

**Submersible Mixed-Flow Column  
Pump Type ABS AFLX**



# Main Applications

The submersible mixed-flow column pump type ABS AFLX is designed for use where large volumes of process water or wastewater containing solid effluent must be pumped up to moderate heads. Equipped with a premium-efficiency IE3 motor, it is suitable for:

- Hazardous locations
  - Approval for ATEX (EX II 2G k Ex d IIB T4),  
FM and CSA available as an option
- Sewage in combination with screens
- Return sludge or return activated sludge (RAS)
- Combined sewage and surface water
- Storm water protection
- Industrial raw water and process water

## Premium efficiency

The AFLX pump benefits from significant efficiency in both motor and hydraulics, resulting in substantial savings:

- Lower energy consumption
- Reduced operating costs
- Reduced 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. The AFLX pump makes your operation more competitive while contributing to a greener future.

## The right installation to fit any needs

The submersible AFLX pump can be installed according to the following, to fulfill virtually any customer requirements:

- Steel column pipe installation
- Concrete rising main installation



# Hydraulic Features and Benefits

## 1 Versatile range of mixed-flow impellers

- Highly efficient three-to five-blade open-type mixed-flow impellers
- Low-vibration design
- Low-NPSH design
- Trouble-free pumping of liquids containing solids in combination with screens (For detailed information please contact your local Sulzer representative)
- Applicable for delivering return sludge or return activated sludge (RAS) at wastewater treatment plants

## 2 Adjustable inlet bellmouth with slotting

- Significant energy savings throughout the pump lifetime
- Ability to restore pump efficiency after wear by adjusting the inlet bellmouth
- Efficient handling of fibrous material throughout the hydraulic lifetime
- Slotted casing wear ring adapted from the Contrablock Plus series to ensure blockage-free operation

## 3 Slim motor design

- Opportunities for compact rising main and pumping station design
- Gearbox available from 132 kW for AFLX 1202 to 1207
  - Wide range of gearbox ratios to meet the duty point with the best efficiency
  - Better adaptation compared to a direct high-pole motor drive
  - Higher efficiency and lower current due to the better power factor of 4-pole motors compared to high-pole motors
  - Lower weight

## 4 Double mechanical seals

- Silicon carbide/silicon carbide (SiC/SiC) for maximum resistance against abrasives
- Chemical resistance in wastewater and most other industrial applications
- Seal blockage prevention that reduces operational costs

## 5 Heavy-duty stainless steel shaft

- Deflection at the mechanical seal minimized to <0.05 mm / 0.002 inches
- Increased safety against fatigue fractures
- Extended seal and bearing life

## 6 Heavy-duty bearings

- Minimum lifetime of 100,000 h
- Electrically insulated upper bearing as standard for PE6, which protects against stray electrical currents and avoids micro-cratering in the raceway of the inner and outer rings

## 7 Installation into rising main

- Automatic self-centering of the pump and column pipe by means of a conical coupling ring
- No screw or bolt fixing needed

## 8 Premium-efficiency IE3 motor in accordance with IEC 60034-30

Hydraulics / impeller type	
AFLX 601	3 blades
AFLX 701	3 blades
AFLX 801	3 blades
AFLX 803	3 blades (skew design)
AFLX 1202	5 blades
AFLX 1203	5 blades
AFLX 1207	5 blades

# 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 mixed-flow impellers, the AFLX pump is the most efficient mixed-flow vertical column pump on the market.*

## Motor power and speed overview

No. of poles		Power P2 (kW)		
		PE4	PE5	PE6
4	50 Hz	22-54	55-110	132-350
	60 Hz	25-65	63-125	150-400
6	50 Hz	9-37	45-90	110-225
	60 Hz	13-43	52-104	125-250
8	50 Hz	7.5-30	37-75	90-250
	60 Hz	9-35	43-86	104-200
10	50 Hz		30-55	75-200
	60 Hz		35-63	86-200
12	50 Hz			75-132
	60 Hz			86-150

## Motor features and benefits

- 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**
  - Unprecedented motor reliability due to low winding and bearing temperature
  - Extremely long motor lifetime
- 2 Service factor 1.3**
  - Short-term operation at lower voltage, higher frequency (generator sets) and higher medium temperature
- 3 Versatile cable types**
  - Country-specific cables with European, FM or CSA approval for use in sewage water
- 4 Optional shielded cable (EMC)**
  - For operation with frequency-controlled AC drives
  - Installation according to EMC directives
- 5 Moisture DI probe in inspection chamber in standard execution**
  - Early indication of mechanical seal failure
  - Additional moisture DI probe (separate for cable connection chamber and motor compartment) to provide early indication of moisture ingress, standard for PE6 and optional for PE4 and PE5
- 6 Thermal protection switch in stator as standard**
  - Motor protection in the event of a power supply failure, e.g. low line voltage or single-phase operation
  - Additional separate thermal protection switch (bimetallic, PTC or PT100) in the upper and lower bearing as an early warning of bearing malfunction, standard for PE6 and optional for PE4 and PE5
  - Vibration sensor for indication of vibration and warning when the set limit is exceeded, optional for PE4 to PE6



PE5

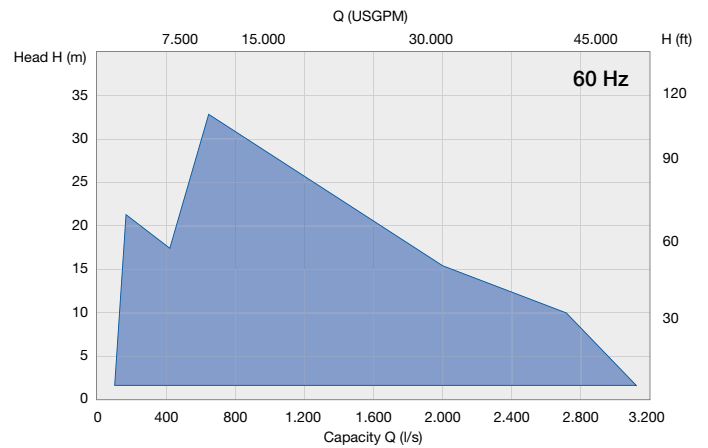
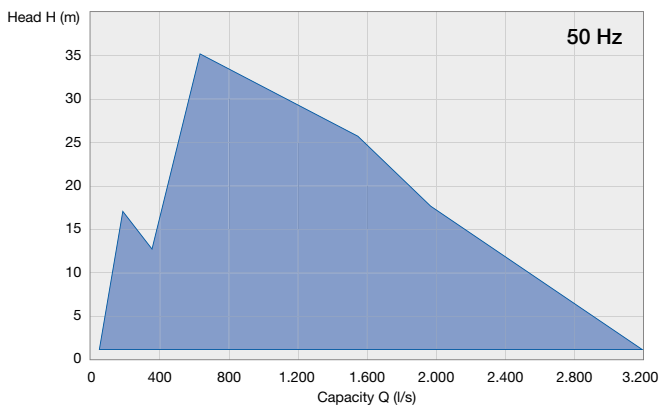
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## Operating data

	50 Hz	60 Hz
Pipe diameters	600 to 1,200 mm	600 to 1,200 mm 23 to 48 in
Capacities	Up to 3,100 l/s	Up to 3,100 l/s Up to 49,000 USgpm
Heads	Up to 35 m	Up to 33 m 108 ft
Motor power	7.5 to 350 kW	9 to 400 kW 12 to 536 hp

## Performance curves



## Materials

Pump part	Material
Motor housing / connection chamber	EN-GJL-250
Cooling / oil chamber	EN-GJL-250
Motor shaft	1.4021, 1.4462
Outlet diffuser / inlet bellmouth	EN-GJL-250
Impeller	EN-GJL-250, 1.4470 or 1.4469
Lifting hoop (PE4 & PE5)	EN-GJS-400-18, 1.4470
Lifting hoop (PE6)	1.0060, 1.4462

# 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





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