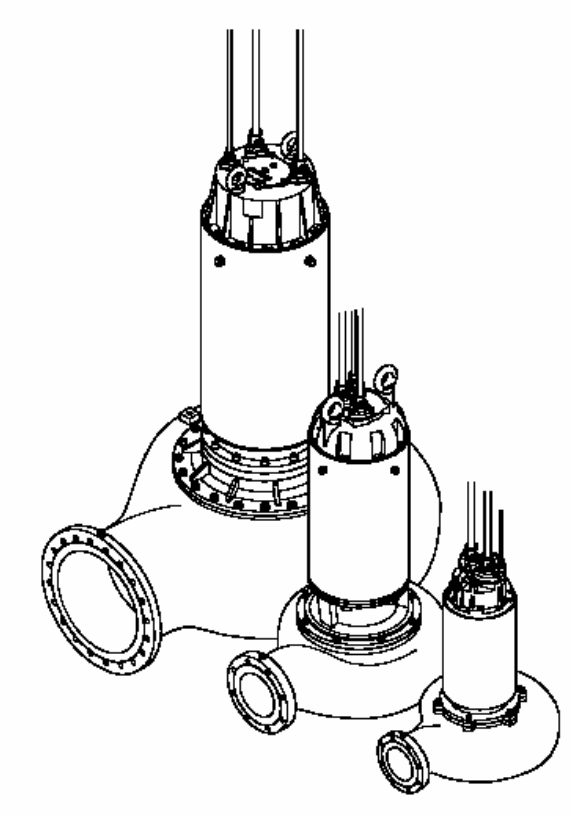
Installation and Operating Instructions

● WQN & QXG ●



1 General

1.1 Application areas

The maximum allowable temperature of the medium pumped is 40°C

 Pumping of flammable or explosive liquids with these pumps is not allowed.

1.1.1 Application areas for WQN submersible pumps

WQN series submersible pumps allows economical and safe sewage disposal from industrial, commercial and communal sources.
They can be installed in dry and wet sumps
They are suitable for the following liquids:
Clear and waste water, for sewage and sludge containing solids and fibrous material.

1.1.2 Application areas for QXG submersible pumps

QXG series submersible pumps have been developed for environmental protection, water supply, they are particularly suitable for:

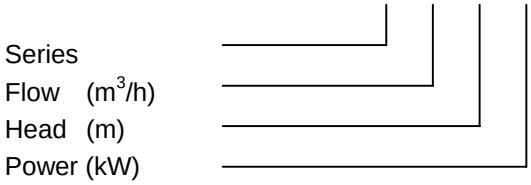
- Industrial, fresh and process water pumping.
- Raw water pumps for drinking water supply.
- Irrigation pumps to allow development and agricultural usage of regions of low rainfall.
- Cooling water pumps in power stations.
- Rain water pumps for storm-water protection in low-lying areas.

They are suitable for the following liquids:
Clear water.
The water, for sewage and sludge containing solids and fibrous material, is not allowed.

In combination with the automatic coupling system, the below ground level wet installation is a particularly economical and environmentally friendly solution.
The pumps are also suitable for horizontal or vertical dry installation.

1.2 Identification coding

Example> **WQN AA-BB-CC**



1.3 Technical data

The electrical data of the submersible pumps are given independently of the operating point for which they have been selected. The technical data and the weight of the pump can be obtained from the nameplate.

1.4 Dimensions and weights

NOTE

The dimensions of the unit can be found on the relevant dimensional sheet.
The hydraulic curves and impeller type can be found on the hydraulics curve sheet.
The technical data and weight of the unit can read from the nameplate.

1.5 Nameplate

We recommend that you record the data from the original nameplate on the *illustrated in Fig. 1 "Nameplate"* so that you can refer to the data at any time.

NOTE

In the case of inquiries it is essential that the submersible pump type, part number, as well as serial number be given.

The maximum noise level of all pumps in the WQN&QXG series is 75 db (A). Depending on the type of installation and at certain operating points on the curve it is possible that the noise level maximum value of 75 dB (A), or the measured noise level will be exceeded.

Fig. 1 Nameplate

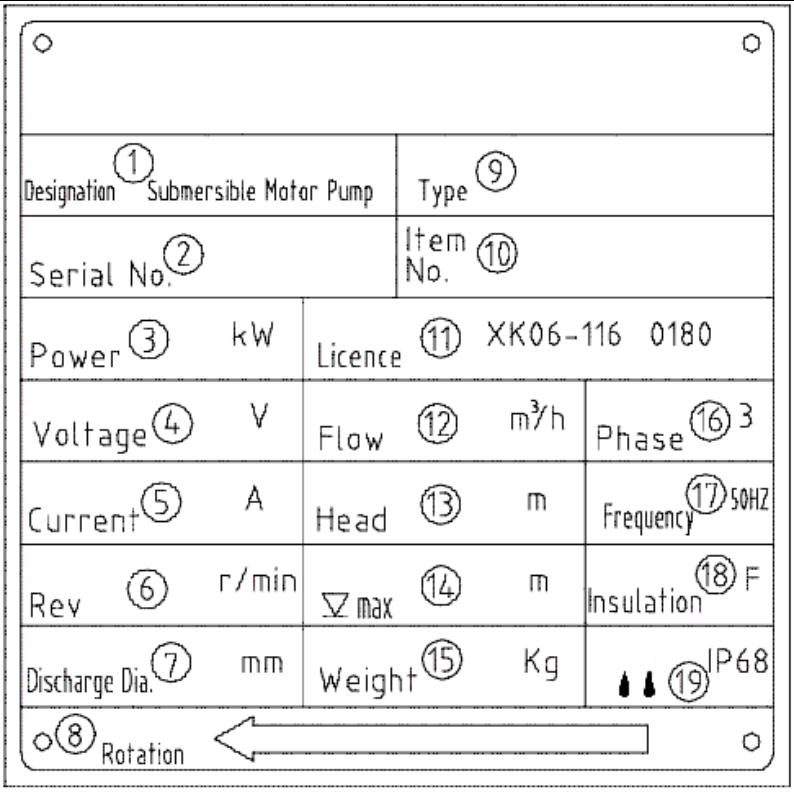


Table 1

1	designation of pump
2	pump no.
3	rated input power [kW]
4	rated voltage [V]
5	rated current [A]
6	speed [min-1]
7	discharge diameter [mm]
8	direction of rotation of the shaft
9	type of pump
10	item no.
11	license
12	rated flow m^3/h
13	rated head [m]
14	submerge deep (max) [m]
15	weight [kg]
16	phases
17	frequency [Hz]
18	insulation class
19	protection type

2 Safety

ATTENTION

The "SAFETY INSTRUCTIONS" must be studied with care before transport, set-up, installation and commissioning of the pumps

2.1 General Safety Instructions / Proper use

The ALVEST submersible motors, submersible pumps, submersible mixers and submersible aerators are constructed according to the current state of technology and the recognized safety regulations. And improper application may cause damage to the machine or damage to life. ALVEST products may only be used if in perfect technical condition and used in accordance with the installation and operating instructions taking into account the safety and hazard considerations. In case of trouble the ALVEST submersible motors, submersible pumps, submersible mixers and submersible aerators must immediately be stopped and secured. The trouble must immediately be removed. If necessary, the ALVEST service department must be informed.

The ALVEST submersible motors, submersible pumps, submersible mixers and submersible aerators must exclusively be used according to the Installation and Operating Instructions. Another (foreign) utilization in addition to this is not in accordance with the regulations. The manufacturer/supplier is not liable for damages resulting from that. Exclusively the user takes the risk. In cases of doubt the planned mode of operation must be authorized by *ALVEST PUMP, s.r.o.* prior to application.

Part of the application in compliance with the regulations is also the observation of the installation and Operating Instructions as well as the strict adherence to all additional Safety Instructions

The rules for prevention of accidents and the general rules of good technical practice must be observed!

 Safety Instructions, which might cause danger to life in the case of non-observance, have been specifically highlighted with the general danger symbol.

 The presence of a dangerous voltage is identified with the safety symbol.

 Submersible motors, submersible pumps, submersible mixers and submersible aerators must not be installed in combustible or explosive media! Therefore no combustible or explosive media should be pumped or handled. **In hazardous areas** only submersible motors, submersible pumps, submersible mixers and submersible aerators in explosion-proof (ex) execution or with motors in explosion-proof (ex) execution must be used!

 For application in the open air submersible motors, submersible pumps, mixers and submersible aerators must be provided with a fixed supply cable of at least 10 m in length. Regulations in other countries may differ from this.

Submersible motors, submersible pumps, submersible mixers and submersible aerators for installation in swimming pools, garden ponds or similar must be executed in protection class III (protective low

voltage 24 V) according to European standard 60335 part 2 - 48 if persons can come in contact with the pumped media.
In cases of doubt the planned operating mode must be authorized by ALVEST PUMP, s.r.o. prior to use.

The corresponding regulations of the application countries must be observed!

2.2 Transportation and installation

 The submersible motors, submersible pumps, submersible mixers and submersible aerators should never be raised by the supply cable.

ATTENTION
Note the entire weight of the submersible motor, submersible pump, submersible mixer or submersible aerator! (see nameplate)

 The units are prepared for transportation by placing them on an adequately strong horizontal surface. Care should be taken that they cannot topple over.
The hoist must be adequately dimensioned for the total weight of the units (incl. all accessories which may be fitted) and must comply with the local valid safety regulations.
Do not stay or work in the swivel area of a suspended load!
The lifting hook height must take into consideration the entire height of the units as well as the length of the lifting chain!

2.3 Electrical connection and commissioning

 Prior to starting the unit a qualified person must ensure that one of the required electrical protective measures has been provided. Grounding, neutral line, earth leakage circuit breakers, etc. must comply with the regulations of the local Power Supply Authority and must be checked by a qualified person to ensure that they are functioning correctly.
The system must be protected by a suitable fuse (in accordance with the rated current of the motor).

 When checking the direction of rotation, the submersible pumps, submersible mixers, and submersible aerators should be secured in such a manner that no danger to personnel is caused by the rotating impeller, by the resulting air flow or parts that are ejected. Do not put your hand into the hydraulic system.

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

 Observe the **START REACTION** on switching on units and when checking the direction of rotation. The **START REACTION** can take place with a considerable force!

ATTENTION
The voltage stated on the nameplate must correspond to the voltage of the mains supply.


The power source supply as well as the connection of 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.

ATTENTION

The submersible motors, submersible pumps, submersible mixers and submersible aerators should only be operated with the overload relay and connected thermal sensors.


The electrical control devices (control panel, junction boxes etc.) should be protected against dampness and be mounted in a flood-proof area.

2.4 Maintenance


Prior to starting with any maintenance work, the units should be completely disconnected from the mains by a qualified person and protected from being inadvertently switched back on.


Prior to maintenance, any units, which have been used in contaminated media, e.g. waste water containing faeces, must always be cleaned and, if necessary, be thoroughly decontaminated. The specific regulations for hygiene of the respective application countries must be observed. When carrying out any repair or maintenance work, the safety regulations covering the working in enclosed areas of sewage installations, as well as **"good technical practice"** must be observed!


Before removal of units in hazardous areas the sump and surrounding area must be adequately vented to avoid the danger of a spark causing an explosion!

 ***WARNING Dangerous gases*** 

Observe all accident prevention measures and regulations!
Please use a safety belt and a lifeline when getting into the sump and work together with supervisory staff.
Ensure adequate venting!

ATTENTION

Repair on explosion-proof motors may only be carried out by workshops or persons authorized for this. During repair work only original parts supplied by the manufacturer must be used!
Lifting equipment like hoists, shackles wire ropes and wire clamps etc. must intervals undergo a visual examination at regular intervals (approx. every 3 months) for wear and corrosion. If necessary, those parts must be replaced!
Installation accessories in particular for mixers and aerators must undergo a visual examination

at regular intervals for wear and corrosion etc. and, if necessary, those parts must be replaced.

 Changing the direction of rotation at control panels without changeover switch should only be carried out by a qualified person and for this reason this procedure is not allowed for cleaning hydraulics or propellers

 The oil in the oil chambers of the pump may be under pressure. Before opening the oil drain plug, please always put a cloth over the oil filler screw, loosen it and screw it down again!
The regulations covering oil and grease handling must be observed. Any waste oil or grease should be correctly disposed of!

2.5 Safety

These Operating Instructions contain basic information on the installation, operation and maintenance should be followed carefully. For this reason it is essential that these instructions are read carefully before installation or commissioning by both the installation crew, as well as by those who are responsible for operation or maintenance. The Operating Instructions should always be readily available at the location of the unit.
Not only the general Safety Instructions listed under the main heading safety must be observed, but also the special Safety Instructions listed under the other main points.

2.5.1 Reference to notes and hints in the Operating Instructions

 Safety Instructions given in the Operating Manuals the non-observance of which could cause danger to life have been specifically highlighted with the general danger symbol, safety signs.

 The presence of a dangerous voltage is identified with the safety symbol.

ATTENTION
Appears at safety hints, the non-observance of which could damage the unit or affect its functioning.

Symbols attached directly on the unit itself, i.e.
- Direction of rotation arrow
- Nameplate

must be carefully followed and must be maintained in a legible condition.

2.5.2 Qualifications of personnel and their training

The personnel for operation, maintenance, inspection and erection must possess the required qualifications for the work. The area of responsibility, duties and supervision of personnel must be carefully checked by the user. If the personnel involved do not have the required knowledge, they must be trained or instructed. If necessary, this can be carried out on behalf of the operator of the unit by the manufacturer/supplier. In addition, the user must ensure that the contents of the Operating Instructions are fully understood by the personnel involved.

2.5.3 Dangers due to non-observance of the Safety Instructions

The non-observance of the Safety Instructions can lead both to danger to personnel and also possible damage to the environment or the unit itself. Non-observance of the Safety Instructions can lead to the loss of any right to compensation.

In particular, non-observance can, for example, result in the following dangers:

- Failure of important functions of the unit/installation
- Danger to personnel by electrical, mechanical or chemical influences.
- Danger to the environment by leakage of dangerous substances.

2.5.4 Carrying out work in a safety conscious manner

The Safety Instructions listed in these operating instructions, the relevant National Regulations for Safety, as well as any possible internal operating or safety regulations must be observed.

2.5.5 Safety Regulations for the owner/operator

- Devices provided as protection against accidental contact with moving parts (e.g. couplings) should not be removed while the unit is in operation.
- All dangers due to electrical energy must be avoided. For details consult the VDE Regulations or the regulations of your local Electricity Supply Company.

2.5.6 Safety Regulations for maintenance, inspection and installation work

The user of the unit must ensure that all maintenance, inspection or installation work is carried out by authorized and qualified skilled personnel. The user must also make sure that these personnel have carefully studied the Operating Instructions.

As a matter of principle all work on the unit should only be carried out while it is switched off. The method described in the Operating Instructions to shut down the unit must be complied with.

Pumps or units used for pumping of liquids, which could endanger health, must be decontaminated.

Immediately after completion of the work all safety and protective devices must be refitted and reactivated.

Before recommencing operation all points listed under the section First Commissioning must be complied with.

2.5.7 Modifications and manufacture of spare parts without approval of the manufacturer

Modifications or changes to the unit may only be carried out after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer are essential for compliance with Safety Regulations. The use of other parts can annul any responsibility for the consequences resulting from that action.

2.5.8 Inadmissible modes of operation

The operating safety of the unit is only guaranteed provided that the unit is used in accordance with the Safety Instructions and the corresponding sections of the Installation and Operating Instructions. The limiting values given on the Data Sheet should under no circumstances be exceeded.

The use of these Safety Instructions does cancel general regulations and standards, which are not mentioned hereunder.

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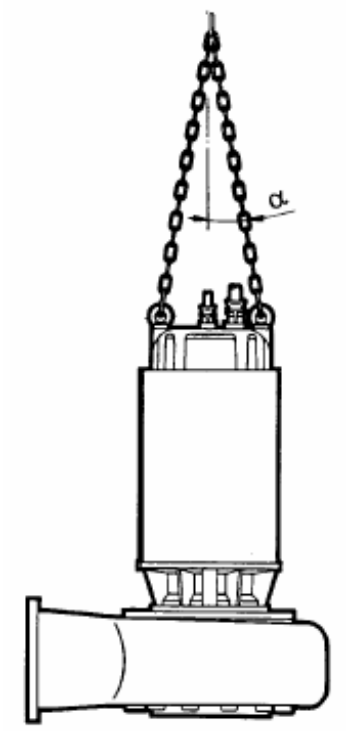
3 Transport and Storage

3.1 Transport

The units should never be raised by the electrical cable.
Depending on the type and the installation involved, the units are packed at the factory for transport either in a vertical upright or in a horizontal manner. Depending on size, the units are fitted with eyebolts or support brackets to which a chain and shackle can be fitted for transport or for installation or removal of the units.

ATTENTION
Note the entire weight of the unit (see nameplate). Any hoist used including cranes and chains must be adequately dimensioned for the weight of the unit and must comply with all safety regulations.

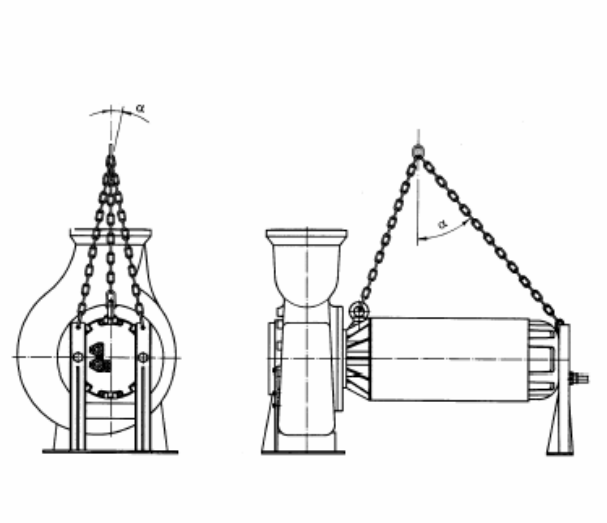
3.1.1 Vertical upright transport



Vertical upright transport Pump

ATTENTION
max 45° The angle between the center line of the motor or pump and the fixing point (eyelet or ring bolt) should not exceed 45°

3.1.2 Transport in a horizontal manner



ATTENTION

max 45°. The angle between the center line of the motor or pump and the fixing point (eyelet or ring bolt) should not exceed 45°

Submersible pumps are only transported in a horizontal position if they have been built for horizontal installation. The submersible pump can be placed on the mounting frame fitted on the pump and transported.

3.2 Transport securing devices

3.2.1 Moisture protection of the pump cables

The motor connection cables are protected against the ingress of moisture along the cable by having the ends sealed at the works with protective covers.

ATTENTION

These protective covers should only be removed immediately prior to connecting the pumps electrically.

Particular attention is necessary during storage or installation of pumps in locations, which could fill with water prior to laying, and connection of the power cable of the motor. Please note that the cable ends, even where fitted with protective sleeves, should not be immersed in water.

ATTENTION

These protective covers only provide protection against water spray or similar and are not a watertight seal. The ends of the cables should not be immersed in water, otherwise moisture could enter the connection chamber of the motor.

NOTE
If there is a possibility of water ingress then the cables should be secured so that the ends are above the maximum possible flood level.

ATTENTION
Take care not to damage the cable or its insulation when doing this!

3.3 Storage of the units

The ALVEST products should be protected from weathering influences such a UV radiation from direct sunlight, high air moisture content, other harmful influences, dust emission, mechanical influences, frost etc. The ALVEST original packaging with suitable transport securing devices (where fitted at he factory) helps to ensure the optimum protection of the unit.

If the units are exposed to temperatures under 0° C care should be taken than there is no moisture or water left in the hydraulics, cooling system, or other spaces. In the case of heavy frost the units including cables should not be moved if at all possible.

In the case of storage under extreme conditions e.g. in sub tropical or desert climates, then suitable additional steps should be taken. We can give you further information on request.

NOTE
The ALVEST units do not generally require any maintenance during storage
In the case of longer storage periods (after approx. one year) the transport securing device on the motor shaft should be loosened or removed and the shaft turned a number of times by hand in order to stop the sealing faces of the mechanical seals from sticking together. Turning the shaft by hand brings lubricating oil to the sealing surfaces and ensures proper functioning of the mechanical seal. The bearings on the shaft require no maintenance.

4 Product description

4.1 General description

- The water pressure tight encapsulated, fully flood-proof motor and pump section, form a compact and robust unit.
- Water pressure sealed motor, insulation class F = 155°C.
- Rotor dynamically balanced, upper and lower bearings lubricated for life, maintenance free.
- Lower sealing by means of a silicon carbide mechanical seal, independent of the direction or rotation.
- Upper mechanical seal, carbon/chrome steel, independent of direction of rotation.
- Oil chamber filled with lubrication oil.

Motor
Three phase, squirrel cage induction motor
Voltage: 400V 3~ 50 Hz / 460V 3~ 60 Hz
Other voltages on request
Insulation class F = 155°C, protection type IP68
Max. medium temperature: +40°C

Hydraulics
Closed 1-, 2- or three channel impeller, with large free solids passage, or open two-channel impeller.

To be observed when used with frequency inverters:
The motors are designed in their standard execution for use with contactors.
If it is intended to operate these using frequency inverters then the versions complying with electromagnetic compatibility requirements should be ordered.
The **lowest limit frequency** should be set so that a velocity of 1 m/s at the discharge outlet is ensured.

4.1.1 WQN Submersible pumps

- Blockage free jacket cooling system for the motor.
- Radial hydraulics with close or open multi-channel impellers, with large free solids passage, or open two channel impellers.

4.1.2 QXG Submersible pumps

The hydraulic section of the QXG pump is multi channel impeller with 3 or 5 impeller blades.

5 Set-up and installation

5.1 Set-up and installation of the WQN&QXG submersible pumps

5.1.1 Main types of installation possible with the WQN&QXG pumps.

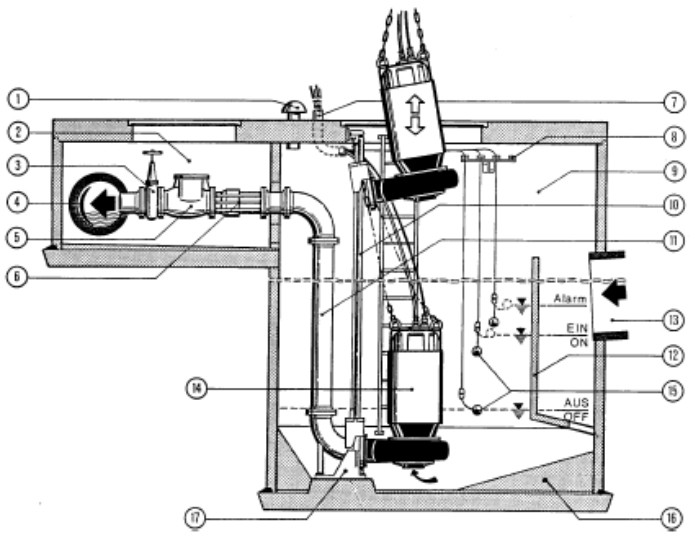
There are three main types of installation possible with the WQN&QXG submersible pumps.
1. Vertical installation in a wet sump using the ALVEST automatic coupling system.
2. Installation in a dry sump with ground support ring
3. Vertical installation in a dry sump

NOTE

Detailed installation and foundation drawings (where necessary or available) of the relevant installation option are attached to the planning documents or your order confirmation.

The hoist must be adequately dimensioned for the weight of the unit and must be complied with all safety regulations. The general rules of good technical practice must be observed!
Do not stay or work in the swivel of a suspended load.
The lifting hook height must take into consideration the entire height of the unit as well as the length of the connecting chain.

5.1.2 Installation examples of WQN&QXG submersible pumps

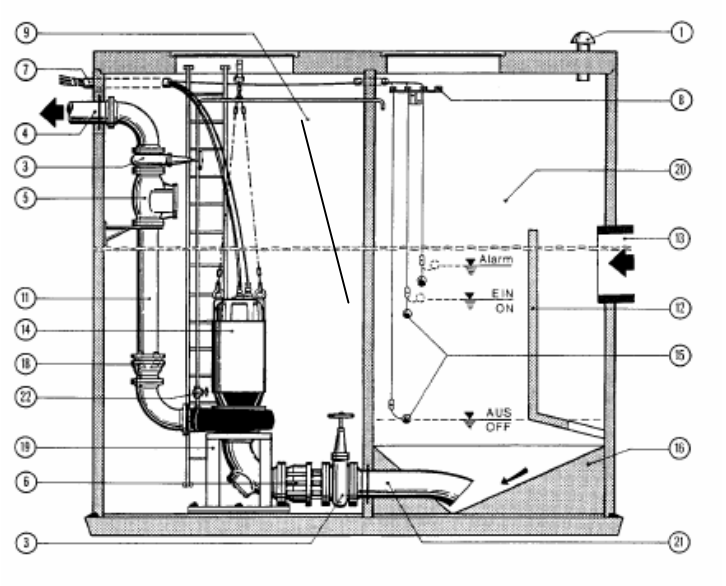


1 Venting
2 Valve chamber
3 Shut-off valve
4 Outflow line
5 Non-return valve
6 Fitting for valve removal
7 Cable duct
8 Bracket for float switches
9 Collection sump
10 Guide tube
11 Discharge line
12 Inflow chamber with impact wall
13 Inflow line
14 ALVEST submersible sewage pump
15 Automatic level control
16 Concrete benching
17 ALVEST pedestal

Installation example - wet sump with automatic coupling system

NOTE

Any support frame needed for the submersible pump should be erected on site before the pump itself is installed.

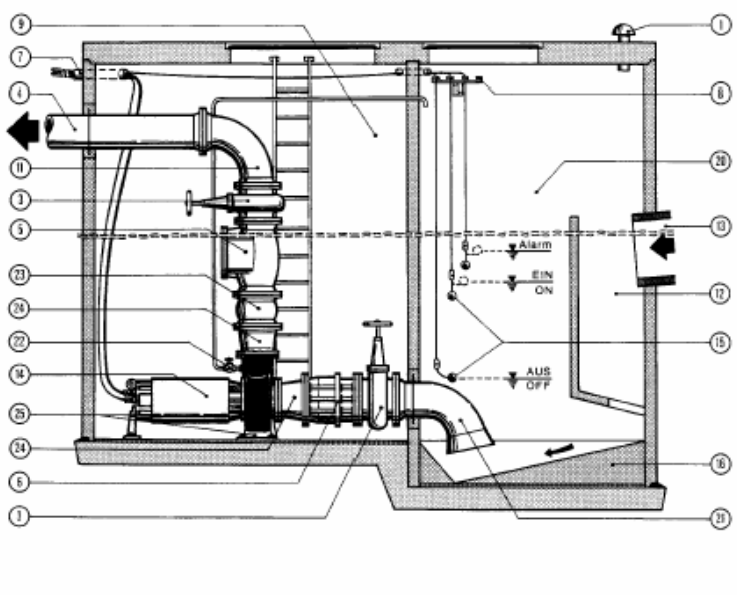


1 Venting
3 Valve chamber
4 Outflow line
5 Non-return valve
6 Fitting for removal valvesl
7 Cable duct to control unit
8 Cable holder for float switches
9 Pump sump
11 Discharge line
12 Inflow chamber with impact wall
13 Inflow line
14 ALVEST Submersible pump
15 Automatic level control
16 Concrete benching
(after installation of suction pipe)
18 Flexible pipe connector
19 Ground support ring
20 Collection sump
21 Suction line
22 Vent line valve

Installation example dry installation – vertical

NOTE

Any support frame needed for the submersible pump should be erected on site before the pump itself is installed.



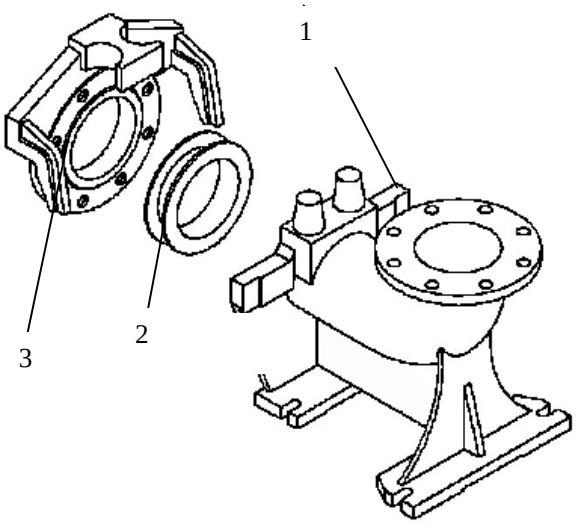
1 Venting
3 Shut-off valve
4 Outflow line
5 Non-return valve
6 Fitting for removal valves
7 Cable duct to control unit
8 Cable holder for float switches
9 Pump sump
11 Discharge line
12 Inflow chamber with impact wall
13 Inflow line
14 ABS - Submersible pump
15 Automatic level control
16 Concrete benching
(after installation of suction pipe)
20 Collection sump
21 Suction line
22 Vent line valve
23 Compensation piece
24 Diffuser
25 Head support / volute support

Installation example dry installation - horizontal

NOTE

Any support frame needed for the submersible pump should be erected on site before the pump itself is installed.

5.1.3 Inserting the seal in the pedestal for WQN&QXG Submersible pump

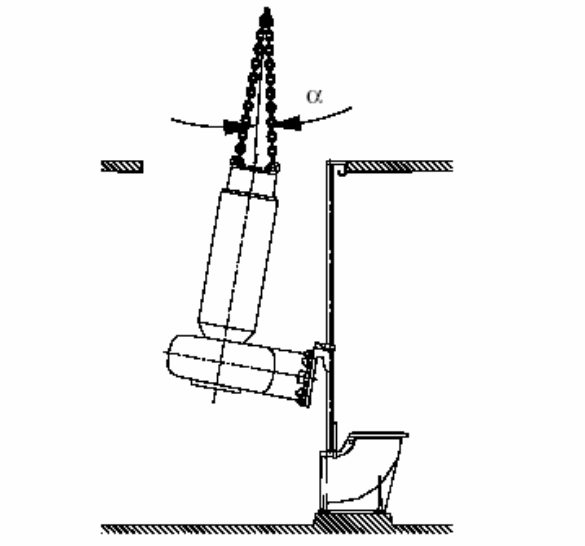


Pos. 1 Pedestal
Pos. 2 Seal
Pos. 3 Bracket

ATTENTION
The seal (pos. 2) must be inserted into the pedestal bracket (Pos. 3). The larger outer diameter of the seal must show in the direction of the discharge flange of the pump!

Duckfoot pedestal for WQN&QXG Submersible pump

5.1.4 Installation of the submersible pump in a wet sump.



Lowering the submersible pump

Angle of the pump during the installation approx. 3 to 5°

ATTENTION α max 45°
The angle a between the center line of the unit and the fixing point (eyelet or ring bolt) should not exceed 45°

5.1.5 Installation of the WQN&QXG submersible pump in a dry sump

- Fit a hoist to the submersible pump.
- With the aid of the hoist place the submersible pump carefully into the prepared mounting frame and fasten.
- Fit the suction and discharge ports to the volute.

- If required, fit the vent line to the volute
- Open the gate valves on the suction and discharge side.

5.2 Electrical connection

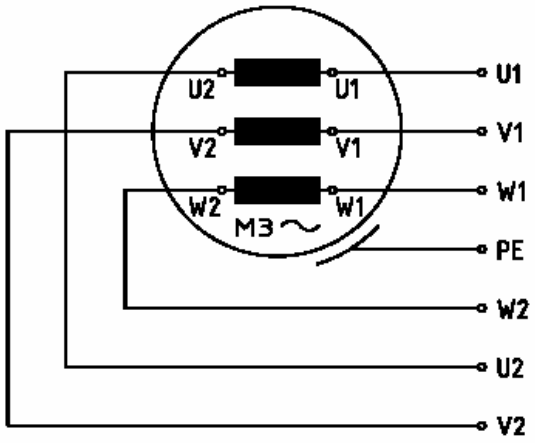
The submersible pumps may only be connected up by a qualified person.
Before commissioning an expert should check that one of the necessary electrical protective devices is available. Earthling, neutral, earth leakage circuit breakers, etc. must comply with the regulations of the local electricity supply authority and a qualified person should check that these are in perfect order.

ATTENTION
The voltage stated on the nameplate of the pump must correspond to that of the mains supply.

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

ATTENTION
The unit should only be operated with the overload relay and thermal sensors connected

5.2.1 Standard connection diagrams



Connection diagram

ATTENTION
In addition to the mains connections listed here each motor also has a control circuit cable!
The cable leads are brought out of the motor. No switching takes place in motor!
Any switching required (use of bridges) must be carried out in the control panel.

NOTE

Information on the type of starting can be obtained from the nameplate of the pump.
Special voltages between 220 V and 725 V can be supplied on request.

5.2.2 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.

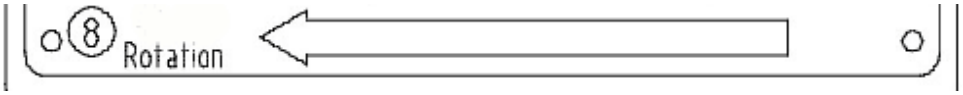
When checking the direction of rotation, the submersible pump should be secured in such a manner that no danger to personnel is caused by the rotating impeller, or by the resulting air flow. Do not place your hand into the hydraulic system!

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 quite strong!

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

ATTENTION
If the leads are connected in accordance with the circuit diagram and lead designations the direction of rotation will be correct.



Rotor Rotation

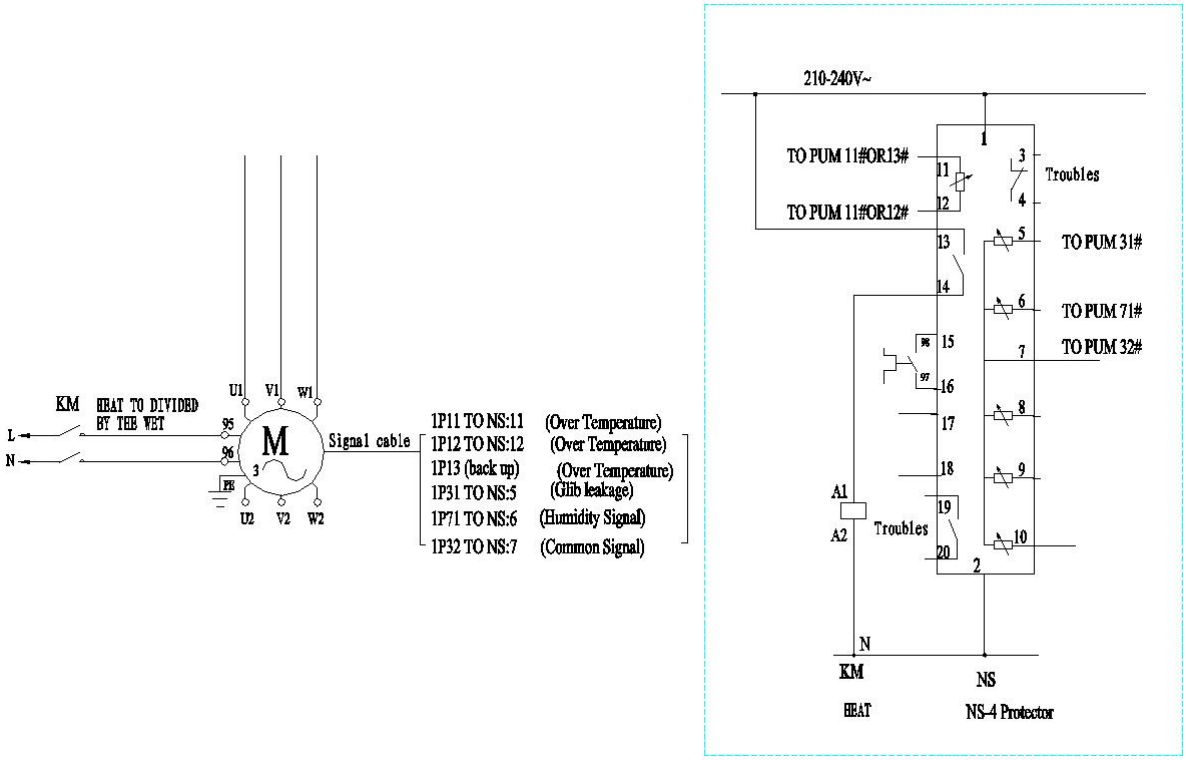
5.2.3 Changing direction of rotation

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.

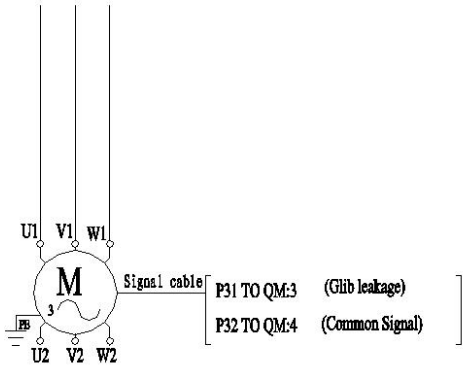
NOTE
The direction of rotation measuring device monitors the direction of rotation of the mains supply or that of an emergency generator.

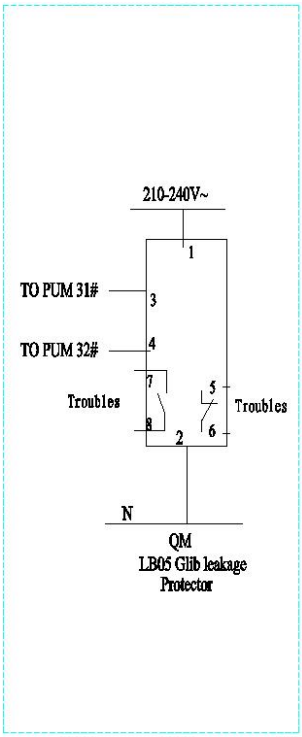
5.2.4 Connection of the control circuit leads

The submersible pumps are supplied as standard with signals to protectors of control panel, it is necessary to fit and connect this in accordance with the circuit diagrams below.



It is necessary to fit ALVEST 18.5kW~320 kW.





ATTENTION
Maximum relay current load for contact: 5 Amps/230v

It is necessary to fit ALVEST 4 kW~11 kW pumps.

6 Commissioning

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

General

- Have the electrical connections been carried out in accordance with regulations?
- Have the thermal sensors been connected?
- Is the seal-monitoring device (where fitted) correctly installed?
- Is the motor overload switch correctly set?
- Have the power and control circuit cables been correctly fitted?
- Was the sump cleaned out?
- Have the inflow and outflows of the pump station been cleaned and checked?
- **Is the direction of rotation of the pump correct - even if run via an emergency generator?**
- Are the level controls functioning correctly?
- Do the non-return valves (where fitted) function easily?
- Have the hydraulics been vented in the case of dry installed pumps?

6.1 Starting frequency of the motors

The allowable starting frequency per hour can be read from the table below (where not otherwise specified from the works).

Table 6 allowable starting frequency

Motor power	maximum starts per hour	at interval in minutes
11 - 160 kW	15	4
> 160 kW	10	6

ATTENTION

The allowable starting frequency for any starting devices should be obtained from manufacturer of these devices.

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.

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 Works Service Department guarantees you the best technical service under all circumstances.

7.1 General maintenance hints

ALVEST submersible 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 ALVEST 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 .

ATTENTION

The hoists like chains and shackles should be visual checked in regular intervals (approx. every 3-month) for wear and corrosion. These parts should be replaced if required!

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

NOTE

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

7.1.1 Maintenance hints if the submersible pump is out of use for a considerable period

NOTE

If the pumps have remained idle for more than 12 months then we recommend that you ask ALVEST or an approved distributor for advice.

7.2 Removal of the submersible pump

7.2.1 Removal of the submersible pump from a wet sump

 Before removal of the unit the motor connection cables at the control panel should be completely disconnected by a qualified person from mains and care should be taken that it cannot be inadvertently switched back on.

 The hoist must be adequately dimensioned for the weight of the unit and must be complied with all safety regulations. The general rules of good technical practice must be observed!

 Do not stay or work in the swivel area of a suspended load!

 The lifting hook height must take into consideration the entire height of the unit as well as the length of the connecting chain.

 Before removal of units in hazardous areas the sump and surrounding area must be adequately vented to avoid the danger of a spark causing an explosion!

- Raise the submersible pump out of the sump with the hoist. While doing this the connection cables should be simultaneously drawn out of the sump as the pump itself is being raised.
- Place the pump with volute vertically on a solid surface and take care that it cannot fall over.

7.2.2 Removal of the submersible pump when dry installed

- Close off the gate valves on the inlet and discharge sides.
- Empty the volute and, if necessary, the discharge line.
- If fitted, dismantle the venting line above the discharge.
- Fit a hoist to the pump.
- Disconnect the suction inlet by opening the bolts on the bottom plate of the hydraulics.
- Dismantle the discharge line by opening the bolts on the discharge flange of the volute.
- If necessary, remove the fastening bolts at the ground support ring and carefully lift off the pump with the hoist.
- Place the pump on an even firm flat surface.

7.2.3 Removal of the submersible pump

- If present, the discharge pipe cover should be removed and the water pressure-tight cable inlet opened.
- Raise the submersible pump out of the concrete sump with the hoist. While doing this the connection cables should be drawn out as the pump itself is being raised.
- Place the submersible pump with propeller housing vertically on a solid surface, taking care that it cannot tip over.