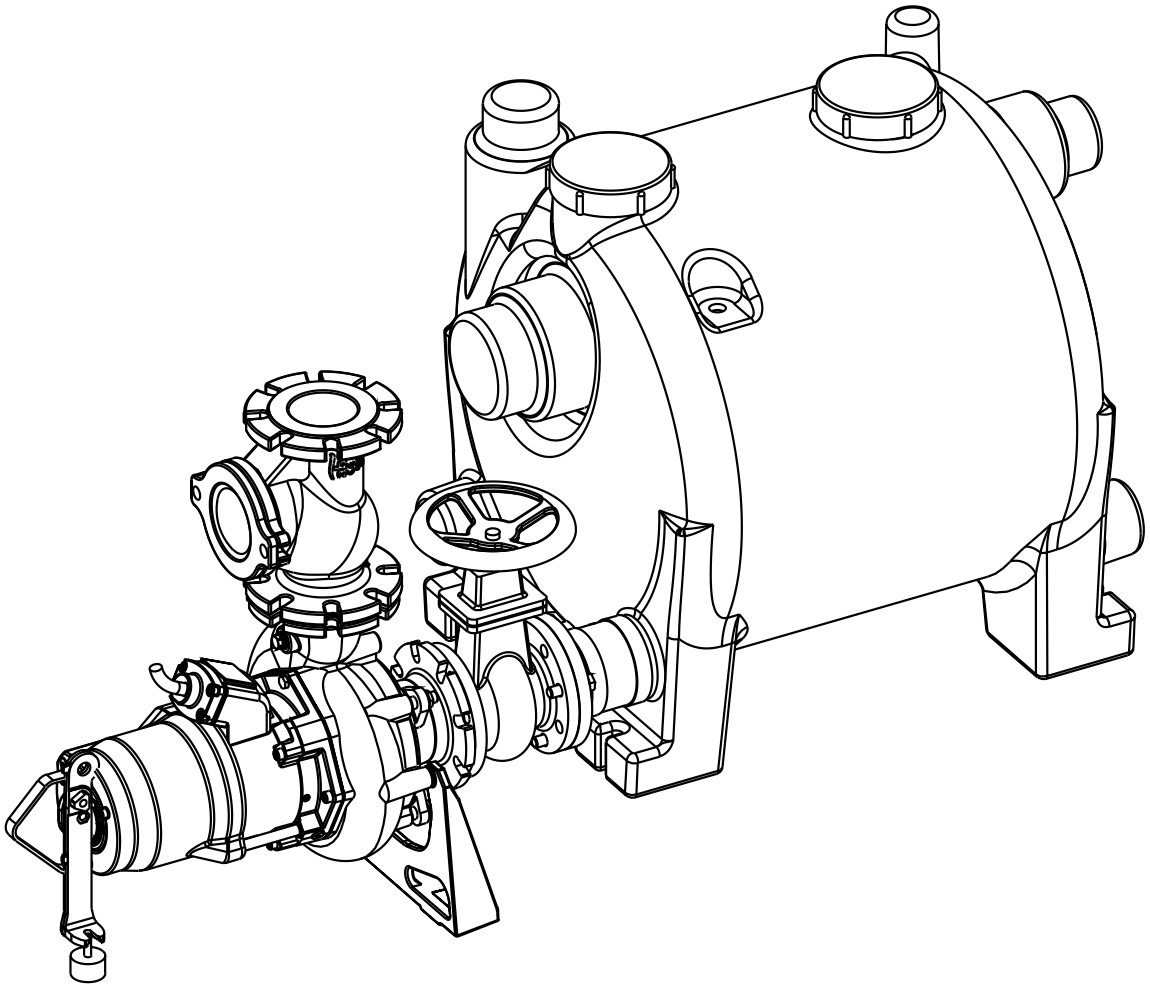
We know how water works

ABS lifting station Sanimat

1030-00



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Installation and Operating Instructions

www.absgroup.com

ABS Lifting station Sanimat

1501

3702

Contents

1 General

1.1 Application areas

These lifting stations may not be used for the collection or pumping of flammable or corrosive liquids. Effluent containing grease, petrol, or oil should only be brought to the lifting station via a separation device.

The flood-proof faecal lifting stations of the series Sanimat 1501S to 3702S have been designed for the pumping of sewage from locations below the sewer backwash level in accordance with EN 12056.

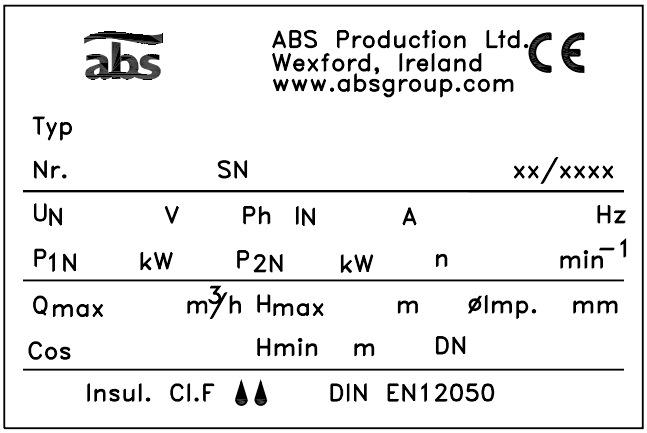
1.2 Technical Data

Maximum noise level ≤ 70 dB.

1.3 Nameplate

We recommend that you record the data from the original nameplate on the nameplate illustration below and maintain it, together with your purchase receipt, as a proof for subsequent use.

Always state the pump type, item no. and serial no. in the field “Nr” in all Communications



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Legend

Type	Pump type	
Nr./SN	Item No./Serial No.	
xx/xxxx	Production date (Week/Year)	
UN	Rated Voltage	V
IN	Rated Current	A
	Frequency	Hz
P1N	Rated Input Power	kW
P2N	Rated Output Power	kW
n	Speed	min-1
Qmax	Max. Flow	m3/h
Hmax	Max. Head	m
Ø Imp.	Impeller diameter	mm
DN	Discharge diameter	mm
♦♦	Water pressure tight	
IP 68	Protection type	

Figure 1 Nameplate Standard Version

1.4 Design of the faecal lifting station

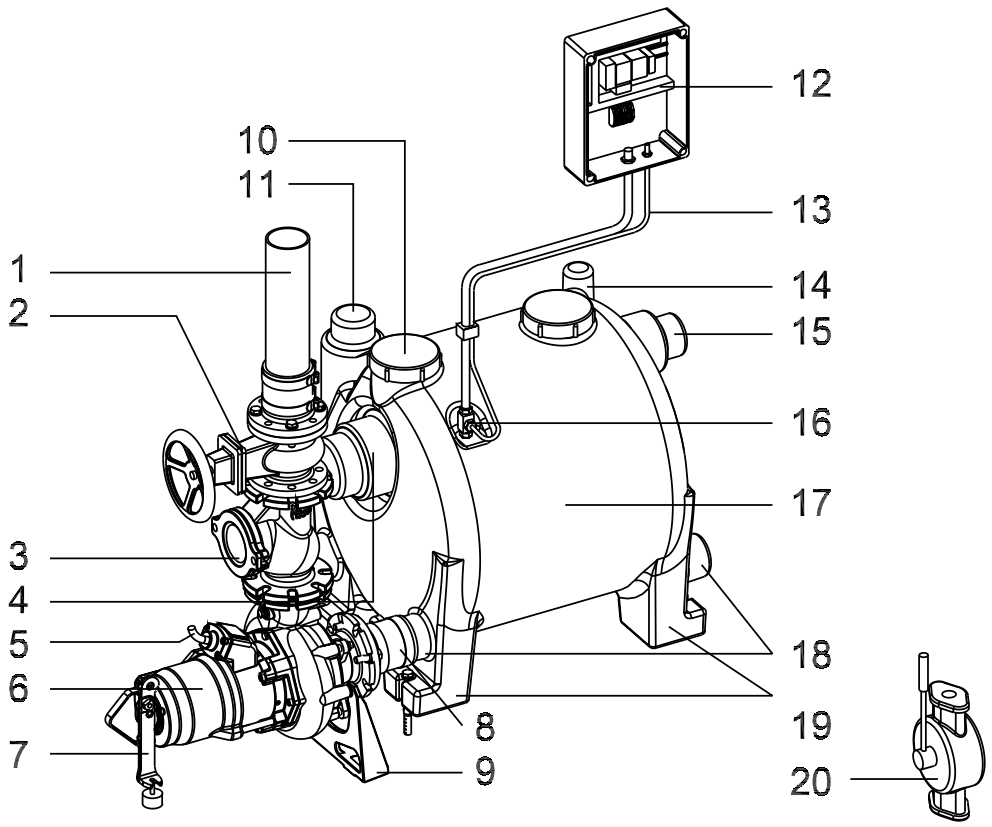

Figure 2 Design of the lifting station

1. Discharge line
2. Shut-off valve
3. Ball-type non-return valve
4. Inflow port DN 150/200, height 600 mm
5. Motor connection cable
6. Submersible pump
7. Pump head support
8. Flexible connector between collection tank and submersible pump - is noise absorbing
9. Volute support
10. Inspection opening, above Sanimat 3701 2-off
11. Inflow ports DN 100/150
12. Controls
13. Control line for the level control
14. Vent port
15. Inflow ports ON 100/150, height 700 mm
16. Submerged tube for the level control
17. Collection tank
18. Pump connection port
19. Collection tank legs for fastening and for prevention of floating
20. Hand membrane pump G 1 1/2”

NOTE ***The positions numbers 1-4 and 23 are not supplied as standard. The hand membrane pump should not be fastened on to the collection tank.***

1.5 Description

The flood-proof sewage lifting station Sanimat 1501S to 3702S are made up of a gas and odour-tight synthetic collection tank complying with DIN 19760 and 12050-1 with either 1 or 2 submersible sewage pumps, together with a control unit and level control system. The collection tank is fitted with a number of inflow ports. The unit is supplied from the factory with all inlet ports closed off. The inlet ports of dimensions DN 100/150 and 200 are located at various heights and can be opened up as required.

Depending on the size of the sewage lifting station, submersible pumps of the types AS S17/2 and S26/2 as well as pumps from the AFP series M15/4 to M60/4 can be supplied. All motors comply with Insulation Class F (155 °C) and Protection Type IP 68. The motor shaft is supported in lubricated-for-life ball bearings. The shaft sealing on the motor side is carried out by a lip seal, while sealing at the liquid side is carried out by means of a high quality silicon carbide mechanical seal. The submersible pumps M15/4 to M60/4 have been supplied with thermal sensors in the stator which switch off the motors in the event of overheating, together with a DI-system of moisture protection for the monitoring of the mechanical seal.

The hydraulic section is supplied with ContraBlock system, and spiral bottom plate with waved shearing inlet, open ABS channel type impeller and volute. All hydraulic parts have been manufactured from Cast Iron (GG 25).

The sewage entering by the inlet port is collected in the odour-tight collection tank.

When a predetermined liquid level is reached, then the automatic level control system switches on the submersible pump and switches it off again when the tank is empty.

In the case of twin pumping stations the starting sequence of pumps is reversed at each starting operation. If level 2 is reached, then both submersible pumps work in parallel.

The automatic level control system functions as an electro-pneumatic control system based on the forced air bubbling principle, by which compressed air is continually pumped via the submerged tube into the liquid in the collection tank. The counter pressure caused by this is dependent on the liquid level present and operates a membrane switch in the control system by means of the control line (plastic hose).

Units supplied with one pump can be retrofitted with a second pump.

2 Safety

The general and specific health and safety hints are described in detail in the separate booklet Safety Hints. If anything is not clear or you have any questions as to safety make certain to contact the manufacturer ABS.

3 Transport

During transport the unit should not be dropped or thrown.

The unit should never be raised or lowered by the Power cable.

Any hoist used must be adequately dimensioned for the weight of the unit.

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

4 Mounting and Installation

NOTE ***We recommend that original ABS installation accessories be used for mounting and installation of the unit***

Particular attention must be paid to the safety regulations covering work in closed areas as well as good general technical practices.

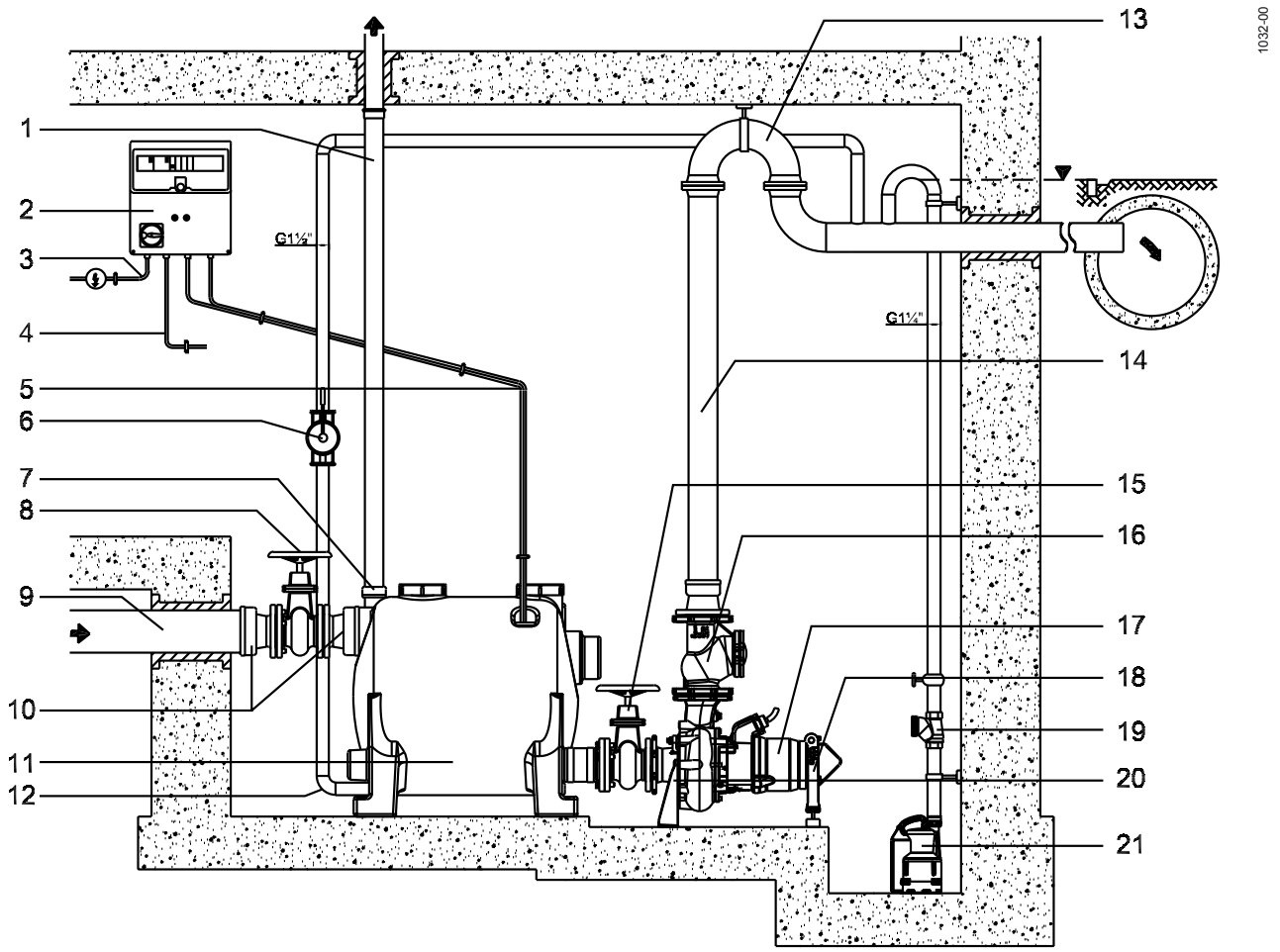

Figure 3 Installation example

Legend

1 Vent Pipe (DN ≥70) above roof level
2 Control unit with level control system
3 Power supply
4 Motor cable
5 Twin control line for level control system
6 Hand membrane pump
7 Push on sleeve
8 Gate valve
9 Sewage inflow DN150
10 Connection piece (push on piece)
11 Sanimat collection tank
12 Hand membrane pump connection
13 Backwash loop with lowest point above the backwash level
14 Discharge line (DN100)
15 Gate valve
16 Non return valve
17 ABS submersible sewage pump
18 Pump head support
19 Seperate non return valve
20 Volute support
21 Pump sump with dewatering pump (Robusta - Coronada)

4.1 Site requirements

The rooms in which lifting stations are installed must be of adequate dimensions so that beside and over all control elements or items where maintenance might be required a working area of at least 60 cm width or height is available.
Electrical supply to suit the submersible pumps being used.

NOTE ***Fusing, cable cross-section and voltage drop of the power line must comply with DIN/EN and the relevant electricity supply board regulations.***

Any openings required in walls or ceilings for discharge, vent or inlet lines, must be of adequate dimensions so that the openings used can be sealed off using noise absorbing materials.
The inlet lines must be laid in such a manner that there is a continuous fall of the prescribed magnitude to the inlet ports of the collection tank.

NOTE ***When installing lifting stations the noise protection regulations in buildings to DIN 4109 should be observed.***

4.2 Installation of the collection tank

Determine the installation location and set-up the tank so that it is on level ground and horizontal in all directions.
Secure the collection tank against movement or floating with the aid of plugs (3) hex screws (2) and washers (2).

ATTENTION ***Provide also for later positioning of the submersible pumps. The submersible pumps should be installed on the ground at the same level as the collection tank.***

ATTENTION ***Do not over-tighten hex screw (2), or the collection tank (1) may be damaged.***

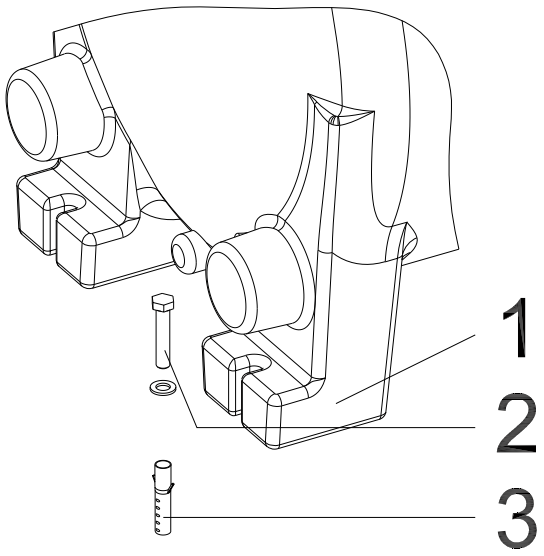

Figure 4 Bolting down of the collection tank

NOTE ***Hexagon head wood screw 10 x 130 dowel size 12 (not supplied)***

4.3 Opening of the collection tank inlet ports

Only open inlet posts that are to be used. Saw off as little as possible so that as much material as possible is left for the plug connection.
File down sharp edge inside and outside.

ATTENTION ***The pump connection ports should not be used as inflow ports. Connect a maximum of 2 submersible pumps per tank.***

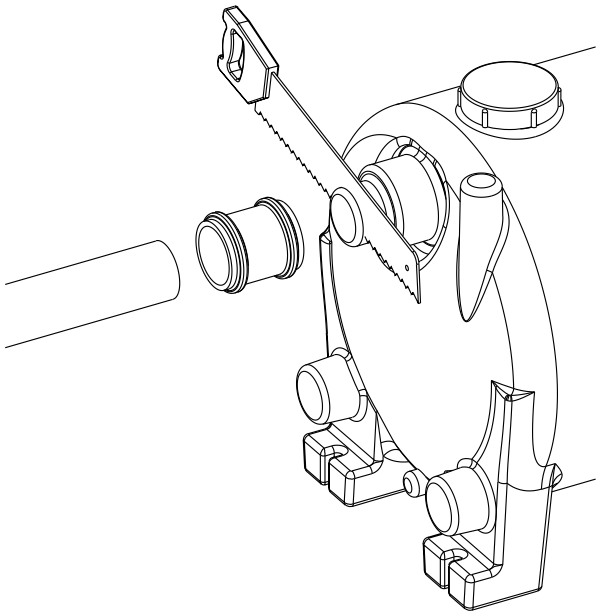

Figure 5 Opening the connections on the collection tank

4.4 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.***

The vent line is connected by means of a push-on sleeve to the vertical outlet at the top of the collection tank. It should be of constant cross-section (min. DN 70) and should have a continuous rise to above roof level.

4.5 Installation of the submersible pump

4.5.1 Mounting of the volute support

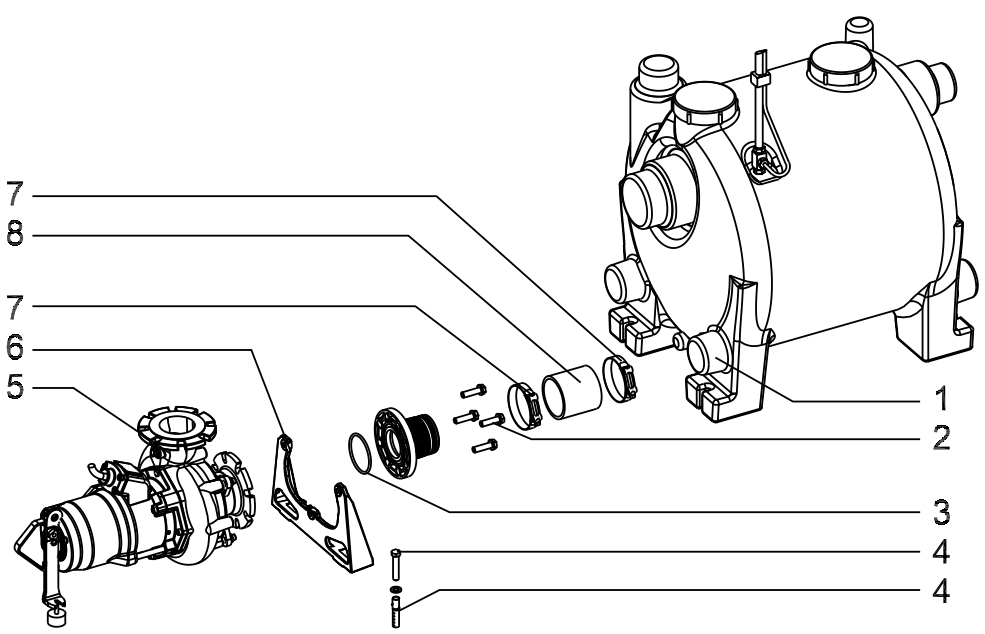

Figure 6 Mounting of volute support

ATTENTION ***The area where the pump stands should be smooth and level. The distance from the centre line of the discharge port to the centre line of the discharge port comprises 460mm in the case of twin pumping stations.***

Fit flexible connection (8) with clamp (7) to the pump connection port of the collection tank (1).
Press the volute support (6) into the flexible connector (8) and mark the position of the volute support (6) on the floor.

Remove volute support (6). Drill plug holes and fit plugs (4).
Press clamp (7) on to the flexible connector, locate the volute support in position and tighten clamp (7) (fix screws (4) and washers.
Locate submersible pump (5) and seal (3) at the volute support (6) and fasten using hex bolts and nuts.

4.5.2 Installation of the pump head support

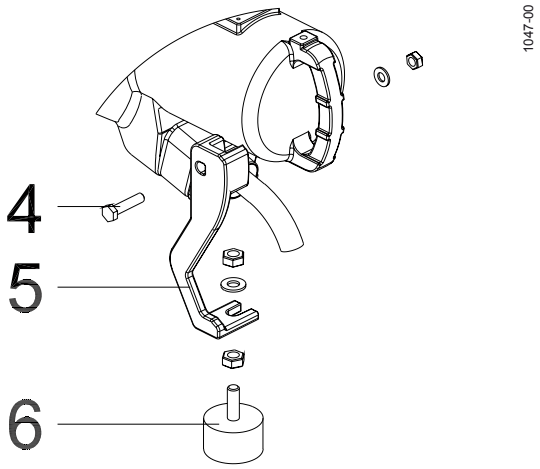

Figure 7 Fitting of head support AS S17 - S26

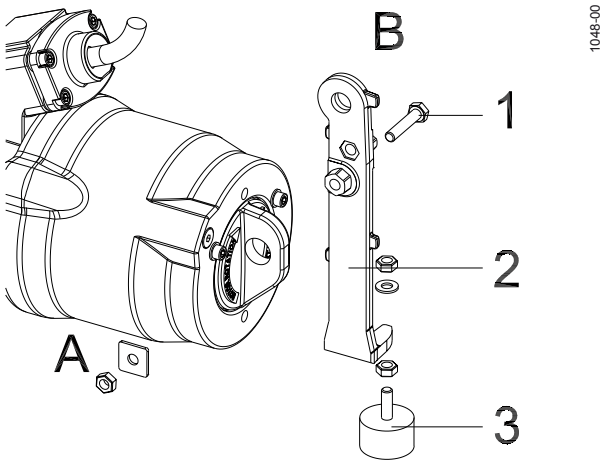

Figure 8 Fitting of head support AFP M15 - M60

Submersible pumps AFP M15 ,M22 ,M30 , M40 and M60

Locate vibration damper (3) at the pump head support (2).
Fit the pump head support through ”Eyelet A” at the pump head.
Adjust the vibration damper (3) so that the rubber support rests on the ground and fix the vibration damper (3) in position using hex nuts and washers.
Submersible pumps AFP M40 and M60
Locate vibration damper (3) at the pump head support (2).
The pump head support (2) is rotated by 180° and fitted via “Eyelet B” as shown in Figure 8.
Set the vibration damper (3) so that the rubber support rests on the ground, and fix the vibration damper (3) in position using hex nuts and washers.

Submersible pump AS S17 & S26

Place the vibration damper (6) at the pump head support.
Screw the pump head support (5) into the pump head using socket head screw (4).
Adjust the vibration damper (6) in such a manner that the rubber support rests on the ground and fix the vibration damper (6) in position using hex nuts and washers.

4.6 Level Control

The level control is a pneumatic system with submerged tube and control pipe (plastic hose) to the control unit.

The submerged tube is permanently installed in the collection tank. The required switching and control devices are installed in the control unit.

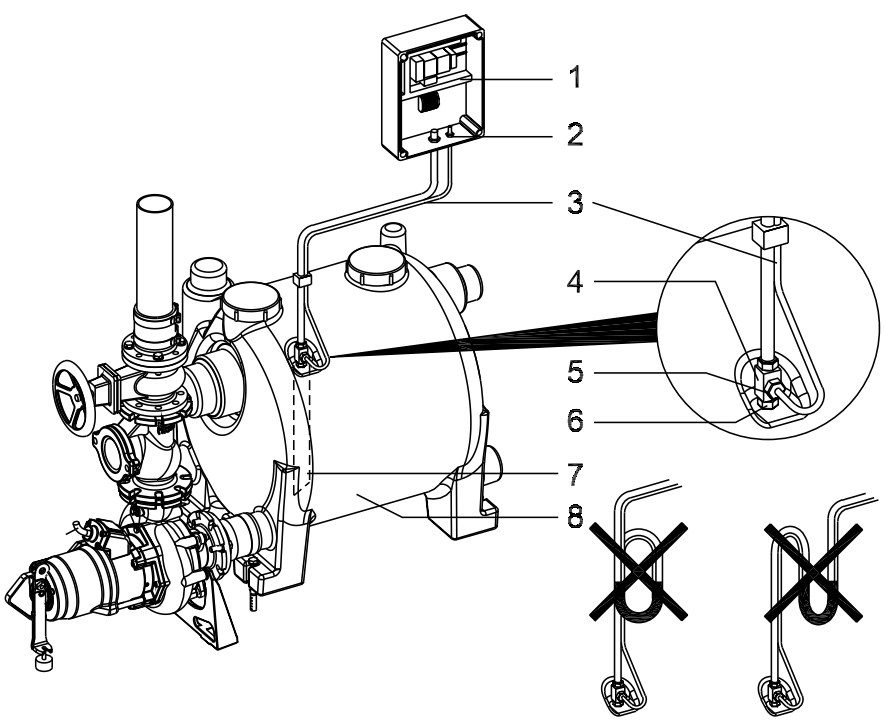

Figure 9 Installation of the control pipe

1	Control unit	5	Spigot nut
2	Connection nipple	6	Submerged tube nut SW 36
3	Twin control line	7	Submerged tube
4	T-connection piece	8	Tank

ATTENTION ***The control unit itself (1) should be installed above possible flood level in such a manner that the control line (3) has a continuous rise to it.***

Control line (3) has a continuous rise as shown in Figure 9.

The control line should be shortened where necessary, pushed on to the hose nozzle of the submerged tube screw connector (5).

The submerged tube screw connector (5) is prevented from turning by using an open ended spanner SW 13 and a spigot nut (4) is fully tightened.

ATTENTION ***The submerged tube fixing screw (5) should not be twisted.***

4.7 Installation of the control unit

ATTENTION ***The control unit should be fitted above possible flood level in a well ventilated room and in an easily accessible position. Protection Class of the control unit IP 54.***

The control unit should be secured at all fixing points. The fixing holes are accessible after unscrewing the lower housing cover.

ATTENTION ***Do not drill through the housing of the control unit itself.***

NOTE ***The mounting location of the control unit should be chosen in such a manner that the control line rises in a continuous manner to the control unit. The control line must not be kinked.***

NOTE ***A number of different control box models exist. Please check the wiring diagram/ instruction manual in the control box.***

4.8 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***

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.

NOTE ***The overload relay in the control unit has been correctly set at the factory.***

NOTE ***Please consult your electrician.***

4.9 Wiring Diagram

Three Phase

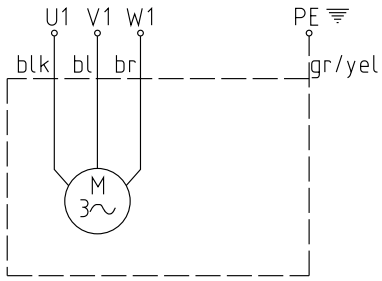

Figure 10 Three Phase Wiring

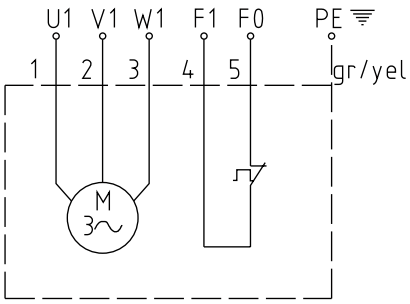

Figure 12 Three Phase Wiring with Temperature Limiter

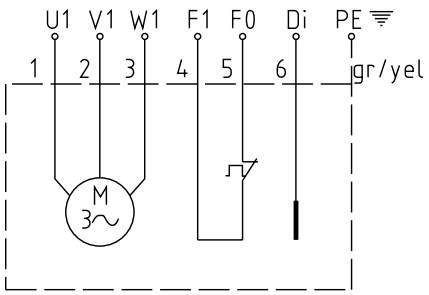

Figure 14 Three Phase Wiring with Temperature Limiter & DI

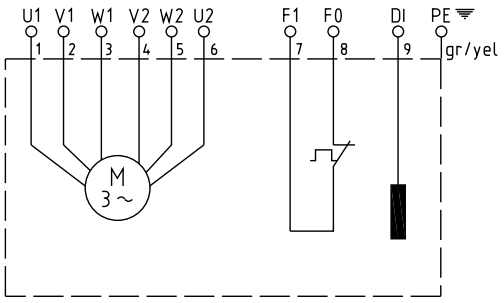

Figure 16 Three Phase Wiring with Temperature Limiter & DI

Single Phase

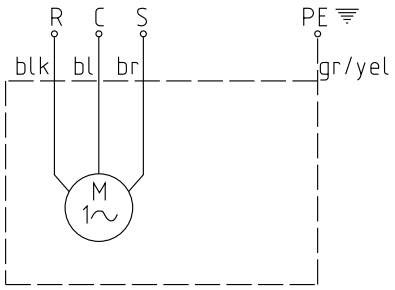

Figure 11 Single Phase Wiring

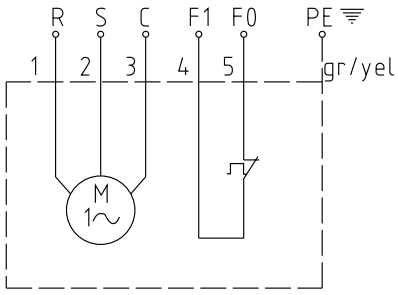

Figure 13 Single Phase Wiring with Temperature Limiter

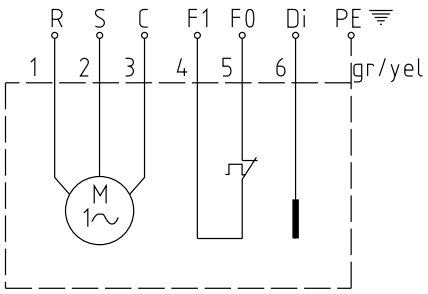

Figure 15 Single Phase Wiring with Temperature Limiter & DI

U1, V1, W1, U2, V2, W2	=	Live	br	=	Brown
PE	=	Earth	F1/FO	=	Thermal sensor
Gr/Yel	=	Green/Yellow	R	=	Run
blk	=	Black	S	=	Start
bl	=	Blue	C	=	Neutral (common)
Di	=	Seal monitor			

4.10 Checking direction of rotation

The safety hints in the previous sections must be observed!

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.

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

ATTENTION ***The following characteristics of a submersible pump indicate a probable incorrect direction of rotation.***

Submersible pump runs unevenly and vibrates strongly.
Submersible pump does not achieve full output and the emptying times for the collection tank are too long.
The submersible pump makes unusual running noises.

4.11 Installation of the accessories

4.11.1 Installation of the Hand Membrane Pump (wall mounted)

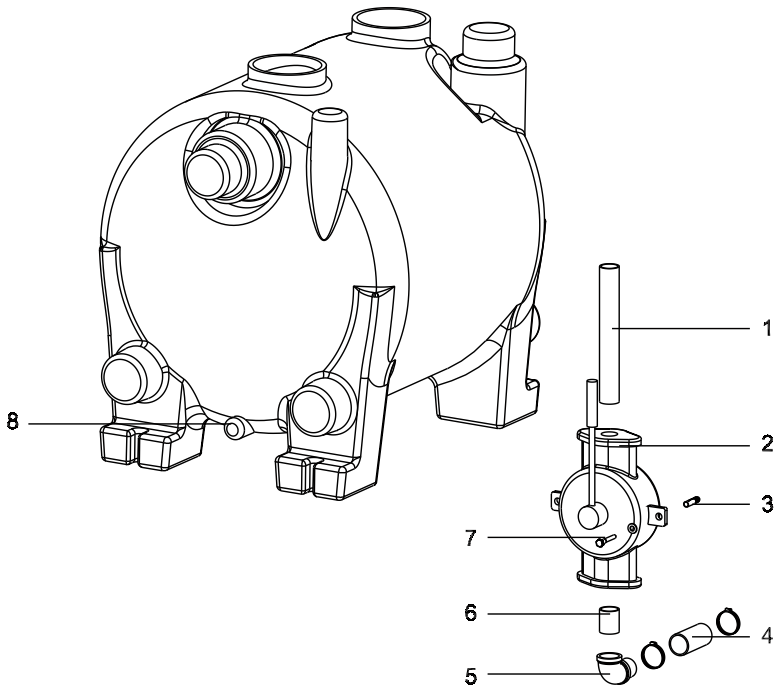

Figure 17 Installation of hand membrane pump

ATTENTION ***The discharge line (1) from the hand membrane pump must be installed independently of the discharge line of the ABS submersible sewage pump, and likewise must be provided with an anti-siphon loop located above the sewer backwash level. The discharge lines must be brought to a location after the anti-siphon loop.***

Determine a fixing location for the hand membrane pump, which is easily accessible and fasten using plugs (3) and screws (7).
Open the connection port (8) on the collection tank in accordance with Figure 5 using a saw.
Bring the pipe line (6) from the hand membrane pump to the collection tank and connect to the outlet port (8) chosen with the aid of flexible junction piece (4) including clamps.

ATTENTION ***The hand membrane pump should never be fastened to the collection tank.***

5 Commissioning

The safety hints in the previous sections must be observed!

Before commissioning the unit 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?
- Is the direction of rotation correct - even if run via an emergency generator?
- Was the control line (plastic hose) laid in such a manner that it has a continuous rise?
- Was the collection tank secured against floating?
- Has venting been installed in accordance with the regulations?

ATTENTION ***Before commissioning the collection tank should be cleaned of any large particles and filled with water. If the control line (plastic hose) was connected to the submerged tube with the tank already full, then the collection tank must be fully emptied once by activation of the selector switch "Hand". After commissioning the faecal lifting station is normally operated with the selector switch in position "Auto".***

6 Maintenance

Before commencing any maintenance work the unit 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 pratices should be followed.

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

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

6.1 Commentary on maintenance of Lifting Stations in accordance with EN 12056.

It is recommended that the lifting station be inspected monthly and its function checked.

In accordance with EN regulations, the lifting station should be maintained by a qualified person at the following intervals:

- in commercial premises - every three months.
- in apartment blocks - every six months.
- in a single family home - once a year.
- In addition we recommend that a maintenance contract be taken out with a qualified company.

6.2 General maintenance hints

ABS lifting stations 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 ABS customer service department for assistance.

This applies particularly if the unit 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.

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

6.3 Oil filling and Oil changing

Waste oil must be disposed of in the proper manner.

6.4 Cleaning of level control pipe

It is recommended that the level control pipe be examined monthly to ensure that no build up of solids occurs inside the pipe, thus preventing accurate level control of the lifting station. Build-up of solids inside the pipe can cause continuos pumping, no pumping or inaccurate switching levels. The pipe can be pulled out of the tank and cleaned, rinsed and replaced. It should be greased as it is put back in.

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