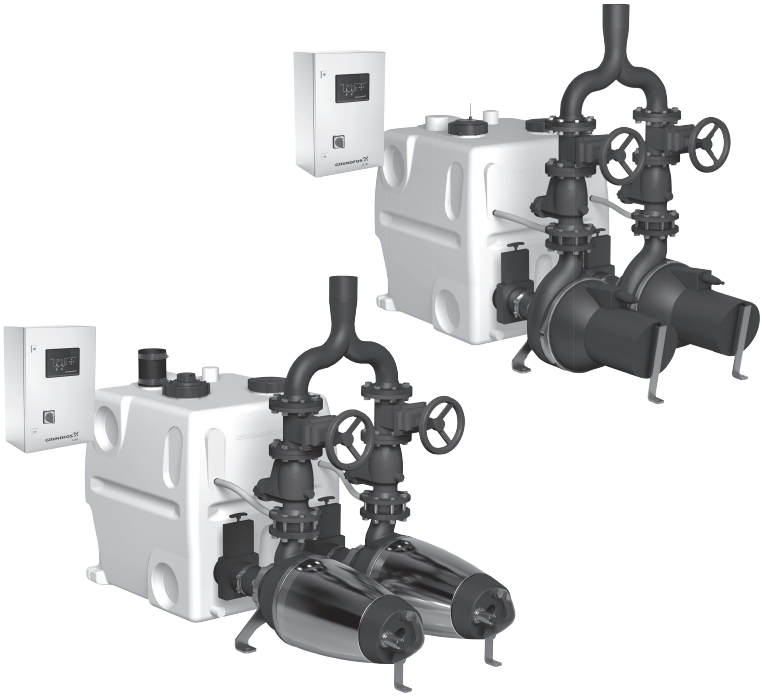
MULTILIFT MD1, MDV

Installation and operating instructions



GRUNDFOS

MULTILIFT MD1, MDV

English (GB)
Installation and operating instructions 4

Original installation and operating instructions

Table of contents

1. General information 4
1.1 Hazard statements 4
1.2 Notes 5

2. Product introduction 5
2.1 Product description 5
2.2 Applications 8
2.3 Pumped liquids 8
2.4 Identification 8

3. Receiving the product. 9
3.1 Transportation 9
3.2 Scope of delivery 10

4. Installing the lifting station 11
4.1 Location 11
4.2 Mechanical installation 11
4.3 Electrical connection 14

5. Starting up the product 15

6. Setting the product 16
6.1 Further settings 16
6.2 Start level 16
6.3 Factory settings 16

7. Servicing the product 16
7.1 Maintenance schedule 17
7.2 Mechanical maintenance 17
7.3 Performing electrical maintenance 18
7.4 Contaminated lifting station or components 18

8. Returning the product for service 19

9. Taking the product out of operation 19

10. Fault finding 19
10.1 Warning and alarm codes on the display of the level controller 19
10.2 The pump(s) does/do not run. 20
10.3 The sensor signal is out of range. 20
10.4 The pump(s) is/are starting/stopping too frequently even if there is no inflow 20
10.5 One pump starts sometimes without visible reason 20

11. Technical data 21
11.1 Operating conditions 21
11.2 Mechanical data. 21
11.3 Electrical data 21

12. Disposing of the product 21

1. General information

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

1.1 Hazard statements

The symbols and hazard statements below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

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 hazard statements are structured in the following way:

SIGNAL WORD

Description of the hazard

Consequence of ignoring the warning

- Action to avoid the hazard.

1.2 Notes

The symbols and notes below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

Observe these instructions for explosion-proof products.

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. Product introduction

2.1 Product description

2.1.1 Tank

The gas-, odour- and pressure-tight tank is made of resistant polyethylene. The tank has all necessary ports for the connection of inlet pipes, outlet pipe, vent pipe and a manually operated diaphragm pump available as an accessory.

Inside the tank the two pump connections are connected to a suction bend enabling suction from the bottom. As a result, the residual volume is reduced to a minimum.

The table below shows the tank volume and the effective volume. The effective volume is the volume between start and stop.

Number of tanks	1	2	3
Tank volume [l]	450	900	1350
Effective volume with stop delay [l]	225	450	675
Effective volume without stop delay [l]	150	300	450

2.1.2 Pumps

The pumps are standard wastewater pumps with supporting feet for horizontal installation. The pumps come in two versions:

MULTILIFT system	**Pump version**
MD1	SE1, SL1 pump with single-channel impeller
MDV	SEV, SLV pump with SuperVortex impeller

2.1.3 Operating modes

SE pumps

- Continuous operation: The pump runs continuously.
- Intermittent operation: Within a duty cycle of 1 minute, the pump must be stopped for 30 seconds to cool down.

SL pumps

- Intermittent operation: Within a duty cycle of 1 minute, the pump must be stopped for 30 seconds to cool down. The maximum ambient temperature is 30 °C.

We recommend maximum 30 starts per hour for both pump types. However, 60 starts per hour within a two-hour period at peak load are allowed. The purpose is to minimise wear of the shaft seal, bearings and motor.

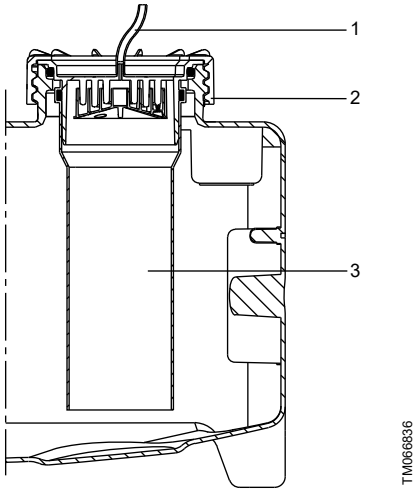
For further information, see the installation and operating instructions for the pumps.

2.1.4 Motor protection

A thermal switch is incorporated in the motor windings. A motor-protective circuit breaker is incorporated in the control cabinet, and the controller has an additional current measurement function.

2.1.5 Level sensor

The level sensor consists of a piezoresistive pressure sensor and a pressure tube connected by a pressure hose. The pressure tube is located underneath the screw cap and extends down into the tank. The screw cap includes a condensate trap and a connection for the tube. You can remove the pressure tube for maintenance, service and cleaning. The pressure sensor measures the liquid level in the tank. The rising liquid level compresses the air inside the pressure tube and hose, and the piezoresistive pressure sensor transforms the changing pressure into an analog signal. The controller uses the analog signal to start and stop the pump and to indicate high-level alarm.



Pos.	Description
1	Hose connecting the pressure tube with the pressure sensor
2	Screw cap
3	Pressure tube

Related information

7.2.2 Cleaning the pressure tube and hose

2.1.6 Level controller

The level controller supplied with the lifting stations is either LC 231 or LC 241.

See the documentation for the level controller for further details.

Data booklet:

QR98288126

http://net.grundfos.com/qr/i/98288126

LC 231 installation and operating instructions

Dual pump unit:

QR99480674

http://net.grundfos.com/qr/i/99480674

LC 241 installation and operating instructions

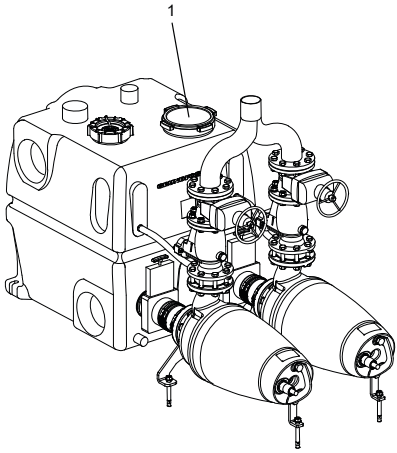
Dual pump unit:

QR99480978

http://net.grundfos.com/qr/i/99480978

2.1.7 Inspection cover

The inspection cover enables inspection of the tank during operation.



Pos.	Description
1	Inspection cover

2.1.8 Non-return valve

Lifting stations must be provided with an approved non-return valve according to EN 12050-4. The non-return valve must have a correct free passage and a lifting device, for example a screw, to drain the outlet pipe back into the tank.

2.1.9 Optional equipment

2.1.9.1 Accessories

For available accessories, see the link or QR code below.

http://net.grundfos.com/qr/i/98288126

TM066834

Related information

3.2 Scope of delivery

2.1.9.2 Drainage pump

If the lifting station is installed in a basement with penetrating groundwater, we recommend that you install a drainage pump in a separate pump sump below floor level. In some countries, a drainage pump or only a pump sump is required.

2.2 Applications

The product is designed for the collection and pumping of wastewater with no free flow to sewer level. Typically the product is installed below sewer level in cellars or basements in buildings such as:

- large-scale multifamily houses
- public and commercial buildings
- blocks of flats
- schools
- offices
- hotels
- restaurants
- hospitals
- industries.

2.3 Pumped liquids

The product is designed for the collection and pumping of these liquids:

- wastewater
- sludge-containing water
- domestic wastewater containing faecal matter.

The free passage of the product enables pumping of liquids containing solids from 65 to 80 mm in diameter, depending on the pump type.

Do not discharge these substances or types of wastewater via the product:

- Solid matter, tar, sand, cement, ash, coarse paper, paper towels, cardboard, debris, garbage, grease and oil.
- Wastewater from sanitary installations situated below the backflow level must be drained away via a free-flow drainage system according to EN 12056-1.
- Wastewater containing hazardous substances such as greasy wastewater from large-scale catering establishments.
  For drainage of greasy wastewater, use a grease separator according to EN 1825.
- Rainwater of large areas outside the building, for example parking lots, must be collected and discharged outside the building with separate pumping stations.

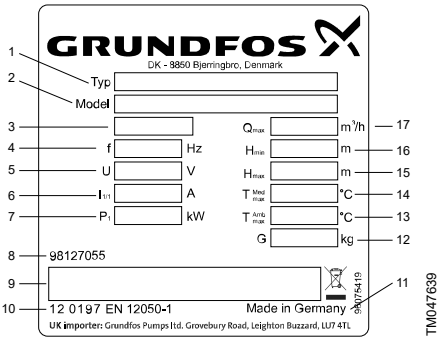
Related information

11.1 Operating conditions

2.4 Identification

2.4.1 Nameplate, lifting station

The nameplate is located on the tank.



Pos.	Description
1	Type designation
2	Model, product number, production site, production code, year and week, counter
3	Operating mode
4	Frequency
5	Rated voltage
6	Full-load current
7	Motor input power, P1
8	Reference number for the declaration of performance
9	Approvals
10	Year of first declaration of performance, notified body number and applied standard (Construction Products Regulation)
11	Production country
12	Weight
13	Max. ambient temperature
14	Max. liquid temperature
15	Max. head
16	Min. head
17	Max. flow rate

Related information

4.3.1 Connecting the pumps electrically

2.4.2 Type key

Example: MD1.80.100.15.4.50D/450-2 SE

Code	Designation	Explanation
M	Type range	MULTILIFT lifting station
D	Number of pumps	Two pumps
1	Impeller type	Single-channel impeller
V		SuperVortex impeller
80	Free passage [mm]	Maximum solids size
100	Pump outlet [mm]	Nominal diameter of pump outlet
15	Power [W]	Output power, P2/100
2	Number of poles and speed	2-pole, 3000 min-1
4		4-pole, 1500 min-1
5	Frequency [Hz]	50
6		60
0D	Voltage and starting method	380-415 V, direct-on-line
1D		380-415 V, star-delta
0E		220-240 V, direct-on-line
1E		220-240 V, star-delta
450	Tank volume	450 litres
[ ]	Number of tanks	One tank
2		Two tanks
SE	Pump type	SE pump
SL		SL pump

3. Receiving the product

3.1 Transportation

Do not stack the product.

WARNING
Falling objects
Death or serious personal injury
- Secure the product during transport to prevent it from tilting or falling down.

CAUTION
Back injury
Minor or moderate personal injury
- Use lifting equipment.

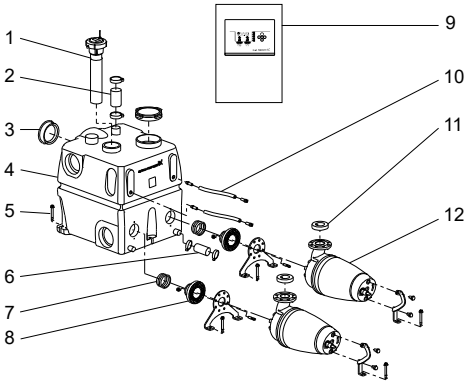
CAUTION
Crushing of feet
Minor or moderate personal injury
- Wear safety shoes when moving the product.

The motor lifting bracket is only intended for lifting the pump. Never lift or lower the lifting station by means of the lifting bracket.

Use lifting straps to lift the lifting station.

3.2 Scope of delivery

This list applies to a standard lifting station with one tank. Additional components are included if you have ordered an additional tank.



TM067406

Pos.	Quantity	Description	Specification
1	1	Pressure tube	With 10 m hose
2	1	Flexible hose with two clamps for the vent pipe	DN 70
3	1	Inlet seal	DN 150
4	1	Tank	
5	3	Screws and expansion anchor for tank fixation	
6	1	Flexible connecting piece for optional diaphragm pump and fittings	For 1 1/2" pipe
7	2	Seal for pump inlet	DN 100
8	2	Connecting flange with stub	DN 80 or DN 100
9	1	Level controller	
10, 11	2	Vent flange with vent hose and fitting	DN 80 or DN 100
12	2	SE or SL pump	With 10 m cable
-	2	Gasket kit	DN 80 or DN 100, 8 bolts M16, nuts, washers and gaskets
-	1	Installation and operating instructions	For lifting station and controller
-	1	Safety instructions	For lifting station and controller

Related information

2.1.9.1 Accessories

4.2.2 Connecting the inlet pipe

4. Installing the lifting station

4.1 Location

Install the product in a location that meets the following requirements:

- Make sure that the location is properly lit.
- Make sure that the location is properly vented.
- Make sure that there is at least 60 cm free space around the product.
- We recommend that you install a drainage pump in a pump sump below floor level if you install the lifting station in a basement with the risk of penetrating groundwater. In some countries, a drainage pump or only a pump sump is required.

The lifting station may be flooded maximum 2 metres for seven days.

Related information

11.1 Operating conditions

4.2 Mechanical installation

WARNING
Explosive environment
Death or serious personal injury
- Do not install the product in hazardous environments.

WARNING
Biological hazard
Death or serious personal injury
- In existing installations, install an isolating valve before the tank inlet if necessary.
- If no isolating valve is installed, wear protective clothing.

CAUTION
Back injury
Minor or moderate personal injury
- Use lifting equipment.

CAUTION
Biological hazard
Minor or moderate personal injury
- According to EN 12056-4, venting must take place above the roof.

CAUTION
Fall hazard
Minor or moderate personal injury
- Do not step on the lifting station.

CAUTION
Crushing of feet
Minor or moderate personal injury
- Wear safety shoes when moving the product.

Ensure that weight from the inlet, outlet and ventilation pipes does not rest on the tank. Long pipe sections and valves must be supported.

Do not stand on the lifting station.

When installing the MULTILIFT lifting station, ensure all local regulations covering venting and access to the stations are observed.

4.2.1 Installing the pumps

The description below is for a system with isolating valves and a non-return valve.

Torques for flanges +/- 5 Nm

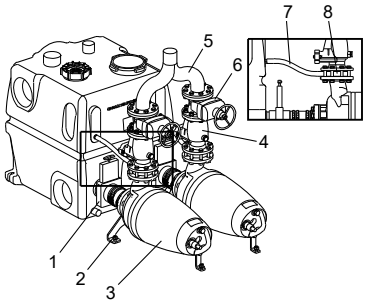
Nominal diameter	Screws	Torque [Nm]	Torque [Nm]
DN 80	8 × M16	70	60
DN 100	8 × M16	70	60
DN 150	8 × M20	140	120

1) Slightly lubricated threads

2) Well-lubricated threads

1. Fit an isolating valve to the tank.
   The isolating valves can be made of cast iron or PVC. The end of the PVC valve can be pushed directly into the socket with a plug-in seal.
2. Connect the pump to the isolating valve.
3. Fasten the pump to the floor using the dowels and screws supplied with the lifting station.
4. Fit the vent flange to the pump outlet flange.
5. Drill a hole in the tank connection for the vent hose.
6. Connect the vent hose to the vent flange and to the tank.
7. Fit a non-return valve to the vent flange. Lifting stations must be provided with an approved non-return valve according to EN 12050-4.
8. Fit an isolating valve to the non-return valve.
9. Install the second pump by following the steps above.

Example:



TM066838

Pos.	Description
1	Isolating valve, accessory
2	Dowels and screws
3	Pump
4	Non-return valve, accessory
5	Breeches pipe, accessory
6	Isolating valve, accessory
7	Vent hose
8	Vent flange

Related information

4.2.3 Connecting the outlet pipe

4.2.2 Connecting the inlet pipe

- All pipe connections must be flexible to reduce resonance.
- Install an isolating valve in the inlet pipe.

Many installations require an inlet below the standard inlet 700 mm above the floor. You can fit a lip seal on site. Use the following accessories:

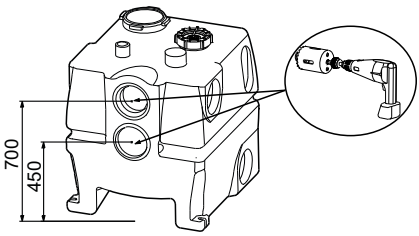
Product number	Description
91713755	Hole saw, ∅177
91712026	Centring drill
91071939	Lip seal, DN 150, internal ∅160

Do not stand on the lifting station.

Make sure that the weight from the inlet, outlet and vent pipes does not rest on the tank. Long pipe sections and valves must be supported.

The internal diameter of the inlet pipe must be the same as the internal diameter of the inlet port.

1. Cut open one of the inlet ports to be used and/or connect pipes to the second tank.



TM044755

2. Fit the DN 150 socket seal in the inlet port or the optional DN 160 socket if the bottom inlet is chosen.
3. Insert the inlet pipe into the socket seal.
   To facilitate maintenance and service of the product, we recommend that you fit an isolating valve between the inlet port and the inlet pipe.
   Required size: DN 100 or DN 150.

Related information

3.2 Scope of delivery

4.2.3 Connecting the outlet pipe

Observe the following when connecting the outlet pipe:

- All pipe connections must be flexible to reduce resonance.

> **!** Make sure that the weight from the inlet, outlet and vent pipes does not rest on the tank. Long pipe sections and valves must be supported.

- To avoid sediment buildup in the outlet pipe, the pipe must be sized for a minimum flow velocity of 0.7 m/s.

Nominal diameter of pipe	80 mm	100 mm
Flow velocity: 0.7 m/s	3.6 l/s	5.6 l/s

- The collecting line must have a filling ratio of at least h/d equal to 0.7.
- The collecting line must be at least one nominal diameter larger after the outlet pipe connection.
- Do not taper off the outlet pipe in the flow direction.
- Lifting stations must be provided with an approved non-return valve according to EN 12050-4.
- The volume of the outlet pipe above the non-return valve up to the backflow level must be smaller than the effective tank volume.
- Install an isolating valve in outlet pipes of DN 80 and up.

Do as follows:

1. Connect the outlet pipe to a breeches pipe.

   If you do not install a breeches pipe, make alternative pipework to connect an outlet pipe.

2. Lead the outlet pipe to the collecting line and connect these two.

   The outlet pipe must have a bend above the backflow level which is often the street level. Ask local authorities.

Related information

4.2.1 Installing the pumps

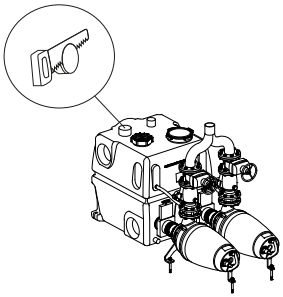
4.2.4 Connecting the vent pipe

All pipe connections must be flexible to reduce resonance.

Lifting stations for black wastewater must be vented above roof level. However, you may connect the ventilation, as a secondary ventilation, to the main building ventilation system. Place special vent valves outside the building. Special vent valves are available as accessories.

> **!** Make sure that the weight from the inlet, outlet and vent pipes does not rest on the tank. Long pipe sections and valves must be supported.

1. Cut off the blanked-off end of the vent port on top of the tank.



TM066829

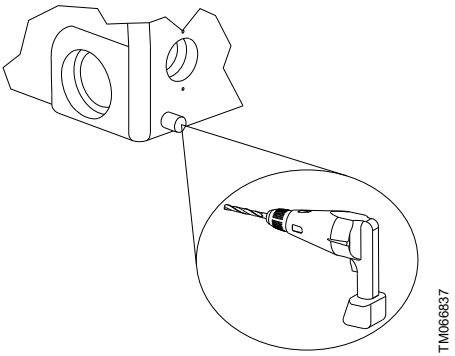
2. Fit a DN 70, external Ø75, vent pipe to the vent port by means of the flexible connection piece and two hose clamps.
3. Lead the vent pipe into the main building ventilation system in accordance with local regulations.

4.2.5 Installing a diaphragm pump

Make sure that the weight from the inlet, outlet and vent pipes does not rest on the tank. Long pipe sections and valves must be supported.

You can use the optional, manually operated diaphragm pump for draining the tank before service or maintenance. To enable service or maintenance, we recommend that you fit an isolating valve. The tank has two outlets for 1 1/4" and 1 1/2" pipes. The flexible connecting piece for 1 1/2" is supplied with the lifting station.

1. Drill the outlet port with a 20 mm drill.



   It is necessary to drill the outlet as it may have been filled with tank material during the moulding process.

2. Connect the outlet to the pipe for the diaphragm pump by means of the flexible connecting piece and hose clamps.

3. Connect the diaphragm pump to the collecting line.

   The outlet pipe of the diaphragm pump must have a bend above the backflow level which is often the street level. Ask your local authorities.

4.3 Electrical connection

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.
- Lock the main switch in off position, or unplug the power plug. Type and requirements are specified in EN 60204-1, 5.3.

WARNING
Electric shock
Death or serious personal injury

- The protective earth (PE) of the power outlet must be connected to the protective earth of the product. The plug must have the same PE connection system as the power outlet.

WARNING
Electric shock
Death or serious personal injury

- The installation must be fitted with a residual current device (RCD) with a tripping current less than 30 mA.

WARNING
Electric shock
Death or serious personal injury

- The product must be connected to an external main switch with a minimum contact gap of 3 mm (0.12 inch) in all poles.

WARNING
Electric shock
Death or serious personal injury

- Before opening the control cabinet, switch off the power supply.

- The operating voltage and frequency are marked on the controller nameplate. Make sure that the controller is suitable for the power supply on which it will be used.
- All cables/wires must be fitted through the cable entries and gaskets.
- If required according to local regulations, install an external main switch.

4.3.1 Connecting the pumps electrically

Depending on the starting method of the pumps, the control cabinet is supplied with contactors for direct-on-line or star-delta starting.

1. Make sure that the product is suitable for the power supply.

   The operating voltage and frequency are marked on the nameplate of the lifting station.

2. Lead all cables through the cable glands of the control cabinet.

3. Connect the pumps according to the wiring diagram supplied with the control cabinet.

4. Set the motor-protective circuit breakers in the control cabinet.

Related information

2.4.1 Nameplate, lifting station

5. Starting up the product

WARNING
Biological hazard
Death or serious personal injury

- Before starting any work on a pump used for pumping liquids which could be hazardous to health, clean and vent the pump and pit thoroughly according to local regulations.

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.
- Lock the main switch in off position, or unplug the power plug. Type and requirements are specified in EN 60204-1, 5.3.

Before startup, the connection must have been carried out according to section Electrical connection.

Startup must be carried out by authorised persons.

Proceed as follows:

1. Check all connections.

2. Connect the plug to the power supply.
   a. Set the level controller to automatic mode using the button on the operating panel or Grundfos GO.
   b. Set the start level, if necessary.

      If the factory setting for the start level fits with the inlet level, continue with the next step.

      If the start level needs to be different, change it using Grundfos GO.

3. Open the isolating valves in the inlet and outlet pipes.

4. Activate a sanitary appliance connected to the inflow of the MULTILIFT lifting stations and monitor the increasing liquid level in the tank up to the start level. Check the starts and stops at least twice.

If the pump cable was disconnected from the controller, for instance to lead the cable through an empty cable conduit, the wires must be connected in accordance with the wiring diagrams. Check the rotation direction of the pump.

6. Setting the product

6.1 Further settings

If you wish to change some settings, see the installation and operating instructions for the level controller.

6.2 Start level

It is important to adjust the start level of the level controller according to the inlet pipe.

6.3 Factory settings

The level controller is preset from factory. The current settings must be adjusted according to the nameplate data of the SE or SL pump.

See the table below for the preset values.

LC 231, LC 241 settings	MD1, MDV
Sensor type	Analog input
Functions	Level
Unit	m
Electrical signal	0.5 - 3.5 V
Dry-running level	Disabled
Signal detection time	1 s
Stop delay	Enabled
Stop delay time	8 s
Min. value	0.28 m
Max. value	1.30 m
Stop level	0.31 m
Start level P1	0.57 m
Start level P2	The start level for P2 must be 0.05 m higher than the start level for P1.
High level	The high level must be 0.05 m higher than the start level for P2.

3) The start levels for P1 must be 0.01 m lower than the centre of the inlet pipe to avoid backflow.

7. Servicing the product

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.
- Lock the main switch in off position, or unplug the power plug. Type and requirements are specified in EN 60204-1, 5.3.

WARNING
Biological hazard
Death or serious personal injury

- Before carrying out maintenance and service on lifting stations used for pumping liquids that might be hazardous to health, do as follows:
- Flush the lifting station thoroughly with clean water and drain the outlet pipes.
- Close the isolating valves.
- Rinse the dismantled parts in water.
- Wear personal protective equipment.
- The work must be carried out in accordance with local regulations.

WARNING
Biological hazard
Death or serious personal injury

- In existing installations, install an isolating valve before the tank inlet if necessary.
- If no isolating valve is installed, wear protective clothing.

CAUTION
Hot surface
Minor or moderate personal injury

- Wear protective gloves.

CAUTION
Back injury
Minor or moderate personal injury

- Use lifting equipment.

CAUTION
Crushing of feet
Minor or moderate personal injury

- Wear safety shoes when moving the product.

7.1 Maintenance schedule

7.1.1 Maintenance intervals

According to EN 12056-4, the lifting station must be checked at the following intervals to ensure safe and reliable operation:

- every 12 months in single-family houses
- every 6 months in multifamily houses
- every 3 months in commercial and industrial applications.

The product may be installed in environments requiring shorter maintenance intervals.

7.2 Mechanical maintenance

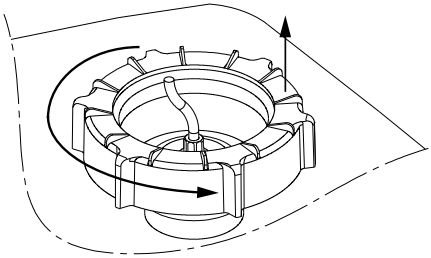
7.2.1 Performing mechanical maintenance

WARNING
Automatic startup
Minor or moderate personal injury
- Switch off the power supply before you start any work on the product.

- Check that all pipe connections are tight.
- Fix any leakages.
- Remove any deposits or sludge buildup in the tank.
- Check the tank for cracks and deformations.
- Remove any blockages on the inlet side of the lifting station.
- Check the pump according to the installation and operating instructions for the pump.

7.2.2 Cleaning the pressure tube and hose

1. Set the selector switches to **OFF**.
2. Close all inlet valves.
3. Loosen the screw cap.



4. Pull the pressure tube carefully out of the tank.
5. Remove any deposits. If necessary, disconnect the pressure hose from the pressure sensor, and rinse the tube and hose with clean water at low pressure. Make sure that no water remains in the pressure hose.
6. Fit the pressure tube in the tank, and tighten the screw cap.
7. Connect the pressure hose to the pressure sensor.
8. Set the selector switches to **AUTO**.

Related information

2.1.5 Level sensor
7.3 Performing electrical maintenance

7.3 Performing electrical maintenance

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.
- Lock the main switch in off position, or unplug the power plug. Type and requirements are specified in EN 60204-1, 5.3.

- Check the gasket of the cabinet front cover and of the cable entries.
- Check the cable connections.
- Check the controller functions.
- Check and clean the level sensor.
- If the controller is installed in a particularly moist environment in a basement, we recommend checking the terminals on the PCB in order to identify possible corrosion. In typical installations, the terminals will work for several years and do not require any inspection.

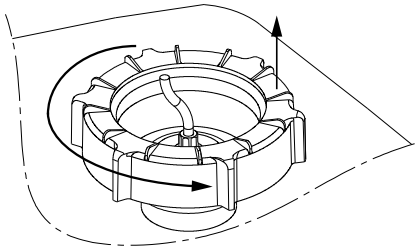
The above list is not complete. The controller may be installed in environments that require thorough and frequent maintenance.

Related information

7.2.2 Cleaning the pressure tube and hose

7.3.1 Cleaning the level sensor

1. Switch off the power to the controller and the pump(s).
2. Loosen the screw cap by turning it counterclockwise. See the figure below.
3. Lift the sensor carefully out of the collecting tank. Do not lift it by means of the hose.
4. Check for possible deposits on or in the pressure tube.
5. Scrape off any deposits. If necessary, remove the hose from the controller and flush the tube and hose with clean water at low pressure. Make sure no water remains in the hose.
6. Refit the pressure tube by screwing the screw cap onto the tank. Reconnect the hose to the controller. Check the sensor by test running the lifting station.



Removing the level sensor

7.4 Contaminated lifting station or components

WARNING
Biological hazard
Death or serious personal injury

- Flush the lifting station thoroughly with clean water and drain the outlet pipes.

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 pumped liquid before returning the product for service. Otherwise, Grundfos can refuse to accept the product for service. Clean the product in the best possible way before you return it. Costs of returning the product are to be paid by the customer. Any application for service must include details about the pumped liquid.

8. Returning the product for service

1. If the product cannot be serviced on site, send it to Grundfos or an authorised service workshop.

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

2. Before you return the product for service, contact Grundfos or the service workshop with details about the pumped liquid. Otherwise, Grundfos or the service workshop may refuse to receive the product.

3. Thoroughly clean the product before returning it.

9. Taking the product out of operation

CAUTION
Hot surface
Minor or moderate personal injury
- Wear protective gloves.

1. Close the inlet valves.
2. Empty the tank:
   a. Run one pump manually.
   b. Stop the pump.
   c. Use a diaphragm pump to empty the tank below the pump inlet height.
3. Close the outlet valves.
4. Switch off the power to the pumps and the controller.

10. Fault finding

WARNING
Electric shock
Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.
- Lock the main switch in off position, or unplug the power plug. Type and requirements are specified in EN 60204-1, 5.3.

WARNING
Biological hazard
Death or serious personal injury
- Before carrying out maintenance and service on lifting stations used for pumping liquids that might be hazardous to health, do as follows:
- Flush the lifting station thoroughly with clean water and drain the outlet pipes.
- Close the isolating valves.
- Rinse the dismantled parts in water.
- Wear personal protective equipment.
- The work must be carried out in accordance with local regulations.

CAUTION
Hot surface
Minor or moderate personal injury
- Wear protective gloves.

CAUTION
Back injury
Minor or moderate personal injury
- Use lifting equipment.

CAUTION
Crushing of feet
Minor or moderate personal injury
- Wear safety shoes when handling the product.

10.1 Warning and alarm codes on the display of the level controller

For information about causes and remedies for warning and alarm codes shown on the display on the level controller, see the installation and operating instructions for the level controller and Grundfos GO.

10.2 The pump(s) does/do not run

Cause	Remedy
No power supply. None of the indicator lights are on.	• Switch on the level controller or wait until the power cut is over. During the power cut, drain the collecting tank with the diaphragm pump.
The ON-OFF-AUTO selector is in position OFF.	• Press the ON-OFF-AUTO selector into position ON or AUTO.
Control circuit fuses are blown.	• Check and eliminate the cause. • Replace the control circuit fuses.
The motor or supply cable is defective or the connections have become loose.	• Check motor and supply cables. • Replace the cable or retighten connections, if necessary.

10.3 The sensor signal is out of range

All pumps are started, and the high level alarm is on.

Cause	Remedy
Not all outlet valves are open.	• Open all outlet isolating valves.
There is a blockage in the tank or pump.	• Remove the blockage.
The pump is not vented correctly. The pump cannot build up pressure.	• Check that the vent hose is correctly fitted between the vent flange and the tank. • Remove any blockage from the vent hole at the outlet port.
The lifting station is undersized.	• Recalculate the inflow parameters and compare the result with the tank volume and pump performance. • If you need a new product, contact Grundfos.

10.4 The pump(s) is/are starting/stopping too frequently even if there is no inflow

Cause	Remedy
The level sensor fails. The sensor gives wrong signal.	• Check for air leakages between the level controller and the sensor tube on the collecting tank.

10.5 One pump starts sometimes without visible reason

Cause	Remedy
Test run 24 hours after last operation.	• No action necessary. It is a safety function that prevents the shaft sealing from seizing up.

11. Technical data

11.1 Operating conditions

Controller

Ambient temperature during operation [°C]	0-40

Pump

Ambient temperature [°C]	SE: -20 to +40 SL: -20 to +30
Liquid temperature [°C]	0-40 For short periods up to 60
pH value	4-10
Maximum density [kg/m³]	1100
Sound pressure level	Less than 70 dB (A)

Related information

2.3 Pumped liquids

4.1 Location

11.2 Mechanical data

Control cabinet

Ambient temperature in stock [°C]	-30 to +60
Height × width × depth [mm]	Direct-on-line starting: 215 × 280 × 115
	Star-delta starting: 600 × 600 × 210
Weight	See the controller nameplate.
Enclosure class	Direct-on-line starting: IP54
	Star-delta starting: IP54

11.3 Electrical data

Power supply

Supply voltage [V]	3 × 380-415, PE
	3 × 220-240, PE
Voltage tolerances	-10 % / +6 % of rated voltage
Frequency [Hz]	50 or 60
Supply system earthing	TN system
Backup fuse	See the controller nameplate.

12. Disposing of the product

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

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

The crossed-out wheelie bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

See also end-of-life information at *www.grundfos.com/product-recycling*.

Argentina
Bombas GRUNDFOS de Argentina S.A.
Ruta Panamericana km. 37.500industin
1619 - Garín Pcia. de B.A.
Tel.: +54-3327 414 444
Fax: +54-3327 45 3190

Australia
GRUNDFOS Pumps Pty. Ltd.
P.O. Box 2040
Regency Park
South Australia 5942
Tel.: +61-8-8461-4611
Fax: +61-8-8340-0155

Austria
GRUNDFOS Pumpen Vertrieb
Ges.m.b.H.
Grundfosstraße 2
A-5082 Grödig/Salzburg
Tel.: +43-6246-883-0
Fax: +43-6246-883-30

Belgium
N.V. GRUNDFOS Bellux S.A.
Boomsesteenweg 81-83
B-2630 Aartselaar
Tel.: +32-3-870 7300
Fax: +32-3-870 7301

Bosnia and Herzegovina
GRUNDFOS Sarajevo
Zmaja od Bosne 7-7A
BiH-71000 Sarajevo
Tel.: +387 33 592 480
Fax: +387 33 590 465
www.ba.grundfos.com
E-mail: grundfos@bih.net.ba

Brazil
BOMBAS GRUNDFOS DO BRASIL
Av. Humberto de Alencar Castelo
Branco, 630
CEP 09850 - 300
São Bernardo do Campo - SP
Tel.: +55-11 4393 5533
Fax: +55-11 4343 5015

Bulgaria
Grundfos Bulgaria EOOD
Slatina District
Iztochna Tangenta street no. 100
BG - 1592 Sofia
Tel.: +359 2 49 22 200
Fax: +359 2 49 22 201
E-mail: bulgaria@grundfos.bg

Canada
GRUNDFOS Canada inc.
2941 Brighton Road
Oakville, Ontario
L6H 6C9
Tel.: +1-905 829 9533
Fax: +1-905 829 9512

China
GRUNDFOS Pumps (Shanghai) Co. Ltd.
10F The Hub, No. 33 Suhong Road
Minhang District
Shanghai 201106 PRC
Tel.: +86 21 612 252 22
Fax: +86 21 612 253 33

Columbia
GRUNDFOS Colombia S.A.S.
Km 1.5 vía Siberia-Cota Conj. Potrero
Chico,
Parque Empresarial Arcos de Cota Bod.
1A.
Cota, Cundinamarca
Tel.: +57(1)-2913444
Fax: +57(1)-8764586

Croatia
GRUNDFOS CROATIA d.o.o.
Buzinski prilaz 38, Buzin
HR-10010 Zagreb
Tel.: +385 1 6595 400
Fax: +385 1 6595 499
www.hr.grundfos.com

Czech Republic
GRUNDFOS Sales Czechia and Slovakia
s.r.o.
Čajkovského 21
779 00 Olomouc
Tel.: +420-585-716 111

Denmark
GRUNDFOS DK A/S
Martin Bachs Vej 3
DK-8850 Bjerringbro
Tel.: +45-87 50 50 50
Fax: +45-87 50 51 51
E-mail: info_GDK@grundfos.com
www.grundfos.com/DK

Estonia
GRUNDFOS Pumps Eesti OÜ
Peterburi tee 92G
11415 Tallinn
Tel.: + 372 606 1690
Fax: + 372 606 1691

Finland
OY GRUNDFOS Pumput AB
Trukkikuja 1
FI-01360 Vantaa
Tel.: +358-(0) 207 889 500

France
Pompes GRUNDFOS Distribution S.A.
Parc d'Activités de Chesnes
57, rue de Malacombe
F-38290 St. Quentin Fallavier (Lyon)
Tel.: +33-4 74 82 15 15
Fax: +33-4 74 94 10 51

Germany
GRUNDFOS GMBH
Schlüterstr. 33
40699 Erkrath
Tel.: +49-(0) 211 929 69-0
Fax: +49-(0) 211 929 69-3799
E-mail: infoservice@grundfos.de
Service in Deutschland:
kundendienst@grundfos.de

Greece
GRUNDFOS Hellas A.E.B.E.
20th km. Athinon-Markopoulou Av.
P.O. Box 71
GR-19002 Peania
Tel.: +0030-210-66 83 400
Fax: +0030-210-66 46 273

Hong Kong
GRUNDFOS Pumps (Hong Kong) Ltd.
Unit 1, Ground floor, Siu Wai industrial
Centre
29-33 Wing Hong Street & 68 King Lam
Street, Cheung Sha Wan
Kowloon
Tel.: +852-27861706 / 27861741
Fax: +852-27858664

Hungary
GRUNDFOS Hungária Kft.
Tópark u. 8
H-2045 Törökbálint
Tel.: +36-23 511 110
Fax: +36-23 511 111

India
GRUNDFOS Pumps india Private Limited
118 Old Mahabalipuram Road
Thoraipakkam
Chennai 600 097
Tel.: +91-44 2496 6800

Indonesia
PT GRUNDFOS Pompa
Graha intirub Lt. 2 & 3
Jln. Cililitan Besar No.454. Makasar,
Jakarta Timur
ID-Jakarta 13650
Tel.: +62 21-469-51900
Fax: +62 21-460 6910 / 460 6901

Ireland
GRUNDFOS (Ireland) Ltd.
Unit A, Merrywell Business Park
Ballymount Road Lower
Dublin 12
Tel.: +353-1-4089 800
Fax: +353-1-4089 830

Italy
GRUNDFOS Pompe Italia S.r.l.
Via Gran Sasso 4
I-20060 Truccazzano (Milano)
Tel.: +39-02-95838112
Fax: +39-02-95309290 / 95838461

Japan
GRUNDFOS Pumps K.K.
1-2-3, Shin-Miyakoda, Kita-ku
Hamamatsu
431-2103 Japan
Tel.: +81 53 428 4760
Fax: +81 53 428 5005

Kazakhstan
Grundfos Kazakhstan LLP
7' Kyz-Zhibek Str., Kok-Tobe micr.
KZ-050020 Almaty Kazakhstan
Tel.: +7 (727) 227-98-55/56

Korea
GRUNDFOS Pumps Korea Ltd.
6th Floor, Aju Building 679-5
Yeoksam-dong, Kangnam-ku, 135-916
Seoul, Korea
Tel.: +82-2-5317 600
Fax: +82-2-5633 725

Latvia
SIA GRUNDFOS Pumps Latvia
Deglava biznesa centrs
Augusta Deglava ielā 60
LV-1035, Rīga,
Tel.: + 371 714 9640, 7 149 641
Fax: + 371 914 9646

Lithuania
GRUNDFOS Pumps UAB
Smolensko g. 6
LT-03201 Vilnius
Tel.: + 370 52 395 430
Fax: + 370 52 395 431

Malaysia
GRUNDFOS Pumps Sdn. Bhd.
7 Jalan Peguam U1/25
Glenmarie industrial Park
40150 Shah Alam, Selangor
Tel.: +60-3-5569 2922
Fax: +60-3-5569 2866

Mexico
Bombas GRUNDFOS de México
S.A. de C.V.
Boulevard TLC No. 15
Parque industrial Stiva Aeropuerto
Apodaca, N.L. 66600
Tel.: +52-81-8144 4000
Fax: +52-81-8144 4010

Netherlands
GRUNDFOS Netherlands
Veluwezoom 35
1326 AE Almere
Postbus 22015
1302 CA ALMERE
Tel.: +31-88-478 6336
Fax: +31-88-478 6332
E-mail: info_gnl@grundfos.com

New Zealand
GRUNDFOS Pumps NZ Ltd.
17 Beatrice Tinsley Crescent
North Harbour Industrial Estate
Albany, Auckland
Tel.: +64-9-415 3240
Fax: +64-9-415 3250

Norway
GRUNDFOS Pumper A/S
Strømsveien 344
Postboks 235, Leirdal
N-1011 Oslo
Tel.: +47-22 90 47 00
Fax: +47-22 32 21 50

Poland
GRUNDFOS Pompy Sp. z o.o.
ul. Klonowa 23
Baranowo k. Poznania
PL-62-081 Przeźmierowo
Tel.: (+48-61) 650 13 00
Fax: (+48-61) 650 13 50

Portugal
Bombas GRUNDFOS Portugal, S.A.
Rua Calvet de Magalhães, 241
Apartado 1079
P-2770-153 Paço de Arcos
Tel.: +351-21-440 76 00
Fax: +351-21-440 76 90

Romania
GRUNDFOS Pompe România SRL
S-PARK BUSINESS CENTER, Clădirea A2, etaj 2
Str. Tipografilor, Nr. 11-15, Sector 1, Cod 013714
Bucuresti, Romania
Tel.: 004 021 2004 100
E-mail: romania@grundfos.ro

Serbia
Grundfos Srbija d.o.o.
Omladinskih brigada 90b
11070 Novi Beograd
Tel.: +381 11 2258 740
Fax: +381 11 2281 769
www.rs.grundfos.com

Singapore
GRUNDFOS (Singapore) Pte. Ltd.
25 Jalan Tukang
Singapore 619264
Tel.: +65-6681 9688
Faxax: +65-6681 9689

Slovakia
GRUNDFOS s.r.o.
Prievozská 4D 821 09 BRATISLAVA
Tel.: +421 2 5020 1426
sk.grundfos.com

Slovenia
GRUNDFOS LJUBLJANA, d.o.o.
Leskoškova 9e, 1122 Ljubljana
Tel.: +386 (0) 1 568 06 10
Fax: +386 (0)1 568 06 19
E-mail: tehnika-si@grundfos.com

South Africa
GRUNDFOS (PTY) LTD
16 Lascelles Drive, Meadowbrook Estate
1609 Germiston, Johannesburg
Tel.: (+27) 10 248 6000
Fax: (+27) 10 248 6002
E-mail: lgradidge@grundfos.com

Spain
Bombas GRUNDFOS España S.A.
Camino de la Fuentecilla, s/n
E-28110 Algete (Madrid)
Tel.: +34-91-848 8800
Fax: +34-91-628 0465

Sweden
GRUNDFOS AB
Box 333 (Lunnagårdsgatan 6)
431 24 Mölndal
Tel.: +46 31 332 23 000
Fax: +46 31 331 94 60

Switzerland
GRUNDFOS Pumpen AG
Bruggacherstrasse 10
CH-8117 Fällanden/ZH
Tel.: +41-44-806 8111
Fax: +41-44-806 8115

Taiwan
GRUNDFOS Pumps (Taiwan) Ltd.
7 Floor, 219 Min-Chuan Road
Taichung, Taiwan, R.O.C.
Tel.: +886-4-2305 0868
Fax: +886-4-2305 0878

Thailand
GRUNDFOS (Thailand) Ltd.
92 Chaloem Phrakiat Rama 9 Road
Dokmai, Pravej, Bangkok 10250
Tel.: +66-2-725 8999
Fax: +66-2-725 8998

Turkey
GRUNDFOS POMPA San. ve Tic. Ltd. Sti.
Gebze Organize Sanayi Bölgesi
Ihsan dede Caddesi
2. yol 200. Sokak No. 204
41490 Gebze/ Kocaeli
Tel.: +90 - 262-679 7979
Fax: +90 - 262-679 7905
E-mail: satis@grundfos.com

Ukraine
ТОВ "ГРУНДФОС УКРАЇНА"
Бізнес Центр Європа
Столичне шосе, 103
м. Київ, 03131, Україна
Tel.: (+38 044) 237 04 00
Fax: (+38 044) 237 04 01
E-mail: ukraine@grundfos.com

United Arab Emirates
GRUNDFOS Gulf Distribution
P.O. Box 16768
Jebel Ali Free Zone, Dubai
Tel.: +971 4 8815 166
Fax: +971 4 8815 136

United Kingdom
GRUNDFOS Pumps Ltd.
Grovebury Road
Leighton Buzzard/Beds. LU7 4TL
Tel.: +44-1525-850000
Fax: +44-1525-850011

U.S.A.
Global Headquarters for WU
856 Koomey Road
Brookshire, Texas 77423 USA
Phone: +1-630-236-5500

Uzbekistan
Grundfos Tashkent, Uzbekistan
The Representative Office of Grundfos Kazakhstan in Uzbekistan
38a, Oybek street, Tashkent
Tel.: (+998) 71 150 3290 / 71 150 3291
Fax: (+998) 71 150 3292

Trademarks displayed in this material, including but not limited to Grundfos and the Grundfos logo, are registered trademarks owned by The Grundfos Group. © 2023 Grundfos Holding A/S, all rights reserved.

92862079 **09.2023**

ECM: 1377334

www.grundfos.com

GRUNDFOS