0-30 VDC/ contact closure remote start/stop.

OUTPUT
Scalable 4-20mA or Pulse, one 250V/3A relay and three 115V/1A contact closures assignable to monitor various pump functions including: TFD (Tube Failure Detection), Optional FVS (Flow Verification Sensor), revolution counter, remote/local, forward/ reverse, input signals, output signals, motor on, motor fault, and more.

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)
All Flex-A-Prene® 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, 0 psig (4.5m, 0 bar)

Ambient operating temperature:
14°F to 115°F (-10°C to 46°C)

Ambient storage temperature:
14°F to 115°F (-10°C to 46°C)

Motor speed adjustment range:
10,000:1 (0.001% - 100% motor speed)

Motor speed adjustment resolution:
0.001% increments < 1% motor speed
0.01% increments > 1% motor speed and < 10%
0.1% increments > 10% motor speed

Display: 3 color VGA backlit LCD, UV resistant.

Display resolution:
0.0 > 1% motor speed
0.00 > 1% motor speed and < 10%
0.000 > 10% motor speed

Display languages: English, Spanish, French or German selectable.

Keypad: Eleven button positive action tactile switch keypad.

Security: Programmable 4-digit password.

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

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

Power cord options:
230V/50Hz = NEMA 6/15 (USA)
220V50Hz = CEE 7/VII (EU)
240V50Hz = AS 3112 (Australia/New Zealand)

Maximum overall dimensions:
8-1/8"W x 10-3/4"H x 15-1/4"D
(20.6W x 27.3H x 38.9D cm)

Approximate shipping wt: 33 lb. (15.0 Kg)

M-3 CAPACITY AND ORDERING GUIDELINES

FLEX-A-PRENE® M-3 TUBE PUMPS
Listed under NSF Std. 61 • Meets FDA criteria for food • Excellent chemical resistance • CP • SIP

<table>
<thead>
<tr>
<th>Feed Rate</th>
<th>RPM</th>
<th>PSI (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0022 - .020</td>
<td>125</td>
<td>125 (8.6) 185 (85)</td>
</tr>
<tr>
<td>.025 - .253</td>
<td>125</td>
<td>125 (8.6) 185 (85)</td>
</tr>
<tr>
<td>.0033 - .333</td>
<td>125</td>
<td>125 (8.6) 185 (85)</td>
</tr>
</tbody>
</table>

FLEX-A-PRENE® M-3 LOW PRESSURE TUBE PUMPS
Listed under NSF Std. 61
Meets FDA criteria for food • Excellent chemical resistance • Cool running at low pressures

<table>
<thead>
<tr>
<th>Feed Rate</th>
<th>RPM</th>
<th>PSI (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0033 - .333</td>
<td>125</td>
<td>30 (2.1) 185 (85)</td>
</tr>
</tbody>
</table>

FLEX-A-PRENE® M-3 TUBE PUMPS
Listed under NSF Std. 61 • Meets FDA criteria for food • Superior chemical resistance

<table>
<thead>
<tr>
<th>Feed Rate</th>
<th>RPM</th>
<th>PSI (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0005 - .48</td>
<td>125</td>
<td>110 (7.6) 185 (85)</td>
</tr>
<tr>
<td>.0019 - .190</td>
<td>125</td>
<td>110 (7.6) 185 (85)</td>
</tr>
</tbody>
</table>

FLEX-A-CHEM™ M-3 TUBE PUMPS
Listed under NSF Std. 61 • Meets FDA criteria for food • Excellent chemical resistance • Extra long life at low pressures

<table>
<thead>
<tr>
<th>Feed Rate</th>
<th>RPM</th>
<th>PSI (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0004 - .460</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0010 - .101</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0024 - 24.9</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0028 - 28.5</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
</tbody>
</table>

FLEX-A-THANE® M-3 TUBE PUMPS
Meets FDA criteria for food • Resistant to oils, greases and foods

<table>
<thead>
<tr>
<th>Feed Rate</th>
<th>RPM</th>
<th>PSI (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0004 - .460</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0010 - .101</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0024 - 24.9</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
<tr>
<td>.0028 - 28.5</td>
<td>125</td>
<td>65 (4.5) 130 (54)</td>
</tr>
</tbody>
</table>
**FLEX-A-CHEM™ M-4 TUBE PUMPS**

- Listed under NSF Std. 61
- Meets FDA criteria for food
- Superior chemical resistance

**FLEX-A-THANE™ M-4 TUBE PUMPS**

- Listed under NSF Std. 61
- Meets FDA criteria for food
- Resistant to oils, greases and fuels

**M-4 CAPACITY AND ORDERING GUIDELINES**

<table>
<thead>
<tr>
<th>FEED RATE</th>
<th>GPH</th>
<th>ML/Min</th>
<th>RPM</th>
<th>PSI (bar)</th>
<th>°F (°C)</th>
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</thead>
<tbody>
<tr>
<td>.0028 - .028</td>
<td>8.5</td>
<td>0.108 - 108</td>
<td>125</td>
<td>125 (6.6)</td>
<td>185 (85)</td>
</tr>
<tr>
<td>.0044 - .444</td>
<td>44.4</td>
<td>0.168 - 168</td>
<td>125</td>
<td>100 (6.9)</td>
<td>185 (85)</td>
</tr>
<tr>
<td>.0050 - .500</td>
<td>50.0</td>
<td>0.192 - 192</td>
<td>125</td>
<td>80 (5.5)</td>
<td>185 (85)</td>
</tr>
<tr>
<td>.0054 - .540</td>
<td>54.0</td>
<td>0.204 - 204</td>
<td>125</td>
<td>100 (6.9)</td>
<td>185 (85)</td>
</tr>
<tr>
<td>.010 - .0100</td>
<td>100.0</td>
<td>.0378 - 378</td>
<td>630 - 6300</td>
<td>50 (3.4)</td>
<td>185 (85)</td>
</tr>
<tr>
<td>.015 - .1585</td>
<td>158.5</td>
<td>.0600 - 600</td>
<td>100 - 10000</td>
<td>30 (2.1)</td>
<td>185 (85)</td>
</tr>
</tbody>
</table>

**FLEX-A-PRENE® M-4 LOW PRESSURE TUBE PUMPS**

Listed under NSF Std. 61
- Meets FDA criteria for food
- Excellent chemical resistance
- Extra long life at low pressures

<table>
<thead>
<tr>
<th>FEED RATE</th>
<th>GPH</th>
<th>ML/Min</th>
<th>RPM</th>
<th>PSI (bar)</th>
<th>°F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0050 - .500</td>
<td>50.0</td>
<td>0.192 - 192</td>
<td>125</td>
<td>30 (2.1)</td>
<td>185 (85)</td>
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<td>.011 - 111.0</td>
<td>111.0</td>
<td>.0420 - 420</td>
<td>700 - 7000</td>
<td>30 (2.1)</td>
<td>185 (85)</td>
</tr>
</tbody>
</table>

**THE HIGH VOLUME PROSERIES-M® PERISTALTIC METERING PUMP**

*WITH HIGH VOLUME FEED FROM .0028 TO 158.5GPH and unparalleled features, the ProSeries-M® M-4 provides precision treatment of Municipal Water and Wastewater.*

The smooth, quiet, low velocity injection system eliminates the destructive forces that solenoid-type diaphragm pumps can have on piping systems. This removes the need for pulsation dampeners and expensive piping system repairs.

ProSeries-M® M-4 has CNC machined rollers and two alignment rollers for optimum squeeze and tube life. The single piece heavy duty rotor means no flexing and increased accuracy, with no metal springs or hinges to corrode. Operators can set the pump to inject at maximum pressure in either direction, clockwise or counter clockwise.

*Thoughtfully Engineered, Versatile, Well Priced, Reasonable Lead Times.*

**CONTROL**

- Hardwired.
- 10,000:1 Turndown Ratio with high resolution motor speed adjustment – *Highest Turndown Ratio in the Industry!*

**INPUT**

- 4-20mA, 0-10Vdc, and Pulse inputs for remote external or batch control and 0-30 VDC/ contact closure remote start/stop.

**OUTPUT**

- Scalable 4-20mA or Pulse, one 250V/3A relay and three 115V/1A contact closures assignable to monitor various pump functions including: TFD, Optional FVS (Flow Verification Sensor), revolution counter, remote/local, forward/reverse, input signals, output signals, motor on, motor fault, operating mode setting, and more.

**Specifications**

- Maximum working pressure (excluding pump tubes): 125 psig (8.6 bar)
- Note: see individual pump tube assembly maximum pressure ratings.
- Maximum fluid viscosity: 12,000 Centipoise
- Maximum fluid temperature (excluding pump tubes): 125 °F (54 °C)
- Maximum suction lift: 125 psig (8.6 bar)
- Ambient storage temperature: 14 °F to 115 °F (-10 °C to 46 °C)
- Ambient operating temperature: 14 °F to 115 °F (-10 °C to 46 °C)
- Maximum fluid temperature: 125 psig (8.6 bar)
- Maximum fluid viscosity: 12,000 Centipoise
- Maximum fluid temperature (excluding pump tubes): 125 °F (54 °C)
- Power cord options: 96 to 264VAC-50/60Hz, 350 VA
- Ambience: 12-1/8"W x 14-1/4"H x 18-5/8"D
- Display: 3 color VGA backlit LCD, UV resistant.
Multi-Tube Technology

Heavy-Duty Peristaltic Pump Tubing

Dual Tube Technology for Precision Chemical Metering and Long Service Life, Even at High Pressures

Blue-White’s Innovative Multi-Tubes are engineered and designed to provide precision metering of chemical into critical treatment systems. These uniquely engineered pump tubes are specially designed to provide optimum performance while operating at much higher pressures than conventional single tube designs. At the same time, the Multi-Tube design delivers unmatched tube life of up to four times longer than conventional single tube designs. Because of the extended life of the Multi-Tube, pump maintenance and related costs such as labor and parts expense, are reduced.

For convenience when reordering tubes, Multi-Tube designs feature clamp-less overmolded tube fittings with permanently printed model numbers that are clearly visible and can be viewed through the pump head cover, even while the pump is running. This design enables quick and convenient parts ordering.

The clamp-less overmolded tube fitting is available with multiple connection fitting types, including: 1/2” M/NPT, barb fitting and 3/8” tube compression, tri-clamp and quick disconnect. Multiple U.S. and International patents are pending.


The Multi-Tube overmolded tubes are available for use on Blue-White’s ProSeries-M® and ProSeries® Peristaltic Chemical Metering Pumps.

TUBING FAILURE DETECTION

Blue-White’s exclusive patented Tube Failure Detection system, no one comes close to this breakthrough technology (U.S. patent: 7,001,153 and 7,284,964). In fact, the TFD may be the most important patent ever awarded for peristaltic metering pumps. The TFD System will detect a wide range of conductive chemicals with no false triggering. If the TFD senses tube failure, the pump will automatically shut off and energize a relay or switch. This permits communication with external equipment, such as a back-up pump or alarm. Simple, efficient and BUILT-IN to every ProSeries-M® Pump.


**FLEX-A-PRENE® TUBING**

Meets FDA criteria for food • Excellent chemical resistance

- Alcohol general
- Aluminum Sulfate (Alum)
- Ammonium chloride
- Ammonium hydroxide
- Benzyl alcohol
- Bleach
- Brine solutions
- Calcium hydroxide
- Calcium hypochlorite 20%
- Citric Acid
- Ethylene glycol
- Ferric chloride
- Ferric nitrate
- Ferric sulfate
- Ferrous chloride - 43% in water
- Ferrous sulfate
- Fluoric Acid (up to 25%)
- Formic acid
- Glucose
- Hydrochloric acid 33%
- Hydrocyanic acid
- Hydrogen peroxide
- Hypochlorous acid
- Iodine
- Magnesium chloride
- Magnesium sulfate
- Phosphoric acid
- Plating solutions
- Polyaluminum Chloride (PAC)
- Propylene glycol
- Sodium hydroxide 50%
- Sodium bisulfite
- Sodium chloride 12%
- Sodium hypochlorite 12.5%
- Sodium sulfite
- Sulfuric acid (up to 50%)
- Sulfuric acid (up to 50%)
- Tannic acid
- Bases
- Soaps
- Ketones
- Alcohols:
- Isobutyl Alcohol
- Applications
- Ink and solvent production
- Battery acid filling
- Specialty chemical production / processing
- Sensitive fluid transfer
- Tygothane®
- Cyclohexane
- Diesel Fuel
- Fatty acids
- Gasoline
- Heptane
- Hexane
- Kerosene
- Lard
- Mineral spirits
- Soap solutions
- Turpentine
- ASTM reference No.1,2,3
- Castor
- Coconut
- Fuel
- Linseed
- Lubricating
- Mineral
PROSERIES-M® MD-3 HYBRID CHEMICAL METERING PUMPS provide Precision Chemical Metering for the treatment of Municipal Water and Wastewater.

ProSeries-M® MD-3 is expertly engineered to provide smooth flow that mimics the best performance traits of peristaltic pumps, particularly at low feeds. The Dual Diaphragm configuration of the MD-3 means that when the first diaphragm is in the suction phase, the second diaphragm is in the discharge phase. The double diaphragms allow for fluid to be pumped at a near continuous flow, preventing two of the problems most often associated with diaphragm pumps: gas build up and loss of prime. The MD-3 Pump is equipped with sonic welded manifolds to prevent chemical leaks. The pump has 2000:1 turndown and provides smooth chemical dosing with no pulsation dampener required.

The Patent Pending design of the MD-3 is 50% more energy efficient than similar units currently on the market, and the drop-in-place design, along with conveniently built-in controls make installation and set-up fast and efficient.

HIGHLIGHTS
- The best turndown in the industry at 2000:1.
- Flow rate: 0.03–58 GPH (0.11–219.6 LPH).
- Maximum working pressure: 145 psig (10 bar).
- Smooth chemical dosing, no pulsation dampener needed.
- A single model number will handle all your needs.
- Equipped with Blue-White’s exclusive DiaFlex® diaphragms.
- Multiple U.S. and international Patents Pending.
PUMP TUBE EXCLUSIVES

**HIGHLIGHTS**

- Feed Rates to 40GPH/153 LPH.
- System Pressures to 175 PSI/12 bar.
- Diaphragm Failure Detection.
- PVDF/Ceramic Head Components.
- Quiet variable Speed Motor.
- Full Stroke Every Time Avoids Vapor Lock.
- NEMA 4X (IP 66) Washdown.
- 3 Year Warranty.

**Pump head:** PVDF head and diaphragm and FKM or EP o-rings, are the only wetted material in the Chem-Pro® pump head. This reduces issues of chemical compatibility.

**Manufactured 100% in-house exclusively for use on Chem-Pro® Diaphragm Metering Pumps.**

The Chem-Pro® M pumps are fitted with Blue-White’s exclusive DiaFlex® single layer PVDF diaphragm. Manufactured 100% in-house, this single piece, longer lasting diaphragm design does not consist of multiple layers like traditional diaphragms. DiaFlex® exhibits zero breakdown or delamination, reducing field maintenance and downtime. The exclusive, efficient, patent pending design is available in four sizes, including the Micro-Feed diaphragm.

- Pump head: PVDF head and diaphragm and FKM or EP o-rings, are the only wetted material in the Chem-Pro® pump head. This reduces issues of chemical compatibility.
- Manufactured 100% in-house exclusively for use on Chem-Pro® Diaphragm Metering Pumps.
PUMP TUBE EXCLUSIVES

Pump head: PVDF head and diaphragm and FKM or EP o-rings, are the only wetted material in the Chem-Pro® pump head. This reduces issues of chemical compatibility. Manufactured 100% in-house exclusively for use on Chem-Pro® Diaphragm Metering Pumps.

APPLICATIONS
- Chemical Metering
- Cooling Tower Treatment
- Wastewater Treatment
- Acid Injection
- Municipal Water Treatment
- Fluoridation
- Boiler Treatment

FEATURES
- Operator friendly digital controls with backlit LCD display and DFD alarm display.
- Signal inputs include: 4-20mA, pulse inputs, and Remote start/stop.
- Signal outputs include: Relay (3 amp), motor running contact, 4-20mA.
- Large PVDF, Ceramic, double ball check valves without metal springs.
- Backlit LCD displays output volume, motor % speed, input signal values, service and alarm status.
- Includes Diaphragm Failure Detection (DFD) system.
- Compatible with Blue-White’s Flow Verification Sensor (FVS) system.
- SCADA ready dry contact relay closes while motor is energized.
- NEMA4X (IP66) wash-down, chemically resistant powder coated enclosure.
- Patent pending DiaFlex® PVDF single-layer Diaphragm.
- Large PVDF, Ceramic, double ball check valves without metal springs.
- Backlit LCD displays output volume, motor % speed, input signal values, service and alarm status.
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- Signal inputs include: 4-20mA, pulse inputs, and Remote start/stop.
- Signal outputs include: Relay (3 amp), motor running contact, 4-20mA.
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THE CHEM-FEED® ENGINEERED SKID SYSTEM was designed and engineered using solid modeling tools for superior quality and easy component maintenance. Custom engineered universal mounting blocks, and pre-assembled component assemblies are easily stocked and field replaceable into pre-machined mounting slots. Each System is rigorously factory tested, and the strong, lightweight systems can be either floor or wall mounted for easy operator access.

CHEM-FEED SKID SYSTEM APPLICATIONS
- Municipal Water Treatment
- Sodium Bisulfite / Bisulfate
- Municipal Wastewater Treatment
- Hydrochloric Acid
- Chemical Metering
- Polymers
- Chlorination
- Caustics
- Fluoridation
- Flocculants
- Alum

CHEM-FEED SKID SYSTEM FEATURES
- Simply drop it in place and make your connections.
- Includes pressure switch option.
- Drip containment tray, removable for easy cleaning.
- Wall mountable with optional wall mount bracket.
- Efficient, small footprint design.
- Proven components, vented ball valves, PRV (pressure relief valve), gauge guards, and metal free check valves:
  - Pressure relief valve (PRV) – Protects the system from over pressurization, 5-100 PSI setting range, 125 PSI maximum system pressure.
  - Check valve – Protects the user from back-flow during pump maintenance.
  - Gauge Guard – Protects pressure gauge from chemical attack.
- Flow indicator – Provides a visual indication of chemical movement through the system.
- Vented ball valves – Protects the system from chemicals that off gas, such as bleach.
- Calibration cylinder – Self filling cylinder, does not require chemical level in supply tank be above calibration cylinder for filling.

TECHNICAL INFORMATION – CONSTRUCTION
Skid: Chemical resistant polyester powder coated 6061 T6 aluminum. Welded joint construction.
Piping: PVC Schedule 80 (optional CPVC).
Tubing: Reinforced braided PVC, 200 PSI max, NSF standard 61.
Tubing Clamps: 300 series SS band, 400 series SS screw.
Unions: PVC Schedule 80 (optional CPVC), FKM elastomers (optional EPDM).
Ball Valves: Vented type ball, True unions, PVC body, PTFE shaft bearings and seats, FKM elastomers (optional EPDM), Manufacturer: Plast-O-Matic®.
Pressure Relief Valve: (PRV) PVC body (optional CPVC), PTFE primary diaphragm seal, Manufacturer: Plast-O-Matic®.
Calibration Cylinder: PVC clear body, PVC end caps, 1/4” ID tubing outlet vent.
Pulsation Damper: CPVC body, 10 cubic inch volume, FKM bladder (optional EPDM bladder).
Gauge with Guard Gauge: liquid filled stainless steel with blowout plug, bottom mount, 1/4” NPT. Gauge Guard: PVC body (CPVC optional), FKM diaphragm seal, temperature compensated oil filled, Manufacturer: Plast-O-Matic®.
Check Valve: PVC body (optional CPVC), FKM diaphragm (optional EPDM), Manufacturer: Plast-O-Matic®.
Flow Indicator: Machined cast acrylic, PVC connections, ceramic ball, polypropylene ball stop, PVC half unions, FKM seals (optional EPDM), Manufacturer: Blue-White Ind.®
Y Strainer: PVC body (optional CPVC), FKM elastomers (optional EPDM).
Flow Verification Sensor: PVDF body, PVC socket weld fittings, FKM elastomers (optional EPDM), Manufacturer: Blue-White Ind.®
Universal Mounting Blocks: PVC (non-wetted part).
Skid Mounting Foot / Wall Pads: 316 Stainless Steel (non-wetted part).
Drip Tray: Polypropylene, 4 gallon containment each tray.

SHIPPING INFORMATION:
Single Pump Skid Units
Approximate Shipping Weight 60 lb. (27.2 Kg) without pump
Dual Pump Skid Units
Approximate Shipping Weight 70 lb. (31.8 Kg) without pump
**Detroit Southwest WTP:** Blue-White Peristaltic pumps excel in polymer injection applications, as shown here installed in Polymark blending systems at the Detroit Southwest WTP.

**Anchorage Water & Waste Water:** Dual MC-3 pumps used for a PAC application, utilizing Blue-White’s MicroFlo meters.

**West Valley Water District in Rialto, CA:** ProSeries-M® M-3 and M-4 Pumps installed at their Water Filtration Facility.

**Keene Waste Water Treatment Plant:** Sonic-Pro® S3 Flowmeter Helps Maintain ‘Food to Microorganism’ Balance in Return Activated Sludge Line.
Sonic-Pro® Hybrid Ultrasonic Flowmeters

Sonic-Pro® Hybrid Ultrasonic Flowmeters can be used in Doppler or Transit Time operation modes. Sonic-Pro® will measure the flow of virtually any fluid in which sound waves can travel. Because the ultrasonic sound transducers are clamped to the outside of the pipe wall, the Sonic-Pro® can measure flow in both clean and dirty fluids. In addition, because the meter does not come in contact with the fluid being measured, Sonic-Pro® is well suited for use in applications where harsh chemicals and other abrasive fluids are being used. The meter can be equipped with a communications package for PC remote access allowing for program editing and downloading of data logs. Additionally, a relay package is available for process control and alarm functions.

**Available Display Options**

- **S1**: No local display. Factory configured for one application. Communication package required to access configuration menu and data log.
- **S2**: High quality 320 x 240 pixel QVGA backlit LCD display. Two button interface, allows user access to clear accumulated total and swap rate and total display fonts. Communication package required to access configuration menu.
- **S3**: High quality 320 x 240 pixel QVGA backlit LCD display. Five button, fully configurable, tactile switch keypad interface. Security: master and configuration passwords.

**FLUIDS**

- Sewage
- Wastewater
- Pulp and Paper Slurries
- DI water
- Discharge water
- Caustics
- Chemical Slurries
- Ground water
- Food and Beverage
- Petrochemical
- Any sound conducting liquid

**Technical Specifications**

**Pipe**

- T-Track fitting allows for small and large pipe diameter capabilities (.5”–48”).
- Pipe size range .5”–100”.

**Fluid**

- **Doppler Mode**: Requires particles to be present in the flow stream to “reflect” the sound waves. (i.e. Air bubbles, sand, etc.)
- **Operational Environment**: fluid contains .02%–15% (200–150,000 ppm) of particles.
- **Transit Time Mode**: Requires relatively “clean” fluid to enable the sound waves to complete a circuit.
- **Operational Environment**: 0%–10% (0–100,000 ppm) of particles.

**Accuracy**

- +/– 1% of rate in Transit-Time mode greater than 1 ft/sec fluid velocity.
- +/– 0.01 ft/sec in Transit-Time mode less than 1ft/sec fluid velocity.
- +/– 2% of rate in Doppler mode greater than 5 ft/sec fluid velocity.
- +/– 0.10 ft/sec in Doppler mode less than 5 ft/sec velocity.

**Interface and Data**

- Data logging: to standard SD Card supplied with unit. User configurable to time interval, flow rate and total set-point triggers. 2,000,000 events with included 128MB SD Card.
- Optional Computer Connection: Ethernet, USB, RS-232, RS-485. Permits remote access and control of all functions including real-time display, system configuration, data logging, remote data capture as well as process control functions. Software permits remote internet access through local network setup.
- Optional Process Control: Three independently configurable 10 amp, form C relays. May be configured to flow rate or high/low rate alarm.
- 4-20mA output: Fully configurable
- 0–1000Hz Pulse Output : Fully configurable

**Dimensions**

- Height 11” (27.9 cm) 21”
- Width 8.5” (21.8 cm) 17”
- Depth 5” (12.7 cm) 9.5”
- Weight 24 lbs. (10.9 Kg) 39 lbs. (17.7 Kg)
- Includes carry case. Excludes T-Track fixture.

**Environment**

- NEMA 4X (IP66), Powder Coated aluminum, SS clamps and hardware.

**Patented T-Track Mounting System**

- **For Fast and Effective Installation**

- The patented (U.S. 9,374,024) T-Track Mounting System is designed to quickly and accurately mount transducers utilizing a built-in ruler and mounting base, to ensure transducers are perfectly aligned and spaced.
- Heavy gauge Stainless Steel cover, anodized aluminum end blocks, and polymeric tensioning clamps provide transducer protection for years of service in tough environments.

**Single T-Track**

- For V-Mount method.
- Available for two pipe ranges: .5” to 4” and 2” to 14”.

**Dual T-Track**

- For V or Z-Mount method.
- Available for 2” to 48” pipe.
ProSeries-M®
METERING PUMPS

PRECISION
CHEMICAL
METERING