PWA-SL
ANSI/ASME B73.3
Sealless Horizontal Process Pump
MAGNETIC COUPLING UNIT (MCU)
Simple, Compact Design

**Drive Hub**
- Outside of fluid chamber
- High-torque Neodymium-Iron-Boron magnets
- Stainless steel sleeve protects magnets from damage and corrosion

**Stationary Assembly**
- Strong containment shell made from long-strand carbon fiber filled PEEK has no eddy current losses
- Durable silicon carbide sleeve and axial thrust faces enhance bushing performance and life

**Impeller Assembly**
- Impeller vane design matches PumpWorks PWA for proven hydraulic performance
- Driven magnets couple to the drive hub for non-contacting performance
- Premium-grade carbon-graphite bushing provides full support of impeller

Innovative Sealless Cartridge Design

**Fluid Chamber O-rings**
- Provide reliable zero-leak sealing
- Static design never wears out
- Available in many elastomers for fluid compatibility

**Bushing System**
- Premium-grade carbon-graphite bushing provides full support of impeller
- Durable silicon carbide sleeve and axial thrust faces enhance performance and life

**Jack Screws**
- Provide simple, safe method of separating magnetic coupling
- Jack screws can be left in place to prevent loss

**Expeller Vanes**
- Prevents entrained solids from entering recirculation path, reducing clogging and bushing wear
- Reduces thrust load

**Containment Shell**
- PEEK and long-strand carbon fiber composite
- No heat generation or energy loss from eddy currents

**Magnetic Coupling**
- Drives impeller without contact
- Decouples without damage if impeller becomes jammed
- Neodymium-Iron-Boron magnets for up to 300°F
- Stainless steel sleeve protects magnets from damage and corrosion
YOUR PUMP WANTS TO TALK TO YOU™

Predict Plus is the Only Wireless and Cloud Connected Machinery Health Monitor Designed Specifically for Proactive Pump Monitoring

- 24/7 online vibration and temperature monitoring device.
- Automatic device registration on the cloud via cellular interface.
- Proactive alerts from the Predict-Cloud.
- Long term storage of trend data including Fast Fourier Transform (FFT).
- Affordable and available as a standard option on all PumpWorks products.
- External or battery powered.

Always On
Predict Plus is CONTINUOUSLY monitoring and logging your pump’s health.

Vibration
Self-Calibrating Tri-Axial Accelerometer to capture FFT and RMS vibration data.

Bearing Temperature
Integrated thrust bearing temperature monitoring.

Alerts
Proactive alerts via email and SMS from the Predict-Cloud.

Predict-Cloud is a powerful tool in attaining the goal of reducing maintenance spending and increasing MTBR (Mean Time Between Repairs). By proactively identifying detrimental system conditions prior to catastrophic machine failure.

Go to www.predict-cloud.com
DESIGN FEATURES AND BENEFITS

**Containment Shell**
- PEEK and long-strand carbon fiber composite
- No heat generation or energy loss from eddy currents

**Impeller**
- Standard 316L Stainless Steel, A351 Gr CF3M fully open for increased corrosion, abrasion and solids wear resistance
- Impeller vane design matches PumpWorks PWA for proven hydraulic performance and direct sealed pump replacement
- Expeller Vanes, preventing entrained solids from entering recirculation path, reducing clogging and bushing wear

**Casing**
- Standard Carbon Steel, ASTM A216 WCB and 316L Stainless Steel, A351 Gr CF3M material for corrosion protection applications
- Precision serrated flange face finish for optimum gasket retention and sealing
- Class 150# suction and discharge flanges
- Self venting, centerline mounted discharge flange
- Casing thickness exceeds ASME B73.1 and ASME B73.3 specifications for increased casing life
- Back pull out design for easy maintenance and replacement

**Foot Mounted Casing**
- Maximum casing stability and support for back pull out maintenance feature
- Reduced vibration

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- Drives impeller without contact
- Decouples without damage if impeller becomes jammed
- Neodymium-Iron-Boron magnets for up to 300°F
- Stainless steel sleeve protects magnets from damage and corrosion

**Casing Drain**
- Optional casing drain and drain piping

**Back Plate**
- Maintains clearance for reduced thrust loads

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**Casing**
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- Precision serrated flange face finish for optimum gasket retention and sealing
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**Foot Mounted Casing**
- Maximum casing stability and support for back pull out maintenance feature
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**Casing Drain**
- Optional casing drain and drain piping

**Back Plate**
- Maintains clearance for reduced thrust loads
Frame Adapter
- Carbon Steel standard for increased strength and stability

Shaft and Bearing System
- Rigid, heavy duty design for minimal shaft deflection and increased reliability
- Exceeds ASME B73.1 and ASME B73.3 bearing life specification requirements
- 316L Shaft material is standard with optional material upgrades available

Bearing Lubrication
- Flinger disk lubrication to ensure effective bearing lubrication and lower bearing operating temperatures

Sealed Fill Cap
- Oversized for easier oil changes

Oil Sump Drain Plug
- Magnetic plug to maintain bearing housing cleanliness and increased protection

Two Oil Level Sight Glasses
- 1” sight glass located on each side of bearing housing for flexible viewing

Optional Predict Plus™ GEN 2 Proactive Pump Monitor
- Temperature and 3 axis vibration monitoring
- IP66 rated enclosure and Class 1, Div 2 certified

ISOMAG Magnetic Seals
- IP 65 rated Power Frame sealing

ePOD Pump Selector
- Access to end users and specifiers to select your pump application online at www.pumpworks.com

Thrust Bearing
- Heavy duty double row standard
- Optional duplex angular contact thrust bearing

GEN 2 Power Frame
- All new power frame design for enhanced reliability. US Patent 10,288,081
- 25% more cooling surface than PWA GEN 1
- Sealed lubrication chamber
- Sloped and segregated drain for contaminant isolation
- Optional Predict Plus™ GEN 2 proactive pump monitor
- Zero oil power frame oil maintenance for up to 5 years when using SHELL Turbo 54 x 32 lubricant

Frame Adapter
- Carbon Steel standard for increased strength and stability

Shaft and Bearing System
- Rigid, heavy duty design for minimal shaft deflection and increased reliability
- Exceeds ASME B73.1 and ASME B73.3 bearing life specification requirements
- 316L Shaft material is standard with optional material upgrades available
PWA-SL retrofits with all ANSI/AME B73.1 sealed pumps

- Matches all mounting dimensions
- Back pull-out design utilizes same casing as PWA sealed pump

- Replace Entire Pump
  - Remove old pump
  - Install new PWA-SL pump

- Replace Back Pull-out Assembly
  - Remove old back pull-out assembly
  - Install new PWA-SL assembly

**TECHNICAL DATA**

All dimensions in inches and (mm)

<table>
<thead>
<tr>
<th>Containment Shell</th>
<th>Radial Wall Thickness</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 2 Power Frame</td>
<td>Diameter Between Bears</td>
<td>1.5 (38)</td>
<td>2.125 (54)</td>
</tr>
<tr>
<td></td>
<td>Diameter at Coupling</td>
<td>0.875 (22.23)</td>
<td>1.125 (29)</td>
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<tr>
<td></td>
<td>Radial bearing</td>
<td>6207</td>
<td>6309</td>
</tr>
<tr>
<td></td>
<td>Thrust bearing</td>
<td>3306</td>
<td>3309</td>
</tr>
<tr>
<td></td>
<td>LT low torque (ft-lb)</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>HT high torque</td>
<td>73</td>
<td>168</td>
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<tr>
<td></td>
<td>Maximum Allowable Working Pressure, note 1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>MAWP PSI (Kpa)</td>
<td>285 PSI (1965 kPa) at 100°F with 150# flanges</td>
<td></td>
</tr>
<tr>
<td>Maximum Temperature</td>
<td>Oil Lubricated Power Frame</td>
<td></td>
<td>300°F (149°C)</td>
</tr>
<tr>
<td>Casing</td>
<td>Corrosion Allowance</td>
<td>0.125 (3.18)</td>
<td></td>
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</tbody>
</table>

1. Hydrostatic Test Pressure equals 1.5 times Maximum Allowable Working Pressure.
2. Magnetic torque is dependent on operating temperature. Consult factory or ePOD selection software for temperatures above 100°F.
### PUMP DIMENSIONS AND WEIGHTS

Dimensions in inches (mm), weights in lbs. (kg)

<table>
<thead>
<tr>
<th>FRAME</th>
<th>SIZE</th>
<th>ANSI DESIGNATION</th>
<th>DISCHARGE SIZE</th>
<th>SUCTION SIZE</th>
<th>X</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>SP</th>
<th>WEIGHT BARE PUMP LBS AND (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1</td>
<td>1X.5x6</td>
<td>AA</td>
<td>1</td>
<td>1.5</td>
<td>6.5 (165)</td>
<td>13.5 (343)</td>
<td>4.0 (102)</td>
<td>5.25 (133)</td>
<td>3.75 (95)</td>
<td>84 (38)</td>
</tr>
<tr>
<td></td>
<td>1.5x3x6</td>
<td>A8</td>
<td>1</td>
<td>3</td>
<td>6.5 (165)</td>
<td>13.5 (343)</td>
<td>4.0 (102)</td>
<td>5.25 (133)</td>
<td>3.75 (95)</td>
<td>84 (38)</td>
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<tr>
<td></td>
<td>2x3x6</td>
<td>A8</td>
<td>1</td>
<td>3</td>
<td>6.5 (165)</td>
<td>13.5 (343)</td>
<td>4.0 (102)</td>
<td>5.25 (133)</td>
<td>3.75 (95)</td>
<td>84 (38)</td>
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<tr>
<td></td>
<td>1.5x3x6</td>
<td>A8</td>
<td>1</td>
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<td>6.5 (165)</td>
<td>13.5 (343)</td>
<td>4.0 (102)</td>
<td>5.25 (133)</td>
<td>3.75 (95)</td>
<td>84 (38)</td>
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<tr>
<td>GROUP 2</td>
<td>3x4x7</td>
<td>A70</td>
<td>3</td>
<td>4</td>
<td>11 (280)</td>
<td>19.5 (496)</td>
<td>4.0 (102)</td>
<td>8.25 (210)</td>
<td>3.75 (95)</td>
<td>220 (100)</td>
</tr>
<tr>
<td></td>
<td>2x3x8</td>
<td>A60</td>
<td>3</td>
<td>4</td>
<td>11 (280)</td>
<td>19.5 (496)</td>
<td>4.0 (102)</td>
<td>8.25 (210)</td>
<td>3.75 (95)</td>
<td>220 (100)</td>
</tr>
<tr>
<td></td>
<td>3x4x8</td>
<td>A70</td>
<td>3</td>
<td>4</td>
<td>11 (280)</td>
<td>19.5 (496)</td>
<td>4.0 (102)</td>
<td>8.25 (210)</td>
<td>3.75 (95)</td>
<td>220 (100)</td>
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<tr>
<td></td>
<td>1X.2x10</td>
<td>A05</td>
<td>1</td>
<td>2</td>
<td>8.5 (218)</td>
<td>19.5 (496)</td>
<td>4.0 (102)</td>
<td>8.25 (210)</td>
<td>3.75 (95)</td>
<td>220 (100)</td>
</tr>
<tr>
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<td>1.5X.2x10</td>
<td>A50</td>
<td>1.5</td>
<td>3</td>
<td>8.5 (218)</td>
<td>19.5 (496)</td>
<td>4.0 (102)</td>
<td>8.25 (210)</td>
<td>3.75 (95)</td>
<td>220 (100)</td>
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### BASEPLATE DIMENSIONS AND WEIGHTS

Dimensions in inches (mm), weights in lbs. (kg)

<table>
<thead>
<tr>
<th>MAX NEMA FRAME</th>
<th>BASEPLATE NUMBER (t)</th>
<th>HA Max</th>
<th>HB</th>
<th>HD Max</th>
<th>HE</th>
<th>HF</th>
<th>HH</th>
<th>HP TYP</th>
<th>WEIGHT LBS AND (Kg)</th>
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</thead>
<tbody>
<tr>
<td>182T</td>
<td>139</td>
<td>15 (381)</td>
<td>39 (991)</td>
<td>9 (229)</td>
<td>6.5 (165)</td>
<td>13.5 (343)</td>
<td>4.0 (102)</td>
<td>5.25 (133)</td>
<td>3.75 (95)</td>
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<tr>
<td>284T</td>
<td>280</td>
<td>26 (660)</td>
<td>80 (2032)</td>
<td>15.88 (403)</td>
<td>15.88 (403)</td>
<td>9.5 (241)</td>
<td>77.5 (1969)</td>
<td>1 (25)</td>
<td>1.25 (32)</td>
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<td>268T</td>
<td>280</td>
<td>26 (660)</td>
<td>80 (2032)</td>
<td>15.88 (403)</td>
<td>15.88 (403)</td>
<td>9.5 (241)</td>
<td>77.5 (1969)</td>
<td>1 (25)</td>
<td>1.25 (32)</td>
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<td>447T</td>
<td>3020</td>
<td>1370</td>
<td>245 (111)</td>
<td>270 (690)</td>
<td>90 (228)</td>
<td>180 (457)</td>
<td>30 (762)</td>
<td>75 (191)</td>
<td>110 (250)</td>
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<tr>
<td>449T</td>
<td>3020</td>
<td>1370</td>
<td>245 (111)</td>
<td>270 (690)</td>
<td>90 (228)</td>
<td>180 (457)</td>
<td>30 (762)</td>
<td>75 (191)</td>
<td>110 (250)</td>
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</tbody>
</table>

Weights and dimensions are approximate and not to be used for construction.
PWA-SL ANSI/ASME B73.3 SEALLESS HORIZONTAL PROCESS PUMP

PARTS LIST AND MATERIALS OF CONSTRUCTION

<table>
<thead>
<tr>
<th>Item Ref Number</th>
<th>Part Name</th>
<th>Materials of Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Casing</td>
<td>Carbon Steel or 316L SS</td>
</tr>
<tr>
<td>101</td>
<td>Magnetic Coupling Unit</td>
<td>Various</td>
</tr>
<tr>
<td>108</td>
<td>Adapter, Frame</td>
<td>Carbon Steel</td>
</tr>
<tr>
<td>113A</td>
<td>Thrust Bearing</td>
<td>Double Row Angular Contact</td>
</tr>
<tr>
<td>122</td>
<td>Shaft</td>
<td>316L SS</td>
</tr>
<tr>
<td>136</td>
<td>Bearing Lock Nut and Lock Washer</td>
<td>Steel</td>
</tr>
<tr>
<td>165A</td>
<td>Radial Bearing</td>
<td>Single Row Deep Groove</td>
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<tr>
<td>228</td>
<td>Frame, Bearing</td>
<td>Carbon Steel</td>
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<tr>
<td>248A</td>
<td>Flinger with Set Screws</td>
<td>Aluminum Bronze</td>
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<tr>
<td>319</td>
<td>Sight Glass - Oil</td>
<td>Glass/Steel</td>
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<tr>
<td>332A</td>
<td>Magnetic Oil Seal (Non-Drive End)</td>
<td>Bronze/Bronze</td>
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<tr>
<td>333A</td>
<td>Magnetic Oil Seal (Drive End)</td>
<td>Stainless Steel/Bronze</td>
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<tr>
<td>368</td>
<td>Plug, Casing Drain (Optional)</td>
<td>316SS</td>
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<tr>
<td>360F</td>
<td>O-ring, Frame to Adapter</td>
<td>Buna Rubber</td>
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<tr>
<td>370</td>
<td>Cap Screw, Adapter to Casing</td>
<td>Steel</td>
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<tr>
<td>418</td>
<td>Jacking Bolts</td>
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<td>Dowel Pin, Frame to Adapter (not shown)</td>
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<td>496</td>
<td>O-ring, Bearing Housing</td>
<td>Buna Rubber</td>
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<tr>
<td>637</td>
<td>Fill Plug</td>
<td>Steel</td>
</tr>
</tbody>
</table>

PumpWorks • www.pumpworks.com
65 Southbelt Industrial Boulevard, Houston Texas 77047 • Ph. 1.888.405.0209 Fax 713.956.2141
www.pumpworks.com • twitter: @PumpWorks

GROUP 1 Sectional View PWA-SL

GROUP 2 Sectional View PWA-SL

5 Year Unconditional Power Frame Warranty is Standard at No Additonal Cost