SULZER

Submersible sewage pumps type ABS XFP

Main industries and 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 db IIB T4 GB), FM and CSA as standard (PE1 to PE3) *
  - Approval for ATEX (Ex II 2G k Ex db IIB T4 GB), FM and CSA as option (PE4 to PE7) *
- Clean water and wastewater
- Sewage containing solids and fibrous material
- Sewage with sludge and high contain of rags
- Industrial raw water and wastewater
- Various types of industrial effluents
- Municipal combined sewage and storm water systems

Water and wastewater

General industry

Pulp, paper and board

* see table Motor power and speed overview, PE1 - PE7 on page 4

Premium efficiency

The XFP pumps benefit from significant efficiency in both 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 according to 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 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 in 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- or 3-channel closed, skew or mixed flow impeller types available

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

- 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 in.
- 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

PE3-6

Premium Efficiency submersible motors (IE3)

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 - PE7

No of poles		Power P2 (kW)						
		PE1	PE2	PE3	PE4	PE5	PE6	PE7
2	50 Hz	3 - 4	5.5 - 11	15 - 25	-	-	-	-
	60 Hz	4.5	8 - 12.5	18.5 - 30	-	-	-	-
4	50 Hz	1.5 - 2.9	4 - 9	11 - 30	22 - 45	55 - 110	132 - 300	350 - 650
	60 Hz	2.2 - 3.5	4.5 - 10.5	13 - 35	25 - 52	63 - 125	150 - 335	400 - 750
6	50 Hz	1.3	3	9 - 22	18.5 - 37	45 - 90	110 - 200	250 - 550
	60 Hz	2	3.5	9 - 25	21 - 43	52 - 104	125 - 220	290 - 620
8	50 Hz			-	15 - 30	37 - 75	90 - 132	160 - 450
	60 Hz			12	17 - 35	43 - 86	104 - 150	185 - 500
10	50 Hz					30 - 55	75 - 132	160 - 350
	60 Hz					35 - 63	86 - 150	185 - 415
12	50 Hz						75 - 132	160 - 300
	60 Hz						86 - 150	185 - 350

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

- Extremely long lifetime of motor

2 Service factor up to 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 sewage water

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 PE7: Additional moisture DI probe, separate for cable connection chamber and motor compartment as option, standard for PE6 and PE7

- Early moisture ingress indication

6 Thermal protection switch in stator as standard

- Power supply failure motor protection (low voltage, single phase)

PE4 to PE7: Additional separate thermal protection switch in upper and lower bearing as option and standard for PE6 and PE7. Sensor options: Bimetallic Switch, PTC or PT100

- Early warning at beginning of bearing malfunction

PE4 to PE7: Optional vibration sensor

- Early indication of vibration

7 Cooling system

PE1 and PE2: Oil cooled motor as option in 60Hz, standard in 50Hz

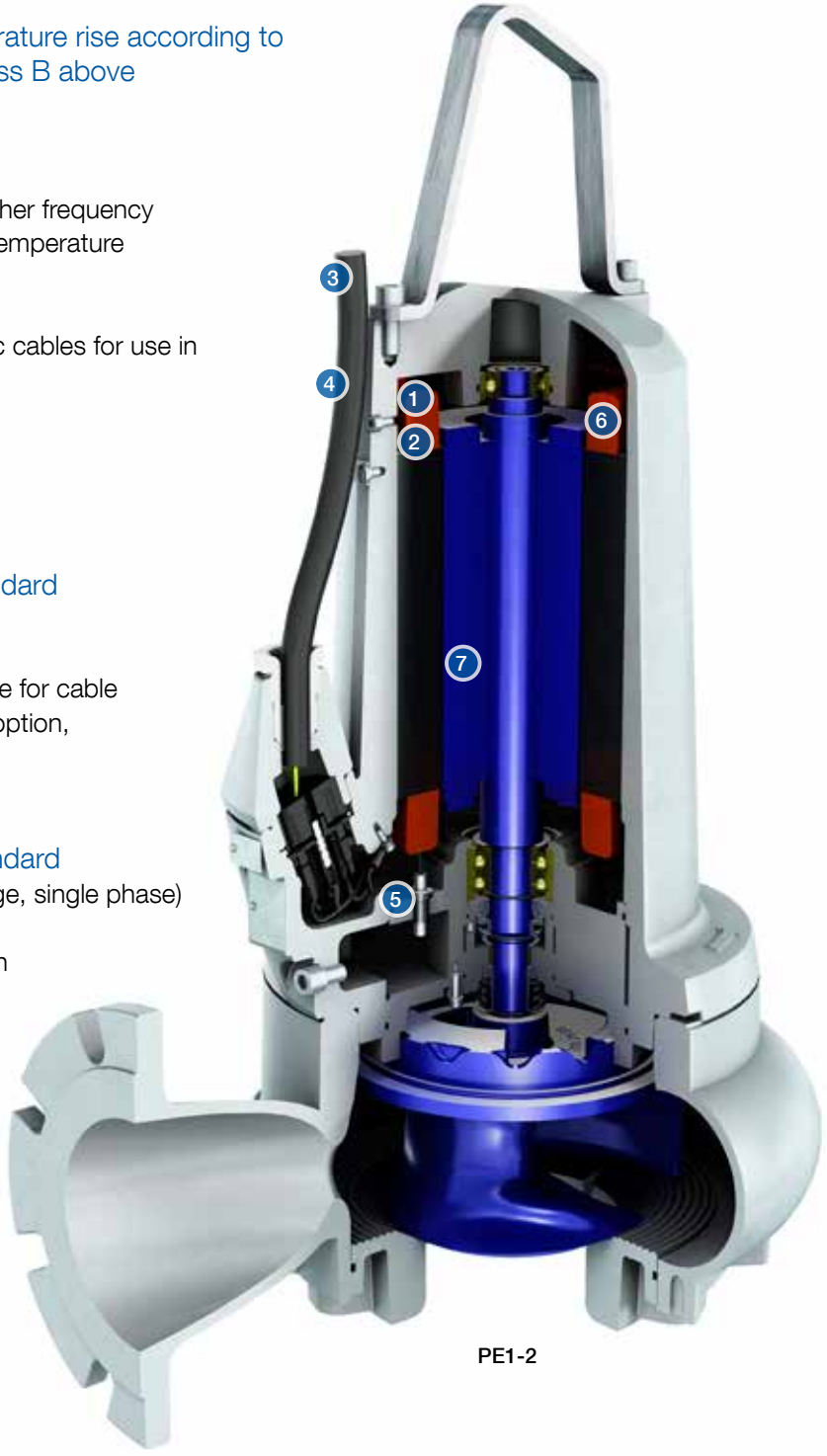
- Continuous operation in dry installation

PE3 to PE6: Closed loop water cooling system with integrated heat exchanger as option, standard for PE6

- Continuous operation in wet well installation with un-submerged motor
- Continuous operation in dry installation

PE7: Open loop cooling system

- Continuous operation in wet well installation with un-submerged motor
- Continuous operation in dry installation



PE1-2

Materials

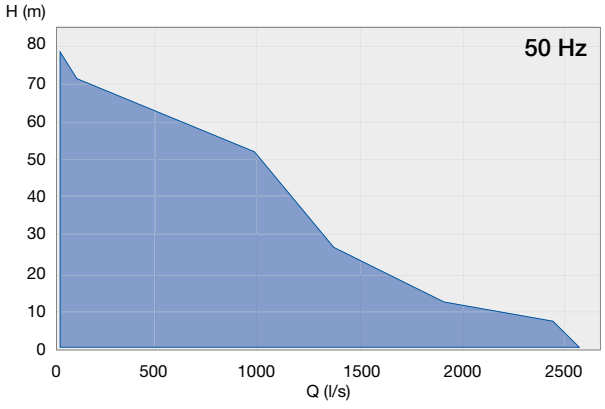
Pump part	Material
Volute	EN-GJL-250, 1.4470* or 1.4469*
Impeller / bottom plate	EN-GJL-250, EN-GJL-250 flame hardened, 1.4470 or 1.4469*
Motor shaft	1.4021 or 1.4462
Motor housing / connection chamber	EN-GJL-250
Cooling jacket	1.0036 , 1.4571* or 1.4462*
Pedestal	EN-GJL-250, 1.4470* or 1.4469*

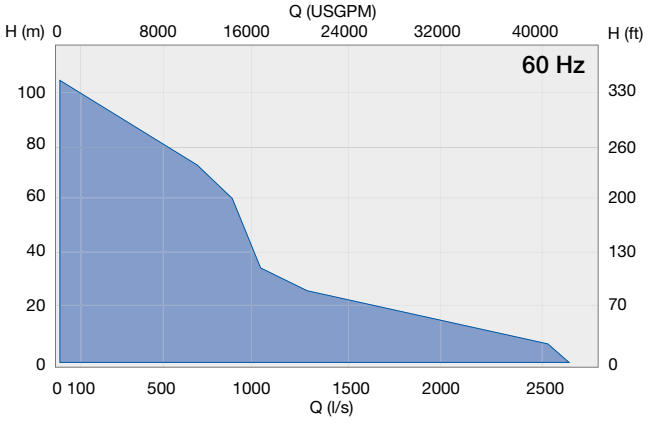
*available for PE4-7 and PE1-3 on request

Operating data

	50 Hz	60 Hz
Pump sizes	80 to 800 mm	80 to 800 mm / 3.2 to 32 in.
Capacities	up to 2’700 l/s	up to 3’000 l/s / 47’560 USgpm
Heads	up to 78 m	up to 110 m / 360 ft.
Motor powers	1.3 to 650 kW	2 to 750 kW / 2.7 to 1’005 hp

Performance ranges





Our values

Operational excellence

We continuously strive to be faster and better.

Customer partnership

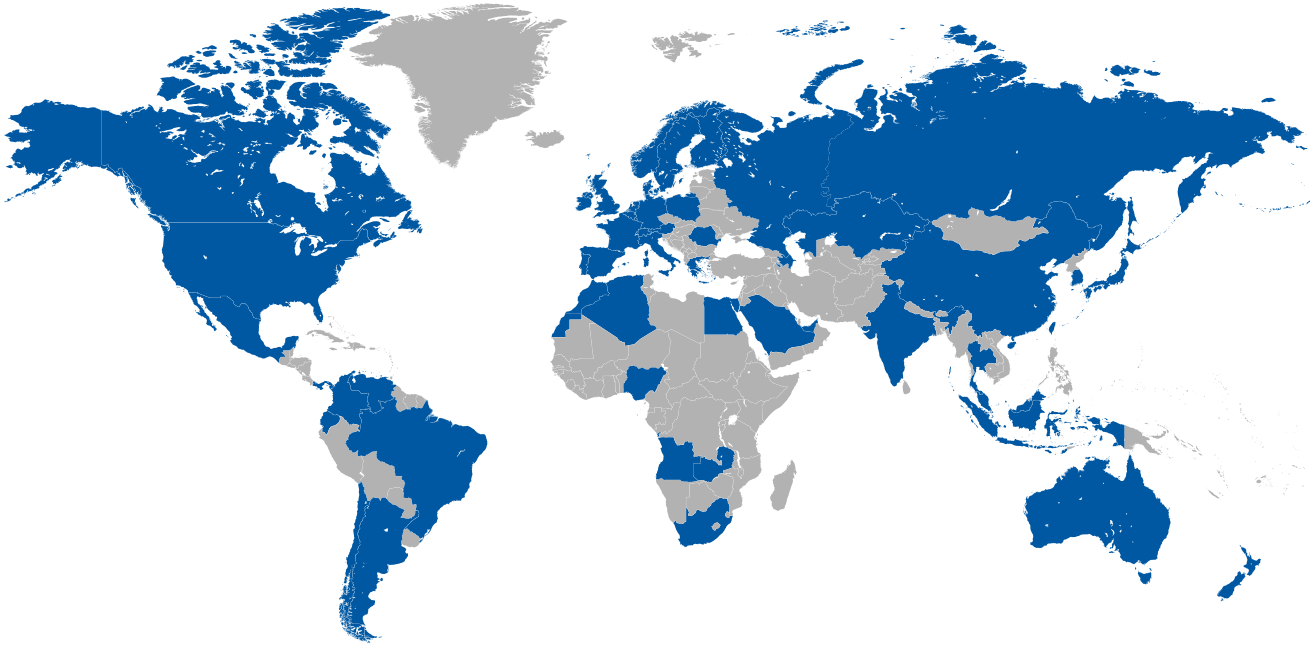
Together, we win.

Committed people

We build on the strengths and diversity of our people.

A global specialist at your doorstep

Sulzer serves clients worldwide through a network of over 180 production and service sites and has a strong footprint in emerging markets.



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