

Submersible Mixed Flow Column Pump Type ABS AFLX PE7

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 II 2G Ex db IIB T4 Gb, FM, CSA see table "Motor power and speed overview".
- Sewage in combination with screens.
- Combined sewage and surface water.
- Storm water protection. Industrial raw water. Active sludge.

Construction

- Premium Efficiency IE3 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 shaft dynamically balanced.
- Upper and lower bearings lubricated-for-life, maintenance-free.
- Insulated upper bearing for VFD operation.
- Triple shaft sealing.
- Upper mechanical seal from SiC/SiC and lower mechanical seal from SiC/SiC, independent of the direction of rotation..
- Inspection chamber with sensor for moisture protection to indicate water leakage through mechanical seal.
- Gearbox available from 450 kW (603 hp) for AFLX 1203.
- Hydraulics with mixed flow impeller. Hydraulics with diffuser and adjustable wear gap at the suction side.

Motor

Water pressure sealed Premium Efficiency motors, (3-phase, squirrel cage induction motors), from 185 to 700 kW (248 to 939 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), VFD or soft starter.

Motor power and speed overview

pole	Motor Power P_2 in kW (60 Hz)							
4	335*	400*	468*	500*	560*	640	700	750
6	290*	350*	415*	468	500	560	620	
8	185*	220*	280*	335*	400	468	500	
10	185*	220*	290	350	415			
12	185	230	290	350				

*available in FM



Pump selection

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

<https://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 1200 mm (47 in) and larger.

For power demand beyond available range PE7 please refer to technical data sheet AFLX PE4 to PE6.

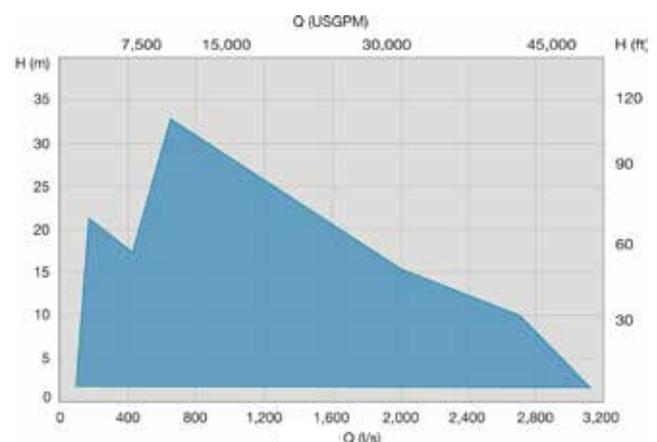
Installation

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 1202 / 1203 / 1207	5-blades

Performance field



Standard and options

Description	Standard	Option
Max. ambient temperature	40 °C (104° F)	60 °C (140° F)
Max. submergence depth	20 m (65 ft)	
Mains voltage	460 V/60 Hz	other voltage on request
Voltage tolerance	± 10 %	
Insulation components	Class H (140° C / 284° F)	Class H (160° C / 320° F) (not for explosion-proof)
Start-up	DOL (direct on line), VFD or soft starter	star-delta
Approval	non Ex	NEC Class I, Division 1, Groups C and D, FM; CSA
Cables	H07RN8-F	EMC shielded cables
Cable length	10 m (33 ft)	15 m (49 ft), 20 m (65 ft), other length on request
Mechanical seal (medium side)	SiC-SiC (NBR)	SiC-SiC (Viton execution)
Mechanical seal (motor side)	SiC-SiC (NBR)	
O-rings	NBR	Viton
Preparation for lifting hoist	Lifting hoop	Lifting hoop in stainless steel
Protective coating	Two component coating epoxy resin	Special coatings on request
Cathodic protection		Zinc anodes on request
Installation	Wet-well in steel pipe or concrete riser pipe	
Motor cooling	By surrounding medium	
Moisture sensor motor housing	DI (sensor for moisture detection)	
Moisture sensor Connection chamber	DI (sensor for moisture detection)	
Moisture sensor Inspection chamber	DI (sensor for moisture detection)	
Vibration sensor		on request

Motor protection

PE7		standard	NEC Class I, Division 1, Groups C and D, FM
Winding	Bi-metallic switch	X	-
	Thermistor (PTC)	O	X
	PT 100	O	O
Seal protection	Inspection chamber	X	X
	Motor housing	X	X
	Connection box	X	X
Temperature bearing upper/lower	Bi-metallic switch	X	X
	Thermistor (PTC)	O	O
	PT 100	O	O
Vibration sensor	4.....20 mA	O	O

X = Standard; O = Option; - = not possible

Materials

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		
Diffuser	EN-GJL-250	
Bellmouth	EN-GJL-250	1.4470
Impeller	EN-GJL-250	1.4470
Impeller washer	EN-GJS-400-18	1.4462
Fasteners (medium contact)	1.4401	
Connection system		
Coupling ring	1.0446	1.4408

Lifting device	Standard	Option
Lifting hoop	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		

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

www.sulzer.com

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