Submersible Sewage Pumps Type ABS XFP
Main Applications

Submersible sewage pump type ABS XFP is designed for municipal and industrial wastewater equipped with premium efficiency (IE3 level) motor for:

- Hazardous locations
  - Approval for ATEX (Ex II 2G k Ex d IIB T4), FM and CSA as standard for PE1 to PE3
  - Approval for ATEX (Ex II 2G k Ex d IIB T4), FM and CSA available as an option for PE4 to PE6
- Clean water and wastewater
- Sewage with sludge and high concentration of rags
- Sewage containing solids and fibrous material
- Industrial raw water
- Municipal combined sewage and storm water systems

Premium Efficiency

The XFP pumps benefit from significant efficiency in both the motor and hydraulics, resulting in substantial savings:

- Lower energy consumption
- Reduced operating costs
- Fewer maintenance costs
- Less downtime caused by breakdowns and blockages

Great savings means a healthier environment, reducing your carbon footprint and the risk of harmful overflows. XFP pumps make your operation more competitive while contributing to a greener future.

The Right Installation to Fit Any Needs

The submersible XFP pumps can be installed in the following installations to fulfill virtually any customer requirements:

- Wet well installation with pedestal
- Wet well transportable installation
- Dry well vertical installation
- Dry well horizontal installation
Features and Benefits of the Hydraulics

1 Versatile range of Contrablock Plus impellers
   • This technology has been specially engineered to handle tough requirements, such as reduced water consumption and higher rag and solid content
   • Highly reliable and efficient impeller design with single and multi-vane models to ensure exceptional blockage resistance, solid passage min. 75 mm / 3 inches and greater
   • Optimum balance of impeller vane numbers and solids handling, based on extensive Computational Fluid Dynamics (CFD) research and testing
   • Market leading efficiency, without compromising on solid size and rag handling

2 Adjustable bottom plate with intercepted slotting
   • Significant energy savings throughout lifetime
   • Blockage free operation
   • Adjustment of the bottom plate restores pump efficiency
   • Maintains efficient rag handling throughout its lifetime

3 Double volute casing from DN 400 / 16 inches
   • Reduces radial forces and shaft deflection
   • Maximizes the life of bearings and shaft seals, thereby reducing lifecycle costs

4 Double mechanical seals
   • Silicon carbide/silicon carbide (SiC/SiC) provides maximum resistance from abrasives
   • Seal blockage prevention reduces operational costs
   • SiC/SiC is chemically resistant in wastewater and most other industrial applications

5 Heavy-duty stainless steel shaft
   • Minimizes deflection at mechanical seal to <0.05 mm / 0.002 inches
   • Increased safety against fatigue fractures

6 Heavy-duty bearings
   • Minimum life 50,000 h for motors up to 9 kW / 12 hp and minimum 100,000 h for motors larger than 11 kW / 17 hp

7 • Premium efficiency IE3 motor in accordance with IEC 60034-30
Sulzer was the first company in the world to offer premium-efficiency IE3 submersible motors, in order to achieve the perfect balance of reliability and energy consumption. Using premium-efficiency IE3 motors and Contrablock Plus impellers, the submersible sewage pump type ABS XFP is the most efficient wastewater pump on the market.

Main design features, in accordance with IEC 60034-30, for low lifecycle costs by energy saving, significant carbon footprint reduction and increased lifetime by low winding temperature rise. Designed for Variable Frequency Drive (VFD) operation. ATEX, FM and CSA certified motors.

### Motor Power and Speed Overview, PE1 - PE6

<table>
<thead>
<tr>
<th>No of poles</th>
<th>PE1</th>
<th>PE2</th>
<th>PE3</th>
<th>PE4</th>
<th>PE5</th>
<th>PE6</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>50 Hz</td>
<td>3 - 4</td>
<td>5.5 - 11</td>
<td>15 - 25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>4.5</td>
<td>8 - 12.5</td>
<td>18.5 - 30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>50 Hz</td>
<td>1.5 - 2.9</td>
<td>4 - 9</td>
<td>11 - 22</td>
<td>22 - 45</td>
<td>55 - 110</td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>1.8 - 3.5</td>
<td>4.5 - 10.5</td>
<td>13 - 25</td>
<td>25 - 52</td>
<td>63 - 125</td>
</tr>
<tr>
<td>6</td>
<td>50 Hz</td>
<td>1.3</td>
<td>3</td>
<td>9 - 14</td>
<td>18.5 - 37</td>
<td>45 - 90</td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>2</td>
<td>3.5</td>
<td>9 - 20</td>
<td>21 - 43</td>
<td>52 - 104</td>
</tr>
<tr>
<td>8</td>
<td>50 Hz</td>
<td>-</td>
<td>-</td>
<td>15 - 30</td>
<td>37 - 75</td>
<td>90 - 250</td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>12</td>
<td>17 - 35</td>
<td>43 - 86</td>
<td>104 - 200</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>50 Hz</td>
<td>-</td>
<td>-</td>
<td>30 - 55</td>
<td>75 - 200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>35 - 63</td>
<td>75 - 132</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>50 Hz</td>
<td>-</td>
<td>-</td>
<td>35 - 63</td>
<td>86 - 150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>
Features and Benefits of Motors (IE3)

1. Class H (140°C / 284°F) insulation, temperature rise according to NEMA Class A up to 110 kW / 168 hp and Class B above 110 kW / 168 hp
   - Extremely long lifetime of motor

2. Service factor 1.3
   - Allows short-time operation at lower voltage, higher frequency (generator sets) and temporary higher medium temperature

3. Versatile cable types
   - European, FM or CSA approved country-specific cables for use in wastewater

4. Optional shielded cable (EMC)
   - Operation for frequency controlled AC drives
   - Installation according to EMC directives

5. Moisture DI probe in seal chamber as standard
   - Early mechanical seal failure indication
   - PE4 to PE6: Additional moisture DI probes in the cable connection chamber and motor compartment as an option; standard for the PE6
   - Early moisture ingress indication

6. Thermal protection switch in stator as standard
   - Power supply failure motor protection (low voltage, single phase)
   - PE4 to PE6: Additional separate thermal protection switch in upper and lower bearing as an option and standard for the PE6. Sensor options: Bimetallic Switch, PTC or PT100
   - Early warning at the beginning of bearing malfunction

7. PE1 and 2: Oil cooled motors as an option in 60Hz, standard in 50Hz
   - Continuous operation in dry installation
   - PE3 to PE6: Closed loop water cooling system with integrated heat exchanger as an option; standard for the PE6
   - Continuous operation in wet well installation with un-submerged motor
   - PE5 to PE6: Optional vibration sensor
   - Early indication of vibration
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Operating data

<table>
<thead>
<tr>
<th>50 Hz</th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 to 600 mm</td>
<td>80 to 600 mm</td>
</tr>
<tr>
<td>up to 2,000 l/s</td>
<td>up to 1,400 l/s</td>
</tr>
<tr>
<td>up to 78 m</td>
<td>up to 110 m</td>
</tr>
<tr>
<td>1.3 to 350 kW</td>
<td>up to 110 m</td>
</tr>
<tr>
<td></td>
<td>up to 360 ft</td>
</tr>
<tr>
<td></td>
<td>2 to 400 kW</td>
</tr>
<tr>
<td></td>
<td>2.7 to 536 hp</td>
</tr>
</tbody>
</table>

Performance curves

<table>
<thead>
<tr>
<th>50 Hz</th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head H (m)</td>
<td>Q (l/s)</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>250</td>
</tr>
<tr>
<td>40</td>
<td>500</td>
</tr>
<tr>
<td>60</td>
<td>750</td>
</tr>
<tr>
<td>80</td>
<td>1,000</td>
</tr>
<tr>
<td>10</td>
<td>1,250</td>
</tr>
<tr>
<td>20</td>
<td>1,500</td>
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</tbody>
</table>

Materials

<table>
<thead>
<tr>
<th>Pump part</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volute</td>
<td>EN-GJL-250, 1.4470* or 1.4469*</td>
</tr>
<tr>
<td>Impeller / bottom plate</td>
<td>EN-GJL-250, EN-GJL-250 flame hardened, 1.4470 or 1.4469*</td>
</tr>
<tr>
<td>Motor shaft</td>
<td>1.4021 or 1.4462</td>
</tr>
<tr>
<td>Motor housing / connection chamber</td>
<td>EN-GJL-250</td>
</tr>
<tr>
<td>Cooling jacket</td>
<td>1.0036, 1.4571* or 1.4462*</td>
</tr>
<tr>
<td>Pedestal</td>
<td>EN-GJL-250, 1.4470* or 1.4469*</td>
</tr>
</tbody>
</table>

*available for PE4-6 and PE1-3 on request
We Do What We Say

Customer partnership
• We are reliable partners
• We provide a high level of service
• We make our customers more competitive

Committed people
• We drive accountability
• We are open and transparent
• We are team players

Operational excellence
• We focus on results
• We take initiative and work within established processes
• We act safely

A Global Specialist at Your Doorstep

Sulzer serves clients worldwide through a network of over 150 production and service sites and has a strong footprint in emerging markets.

Sulzer headquarters,
Winterthur, Switzerland