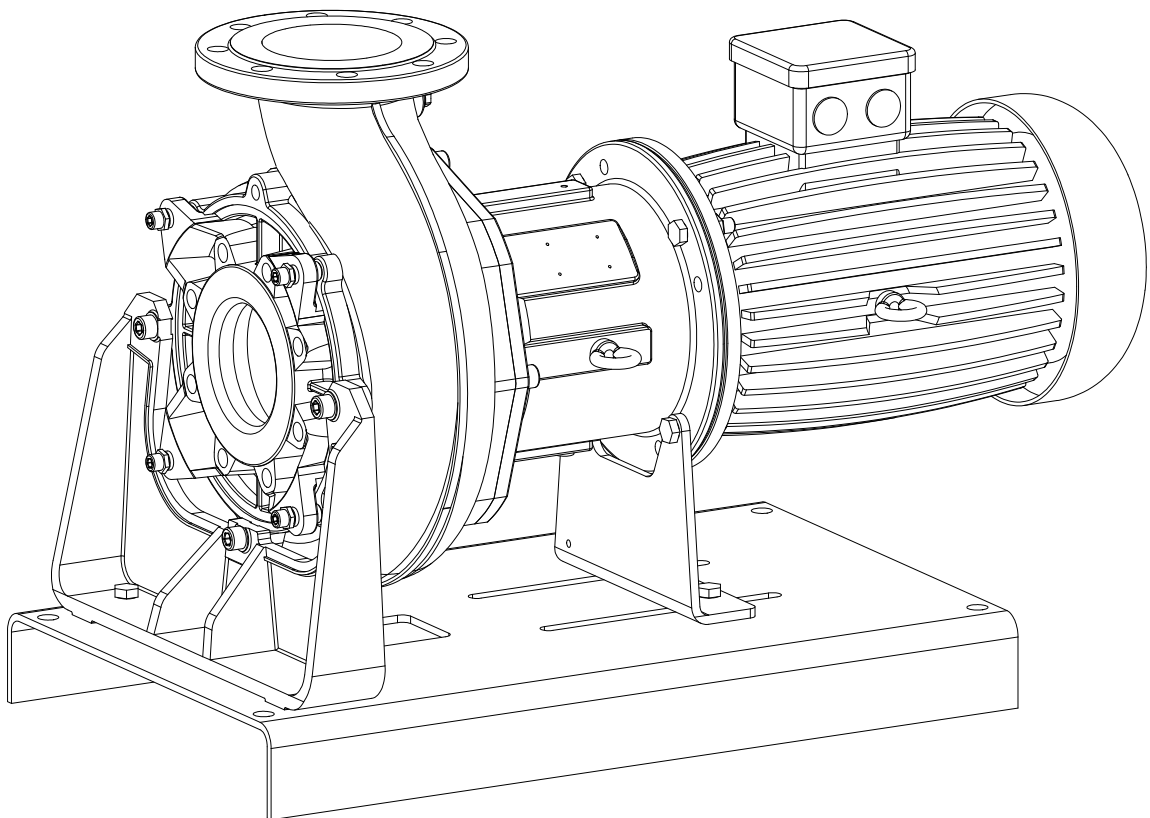

Dry-Installed Sewage Pump Type ABS AFC 50/50-2046



Dry-Installed Sewage Pump Type ABS AFC

0831	0841	1032	1041	1541	2046	80/80
0832	0844	1033	1045	1543	50/50	80/80 RV
0835	1031	1035	1049	1546	50/50 RV	

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1 General

1.1 Application areas

ATTENTION *The maximum allowable temperature of the medium pumped is 80 °C.*

When switching on and operating the pump, the hydraulic section of dry-installation pumps must always be filled with water.

The pumps of the AFC series have been designed for the economical and reliable pumping of commercial, industrial and municipal sewage.

They are suitable for pumping of the following liquids:

- clear and wastewater, for sewage containing solids and fibrous material
- faecal matter

The regulations of DIN 1986 as well as local regulations should be observed when installing the pumps.

1.1.1 Explosion-proof approval

The motors can be supplied both as standard versions and in explosion-proof execution ATEX (II 2G Ex db IIB T4 Gb).

1.1.2 Particular comments on the use of explosion-proof pumps in explosive zones.

1. Explosion-proof pumps may only be operated with the thermal sensing system connected.
2. If ball type float switches are used, these must be connected to an intrinsically safe electrical circuit "Protection type EX (i)" in accordance with VDE 0165.
3. Dismantling and repair of explosion-proof motors may only be carried out by approved personnel in specially approved workshops.
4. In the event that the pump is to be operated in explosive atmospheres, using a variable speed drive, please contact your local Sulzer representative for technical advice regarding the various Approvals and Standards concerning thermal overload protection.
5. Machines designated as Ex machines may never, without exception, be operated using a mains frequency that is greater than the maximum of 50 Hz, as indicated on the nameplate.

1.2 Technical data

Maximum noise level ≤ 70 dB. This may be exceeded in certain circumstances.

1.2.1 Nameplate

We recommend that you record the data from the standard nameplate on the pump in the corresponding form below, and maintain it as a source of reference for the ordering of spare parts, repeat orders and general queries.

Always state the pump type, item number and serial number in all communications.

CE xx/xxxx		
Typ		
Nr	Sn	
Qmax	Hmax	Ø Imp
DN	Hmin	
Weight		
Sulzer Pump Solutions Ireland Ltd.		
Wexford, Ireland.		
Made in Ireland	www.sulzer.com	

Legend

Typ	Pump type	
Nr	Item number	
SN	Serial number	
xx/xxxx	Production date (week/year)	
Qmax	Maximum flow	m ³ /h
Hmax	Maximum head	m
Ø Imp.	Impeller diameter	mm
Hmin	Minimum head	m
DN	Discharge diameter	mm

2 Safety

The general and specific health and safety guidelines are described in detail in the "Safety Instructions for Sulzer Products Type ABS" booklet. If anything is not clear or you have any questions as to safety make certain to contact the manufacturer Sulzer.

3 Transport

During transport the pump should not be dropped or thrown.



The unit must never be raised by the power cable.

Pumps of the AFC series must be fitted with lifting slings for transport or for suspension. Lifting eyes should not be used.



See nameplate for weight of base unit.



Take note of the entire weight of the unit. The hoist and chain must be adequately dimensioned for the total weight of the unit (including lifting chains or steel ropes, and all accessories which may be attached) and must comply with the current valid safety regulations.

All relevant safety regulators as well as general good technical practice must be complied with.

4 Electrical connection



Before commissioning, an expert should check that one of the necessary electrical protective devices is available. Earthing, neutral, earth leakage circuit breakers, etc. must comply with the regulations of the local electricity supply authority and a qualified person should check that these are in perfect order.

ATTENTION *The power supply system on site must comply with VDE or other local regulations with regard to cross-sectional area and maximum voltage drop. The voltage stated on the nameplate of the pump must correspond to that of the mains.*

ATTENTION *Explosion-proof pumps may only be used in explosive zones with the thermal sensors fitted (leads: FO, F1).*

The power supply cable must be protected by an adequately dimensioned slow-blow fuse corresponding to the rated power of the pump.



The incoming power supply as well as the connection of the pump itself to the terminals on the control panel must comply with the circuit diagram of the control panel as well as the motor connection diagrams and must be carried out by a qualified person.

All relevant safety regulators as well as general good technical practice must be complied with.

Please consult your electrician.

4.1 Seal monitoring

The pumps are supplied as standard with a DI probe for seal monitoring. The lighting up of the inspection control indicator in the control panel by the DI electrode fitted in the pump means that there is water in the dry chamber.

ATTENTION *If the DI seal monitor is activated the unit must be immediately taken out of service. Please contact your Sulzer Service Centre.*

4.2 Temperature monitoring (PTC thermistor)

Thermal sensors protect the motor from overheating.

Thermal protection is in accordance with DIN 44082. PTC relays for use in control panels must also be in accordance with this standard.

4.3 Bearing temperature monitor (optional)

PTC thermistor bearing monitor versions of AFC pumps include thermal protection in accordance with DIN 44082. PTC relays for use in control panels must also be in accordance with this standard.

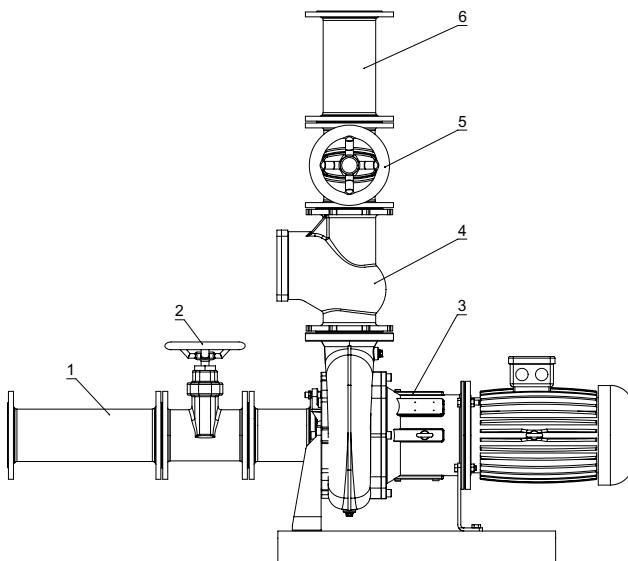
NOTE! *Running the pump with the thermal and/or moisture sensors disconnected will invalidate related warranty claims.*

5 Mounting and installation



The regulations covering the use of pumps in sewage applications, together with all regulations involving the use of explosion-proof motors, should be observed. The cable ducting to the control panel should be sealed off in a gas-tight manner by the use of a foaming material after the cable and control circuits have been pulled through. In particular the safety regulations covering work in enclosed areas in sewage plants should be observed together with general good technical practice.

5.1 Installation example



- 1 Inflow line
- 2 Gate valve
- 3 Pump
- 4 Non-return valve
- 5 Gate valve
- 6 Discharge line

5.2 Discharge line

The discharge line must be installed in compliance with the relevant regulations.

DIN 1986/100 and EN 12056 applies in particular to the following:

- The discharge line should be fitted with a backwash loop (180° bend) located above the backwash level and should then flow by gravity into the collection line or sewer.
- The discharge line should not be connected to a down pipe.
- No other inflows or discharge lines should be connected to this discharge line.

ATTENTION *The discharge line should be installed so that it is not affected by frost.*

5.3 Checking direction of rotation

When three phase units are being commissioned for the first time and also when used on a new site, the direction of rotation must be carefully checked by a qualified person.



When checking the direction of rotation, the pump should be secured in such a manner that no danger to personnel is caused by the rotating impeller, or by the resulting air flow. Do not place your hand into the hydraulic system!



The direction of rotation should only be altered by a qualified person.



When carrying out the direction of rotation check as well as when starting the unit pay attention to the **START REACTION**. This can be very powerful.

ATTENTION

The **direction of rotation** is correct if the impeller rotates in a **clockwise** manner when viewing down from the motor end of the placed unit.



1019-00



Rotor rotation

ATTENTION

The start reaction is anti-clockwise.

NOTE

If a number of pumps are connected to a single control panel then each unit must be individually checked.

ATTENTION

The mains supply to the control panel should have a clockwise rotation. If the leads are connected in accordance with the circuit diagram and lead designations, the direction of rotation will be correct.

5.4 Changing direction of rotation



The direction of rotation should only be altered by a qualified person.

If the direction of rotation is incorrect then this is altered by changing over two phases of the power supply cable in the control panel. The direction of rotation should then be rechecked.

6 Commissioning

Before commissioning, the pump should be checked and a functional test carried out. Particular attention should be paid to the following:

- Have the electrical connections been carried out in accordance with regulations?
- Have the thermal sensors been connected?
- Is the seal monitoring device correctly installed?
- Is the motor overload switch correctly set?
- Is the direction of rotation of the pump correct - even if run via an emergency generator?
- Are the level control switches functioning correctly?
- Are the required gate valves (where fitted) open?
- Do the non-return valves (where fitted) function easily?

6.1 Types of operation and frequency of starting

All pumps of the AFC series have been designed for continuous operation S1.

ATTENTION ***Explosion-proof pumps may only be used in explosive zones with the thermal sensors fitted (leads: FO, F1).***

7 Maintenance



Before commencing any maintenance work the pump should be completely disconnected from the mains by a qualified person and care should be taken that it cannot be inadvertently switched back on.



When carrying out any repair or maintenance work, the safety regulations covering work in enclosed areas of sewage installations as well as good general technical practices should be followed.



To avoid danger if the power cable is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.



Repair work on explosion-proof pumps may only be carried out by approved personnel in approved workshops.

When carrying out repairs only original spare parts, supplied by the manufacturer, should be used.

NOTE ***The maintenance hints given here are not designed for “do-it-yourself” repairs as special technical knowledge is required.***

A maintenance contract with our service department will guarantee you the best technical service under all circumstances.

7.1 General maintenance hints

Sulzer pumps are reliable quality products each being subjected to careful final inspection. Lubricated-for-life ball bearings together with monitoring devices ensure optimum pump reliability provided that the pump has been connected and operated in accordance with the operating instructions.

Should nevertheless, a malfunction occur, do not improvise, but ask your Sulzer Customer Service Department for assistance.

This applies particularly if the pump is continually switched off by the current overload in the control panel, by the thermal sensors of the thermo-control system or by the seal monitoring system (DI).

Regular inspection and care is recommended to ensure a long service life.

The Sulzer Service Organisation would be pleased to advise you on any applications you may have and to assist you in solving your pumping problems.

NOTE *The Sulzer warranty conditions are only valid provided that any repair work has been carried out in Sulzer approved workshop and where original Sulzer spare parts have been used.*

7.2 Coolant filling and coolant changing

The chamber between the motor and the hydraulic section has been filled at manufacture with coolant.

A coolant change is only necessary if a fault occurs.

Coolant specification: 70% water and 30% propylene glycol.

AFC COOLANT QUANTITY (litres)		
Pump type	Motors	Coolant
AFC 0831	3/4, 3/6	0.63
AFC 0832	4/2, 7.5/2	0.63
AFC 0835	7.5/2, 11/2	2.00
AFC 0841	3/4, 3/6	0.63
AFC 0844	7.5/2, 11/2	0.87
AFC 1031	3/4, 3/6	0.63
AFC 1032	7.5/4, 9.2/4, 3/6	1.15
AFC 1033	15/4, 18.5/4, 9.2/6	2.65
AFC 1035	22/2	2.00
AFC 1041	3/4, 3/6	0.63
AFC 1045	15/4, 18.5/4, 22/4, 9.2/6	2.65
AFC 1049	7.5/4, 9.2/4, 3/6	1.15
AFC 1541	7.5/4, 9.2/4, 3/6	1.15
AFC 1543	15/4, 18.5/4, 22/4, 9.2/6	2.65
AFC 1546	7.5/4, 9.2/4, 3/6	1.15
AFC 2046	9.2/6, 11/6, 15/6	2.65
AFC 50/50	7.5/4, 3/6	2.00
AFC 50/50 RV	15/2, 22/2	2.00
AFC 80/80	7.5/4, 9.2/4, 15/4, 3/6, 9.2/6	2.00
AFC 80/80 RV	22/2	2.00

A coolant change is only necessary when carrying out repair work or if the inspection lamp lights up.

The 70% water and 30% propylene glycol coolant is frost resisting down to -15°C / 5°F.

In case of extreme ambient temperatures below -15°C / 5°F (e.g. during transport, storage or if the pump is out of duty) the cooling liquid must be drained. Otherwise the pump may be damaged. Please contact your Sulzer consultant!

7.3 Venting of the volute

We strongly recommend that AFC pumps are vented back into the sump by means of the drilled and tapped hole provided in the volute.

7.4 Draining of the volute

To drain the volute on the AFC series remove the plug from the tapped hole on the under side of the volute.

