

Submersible Mixed Flow Column Pump Type ABS AFLX PE3 to PE6

SULZER

60 Hz



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.

Equipped with a Premium Efficiency IE3 motor, it is suitable for:

- Hazardous locations - Approval for ATEX (Ex II 2G Ex h db IIB T4 Gb), FM and CSA available as an option.
- Sewage in combination with screens
- Active sludge
- Combined sewage and surface water
- Storm water protection.
- Industrial raw water.

Construction

- Premium Efficiency motors in accordance with NEMA and IEC 60034-30. Testing in accordance with IEC 60034-2-1.
- Premium Efficiency motors designed for VFD operation in accordance with IEC/TS 60034-25 A ($U_{peak} < 1300$ V).
- The water-tight fully flood-proof motor and the pump section form a compact and robust unit, easy to clean and easy to service.
- Optimum motor cooling by directing the medium being pumped over the motor.
- Water pressure sealed connection chamber, with two stage cable entry, protected against excessive cable tension and bending.
- Bimetallic thermal sensors in the stator which open at 140°C (284 °F).
- Rotor and rotor shaft dynamically balanced.
- Upper and lower bearings lubricated-for-life, maintenance-free.
- Insulated upper bearing for VFD operation standard for PE6 and optional for PE5.
- Triple shaft sealing.
- Upper and lower sealing by means of a silicon carbide/silicon carbide mechanical seal, independent of the direction of rotation.
- Inspection chamber with sensor for moisture protection to indicate water leakage through mechanical seal, also standard for Ex version, according to FM CSA approval.
- Hydraulics with mixed flow impeller. Hydraulics with diffuser and adjustable wear gap at the suction side.
- Gearbox available from 132 kW (177 hp) for AFLX 1202 to AFLX 1207.
- These pumps are available as standard and explosion-proof construction in accordance with international standards such as 500 Class I, Division 1, Groups C and hazardous (classified) location

Motor

Water pressure sealed Premium Efficiency motors, (3-phase, squirrel cage induction motors), from 15 to 350 kW (29 to 469 hp) and depending on hydraulic requirements as 4- to 12-pole versions.

Voltage: 460 V, 3-, 60 Hz (other voltages on request)

Temperature rise: According to NEMA class A up to 125 kW and class B above.

Insulation components: Class H (winding protection by 140 °C (284 °F) sensor). **Protection type:** IP68.

Start-up: DOL (direct on line), star-delta, VFD or soft starter.

Pump selection

To access more detailed information like pump performance curves, dimensional drawings, product description and motor performance curves, please use our ABSEL program:

<http://absel.sulzer.com/> **Hydraulic selection:**

-> Enter: Duty point -> Select: Hydraulics -> Select: Motor



Hydraulics

You have the choice of the following hydraulics for the nominal pipe diameter 600 to 1200 mm (24 to 47 in) and larger.

For power demand beyond range PE3 to PE6 please refer to technical data sheet AFLX PE7.

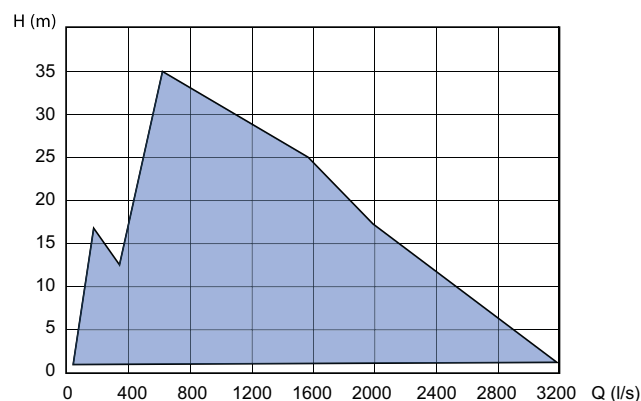
Installation

Suitable for installation in steel or concrete riser pipes for economical operation and simple installation. The centering of the pump and sealing between pump and pipeline is achieved automatically by means of conical coupling ring. No additional installation work required.

Hydraulics / Impeller type

Hydraulics / Impeller type			
AFLX 0601	3-blades	AFLX 1202	5-blades
AFLX 0701	3-blades	AFLX 1203	5-blades
AFLX 0801	3-blades (skew)	AFLX 1207	5-blades
AFLX 0803	4-blades (skew)		

Performance field



Standard and options

Description	Standard	Option
Max. ambient temperature	40 °C (104 °F)	60 °C (140 °F)
Max. submergence depth	20 m (66 ft)	
Mains voltage	460 V / 60 Hz	other voltage on request
Voltage tolerance	460 V ± 10 %; multi-voltage ± 5 %;	
Insulation components	Class H (140 °C / 284 °F)	Class H (160 °C / 320°F) (not for explosion-proof)
Start-up	DOL, VFD or soft starter	star-delta
Approval	non Fm	NEC Class I, Division 1, Groups C and D
Cables	G-GC, H07RN8-F	EMC shielded cables
Cable length	10 m (33 ft)	15 m (49 ft), 20 m (66 ft), other lengths on request
Mechanical seal (medium side)	SiC-SiC (NBR)	SiC-SiC (Viton execution)
Mechanical seal (motor side)	SiC-SiC	
O-rings	NBR	Viton
Preparation for lifting hoist	Lifting hoop; PE3 in stainless steel, PE4 and PE5 in cast iron, PE6 in steel.	Lifting hoop in stainless steel for PE4 and PE5
Protective coating	Two component coating epoxy resin	Special coatings on request
Cathodic protection		Zinc anodes on request
Installation	Wet-well in steel pipe / concrete riser pipe	
Motor cooling	Cooling by surrounding medium	

Monitoring options

PE3 to PE6		Non-FM				FM			
		PE3	PE4	PE5	PE6	PE3	PE4	PE5	PE6
Stator temperature	Bi-metallic switch	●	●	●	●	●*	●*	●*	●*
	PTC (thermistor)	○	○	○	○	○*	○*	○*	○*
	PT 100		○	○	○		○	○	○
Seal protection	Inspection chamber		●	●	●	●	○	○	○
	Motor housing	●	○	○	●		○	○	●
	Connection chamber		○	○	●		○	○	●
Upper and lower bearing temperature	Bi-metallic switch		○	○	●		○	○	●
	PTC (thermistor)		○	○	○		○	○	○
	PT 100		○	○	○		○	○	○
Vibration sensor	4 - 20 mA / 0 - 20 mm/s ²		○	○	○		○	○	○

● = Standard; ○ = Option; * PTC to be used when operated via VFD

Materials

Please contact your Sulzer representative for proposal of an effective suction chamber design!

Motor	Standard	Option
Connection chamber	EN-GJL-250	
Cooling / oil chamber	EN-GJL-250	
Motor housing	EN-GJL-250	
Motor shaft	1.4021	1.4462
Fasteners (medium contact)	1.4401	

Hydraulics	Standard	Option
Diffuser	EN-GJL-250	
Bellmouth	EN-GJL-250	
Impeller	EN-GJL-250	1.4470
Impeller washer	EN-GJS-400-18	1.4462
Fasteners (medium contact)	1.4401	

Connection system	Standard	Option
Coupling ring	1.0446	1.4408

Lifting device	Standard	Option
Lifting hoop (PE3)	1.4401	
Lifting hoop (PE4 & PE5)	EN-GJS-400-18	1.4470
Lifting hoop (PE6)	1.0060	1.4462

Material comparison	
Europe	USA
EN 1561; EN-GJL-250	ASTM A48; Class 35 B
EN 1563; EN-GJS-400-18	ASTM A536; 60-40-18
1.4021; 1.4401	ASTM / AISI 420; 316
EN 1.0060	ASTM / AISI A572 (65)
1.4462	BS 318 S 13
1.4408	ASTM A351 CF8M
0.7660	ASTM / AISI A439; D2
1.4470	ASTM A 890 4A (CD 3MN)
1.0446	

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