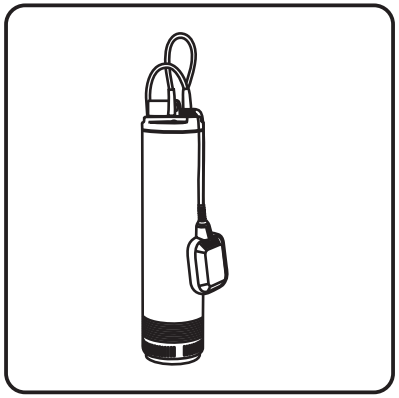
Submersible Borehole Pump

Original Instruction Manual



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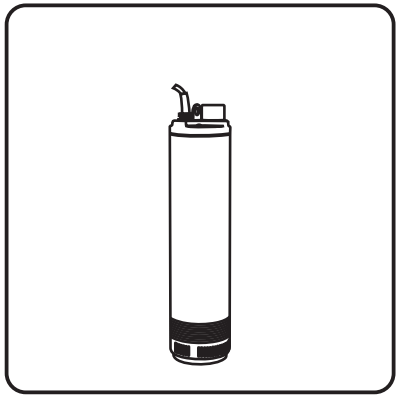

5DW

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Always disconnect the appliance from the supply before assembling, disassembling or cleaning.
Appliances can be used by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and if they understand the hazards involved.
Children shall not play with the appliance.
Pumps without indication that they are protected against the effect of freezing shall not be left outside during freezing weather conditions

Attention!
If the appliance or the supply cord is damaged, it must be repaired by manufacturer, its service agent or qualified person.

Meaning of crossed –out wheeled dustbin:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact you local government for information regarding the collection systems available.

ATTENTION: if the pump is temporarily usecwith dirty liquids or water containing chlori.de, flush the pump briefly with clean water immediately after use to remove any deposit.

If the pump has not been used for a long time ancdoes not start or gives no water (but electricaconnections arein orden. the pumn must beremoved from the water and checked to see if it ischoked by any foreign matter or blocked by sediment, deposits or any other cause.

Disconnect electrica! power before any servicing operation and makesure the pump cannot be accidentallv switched on.

6. Dismantling
6.1. Checking rotation of the shaft

Refer to the cross-section drawing on page 29. While the pump is positioned horizontallv, remove the screws (14.24), the sauare nuts (14.28) and suction strainer (15.50). Hold the first stage casing(25.01) tightly with one hand so that is does not rotate and, with a wrench on the nut (28.04), turn the shaft in the anti-clockwise directien.
If the shaft is blocked and cannot be freed, dismantling should continue until the cause has been found and removed.

6.2. Inspection of the hvdraulic parts

The O-ring (14.20) and then the complete motorassembly with all internal pump parts areremoved from the external iacket (14.02).
The first impeller can be inspected by removingthe first stage casing (25.01).
Once the nuts (28.04) and washer (28.08) are removed the spacer sleeves (64.15), impellers (28.00) and the other stage casings (25.02 and 25.05) can be dismantled one after the other.

Other parts should not be dismantled.
The motor and pump functions can be impairedby erroneous procedure or tamperina with internal parts.

6.3. Oil chamber

If the oil chamber has to be inspected, follow these instructions:

CAUTION:there mav be sliaht pressure in the oil chamber.
Care must be taken to avoid a sudden spurting of oil. Wait until the oil chamber covei (34.03) has cooled down.

Before removinq the mechanical seal (36.00) loosen the screws (70.18) and raise the cover (34.03). applying force simultaneously on two opposite points of the cover rim, to let off pressure from the oil chamber. Carry out this operation while holding the motor in the upturned vertical position.
When refilling the chamber use only white oil suitable for food machinery and pharmaceutic use (quantity = 35 9).
First, mount the fixed parts of the seal (36.00) on the oil chamber cover (34.00) and then the oil chamber cover (34.03) on the motor cover (70.00) with the O-ring (70.09).

7. Spare parts

When ordering spare parts, please quote their designation,position number in the cross section drawing and rated data from the pump name plate (type,date and serial number).
Any pumps that require inspection/repairmust besent back complete with cable and electric controbox.

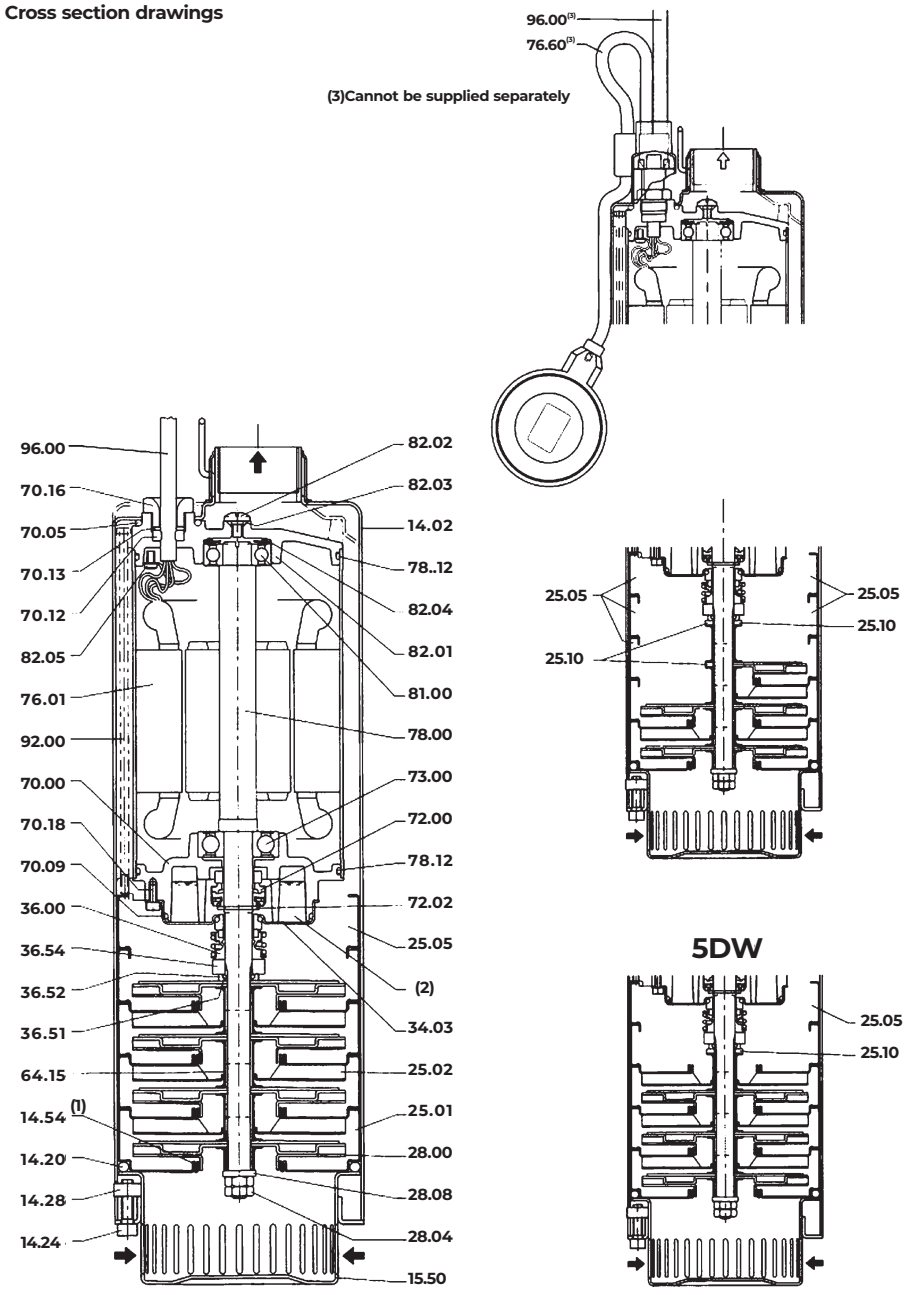
8. Designation of parts

Nr.Designation

14.02 External jacket
14.20 0-ring
14.24 Screw
14.28 Square nut
14.54 Wear ring (1)
15.50 Suction strainer
25.01 First stage casing
25.02 Stage casing
25.05 Last stage casing
25.10 Washer for missing impeller
28.00 impeller
28.04 impeller nut
28.08 Washer
34.03 Qi chamber cover
36.00 Mechanicat seal
36.51 Retaining ring, split
36.52 Shoulder ring
36.54 Spacer
64,15 Spacer sleeve
70.00 Motor cover, purp side
70.05 O-ring
70.09 O-ring
70.10 O-ring
70.12 Cable gland rubber ring
70.13 Washer
70.16 Cable gland
70.18 Screw
72.00 Upper mechanical sea
l72.02 Circlip
73.00 Pump side bearing
76.01 Motor jacket with winding
76.60 Float switch
78.00 Shaft with rotor packet
78.12 O-ring
81.00 Bearing
82.01 Motor end-shield, non-drive end
82.02 Screw
82.03 O-ring
82.04 Compensating spring
82.05 Screw
92.00 Tie-bolt
96.00 Cable

(1)Inserted in the stage casing, cannot be supplied separately
(2) Oil
Changes reserved

Cross section drawings



Close coupled multi-stage submersible clean water pumps

OPERATING INSTRUCTIONS

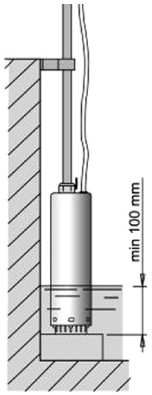
1. Operating conditions
Standard construction

- For clean water with a maximum temperature of 35°C and maximum sand content of 60 g/m^3
- Minimum internal diameter of well: 132 mm.
- Minimum immersion depth: 100 mm.
- Maximum submersion depth: 20 m (with suitable cable length.
- Maximum starts/hour: 30 at regular intervals
  Sound pressure at minimum immersion depth<70 dB(A).
  Noise disappears when the pump is submersed.

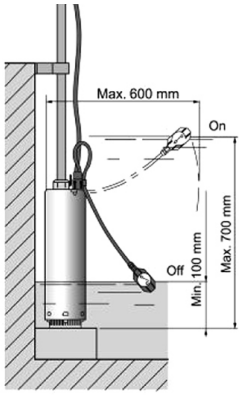
Do not use in ponds, tanks or swimmingpools when people may enter or comeinto contact with the water.

2. Installation
The internal diameter of the delivery pipe must never be smaller than the diameter of the pum pconnection port: G 11/4 (DN 32).
The pump must be installed in the vertical position with the delivery connection facing upwards.
The pump can be installed immersed (min 100 mm)or submersed (max 20 m) either resting on a bottom surface or suspended.

2.1. Pump in the resting position



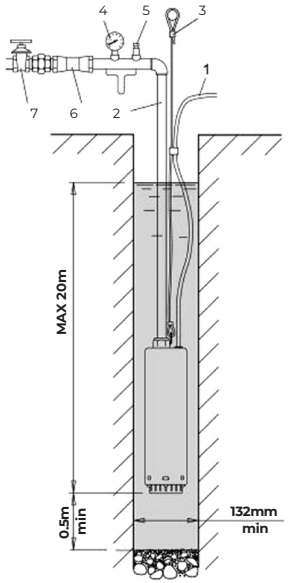
Construction without float switch



Construction with float switch

The pump can be rested on the flat bottom su-face of a tank.
When sand or slime deposits are expected to form, mount the pump on a surface raisedfrom the bottom level so that abrasive matter is not lifted.

2.2. Pump in the suspended position



1.Electric power cable
2. Delivery pipe
3. Safety rope
4. Pressure gauge
5. Air vent valve
6.Check valve
7.Gate valve

The pump can be held in a suspended position by the metal delivery pipe. Tighten the threaded pipe joints firmly to avoid loosening during operation.
Position the pump at a distance of at least 0.5 m from the bottom of a well so that sand is not lifted.
A safety rope or chain of non-perishable material should always be used to secure a suspended pump.When a plastic or flexible delivery pipe is usedthe safety rope or chain should be utilized for lowering, securing and raising the pump.

Never use the electric power cable tosuspend the pump.

Attach the power supply cable to the delivery pipeand to the safety rope with cable clamps at intervals of about 3 m. The power cable should not be taut: allow for a certain degree of slackness between the clamps to avoid the risk of strain caused by expansion of the pipe during operation

3. Electrical connection

Electrical connection must be carried outonly by a qualified electrician in accor-dance with local regulations.Follow all safety standards.

Follow all safety standards.

The unit must be always earthed, also with anon-metallic delivery pipe.

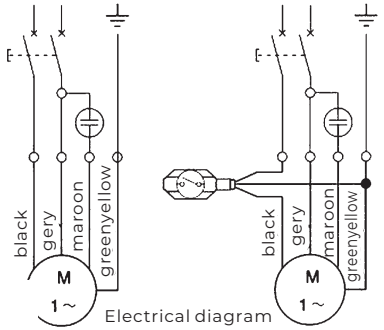
ATTENTION: in the case of water containing chloride (or salt water), the earthing (grounding) conductor is useful also to reduce the risk ofgalvanic corrosion due to electrolytic action especially with non-metallic delivery pipe and safety rope.

Make sure the frequency and mains voltage correspond with the name plate data.
For use in swimming pools (not when people arein the pool), garden ponds and similar places, aresidual current device with I$_{\Delta}$N not exceeding30 mA must be installed in the supply circuit.
Install a device for disconnection from the mains (switch) with a contact separation of at least 3 mm on all poles.
When the water level is not under direct visible control, install a float switch or electrodes to protect the pump againsl dry running and lo set the water levels to stop and automatically start the pump.
When extension cables are used, make sure the cable wires are of adequate size to avoid voltage drops. For connection of cables in a well, use thermo-shrinking sheathes or other methods for submersed cables.

3.1. Single-phase pumps

Supplied with incorporated thermal protector.
The motor will stop if overheating is detected.
When the windings cool down (after 2 to 4 minutes), the thermal protector enables re-starting.

Control box with starting capacitor is included inthe scope of supply.



Electrical diagram

3.2. Three-phase pumps

Install in the control box an overload-protective device in accordance with the name-plate current.

4. Starting

With a three-phase power supply make sure the direction of rotation is correct.
For this purpose, with the gate valve at any aperture position, check the pressure (with the pressure gauge), or flow rate (sight check) after starting.Switch off power, invert the connections of two phases on the control panel, re-start and check the pressure or flow rate capacity again.
The correct direction of rotation will provide a considerably greater and easily distinguishable pressure and delivery capacity.
Make sure the pump is operating within its range of rated performance and that the absorbed current indicated on the name-plate is not exceeded.Otherwise, adjust the delivery gate valve or the set.ting of pressure switches if installed.

ATTENTION: never allow the pump to run formore than five minutes with a closed gatevalve.
ATTENTION: never run the pump dry, not evenfor a short trial run.Never start the pump before it has been immersedto a depth of at least 100 mm.

Construction with float switch:
the float switch, connected directly to the pump,controls starting and stopping.
Check that the float switch is free from any obstacle.
If necessary, adjust the float-switch cable.
Exocessive cable length may cause the motor tooverheat and the pump to run dry.
Construction without float switch:
If there is no air vent valve in systems with a check valve, the minimum immersion depth at first start-up must be 300 mm. An air vent valve must be used insystems with an immersed delivery oullet.
Do not start the pump with a completely closed shut.off gate valve.
Never take the pump out of the water while thepump is still operating,

5. Maintenance
Under normal operating conditions the pump will not require maintenance.
If freezing may be expected while the pump re.mains inactive and it is not submersed al a safe depth, remove the pump from the water and leaveit in a dry place.