SPCO®

makes life easier

Installation and operating instructions

UG, UG A

Stainless Steel
Submersible Pumps

Approvals

EU Declaration of conformity

according to the Low Voltage Directive 2014/35/EU
and the Machinery Directive 2006/42/EC
and Electromagnetic Directive 2014/30/EU

For the following equipment:

Product:	Pump
Trademark:	Submersible Pump
Type Designation:	UG, UGP
Manufacture's Name:	Swiss Pump Company AG
Manufacture's Address:	Moosweg 36, CH-3645, Thun-Gwatt -Switzerland

is herewith confirmed to comply with the requirements set out in the Directive 2014/35/EU
And the Machinery Directive 2006/42/EC and Electromagnetic Directive 2014/30/EU.
For the evaluation of the compliance with this Directives, the following standards are applied:

EN ISO 12100:2010
EN ISO 13857:2008
EN 60204-1:2006
EN 809:1998
EN 6100-6-2:2005
EN 6100-6-4:2007
EN 60335-1:2012
EN 953:1997
EN 60335-2-41

Responsible for making this declaration is the:
Manufacture ☑ Authorized representative established within the EU ☐
Authorized representative established within the EU (if applicable):

Company Name:	Swiss Pump Company AG
Company Address:	Moosweg 36, CH-3645, Thun-Gwatt -Switzerland

Person responsible for making this declaration

Name, Surname:	Michael Bähler
Position/Title:	production Manager

(Place)	(Date)	(Company stamp and legal signature)
Switzerland	12/09/2019	

Contents

Delivery and Storage

Delivery

SPCO submersible pumps are supplied from the factory in proper packing in which they should remain until they are to be installed.

During unpacking and prior to installation, care must be taken when handling the pump to ensure that misalignment does not occur due to bending.

WARNING! **The pumps should remain in the packing until they are placed in vertical position during installation.**

Note: The loose data plate supplied with the pump should be fixed close to the installation site.

Storage and handling

Storage temperature:
Pump: –20 °C to +60 °C.
Motor: –20 °C to +70 °C.

The pump should not be exposed to direct sunlight. If the pump has been unpacked, it should be stored horizontally, adequately supported, or vertically to prevent misalignment of the pump. Make sure that the pump cannot roll or fall over. Duringstorage, the pump can be supported as shown in fig. 1.

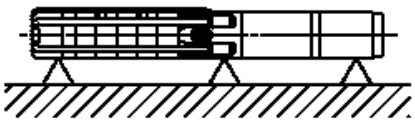

Fig. 1 Pump position during storage.

Frost protection

If the pump has to be stored after use, it must be stored on a frost-free location, or it must be ensured that the motor liquid is frost-proof.

General Information

Applications

SPCO submersible pumps are designed for a wide range of water supply and liquid transfer applications, such as the supply of fresh water to private homes or waterworks, water supply to nursery gardens or farms, drawdown of groundwater and pressure boosting, and various industrial jobs.

The pump must be installed so that the suction interconnector is completely submerged in the liquid. The pump can be installed either horizontally or vertically.

Pumped liquids

Clean, thin, non-explosive liquids without solid particles or fibres. The maximum sand content of the water must not exceed 50 g/m3. A larger sand content will reduce the life of the pump and increase the risk of blocking.

WARNING! **When pumping liquids with a density higher than that of water, motors with correspondingly higher out puts must be used.**

Preparation

Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

Maximum liquid temperature

Out of consideration for the rubber parts in pump and motor, the liquid temperature must not exceed 40 °C (~105 °F). The pump can operate at liquid temperatures between 40 °C and 60 °C (~105 °F and 140 °F) provided that all rubber parts are replaced every third year.

Electrical Connection

General information

Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

The electrical connection should be carried out by an authorized electrician in accordance with local regulations. The supply voltage, rated maximum current and cost. appear from the loose data plate that must be fitted close to the installation site.

The pump must be earthed. The pump must be connected to an external mains switch with a minimum contact gap of 3 mm in all poles. of cooling liquid past the motor is no longer ensured.

Installation

Fitting the motor to the pump

When the pump part and the motor are supplied as separate units (long pumps), fit the motor to the pump as follows:

1. Use pipe clamps when handling the motor.
2. Place the motor in vertical position at the borehole seal. see fig. 2

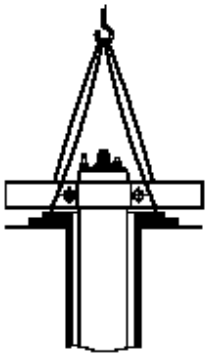

Fig. 2 Motor in vertical position.

3. Lift the pump part by means of pipe clamps fitted to the extension pipe. see fig. 3.

Fig. 3 Lifting the pump into position.

4. Place the pump part on top of the motor.
5. Fit and tighten the nuts.

WARNING! **Make sure that the coupling between the pump and motor engages properly.**

Make sure that the pump chambers are aligned when assembly has been completed.

2 Removal and fitting of cable guard

For removal and fitting of cable guard(s), see our assembly instruction.

WARNING! **Make sure that the pump chambers are aligned when the cable guard has been fitted.**

Fitting of submersible drop cable

Before fitting the submersible drop cable to the motor, make sure that the cable socket is clean and dry.
To facilitate the fitting of the cable, lubricate the rubber parts of the cable plug with non-conducting silicone paste.

Riser pipe

If a tool, e.g. a chain pipe wrench, is used when the riser pipe is fitted to the pump, the pump must only be gripped by the pump discharge chamber.

The threaded joints on the riser pipe must all be well cut and fit together to ensure that they do not work loose when subjected to torque reaction caused by the starting and stopping of the pump. The thread on the first section of the riser pipe which is to be screwed into the pump should not be longer than the threads in the pump.
If noise may be transmitted to the building through the pipework, it is advisable to use plastic pipes.

Plastic pipes are recommended for 4" pumps

When plastic pipes are used, the pump should be secured by an unloaded straining wire to be fastened to the discharge chamber of the pump, see fig. 4

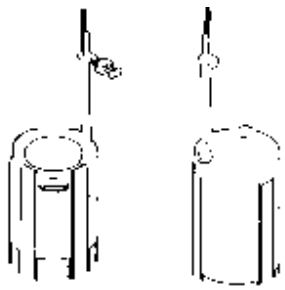

Fig. 4 Fixing the straining wire.

When connecting plastic pipes, a compression coupling should be used between the pump and the first pipe section. Where flanged pipes are used, the flanges should be slotted to take the submersible drop cable and a water indicator hose, if fitted.

Lowering the pump in the well

It is recommended to check the borehole by means of an inside calliper before lowering the pump to ensure unobstructed passage. Lower the pump carefully into the borehole, taking care not to damage the motor cable and the submersible drop cable.

WARNING! **Do not lower or lift the pump by means of the motor cable.**

Start-up and operation

Start-up

When the pump has been connected correctly and it is submerged in the liquid to be pumped, it should be started with the discharge valve closed off to approx. 1/3 of its maximum volume of water. Check the direction of rotation. If there are impurities in the water, the valve should be opened gradually as the water becomes clearer. The pump should not be stopped until the water is completely clean, as otherwise the pump parts and the non-return valve may choke up.

As the valve is being opened, the drawdown of the water level should be checked to ensure that the pump always remains submerged.

The dynamic water level should always be above the suction interconnector of the pump.

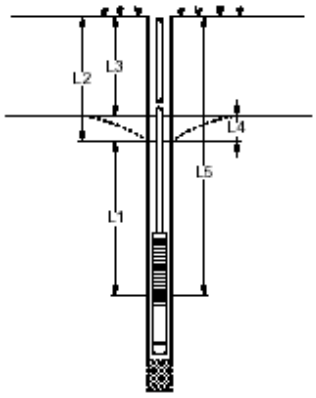

Fig. 5 Comparison of various water levels.

L1: Minimum installation depth below dynamic water level. Minimum 1 metre is recommended.

L2: Depth to dynamic water level.

L3: Depth to static water level.

L4: Drawdown. This is the difference between the dynamic and the static water levels.

L5: Installation depth.

If the pump can pump more than yielded by the well, it is recommended to fit the dry-running protection. If no water level electrodes or level switches are installed, the water level may be drawn down to the suction interconnector of the pump and the pump will then draw in air.

WARNING! **Long time operation with water containing air may damage the pump and cause insufficient cooling of the motor.**

Maintenance

Regular maintenance

The pumps are maintenance-free. All pumps are easy to service. Service kits and service tools are available from SPCO.

The bolts and nuts securing the straps to the pump must be tightened diagonally to the torques stated in the following table:

Straps Bolt/nut	Torque Nm
M8	18
M10	35
M12	45
M16	120
UG 46, 50Hz with more than 8 stages UG 46, 60Hz with more than 5 stages	150
When fitting the motor to the pump part, the nuts must be tightened diagonally to the tourques stated in the following table	
Pump/motor staybolt/diameter	Torque Nm
3/8 UNF	18
1/2 UNF	50
M8	18
M12	70
M16	150
M120	280

Trouble and trubleshooting

Fault	Cause	Solution
The pump does not run	The fues are blown	Replace the blown fuses. if the new ones blow too, the electric installation and the submersible drop cable should be checked
	No electricity supply	Contact the electricity supply authorities
	The motor starter overload has tripprd out	Reset the motor starter overload (automatically or possibly manually). If it trips out again, check the voltage
	Motor starter/contactor is defective	Replace the motor starter/detector
	Starter device is defective	Repair/replace the starter device
	The control circuit has been interupted or is defective	Check the electric installation
	The dry-running protection has cut off the electricity supply to the pump, due to low water level	Check the water level. If it is ok, Check the water level electrodoes level switch
	The pump/submersible drop cable is defective	Repair/replace the pump/cable
The pump runs but gives no water	The discharge valve is closed	Open the valve
	The non-return valve is stuck in its shut position	Pull out the pump and clean the strainer
	The pump is defective	Repair/replace the pump
The pump runs at reduced capacity	The drawdown is larger than anticipated	Increase the installation depth of the pump, throttle the pump or replace it by a smaller capacity
	The valves in the discharge pipe are partly closed/blocked	Check and clean the valves
	The discharge pipe is partly choked by impurities	Clean/replace the discharge pipe
	The non-return valve of the pump is partly blocked	Pull out the pump and check/replace the valve
	The pump and the riser pipe are partly choked by impurities	Pull put the pump. Check and clean/replace the pump. Clean the pipe
	Leakage in the pipework	Check and repair the pipework
	The riser pipe is defective	Replace the riser pipe
Frequent starts and stops	The differential of the pressure switch between the start and stop pressures is too small	Increase the differential, the stop pressure must not exceed the operating pressure of the pressure tank
	The non-return valve is leaking or stuck half open	Pull out the pump and clean/replace the non-return valve
	The volume of air in the pressure tank is too small	Adjust the volume of air in the pressure tank in accordance with its installation and operating instructions
	The pressure tank is too small	Increase the capacity of the pressure tank by supplement with other tank
	The pressure of the pressure tank is defective	Check the pressure tank

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