Emulsion Polymer Blending System
**Pulsafeeder Technology**

Since 1936, Pulsafeeder has been the global leader in fluid handling technology and innovation in chemical dosing. As a single source system supplier, we have built a strong reputation with thousands of polymer installations in a variety of end user applications. Our extensive product knowledge in complete polymer activation and injection systems allows us the expertise to accurately supply our customers with the most efficient polymer system available.

**Polymer Blending System**

Designed to meet the requirements of our customers, the Polyfeeder Emulsion Polymer Blending System revolutionizes the industry with innovations. Our three pass mixing chamber thoroughly hydrates polymer molecules without damaging existing polymer chains, achieving the proper hydration level required for a fully activated polymer. Our mixing chamber is completely visible so your operators can easily and quickly monitor the blending operation. Maintenance is simplified with well placed unions and no special tool requirements. As the original pump manufacturer, we can offer an outstanding two year warranty. Simply put, the Polyfeeder Emulsion Polymer Blending System is the most effective, robust and reliable emulsion polymer blending system in the industry.

**Product Scope**

- **Three Pump Choices:** Solenoid, Gear Pump or Progressive Cavity
- **Input Voltage:** 115 VAC, 230 VAC 50 or 60 Hz
- **Current Requirements:** 20 A @115VAC, 10 A @ 230VAC
- **Basic Dimensions:** (model dependent)
  - 36"- 40" Width, 24" Depth, 60"-68" Height
- **Environmental Rating:** Controls: NEMA 4X, Motors: TEFC
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- **Stainless Steel Frame**

**Optional Accessories**

- Loss of Water Flow Switch
- Loss of Polymer Flow Switch
- Polymer Flow Transmitter
- Remote Level Control
- Stainless Steel Piping
- Automatic Water Control Valve
- UL Listed Control

**Typical Applications**

- Coagulation
- Flocculation
- Sludge Dewatering
- Sludge Thickening
- Filtration
- Clarification

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**Polymer Blending System Diagram**

- NEAT POLYMER TOTE
- SOLVENT
- POLYMER FEED PUMP
- MIX CHAMBER
- SOLUTION OUT
- DILUTION WATER
- INJECTOR
Polymer Blending System

1. Inlet Water Solenoid Valve with Manual Bypass and Adjustable Flow Regulator
2. Neat Polymer Inlet
3. Neat Polymer Pump (Solenoid, PC or Gear)
4. Dilution Water Pressure Gauge
5. Neat Polymer Suction Side Drain Valve
6. Calibration Column Isolation Valve
7. Neat Polymer Calibration Column
8. Primary Dilution Water Rotameter with Globe Valve
10. Neat Polymer Pressure Relief Valve
11. Primary and Secondary Dilution Water Spring Loaded Check Valves
12. Mixing Chamber
13. System Control Panel, NEMA 4X
14. Robust Stainless Steel Frame
15. Polymer Solution Inspection Window
16. Static Mixer-Optional
17. Polymer Solution Outlet
18. Polymer Inspection Window
19. Polymer Injection Lance (location only, not visible)
20. Neat Polymer Pressure Gauge
21. Mix Chamber Drain Valve
22. Neat Polymer Pressure Relief Port
23. Neat Polymer Backpressure Valve
24. Neat Polymer Prime and Drain Valve
The Polyfeeder employs a patent pending anti-clog and anti-siphon injection lance which effectively separates the polymer from the water interface. The water flow helps close the valve instead of trying to force it open, while still being a membrane that can accommodate the occasional solid. A four hole injection path ensures inline axial dispersion prior to the high energy mixing disc.

Equipped with a high sheer powerful motorized energy mixing chamber, the Polyfeeder efficiently mixes and hydrates molecules without damaging existing polymer chains. The clear Polyfeeder mixing chamber is a 3 pass mixing system where polymer is introduced into the center of the primary dilution flow stream via the Polymer Injection Lance.
Serviceability Without Special Tools

Mag Drive Gear Pump Options

Adjustable Metering Energy

Other Special Features
- Serviceability Without Special Tools
- Mag Drive Gear Pump Options
- Adjustable Metering Energy
### Poly Feeder

#### Solenoid Pump

<table>
<thead>
<tr>
<th>Neat Polymer Capacity (GPH)</th>
<th>Type of Pump</th>
<th>Primary Dilution Range (GPM)</th>
<th>Secondary Dilution with Static Mixer (GPM)</th>
<th>Control Option</th>
<th>Water Inlet Pipe Size</th>
<th>Polymer Suction Pipe Size</th>
<th>Solution Discharge Pipe Size</th>
<th>Maximum Pump Pressure</th>
<th>Viscosity Limits (cPs) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05-0.5</td>
<td>Solenoid LV03SA-VTTS-XXX</td>
<td>0.24-2.4</td>
<td>Optional</td>
<td>Manual Control</td>
<td>Remote Poly Concentration Level</td>
<td>1&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>110</td>
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<tr>
<td>0.1-1.0</td>
<td>Solenoid LV04SA-VTTS-XXX</td>
<td>0.5-5.0</td>
<td>Optional</td>
<td>Manual Control</td>
<td>Remote Poly Concentration Level</td>
<td>1&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>110</td>
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<tr>
<td>0.2-2.0</td>
<td>Solenoid LV05SA-VTTS-XXX</td>
<td>1.0-10.0</td>
<td>Optional</td>
<td>Manual Control</td>
<td>Remote Poly Concentration Level</td>
<td>1&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>100</td>
</tr>
<tr>
<td>0.4-4.0</td>
<td>Solenoid LV05SA-VTTS-XXX</td>
<td>2.0-20.0</td>
<td>Optional</td>
<td>Manual Control</td>
<td>Remote Poly Concentration Level</td>
<td>1-1/2&quot;</td>
<td>3/4&quot;</td>
<td>1-1/2&quot;</td>
<td>100</td>
</tr>
<tr>
<td>1.0-10.0</td>
<td>Solenoid LV06SA-VTTS-XXX</td>
<td>4.0-40.0</td>
<td>Optional</td>
<td>Manual Control</td>
<td>Remote Poly Concentration Level</td>
<td>1-1/2&quot;</td>
<td>1&quot;</td>
<td>1-1/2&quot;</td>
<td>80</td>
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</tbody>
</table>

** For higher viscosities, please consult the factory

***Optional Rotameter selections available

#### Progressive Cavity Pump

<table>
<thead>
<tr>
<th>Neat Polymer Capacity (GPH)</th>
<th>Type of Pump</th>
<th>Primary Dilution Range (GPM)</th>
<th>Secondary Dilution with Static Mixer (GPM)</th>
<th>Control Option</th>
<th>Water Inlet Pipe Size</th>
<th>Polymer Suction Pipe Size</th>
<th>Solution Discharge Pipe Size</th>
<th>Maximum Pump Pressure</th>
<th>Viscosity Limits (cPs) **</th>
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</thead>
<tbody>
<tr>
<td>0.25-2.5</td>
<td>Progressive Cavity 0005-24 MD</td>
<td>2.0-20.0</td>
<td>Optional</td>
<td>Remote Poly Concentration Level</td>
<td>1&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>175</td>
<td>3000</td>
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<tr>
<td>0.58-5.8</td>
<td>Progressive Cavity 0015-24 MD</td>
<td>2.0-20.0</td>
<td>Optional</td>
<td>Remote Poly Concentration Level</td>
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<td>3/4&quot;</td>
<td>1-1/2&quot;</td>
<td>175</td>
<td>3000</td>
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<tr>
<td>1.42-14.2</td>
<td>Progressive Cavity 003-12 MD</td>
<td>4.0-40.0</td>
<td>Optional</td>
<td>Remote Poly Concentration Level</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td>175</td>
<td>3000</td>
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<tr>
<td>2.64-26.4</td>
<td>Progressive Cavity 006-12 MD</td>
<td>8.0-80</td>
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<td>Remote Poly Concentration Level</td>
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<td>1&quot;</td>
<td>2&quot;</td>
<td>175</td>
<td>3000</td>
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<tr>
<td>5.68-56.8</td>
<td>Progressive Cavity 012-12 MD</td>
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<td>Optional</td>
<td>Remote Poly Concentration Level</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td>175</td>
<td>3000</td>
</tr>
</tbody>
</table>

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**Poly Feeder**

**Gear Pump**

<table>
<thead>
<tr>
<th>Neat Polymer Capacity (GPH)</th>
<th>Type of Pump</th>
<th>Primary Dilution Range (GPM)</th>
<th>Secondary Dilution with Static Mixer (GPM)</th>
<th>Control Option</th>
<th>Water Inlet Pipe Size</th>
<th>Polymer Suction Pipe Size</th>
<th>Solution Discharge Pipe Size</th>
<th>Maximum Pump Pressure</th>
<th>Viscosity Limits (cPs) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>.52-5.2</td>
<td>Gear GC2 5:1 Reducer</td>
<td>2.0-20.0</td>
<td>Optional</td>
<td>Remote Poly Concentration Level</td>
<td>3/4&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
<td>100</td>
<td>40000</td>
</tr>
<tr>
<td>1.05-10.9</td>
<td>Gear GC2 5:1 Reducer</td>
<td>4.0-40.0</td>
<td>40</td>
<td>Remote Poly Concentration Level</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td>100</td>
<td>40000</td>
</tr>
<tr>
<td>2.1-21</td>
<td>Gear GC2 2:1 Reducer</td>
<td>8.0-80</td>
<td>80</td>
<td>Remote Poly Concentration Level</td>
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<td>1&quot;</td>
<td>2&quot;</td>
<td>100</td>
<td>40000</td>
</tr>
<tr>
<td>4.2-42</td>
<td>Gear GC2 2:1 Reducer</td>
<td>10.0-100.0</td>
<td>100</td>
<td>Remote Poly Concentration Level</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td>100</td>
<td>40000</td>
</tr>
<tr>
<td>5.6-56</td>
<td>Gear GC2 2:1 Reducer</td>
<td>10.0-100.0</td>
<td>100</td>
<td>Remote Poly Concentration Level</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td>100</td>
<td>40000</td>
</tr>
</tbody>
</table>

**For higher viscosities, please consult the factory**

**Optional Rotameter selections available**

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**Basic Specs**

- Input Voltage: 115 VAC, 230 VAC, 50 or 60 Hz
- Current Requirements: 20 A @ 115VAC, 10 A @ 230VAC
- Basic Dimensions: Width 36“-40”, Depth 24”, Height 60”-68” (model dependent)
- Controls: NEMA 4X, Motor: TEFC

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**Options**

- Secondary Dilution with Static Mixer
- Inlet Water Strainer
- Stainless Steel Piping
- Loss of Water Switch
- Loss of Polymer Switch
- Remote Level Transmitter-Concentration Level Only
- Dilution Water Transmitter-Concentration Level Only
- Polymer Flow Transmitter-Concentration Level Only
- Dilution Water Control Valve-Concentration Level Only
### Control Options

- **Manual Controls**
  Controls are adjusted manually via two control mounted switches. This allows the operator the ability to set the water flow requirements prior to making diluted polymer.

- **Remote Controls**
  A microprocessor based Polyfeeder control system including all of the manual control options and a local remote start and stop control with analog input for neat polymer feed rate control. It also has an automatic start up sequence, automatic shut down flush sequence, and discrete outputs for system run, remote status and failure, and controls for optional loss of water flow switches. It is an open loop neat polymer control with user defined flow rates.

- **Concentration Level Controls**
  A graphic touchscreen interface that contains all of the remote control features and offers six modes of operation.

<table>
<thead>
<tr>
<th>Control Features</th>
<th>Manual Controls</th>
<th>Remote Poly Controls</th>
<th>Concentration Level Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMA 4X FRP Enclosure</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Local On/Off Mixer and Water Solenoid</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Selector Switch with Indicator</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Local On/Off Control Circuit for Neat Polymer</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Feed Pump with Indicator</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Built in Thermal Protection</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Flow Pacing for Neat Polymer Feed Pump</td>
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<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Thermal overload protection</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Loop Neat Polymer Control with User Defined Water Flow Rates</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microprocessor Based Polyfeeder Control System with backlit 2 x 16 character LED display</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local/Remote Start and Stop Control</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Local/Remote Start Stop Control with Analog Input for Neat Polymer Feed Rate Control</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Automatic Start Up Sequence</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Automatic Shut Down Flush Sequence</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Discrete Outputs for System Run, Remote Status and Failure</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Fused Circuit Protection</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Process Diagram with LED Sequence or display animation on Control Panel Cover</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>User Programmable Inputs and Outputs</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Control features for Loss of Polymer Switch</td>
<td>●</td>
<td>●</td>
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</tr>
<tr>
<td>Analog Output Related to Pump Flow/Speed</td>
<td>●</td>
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<tr>
<td>Control features for Loss of Water Flow Switches</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Touchscreen Interface Unit, 5.3” with White on Blue Monochrome Graphics</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local/Remote Concentration or Level/Batch Control</td>
<td>●</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Six Modes of Operation:

- Direct Feed/Open Loop/Ratio Poly to Water
- Direct Feed/Closed Loop/Ratio Water to Poly
- Direct Feed/Closed Loop/Ratio Poly to Water
- Batch Feed/Open Loop/Ratio Poly to Water
- Batch Feed/Closed Loop/Ratio Poly to Water
- Batch Feed/Closed Loop/Ratio Water to Poly
- Open loop polymer control with polymer flow adjusted to water flow to maintain concentration

- Polymer Flow Transmitter
- Dilution Water Flow Transmitter
- Remote Level Transmitter
- Dilution Water Automatic Control Valve