# Conlift1 LS

# Installation and operating instructions





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#### Original installation and operating instructions

These installation and operating instructions describe Grundfos Conlift.

Sections 1-4 give the information necessary to be able to unpack, install and start up the product in a safe way.

Sections 5-10 give important information about the product, as well as information on service, fault finding and disposal of the product.

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Read this document before installing the product. Installation and operation must comply with local regulations and accepted codes of good practice.

This appliance can be used by children aged from 8 years and above and 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 understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

# 1. Symbols used in this document

#### 1.1 Warnings against hazards involving risk of death or personal injury

#### DANGER



Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

#### WARNING



Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

# CAUTION



Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

The text accompanying the three hazard symbols DANGER, WARNING and CAUTION is structured in the following way:

# English (GB)

#### 1.2 Other important notes



A blue or grey circle with a white graphical symbol indicates that an action must be taken.



A red or grey circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.



If these instructions are not observed, it may result in malfunction or damage to the equipment.



Tips and advice that make the work easier.

# 2. Receiving the product

#### 2.1 Transporting the product

#### WARNING

Harm of body Death or serious personal injury - Stack maximum two pallets together under transportation.

# 3. Installing the product



Installation must be carried out by specially trained persons and according to local regulations.

If not already integrated, a water trap (emission trap) must be fitted in all inlets.

The Conlift is not designed for outdoor use.

#### 3.1 Mechanical installation

See also the quick guide supplied with the Conlift. When installing the Conlift, observe the following:

- The condensate must run freely into the lifting station.
- The cooling slots in the motor cover must not be covered.
- The lifting station must be easily accessible in order to facilitate maintenance.
- The lifting station must be installed in a well-illuminated and -ventilated room.

# 3.2 Electrical installation



Electrical connection must be carried out by an authorized electrician.

Carry out the electrical connection according to local regulations.

Check that the supply voltage and frequency correspond to the values stated on the nameplate.

The power supply cable has a Schuko plug or a free cable end. The cable has a length of 2 metres.

# WARNING

#### Electric shock

Death or serious personal injury



Make sure that the protective earth from the socket outlet is connected to the protective earth in the pump. Make sure that the plug has the same PE connection system as the socket outlet or else use a suitable adapter.



The product must be connected to a main switch with a minimum contact gap of 3 mm in all poles.

We recommend to provide the permanent installation with an earth leakage circuit breaker (ELCB) with a tripping current < 30 mA.



The electrical connection of a cable with a free cable end must be carried out by an authorised electrician.

#### 3.2.1 Cable to condensate source or external alarm

The Conlift has a safety overflow switch which can be connected to the condensate source or to an external alarm system. The switch is connected to an alarm cable with free cable end.

Alarm systems with a control voltage of 250 VAC, 2.5 A, can be used.

On delivery, the alarm cable is connected to terminals COM1 (brown) and NC2(blue) of the safety overflow switch. See fig. 1.

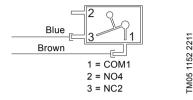


Fig. 1 Wiring diagram

The alarm cable can be connected in two ways, depending on application:

- Shutdown of condensate source
   The safety overflow switch can be connected to a
   Class-II low-voltage circuit.
   To enable shutdown of the condensate source,
   the COM1 and NC2 terminals of the safety
   overflow switch must be connected in series with
   the low-voltage thermostat circuit of the
   condensate source.
- External alarm system The COM1 and NO4 terminals can be used to close a low-voltage alarm circuit. To activate an alarm, the COM1 and NO4 terminals of the safety overflow switch must be connected in series with the low-voltage alarm circuit.

# 4. Starting up the product



Start up Conlift in accordance with local regulations and accepted codes of good practice.

- 1. Check that all hoses and connections are tight.
- 2. Connect the power supply.

#### 4.1 Checking the alarm

- To ensure that the alarm level is reached, squeeze the outlet hose or close the isolating valve, if fitted, and fill water into the tank. The pump will be started via the float switch.
- Continue filling water into the tank until the safety overflow switch is activated. If no external alarm is connected to the Conlift, this function can be checked by means of a multimeter.



The safety overflow switch must be activated before the water starts running out of Conlift.

 Stop filling water into the tank and stop squeezing the outlet hose. The alarm stops (the switch opens). The pump continues operating. When the stop level is reached, the pump stops.

After checking the alarm, push the inlet hose into the lifting station and let the condensate from the boiler or air-conditioning system run into the tank again.

# English (GB)

# 5. Product introduction

# 5.1 Product description

Grundfos Conlift1 LS is a small, compact lifting station with built-in-non-return valve.

# 5.2 Intended use

The Conlift is designed for the pumping of condensate from the following:

- boilers
- air-conditioning systems
- cooling and refrigeration systems
- air dehumidifiers
- evaporators.

The Conlift is suitable for the pumping of condensate which is collected below sewer level or which cannot flow to the sewage system or drain of the building by means of a natural downward slope.

# WARNING



# Biological hazard

Death or serious personal injury - Use the product only to pump condensates.

The Conlift can pump condensates not requiring neutralisation, i.e. with pH values of 2.5 or higher.

Condensates with pH values up to 2.5 must be neutralised before they leave the Conlift.

Boilers fired with the following fuels normally supply condensate with pH values up to 2.5:

- gas
- liquid gas
- low-sulphur fuel oil according to DIN 51603-1.

Irrespective of the capability of the Conlift, local regulations may require the installation of a neutralisation unit, even for pH values of 2.5 or higher.

# 5.3 Operating mode

The Conlift is designed for maximum 60 starts per hour.

S3 (intermittent operation): 30 % according to DIN EN 0530 T1. This means that the system is running for 18 seconds and is stopped for 42 seconds.

# 5.4 Handling of condensates



If Conlift is to be connected to a pressure-reducing valve, observe the boiler manufacturer's instructions.



When cleaning heat exchangers and burner units of boiler systems, make sure that no acid and cleaning residuals enter the condensing unit.

Condensates from condensate boilers are very aggressive and will attack the material of the building's sewage system.

In order to protect the sewage system, we recommend that you use a neutralisation unit. The neutralisation unit is included in Conlift2 pH+ and is available as an accessory for Conlift1 and Conlift2. See section *9. Technical data*.

The local outlet regulations regarding condensates from boilers must be met.

# 5.5 Marking and approvals

Marking



Approvals





#### 5.6 Accessories

The following accessories are available from your local Grundfos supplier.

Accessory/ service part	Description	Product number
pH+ Box	Complete neutralisation unit including fitting accessories, neutralisation granulate and pH indicator.	97936176
Extension hose	6 metres of PVC hose with 10 mm internal diameter including one hose coupling.	97936177
Granulate refill package	Granulate, 4 x 1.4 kg.	97936178
Alarm PCB Conlift	Printed-circuit board (PCB) enabling additional pump start at alarm level or stop of boiler with acoustic alarm.	97936209

# 6. Control functions

The condensate runs by natural fall through a hose into the tank. See section 7. Servicing the product.

The liquid level in the tank is controlled automatically by a float switch. A micro switch in the float switch will start the pump when the liquid level reaches the start level, and it will stop the pump again when the liquid level has fallen to the stop level. The condensate is pumped through the outlet hose to the drain.

The Conlift also has a safety overflow switch with a 1.7-metre electric cable. This overflow switch can be connected to the condensate boiler and set to stop the boiler in case of an alarm.

The Conlift has a thermal switch which stops the motor in case of overload. When the motor has cooled to normal temperature, it restarts automatically.

# 7. Servicing the product

Always use original accessories from Grundfos to ensure safe and reliable operation.

#### WARNING

#### Electric shock

Death or serious personal injury
Before starting any work on the product, make sure that the power supply has been switched off and that it cannot be accidentally switched on.



Maintenance and service must be carried out by specially trained persons and according to local regulations.

#### 7.1 Maintenance



If the power supply cable is damaged, it must be replaced by the manufacturer, the manufacturer's service partner or similarly qualified person.

The Conlift does not require any special maintenance, but we recommend that you check operation and pipe connections at least once a year and that you clean the collecting tank, if necessary.

#### 7.2 Service

Thanks to the Conlift design, service can easily be performed in case of malfunction or blocked pump.



Electrical connection must be carried out by an authorized electrician.

# WARNING

#### Electric shock



Death or serious personal injury

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

#### 7.2.1 Conlift

See illustrations on page 10.

Make the following checks and clean the collecting tank, if necessary:

- 1. Disconnect the power supply.
- 2. Cut off the flow of condensate from the boiler or other application, or stop the flow of condensate to the Conlift.
- 3. Make sure that the hoses are not mechanically or chemically damaged.
- Remove the outlet hose by turning the bayonet coupling, and check the O-ring. The condensate in the hose will not run out due to the non-return valve.
- 5. If the condensate is running out of the hose, check and clean the non-return valve.
- 6. Press the side-locking catches and lift off the motor support. Place it in upright position.
- 7. Remove deposits, dirt, algae and incrustations under running water.

# 7.3 Contaminated products

If a Conlift has been used for a liquid which is injurious to health or toxic, it will be classified as contaminated.

# CAUTION

#### **Biological hazard**



Minor or moderate personal injury

Flush the product thoroughly with clean water and rinse the parts in water after dismantling.

The product will be classified as contaminated if it has been used for a liquid which is injurious to health or toxic.

If you request Grundfos to service the product, contact Grundfos with details about the liquid before returning the product for service. Otherwise, Grundfos can refuse to accept the product for service.

Any application for service must include details about the liquid.

Clean the product in the best possible way before you return it.

Costs of returning the product are to be paid by the customer.

# 8. Fault finding the product

#### WARNING

Electric shock



Death or serious personal injury - Before starting any work on the product, make sure that the power supply has been switched off and that it cannot be

accidentally switched on.

Fault		Cause		Remedy
1.	The pump does not run.	a)	No power supply.	Connect the power supply.
		b)	A fuse is blown.	Replace the fuse (1 A slow-blow fuse).
		c)	The power supply cable is damaged.	Repair or replace the cable. This must only be carried out by an authorised service workshop or by Grundfos.
		d)	The thermal overload switch has tripped:	
			<ul> <li>The motor is not sufficiently cooled.</li> </ul>	Clean the cooling slots in the motor cover.
			<ul> <li>Deposits in the pump.</li> </ul>	Clean the impeller, pump housing and the entire lifting station.
2.	Reduced or no performance.	a)	Outlet hose squeezed or broken.	Straighten the outlet hose or replace it. The bending radius of the hose must be at least 60 mm.
		b)	The non-return valve does not open.	Remove the outlet connection, and clean the non-return valve.
		c)	The motor fan cannot be turned freely.	Clean the pump housing and the impeller.
3.	Frequent starts/stops.	a)	The non-return valve does not close.	Remove the outlet connection, and clean the non-return valve.
		b)	The inlet quantity is too high.	Make sure the inlet quantity is correct.
4.	Alarm.	a)	The condensate is not pumped out of the tank.	See points 1 and 2.

# 9. Technical data

#### Supply voltage

1 x 230 VAC - 6 %/+ 6 %, 50 Hz, PE. See the nameplate.

#### Input power

P1 = 70 W.

Input current

I = 0.65 A.

#### Alarm connection

An external alarm can be connected via the safety overflow switch.

The cable can stand a control voltage of 250 VAC, 2.5 A.

#### Cable lengths

Power supply cable: 2.0 metres. Alarm cable: 1.7 metres.

#### Storage temperature

When stored in dry rooms:

- Empty tank: -10 +50 °C.
- Tank with condensate: above 0 °C (risk of frost not allowed).

#### Ambient temperature

During operation: 5-35 °C.

Liquid temperature

Average temperature: 50 °C.

Maximum head

5.5 metres.

Maximum flow rate 600 l/h.

pH value of condensate 2.5 or higher.

Density of condensate Maximum 1000 kg/m<sup>3</sup>.

#### Motor protection

- Thermal overload switch: 120 °C.
- Insulation class: F.

Enclosure class IP20.

#### Weight

2.0 kg.

#### Volume

- Tank volume: 2.65 litres.
- Useful volume: 0.9 litre.
- · Alarm condition: 2.1 litres.
- Operating condition: 1.7 litres.

#### Dimensions

See dimensional sketches on page 11.

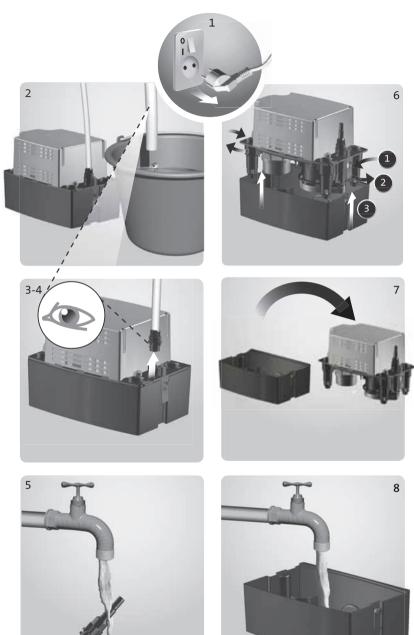
# 10. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

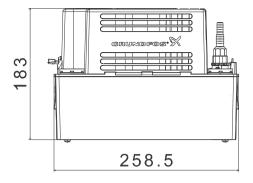
- 1. Use the public or private waste collection service.
- If this is not possible, contact the nearest Grundfos company or service workshop.

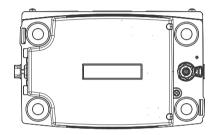
# Appendix

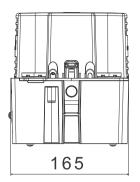
# Conlift1 LS



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