

# ALPHA 26-99 F, ALPHA 26-150 F





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|                                                   |    |
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## English (GB) Installation and operating instructions

### Original installation and operating instructions

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## 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 gray circle with a white graphical symbol indicates that an action must be taken.



A red or gray 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. Recommended safety equipment

We recommend the following safety equipment, when handling this product.



Wear safety shoes.



Wear protective gloves.



Wear safety glasses.

### 3. Product introduction

#### 3.1 Product description



ALPHA 26 is a high-efficiency, variable-speed, wet-rotor circulator fitted with an electronically commutated permanent-magnet motor (ECM). Designed for hydronic HVAC systems in large residential and light commercial buildings, it supports many applications, including space heating, indirect domestic hot water (DHW), snow melting and space cooling. The circulator is compatible with gas- and oil-fired boilers as a primary pump, with options for external control via 0–10 VDC or pulse-width modulation (PWM) signals. Suitable for cold-water ground loops in geothermal heat pump applications, the pump is designed to operate in condensing environments where liquid temperature falls below the surrounding ambient temperature and is compatible with a 50/50 water/glycol mixture.

#### 3.2 Intended use

The pump is designed for circulating liquids in the following systems:

- heating systems
- air-conditioning and cooling systems.

You can also use the pump in the following systems:

- ground-source heat-pump systems
- solar-heating systems
- snow- and ice-melting systems.

Always install the product in a dry environment where it is not exposed to drops or splashes of liquid from surrounding equipment or structures, such as condensed water.

The product is intended for indoor installation only. If you install the product in a location where the environmental conditions may vary, follow all local regulations and requirements and make sure to fulfill these requirements as well as the following requirements:

- Comply with the operating conditions and enclosure class specified for the product.
- Provide shielding from direct exposure to sunlight, rain, snow and other environmental factors.
- Do not expose the product to UV radiation.
- Keep the drain holes clear of any blockage.
- Collect and remove condensation build-up.

#### 3.3 Foreseeable misuse

The pump is not a safety component and cannot be used to ensure functional safety in the final appliance.

The pump is not suitable for drinking-water applications.

#### 3.4 Pumped liquids

##### WARNING

##### Electric shock

Death or serious personal injury



- For indoor use only.
- This pump has not been investigated for use in swimming pool or marine areas.

##### WARNING

##### Fire and explosion

Death or serious personal injury



- The pump must not be used for the transfer of flammable liquids such as diesel oil, gasoline or similar liquids.

##### CAUTION

##### Hot surface

Minor or moderate personal injury

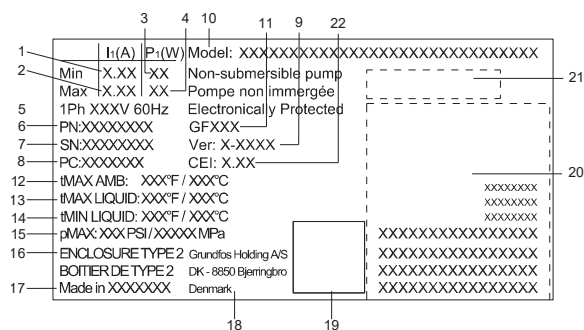


- This pump has been evaluated for use with water only.

The product is suitable for pumping clean, thin, non-aggressive and non-explosive liquids without solid particles or fibers or mineral oils. If required, 50 % of the volume solution of glycol and water can be used. However, a decrease in pump performance may occur due to an increase in the viscosity of the solution. Contact the manufacturer for information regarding suitability of the pump for pumping other liquids.

### 3.5 Identification

#### 3.5.1 Nameplate



| Pos. | Description                                      |
|------|--------------------------------------------------|
| 1    | Min. current consumption                         |
| 2    | Max. current consumption                         |
| 3    | Min. power consumption                           |
| 4    | Max. power consumption                           |
| 5    | Number of phases, voltage and frequency          |
| 6    | Product number                                   |
| 7    | Serial number                                    |
| 8    | Factory code and production code (year and week) |
| 9    | Product version                                  |
| 10   | Pump model                                       |
| 11   | Enclosure class                                  |
| 12   | Max. ambient temperature                         |
| 13   | Max. liquid temperature                          |
| 14   | Min. liquid temperature                          |
| 15   | Max. system pressure                             |
| 16   | Enclosure type                                   |
| 17   | Country of origin                                |
| 18   | Grundfos address                                 |
| 19   | Data matrix                                      |
| 20   | Approvals                                        |
| 21   | Energy marking area                              |
| 22   | Circulator Energy Index (CEI)                    |

#### 3.5.2 Type key

Example: ALPHA 26-99 F 165 AR 115V 9H

| Code  | Explanation          | Designation           |
|-------|----------------------|-----------------------|
| ALPHA | HVAC                 | Pump type             |
| 26    | Medium circulator    | Pump size             |
| 99    | 34.1 ft (10.4 m)     | Max. head             |
| 150   | 46.3 ft (14.1 m)     | Max. head             |
| -     | Cast iron            | Pump housing          |
| S     | Stainless steel      |                       |
| U     | Union                |                       |
| F     | GF15/26/40/43        | Pipe connection       |
| 165   | 6.5 inch (165 mm)    | Port-to-port length   |
| A     | PWM profile, heating |                       |
| C     | PWM profile, solar   | External signal       |
| R     | 0-10 VDC             |                       |
| 115V  | 115 V                | Voltage               |
| 6H    | 6 o'clock (right)    |                       |
| 9H    | 9 o'clock (left)     | Control box positions |
| 12H   | 12 o'clock (top)     |                       |

#### 3.6 Approvals



TM057110



TM073284



This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules.



Any changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### 3.6.1 For Canada only

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

## 4. Receiving the product

### 4.1 Inspecting the product



#### CAUTION

##### Crushing of feet

Minor or moderate personal injury

- Wear safety shoes when handling the product.



#### CAUTION

##### Sharp element

Minor or moderate personal injury

- Wear protective gloves.

1. Make sure that the delivered product corresponds to the order.
2. Make sure that the voltage and frequency of the product match the voltage and frequency of the installation site.

### 4.2 Scope of delivery

The box contains the following items:

- 1 pump
- 1 power connector
- 2 gaskets, 5/32 inch (4 mm)<sup>1)</sup>
- 2 gaskets, 7/32 inch (5.5 mm)
- 1 cover for conduit box with 2 screws
- 1 check valve
- 1 set of insulating shells
- 1 safety instruction
- 1 quick guide.

<sup>1)</sup> For existing installations where flange-to-flange length is short, for example, 6 3/8 inch.

## 5. Installation requirements

### 5.1 Radio frequency radiation exposure information (for Canada and US only)

#### CAUTION

##### Radiation

Minor or moderate personal injury



- This equipment complies with FCC and ISSED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated with a minimum distance of 20 cm (0.66 ft) between the radiator and your body.

## 6. Mechanical installation

### WARNING Electric shock



Death or serious personal injury

- A damaged product must be repaired or replaced by Grundfos or a service workshop authorized by Grundfos.

### CAUTION Crushing of feet



Minor or moderate personal injury

- Wear safety shoes when opening the box and handling the product.

### CAUTION Sharp element



Minor or moderate personal injury

- Wear protective gloves.



The pump must always be installed with a horizontal motor shaft within  $\pm 5^\circ$ .



Wear a safety helmet if the product is installed at or above head level.

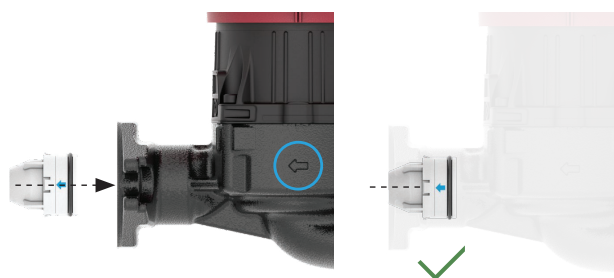


The pump is a non-submersible pump.

### 6.1 Mounting the product

The arrows on the pump housing and check valve indicate the flow direction through the pump.

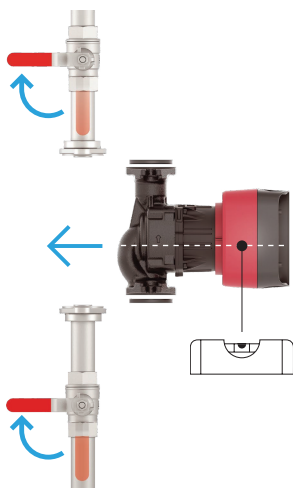
1. Fit the check valve in the outlet.



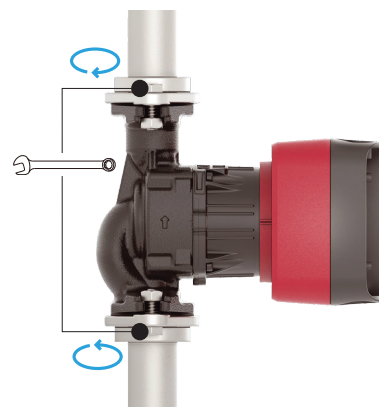
2. Close the isolating valves. Fit the two gaskets supplied with the pump, if applicable, when you mount the pump in the pipe. Make sure the pump is installed with a horizontal motor shaft within  $\pm 5^\circ$ .



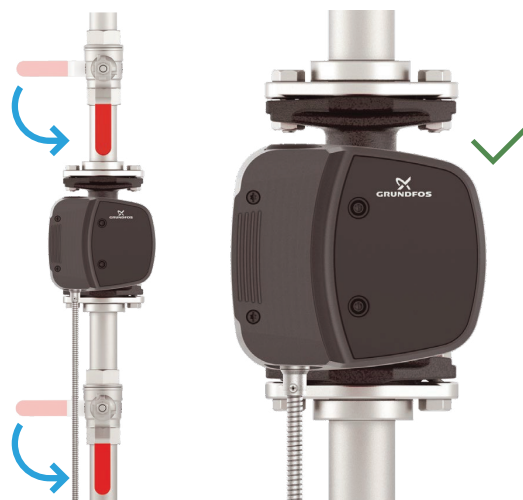
Use thin gaskets in existing installations where the flange-to-flange length is short.



3. Tighten the fittings or flange bolts (torque: 20 lbf-ft).



4. Open the isolating valves.



TM092681

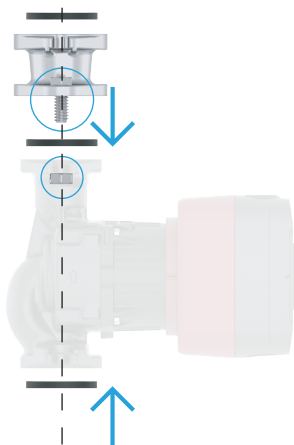
TM092696

TM092680

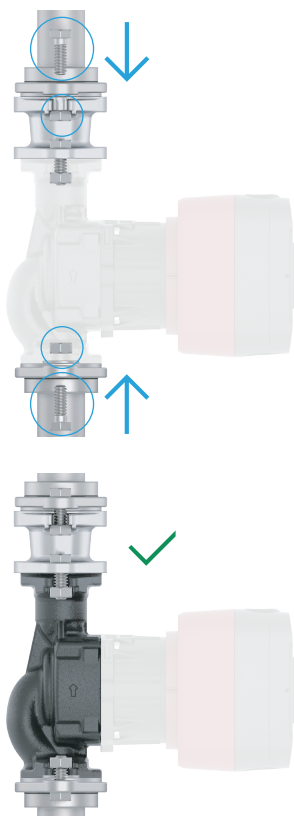
## 6.2 Adding an extension flange to the product (optional)

In some replacement situations, it may be required to add an extension flange to the product. The total port-to-port length becomes 8 ½ inch.

1. Fit the gaskets supplied with the extension flange when adding it to the pump. Position the extension flange on the pump and ensure that it is fully aligned before tightening the flange bolts.



2. Insert the pump including extension flange in the system. Add the flange bolts to the pipe flange and tighten them.



### Related information

[8. Accessories](#)

### 6.3 Changing the control box position



#### CAUTION Hot surface

Minor or moderate personal injury

- Position the pump so that persons cannot accidentally come into contact with hot surfaces.



#### WARNING Pressurised system

Minor or moderate personal injury

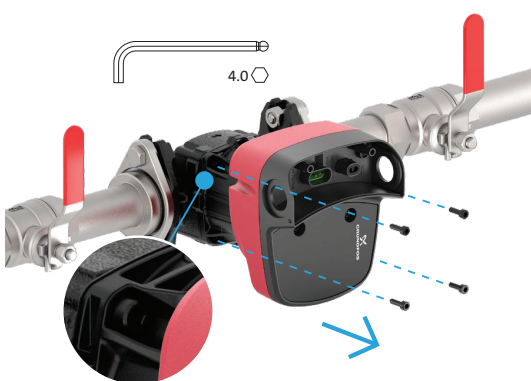
- Before dismantling the pump, drain the system or close the isolating valves on both sides of the pump. The pumped liquid may be scalding hot and under high pressure.



Make sure that the isolating valves are closed before rotating the control box. The pump must be pressureless before the control box is rotated. Drain the system or relieve the pressure inside the pump housing.

To change the position of the control box, do as follows:

1. Loosen and remove the four screws (torque: 4 lbf-ft).



TM092689

2. Turn the pump head to the desired position.

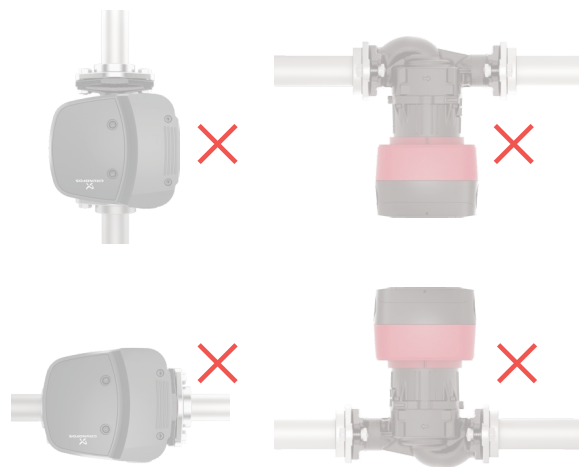


TM092690



TM090448

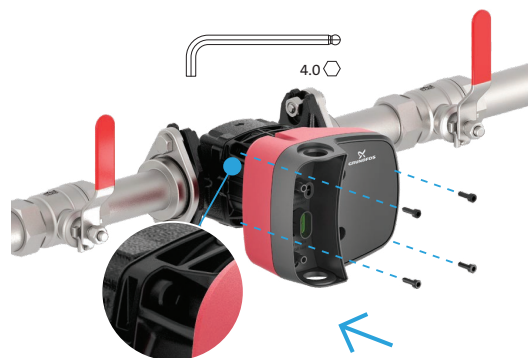
Allowed pump head positions.



TM090449

Incorrect pump head positions.

3. Insert and cross-tighten the screws.



TM092691

## 7. Electrical connection

### WARNING Electric shock

Death or serious personal injury

- Switch off the power supply to the product including the power supply for the signal relays. Wait at least 5 minutes before you make any connections in the terminal box. Make sure that the power supply cannot be switched on accidentally.



- Connect the product only to a properly grounded AC mains supply.
- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.
- Use of the product on a circuit equipment with a GFCI can cause improper operation of the GFCI. Consult an electrician and observe all national, state and local electrical regulations, as applicable.

- The pump is electronically protected and therefore requires no external motor protection.
- Check that the supply voltage and frequency correspond to the values stated on the nameplate.

### 7.1 Wiring the pump

### WARNING Electric shock

Death or serious personal injury



- Do not install mains and signal wires through the same opening in the conduit box.
- Connect the product to the fixed wiring using a flexible conduit system only.
- The terminal block is intended for copper conductors only.

### WARNING Electric shock

Death or serious personal injury



- Always make sure to install a signal connector blind plug if no signal cable is installed.

### WARNING Electric shock

Death or serious personal injury



- Always make sure to install the signal connector blind plug if no external control signal cable is installed.

Note that the conduit connector and flexible conduit are not supplied by Grundfos.

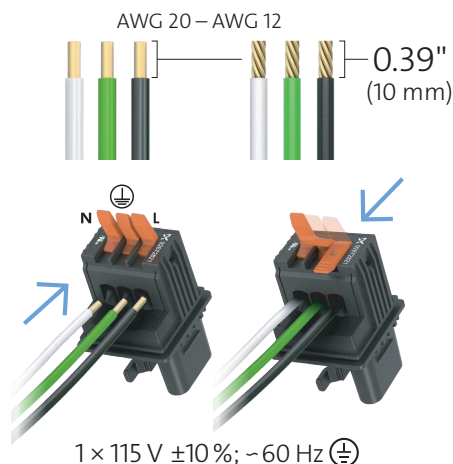
Follow the steps below to wire the pump:

1. Mount the conduit connector, and insert the flexible conduit.



TM092692

2. Take the power connector and lift the orange levers, and connect the black wire to L (phase), the white wire to N, and the green wire to  $\perp$ . Press the orange levers down to lock the terminals.



TM092693

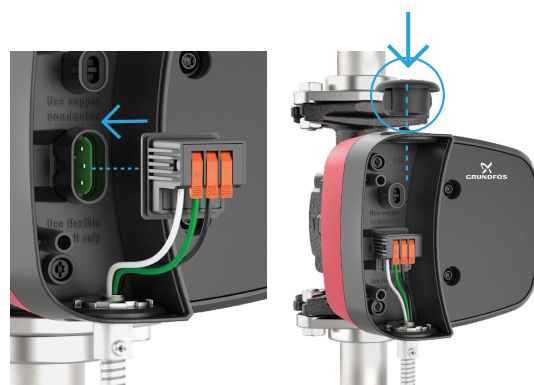


Use only a flexible conduit.



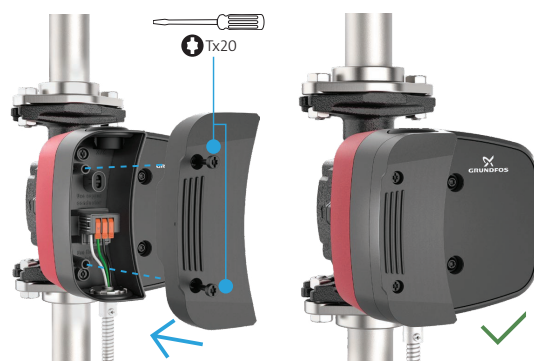
The power connector must be fitted with AWG 20 - AWG 12 solid or stranded wire.

3. Insert the power connector. If no external control signal cable is installed, install the blanking plug and signal connector blind plug.



TM092694

4. Mount the cover on the conduit box (torque: 4 lbf-ft).



TM092695

5. Mount the insulating shells to the pump housing.

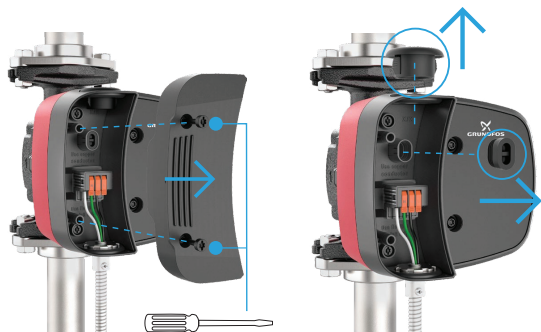


TM092697

## 7.2 Wiring the external signal

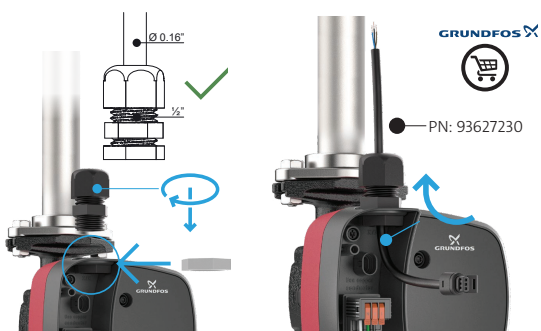
If the circulator is speed controlled via an external signal (PWM or 0-10 V), the following steps are required:

1. Loosen the screws and remove the cover. Remove the signal connector blind plug and blanking plug, if applicable.



TM092883

2. Install a strain relief connector suitable for 0.16" cable, and tighten securely. Guide the external control cable through the cable gland.



TM092884

3. Connect the signal connector.



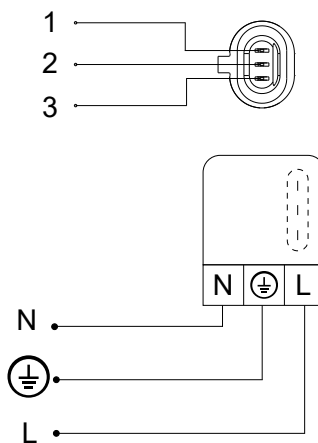
TM092885

4. Tighten the compression nut. Install the cover by tightening the two screws.



TM092886

## 7.3 Wiring diagram



TM089307

Power and signal plug

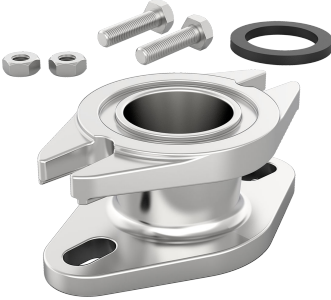
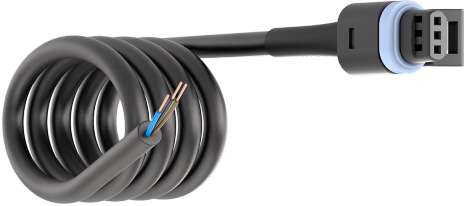
| Pos. | Description         | Wire colour |
|------|---------------------|-------------|
| 1    | PWM or 0-10 V input | Brown       |
| 2    | Signal reference    | Blue        |
| 3    | PWM output          | Black       |
| L    | Phase               | Black       |
|      | Earth               | Green       |
| N    | Neutral             | White       |

## Related information

### 8. Accessories

8. Accessories

The following accessories are available.

| Set, Extension 2-bolt flange GF26-GF43                                                 | Description                                                                                                                                                                                                                                                                      | Product number |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|       | The extension 2-bolt flange GF26-GF43 is designed to increase the port-to-port installation length of the pump housing from 6 1/2 to 8 1/2", ensuring a seamless replacement of Grundfos UP(S) 43-44, UP43-75, UPS 43-100 and other circulators with 8 1/2" port-to-port length. | 93602598       |
| Signal Cable, mini superseal 7 7/8"                                                    | Description                                                                                                                                                                                                                                                                      | Product number |
|  | Signal cable, mini superseal is used for external control of ALPHA 26, UPSe 26 and other products with similar connections.                                                                                                                                                      | 93627230       |

Related information

- 6.2 [Adding an extension flange to the product \(optional\)](#)
- 7.2 [Wiring the external signal](#)

## 9. Starting up the product

### CAUTION Radiation

Minor or moderate personal injury



- This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated with a minimum distance of 20 cm (0.66 ft) between the radiator and your body.

1. Fill the system with liquid and vent it.
2. Make sure the required minimum inlet pressure is available at the pump inlet.
3. Switch on the power supply.

You can change the settings on the operating panel or via Grundfos GO. We recommend to follow the guided setup in Grundfos GO.



TM090452

## 9.1 Venting the product



TM083494

### Venting the pump

Small air pockets trapped inside the pump may cause noise when starting up the pump. However, because the pump is self-venting through the system, the noise ceases over a period of time. Still, we recommend venting the pump in new installations or when the pipes have been emptied and refilled with water.

You can vent the pump and system via Grundfos GO.

- If you follow the guided setup, you are asked if you want to vent the pump now.
- If you do not follow the guided setup, you can access the venting settings via the **Settings** menu.



The pump must not run dry.  
You cannot vent the system through the pump.

## 9.2 Dry-running protection

The dry-running protection protects the pump against dry running during startup and normal operation.

### Startup

If water has not been detected before (new pump), the pump does a detection cycle to verify that water is present. If water is not detected during the first cycle, the pump retries several times.

If water is still not detected, the pump stops, the warning and alarm symbol on the operating panel is flashing red and the error code E4 is displayed on the operating panel.

### Normal operation

If dry running is detected during normal operation, the pump retries several times. If dry running continues, the pump stops, the warning and alarm symbol on the display is flashing red and the error code E4 is displayed on the operating panel.

The pump can be restarted by pressing any button on the pump. The pump repeats the dry-running detection every 25 hours to verify that the pump is not running dry. Note: The pump can sustain 25 hours of dry-running operation.

## 10. Control functions

### 10.1 Operating panel



TM092394

Operating panel

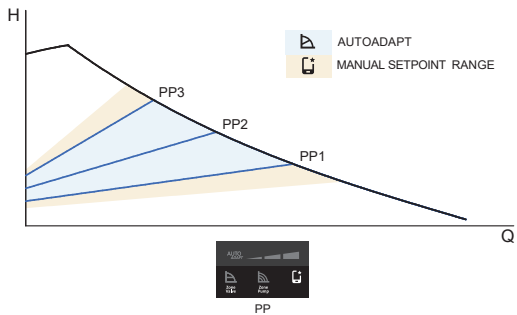
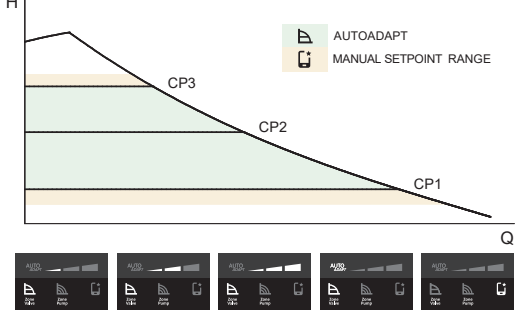
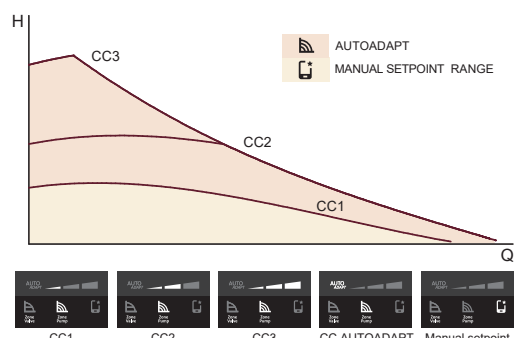
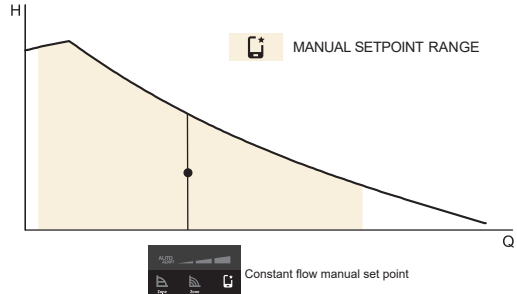
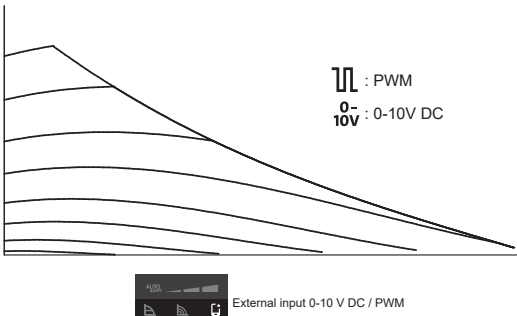
| Pos. | Description                                                                                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Grundfos mini Eye<br>The indicator light shows the operating status of the product.                                                                                                         |
| 2    | Connect<br>If lit, the pump is connected to Grundfos GO via Bluetooth.                                                                                                                      |
| 3    | Settings for control modes<br>Use the arrows to toggle between I, II, III and AUTOADAPT.                                                                                                    |
| 4    | Control mode<br>You can select the control mode constant pressure (zone valve) or constant curve (zone pump).                                                                               |
| 5    | QR code<br>Scan the code to access product information via the Grundfos GO app.                                                                                                             |
| 6    | The indicator light indicates: <ul style="list-style-type: none"> <li>power consumption</li> <li>head</li> <li>flow rate</li> <li>spinner</li> <li>error code.</li> </ul>                   |
| 7    | Unit<br>The indicator light shows the unit used for the number to the left. W = Watt, ft = feet and GPM = US gallons per minute.                                                            |
| 8    | Lock<br>This indicates that the operating panel is locked and cannot be used. It automatically locks after 20 minutes. To unlock the panel, push and hold the indicator light for 1 second. |
| 9    | Settings for the selected control mode<br>I, II, III or AUTOADAPT                                                                                                                           |
| 10   | Grundfos GO<br>The pump has been set via Grundfos GO.                                                                                                                                       |

### 10.2 Indicator lights

The indicator lights indicate the control mode, setting and operating status.

| Active indicator lights | Description                                                                                                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | The control mode is set via Grundfos GO.<br>When the pump is set via Grundfos GO, the icon is lit and the modes and settings on the operating panel are switched off. |
|                         | Constant pressure (zone valve)                                                                                                                                        |
|                         | Constant curve (zone pump)                                                                                                                                            |
|                         | Setting I                                                                                                                                                             |
|                         | Setting II                                                                                                                                                            |
|                         | Setting III                                                                                                                                                           |
|                         | AUTOADAPT mode                                                                                                                                                        |
|                         | The pump is running.                                                                                                                                                  |
|                         | Warning                                                                                                                                                               |
|                         | Alarm                                                                                                                                                                 |
|                         | Spinner<br>The pump is unavailable for changes to settings. The pump is still running.<br>The spinner icon appears during software update and dry-running protection. |

## 11. Control modes

| Active indicator lights                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><b>Proportional pressure (thermostatic radiator valve (TRV))</b></p> <p>The pump adjusts the head according to heat demand. The head is reduced when the heat demand decreases and increased when the heat demand rises. The pump follows the selected proportional-pressure setting: PP1, PP2 or PP3. When AUTOADAPT is selected, the pump analyzes the heating system and, over time, selects the most suitable proportional-pressure setpoint for the operating conditions. In manual mode, any setting between minimum and maximum can be selected. All proportional-pressure settings are selected in Grundfos GO.<sup>2)</sup></p> <p>Typical applications include systems where the pump supplies panel radiators with thermostatic radiator valves (TRVs), as well as systems with multiple fan coils.</p> |
|    | <p><b>Constant pressure (zone valve)</b></p> <p>The pump maintains a constant head, meaning the pressure differential is kept constant regardless of the actual flow demand. The pump follows the selected constant-pressure setting: CP1, CP2, or CP3. When AUTOADAPT is selected, the pump analyzes the heating system and, over time, selects the most suitable constant-pressure setpoint for the operating conditions. In manual mode, any setting between minimum and maximum can be selected.<sup>2)</sup></p> <p>Typical applications include zoned systems with valves where the pump supplies a common header.</p>                                                                                                                                                                                          |
|   | <p><b>Constant curve (zone pump),</b></p> <p>The pump operates on a fixed performance curve, meaning it runs at a constant speed or power level. The pump follows the selected constant-curve setting: CC1, CC2 or CC3. When AUTOADAPT is selected, the pump starts at setting 1 each time it is switched on. After an extended operating period, the pump gradually increases speed until it reaches CC3. It maintains this setting until it is switched off. This sequence is repeated each time the pump is switched on. In manual mode, any setting between minimum and maximum can be selected.<sup>2)</sup></p> <p>Typical applications include zoned systems, where each zone is served by its own pump, geothermal heat pumps and space cooling systems.</p>                                                  |
|  | <p><b>Constant flow</b></p> <p>The pump maintains the selected flow rate independently of the system characteristics. The desired flow rate can be set in Grundfos GO in US gpm.<sup>2)</sup></p> <p>Typical applications include systems where the pump is used as a primary boiler pump, it supplies an indirect water heater or it is part of a system zoned with circulators.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | <p><b>External control</b></p> <p>When the circulator is externally controlled, its speed is based on a reference from an external signal, such as 0–10 VDC or PWM. The speed reference signal controls the pump speed from minimum to maximum. The external control configuration is set via Grundfos GO.<sup>2)</sup></p> <p>External control is suitable for systems where the speed of the circulator must be controlled by an external controller, such as a boiler or heat pump.</p>                                                                                                                                                                                                                                                                                                                            |

<sup>2)</sup> Setting selected in Grundfos GO.

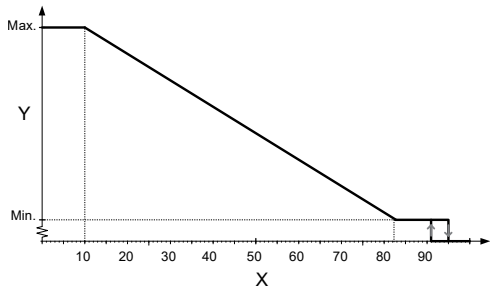
11.1 PWM signal

A PWM (Pulse Width Modulation) signal is used in pumps to control their speed and flow rate efficiently. External PWM control mode can only be selected via Grundfos GO.

11.1.1 Profile A

11.1.1.1 PWM input signal profile A (heating)

At high PWM signal duty cycles, a hysteresis prevents the pump from starting and stopping if the input signal fluctuates around the shifting point. At low PWM signal duty cycles, the pump speed is high for safety reasons. In case a cable breaks when mounted in a system, the pump starts to run at maximum speed. This is suitable for both boilers and heat pumps to ensure that the pump transfers heat even if a cable breaks.



TM049985

PWM input profile A (heating)

| Axis | Value            |
|------|------------------|
| X    | Input duty cycle |
| Y    | Speed            |

| PWM input duty cycle      | Pump status                            |
|---------------------------|----------------------------------------|
| PWM signal ≤ 10 %         | Max. speed                             |
| 10 % < PWM signal ≤ 84 %  | Variable speed from min. to max. speed |
| 84 % < PWM signal ≤ 91 %  | Min. speed                             |
| 91 % < PWM signal ≤ 95 %  | Hysteresis area: on/off                |
| 95 % < PWM signal ≤ 100 % | Standby mode: off                      |

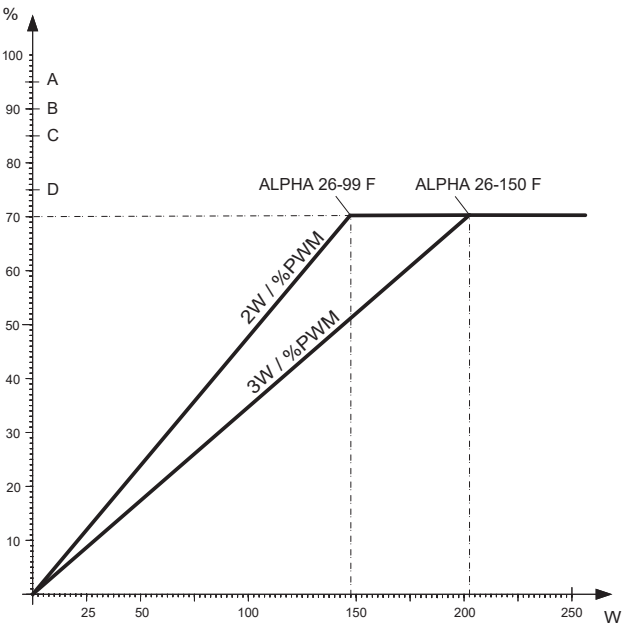
11.1.1.2 PWM feedback signal

The PWM feedback signal offers the same pump information as in bus systems:

- current power consumption
- warning
- alarm
- operating status.

Alarms

Alarm output signals are available because some PWM output duty cycles are dedicated to alarm information.



PWM feedback signal, power consumption

| Pos. | Description                     |
|------|---------------------------------|
| A    | Standby (stop)                  |
| B    | Alarm stop: fault, blocked pump |
| C    | Alarm stop: electrical fault    |
| D    | Warning                         |

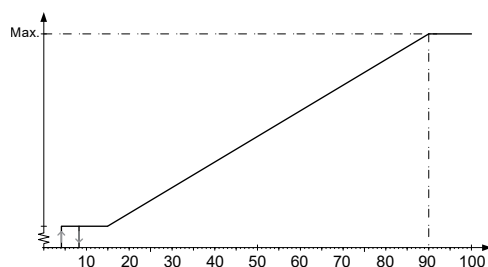
| PWM output duty cycle | Pump information                 |
|-----------------------|----------------------------------|
| 95 %                  | Standby (stop) by PWM duty cycle |
| 90 %                  | Alarm, stop, blocked error       |
| 85 %                  | Alarm, stop, electrical error    |
| 75 %                  | Warning                          |
| 0-70 %                | Operating range                  |

Output frequency: 75 Hz ± 5 %.

## 11.1.2 Profile C

### 11.1.2.1 PWM input signal profile C (solar)

At low PWM signal percentages (duty cycles), a hysteresis prevents the pump from starting and stopping if the input signal fluctuates around the shifting point. Without PWM signal percentages, the pump will stop for safety reasons. If a signal is missing, for example due to a cable breakage, the pump will stop to avoid overheating of the solar thermal system.



TM051575

PWM input profile C (solar)

| Axis | Value                |
|------|----------------------|
| X    | PWM input signal [%] |
| Y    | Speed                |

| PWM input signal [%] | Pump status                                  |
|----------------------|----------------------------------------------|
| ≤ 5                  | Standby mode: off                            |
| > 5 / ≤ 8            | Hysteresis area: on/off                      |
| > 8 / ≤ 15           | Minimum speed                                |
| > 15 / ≤ 90          | Variable speed from minimum to maximum speed |
| > 90 / ≤ 100         | Maximum speed                                |

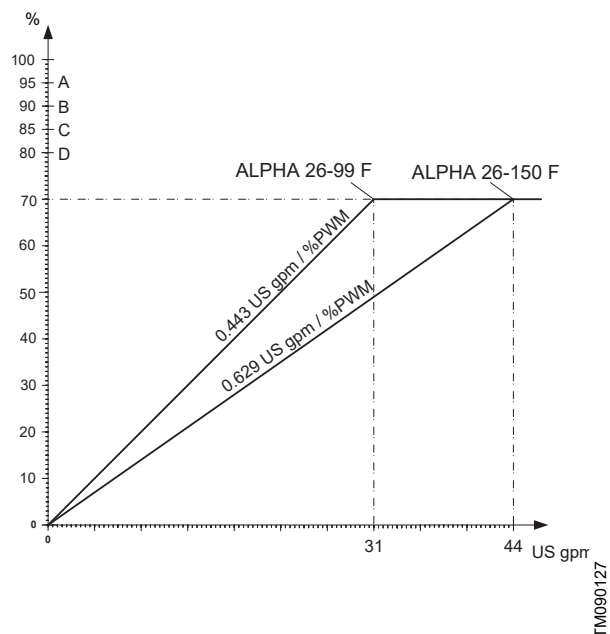
### 11.1.2.2 PWM feedback signal

The PWM feedback signal offers the same pump information as in bus systems:

- estimated flow
- warning
- alarm
- operating status.

#### Alarms

Alarm output signals are available because some PWM output duty cycles are dedicated to alarm information.



TM090127

PWM feedback signal, flow estimation

| Pos. | Description                     |
|------|---------------------------------|
| A    | Standby (stop)                  |
| B    | Alarm stop: fault, blocked pump |
| C    | Alarm stop: electrical fault    |
| D    | Dry running                     |

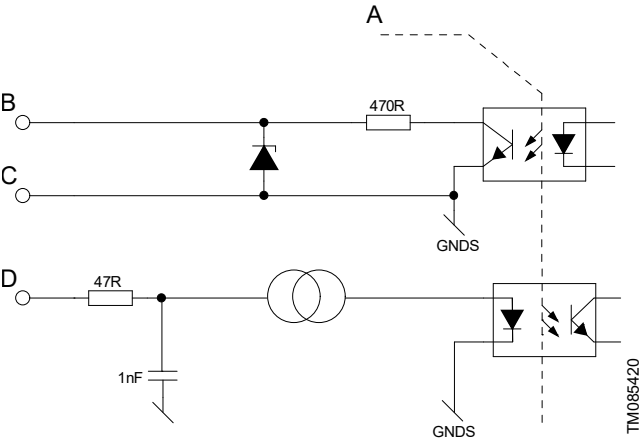
| PWM output duty cycle | Pump information                 |
|-----------------------|----------------------------------|
| 95 %                  | Standby (stop) by PWM duty cycle |
| 90 %                  | Alarm, stop, blocked error       |
| 85 %                  | Alarm, stop, electrical error    |
| 80 %                  | Dry running                      |
| 0-70 %                | Operating range                  |

Output frequency: 75 Hz ± 5 %.

11.1.3 PWM interface

The PWM interface consists of a galvanically isolated circuit connecting the external control signal to the pump. The interface translates the external signal into a signal type that the microprocessor can understand.

The galvanically isolated interface ensures that the user cannot get into contact with dangerous voltage if the signal wires are touched when the pump is connected to power.



Schematic drawing, equivalent interface

| Pos. | Description                                               |
|------|-----------------------------------------------------------|
| A    | Galvanic isolation                                        |
| B    | PWM output                                                |
| C    | Signal reference (without connection to protective earth) |
| D    | PWM input                                                 |

11.1.4 Digital low-voltage PWM signal

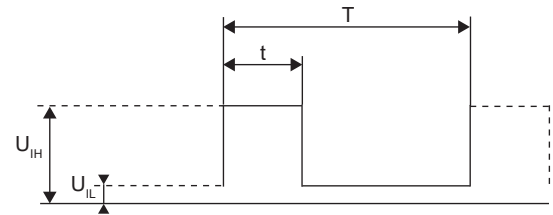
The square-wave PWM signal is designed for a frequency range of 100 to 1500 Hz for the standard input profiles. The PWM signal is used to select the speed (speed command) and as feedback signal. The PWM frequency on the feedback signal is fixed at 75 Hz in the pump.

Duty cycle

$d \% = 100 \times t/T$

| Example                             | Rating                                                              |
|-------------------------------------|---------------------------------------------------------------------|
| $T = 2 \text{ ms (500 Hz)}$         | $U_{IH} = 4\text{-}24 \text{ V}$                                    |
| $t = 0.6 \text{ ms}$                | $U_{IL} \leq 1 \text{ V}$                                           |
| $d \% = 100 \times 0.6 / 2 = 30 \%$ | $4.5 \text{ mA} \leq I_H \leq 10 \text{ mA (depending on } U_{IH})$ |

Example



PWM signal

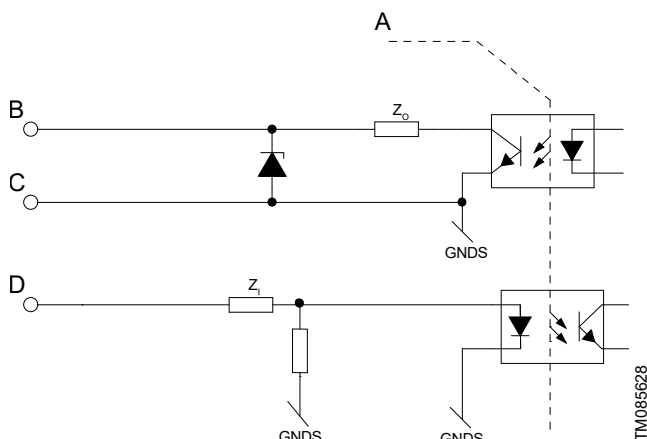
| Abbreviation | Description                      |
|--------------|----------------------------------|
| $t$          | Duration of the pulse signal [s] |
| $T$          | Total period of time [s]         |
| $U_{IH}$     | High-level input voltage         |
| $U_{IL}$     | Low-level input voltage          |

## 11.2 0-10 V

### 11.2.1 0-10 VDC

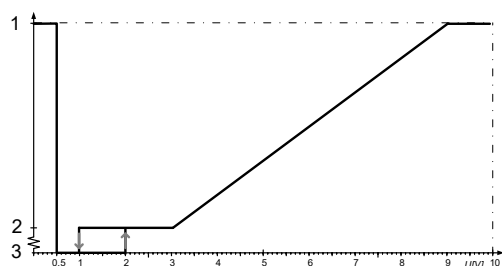
The product can be externally speed-controlled by an analog 0-10 VDC signal.

The pump requires a 0-10 VDC signal on the signal port to control the speed of the pump. The pump will run at its maximum speed if the signal fails (cable break).



Schematic drawing, equivalent interface

| Pos. | Description                                                |
|------|------------------------------------------------------------|
| A    | Galvanic isolation                                         |
| B    | Alarm output signal                                        |
| C    | Signal reference (without connection to protective ground) |
| D    | 0-10 VDC input                                             |



Profile R

| Pos. | Description |
|------|-------------|
| 1    | Max.        |
| 2    | Min.        |
| 3    | Stop        |

| U [V]            | Pump status                 |
|------------------|-----------------------------|
| $0 < U \leq 0.5$ | Max. speed                  |
| $0.5 < U \leq 1$ | Standby (stop)              |
| $1 < U \leq 2$   | Hysteresis                  |
| $2 < U \leq 3$   | Min. speed                  |
| $3 < U \leq 10$  | Speed between min. and max. |

### 11.2.2 Alarm output signal

An alarm output signal is available.

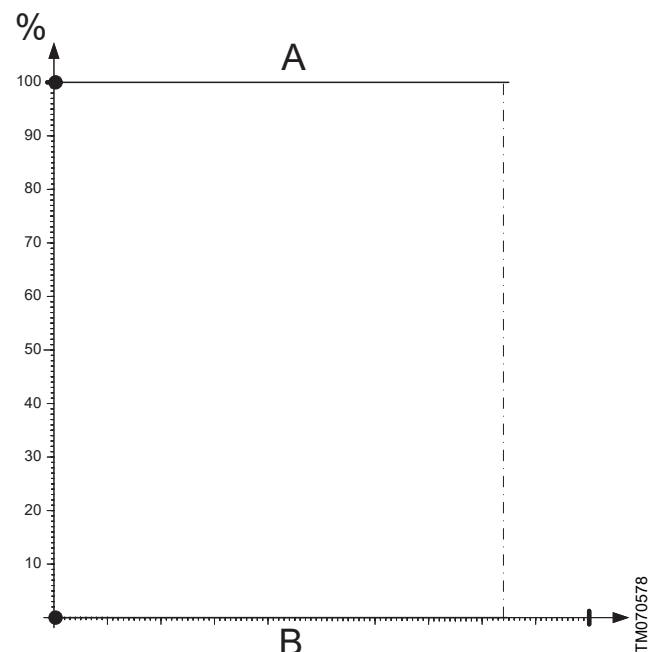
Output transistor status indicates pump operation.

The output signal is activated in the following cases:

- The pump stops when the input signal is between 0.5 and 2 VDC.
- The pump stops because of an alarm and the input signal is between 2 and 10 VDC.

Output signal is not activated in the following cases:

- Pump fault.
- The pump is running (input voltage is above 0.5 VDC).



Output profile 0-10 VDC

| Pos. | Alarm output signal % | Description                  |
|------|-----------------------|------------------------------|
| A    | 100                   | Standby (stop) or alarm stop |
| B    | 0                     | Pump is running.             |

| 0-10 VDC                            | Symbol | Value                     |
|-------------------------------------|--------|---------------------------|
| Operating voltage                   | $U_I$  | 0-10 VDC                  |
| Input impedance                     | $Z_I$  | $\geq 50 \text{ k}\Omega$ |
| Max. input voltage                  | -      | 26 VDC                    |
| Continuous short-circuit protection | -      | Yes                       |
| Reverse polarity protection         | -      | Yes, limit: 26 V, 20 mA   |

### Alarm output signal

| State | Symbol              | Value                   |
|-------|---------------------|-------------------------|
| Off   | $Z_{O, \text{off}}$ | $> 100 \text{ k}\Omega$ |
| On    | $Z_{O, \text{on}}$  | $< 500 \Omega$          |

## 12. Setting of the product

### 12.1 Connecting the product to Grundfos GO

Before connecting the product to Grundfos GO, the Grundfos GO app must be downloaded to your smartphone or tablet. The app is free of charge and available for iOS and Android devices.

The connection can be started either from the operating panel or Grundfos GO. If you have several products installed, we recommend starting the connection from the operating panel.

1. Open Grundfos GO on your device. Make sure that Bluetooth is enabled.

Your device must be within reach of the product to establish Bluetooth connection.

2. Go to the **Remote** menu in Grundfos GO.

3. Press the connect icon on the operating panel. Press the **Connect** button on the operating panel.

The connect icon flashes until your device is connected. The LED next to the **Connect** button flashes until your device is connected.

4. Press **CONNECT** in Grundfos GO.

Once the connection is established, the LED is permanently on. Grundfos GO is now loading the data for the product.

### 12.2 Guided setup

After the pump is connected to Grundfos GO, we recommend that you follow the guided setup in Grundfos GO.

The guided setup helps you to select the optimal settings for the current system. By choosing the optimal settings, you can lower the energy consumption and prevent potential noise problems.

If you select **Use default settings**, the pump uses the factory setting, constant pressure (zone valve), AUTOADAPT.

### 12.3 Air detection and system venting

The product offers a **Continuous air detection and venting** feature which means the pump can detect air and push it quickly to the air removal device.

If the pump detects air, it runs a venting sequence which enables more air to escape compared to letting the pump run at maximum speed during the entire process.

During system venting, the air is pushed to the system vent.

The function can be enabled in Grundfos GO in the **Settings** menu.

During the guided setup, you are asked if you want to vent the pump and system now. This is a one time event and will not permanently enable this function..

### 12.4 Flow limitation

You can set a minimum and maximum flow rate in Grundfos GO.

A minimum flow limit can be set to prevent the boiler from overheating. A maximum flow limit can be set to prevent noise in the system.

### 12.5 Trend data

In the **Trend data** menu in Grundfos GO, you can see system data for the last 10 or 100 on-cycles. An on-cycle is the period from when the pump turns on until it turns off. If the pump runs continuously for more than 24 hours, one on-cycle is registered and a new on-cycle will start even though the pump has not yet turned off.

You can see the following data:

- **Duration of each on-cycle**
- **Flow**
- **Head**
- **Estimated media temperature.**

You can use the trend data for system optimization and fault finding.

### 12.6 Updating the software

Follow the steps below to update the product's software via Grundfos GO:

1. Make sure your smart device has sufficient power.

2. Make sure your smart device is connected to the internet. If there is no internet where the pump is installed, go to step 3 and then follow the instructions in Grundfos GO.
3. Connect your product to Grundfos GO if it is not already connected.  
The app automatically checks if the product has the latest software installed. If a newer version is available, the text **New software available** appears on the dashboard in Grundfos GO. You can also check for software updates in the **Settings** menu.
4. Follow the guide in Grundfos GO to install the software update.

### 12.7 Resetting to factory settings

The product can be reset to factory settings in two ways:

- **Via Grundfos GO**
  1. Open Grundfos GO.
  2. Press the gear icon in the top right side of the screen.
  3. Go to the **Reset user settings** menu and press **Reset**.
- **Via the operating panel**
  1. Press and hold the unit icon for 5 seconds.

## 13. Service

### **WARNING** **Electric shock**

Death or serious personal injury

- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.
- Switch off the power supply and wait at least 5 minutes before you make any connections in the terminal box. Make sure that the power supply cannot be switched on accidentally.
- A damaged product must be repaired or replaced by Grundfos or a service workshop authorized by Grundfos.
- Connect the product only to a properly grounded receptacle.



### **WARNING** **Pressurised system**

Minor or moderate personal injury

- Before dismantling the pump, drain the system or close the isolating valves on both sides of the pump. Slowly loosen the screws and unpressurize the system. The pumped liquid may be scalding hot and under high pressure.



### **WARNING** **Hot surface**

Minor or moderate personal injury

- The pump housing may be hot due to the pumped liquid being scalding hot. Close the isolating valves on both sides of the pump and wait for the pump housing to cool down.



### **CAUTION** **Sharp element**

Minor or moderate personal injury

- Wear protective gloves.



### **CAUTION** **Crushing of feet**

Minor or moderate personal injury

- Wear safety shoes when moving the product.



### **CAUTION** **Radiation**

Minor or moderate personal injury

- This equipment complies with FCC and ISSED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated with a minimum distance of 20 cm (0.66 ft) between the radiator and your body.



## 14. Fault finding

### **WARNING** **Electric shock**

Death or serious personal injury

- Switch off the power supply and wait at least 5 minutes before you make any connections in the terminal box. Make sure that the power supply cannot be switched on accidentally.
- A damaged product must be repaired or replaced by Grundfos or a service workshop authorized by Grundfos.



### **WARNING** **Hot surface**

Minor or moderate personal injury

- The pump housing may be hot due to the pumped liquid being scalding hot. Close the isolating valves on both sides of the pump and wait for the pump housing to cool down.



### **CAUTION** **Pressurised system**

Minor or moderate personal injury

- Before dismantling the pump, drain the system or close the isolating valves on both sides of the pump. The pumped liquid may be scalding hot and under high pressure.



### **CAUTION** **Radiation**

Minor or moderate personal injury

- This equipment complies with FCC and ISSED radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated with a minimum distance of 20 cm (0.66 ft) between the radiator and your body.



### 14.1 Fault indication on the pump operating panel

Faults preventing the pump from operating properly are indicated on the operating panel with Grundfos mini Eye turning either yellow or red and the display showing an error code.

A warning is indicated when one indicator light in Grundfos mini Eye is turning yellow and rotating. The pump does not perform as expected, and action is required in case of underheating or discomfort.

An alarm is indicated when two indicator lights in Grundfos mini Eye are flashing red and the pump stops. Action is required.

| Grundfos mini Eye                                                                 | Description        |
|-----------------------------------------------------------------------------------|--------------------|
|  | Warning indication |
|  | Alarm indication   |

### 14.2 Overview of alarm and warning codes

#### Fault chart

| Grundfos mini Eye                                                                   | Code on operating panel | Code in Grundfos GO | Fault                    |
|-------------------------------------------------------------------------------------|-------------------------|---------------------|--------------------------|
|   | E1                      | 51                  | Blocked motor            |
|  | E2                      | 40                  | Undervoltage             |
|  | E3                      | 4                   | Overvoltage              |
|                                                                                     |                         | 72                  | Internal fault           |
|                                                                                     |                         | 76                  | Internal fault           |
|                                                                                     |                         | 85                  | Internal fault           |
|  | E4                      | 57                  | Dry running              |
|  | E3                      | 43                  | Impellers forced forward |
|                                                                                     | .. <sup>3)</sup>        | 35                  | Air in media             |

<sup>3)</sup> This error is not shown on the operating panel. It is logged and can be seen in Grundfos GO.

### 14.3 Resetting alarms and warnings manually with Grundfos GO

- Go to **Alarms and warnings**.
- Press **Reset alarm**.  
All current alarms and warnings have been reset. However, if the fault causing the alarm or warning has not been removed, the alarm or warning will appear again.
- If you want to delete all alarms and warnings from the history log, press **Show log > Reset alarm and warning logs**.

### 14.4 Alarm and warning code logs

Grundfos GO saves up to 20 alarms and warnings in total in the **Alarms and warnings** menu.

### 14.5 Robust start

The non-magnetic shaft and bearings reduce the risk of blockages from dirt or magnetite, while the bearing system helps prevent limescale build-up. In the unlikely case of a blocked pump, the motor continuously attempts to start at the highest possible torque, ensuring startup in tough conditions.

### 14.6 Noise in the system

| Cause                       | Remedy                                                                                                                                                                                                           |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The flow is too high.       | <ul style="list-style-type: none"> <li>Lower the flow.</li> </ul>                                                                                                                                                |
| There is air in the system. | <ol style="list-style-type: none"> <li>Connect the pump to Grundfos GO.</li> <li>Select the <b>Settings</b> menu.</li> <li>Select <b>Vent pump (15 minutes)</b>.</li> <li>Press <b>Start venting</b>.</li> </ol> |

### 14.7 Alarms

#### 14.7.1 Code 51 (Blocked motor)

Grundfos mini Eye is flashing red, the displays show error code **E1** and the pump stops.

| Cause                | Remedy                                                                                                                                                                                      |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The pump is blocked. | <p>Only a qualified specialist must perform such work.</p> <ol style="list-style-type: none"> <li>Isolate the pump.</li> <li>Remove the pump head.</li> <li>Remove the deposits.</li> </ol> |

**14.7.2 Code 40 (Undervoltage)**

Grundfos mini Eye is flashing red, the displays show error code **E2** and the pump stops.

| Cause                                      | Remedy                                                                                                           |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| The supply voltage to the pump is too low. | <ul style="list-style-type: none"> <li>Make sure that the power supply is within the specified range.</li> </ul> |

**14.7.3 Code 74 (Overvoltage)**

Grundfos mini Eye is flashing red, the displays show error code **E3** and the pump stops.

| Cause                                       | Remedy                                                                                                           |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| The supply voltage to the pump is too high. | <ul style="list-style-type: none"> <li>Make sure that the power supply is within the specified range.</li> </ul> |

**14.7.4 Code 72 (Internal fault)**

Grundfos mini Eye is flashing red, the displays show error code **E3** and the pump stops.

| Cause           | Remedy                                                                                                                                                                                                    |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal fault. | <ul style="list-style-type: none"> <li>Replace the control box or the pump head and dispose of it in an environmentally sound way according to local regulations, or contact Grundfos Service.</li> </ul> |

**14.7.5 Code 76 (Internal fault)**

Grundfos mini Eye is flashing red, the displays show error code **E3** and the pump stops.

| Cause           | Remedy                                                                                                                                                                                   |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal fault. | <ul style="list-style-type: none"> <li>Replace the control box and dispose of it in an environmentally sound way according to local regulations, or contact Grundfos Service.</li> </ul> |

**14.7.6 Code 85 (Internal fault)**

Grundfos mini Eye is flashing red, the displays show error code **E3** and the pump stops.

| Cause           | Remedy                                                                                                                                                                                   |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal fault. | <ul style="list-style-type: none"> <li>Replace the control box and dispose of it in an environmentally sound way according to local regulations, or contact Grundfos Service.</li> </ul> |

**14.7.7 Code 57 (Dry running)**

Grundfos mini Eye is flashing red, the displays show error code **E4** and the pump stops.

| Cause                                                             | Remedy                                                                                                                                                      |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water is missing in the system or the system pressure is too low. | <ul style="list-style-type: none"> <li>Fill the system with the correct amount of liquid.</li> <li>Prime and vent the pump before a new startup.</li> </ul> |

**14.8 Warnings****14.8.1 Code 43 (Impellers forced forward)**

One indicator light in Grundfos mini Eye is yellow and rotating, the display shows error code **E3** and the pump is running.

| Cause                                                                                   | Remedy                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other pumps or sources generate flow through the pump even if the pump is switched off. | <ul style="list-style-type: none"> <li>Switch off the pump at the main switch. If the light in the pump display is on, the pump is running in forced pumping mode.</li> <li>Check the system for the correct position of the non-return valves.</li> <li>Check the system for defective non-return valves and replace the valves if necessary.</li> </ul> |

**14.8.2 Code 35 (Air in media)**

This is not shown on the operating panel. It is logged and can be seen in Grundfos GO.

| Cause                                   | Remedy                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| There is air in the pump and/or system. | <ul style="list-style-type: none"> <li>Vent the pump and system. <ol style="list-style-type: none"> <li>Connect the pump to Grundfos GO.</li> <li>Select the <b>Settings</b> menu.</li> <li>Select <b>Vent pump (15 minutes)</b>.</li> <li>Press <b>Start venting</b>.</li> </ol> </li> <li>If the problem persists, investigate the system for leakages.</li> </ul> |

## 15. Technical data

|                         |                                            |
|-------------------------|--------------------------------------------|
| Thermal protection      | Electronic (no external protection needed) |
| Enclosure               | Indoor use only                            |
|                         | Type 2                                     |
| Inrush current          | < 3 A                                      |
| Leakage current         | < 3.5 mA                                   |
| Check valve             | Included in the box                        |
| Flange-to-flange length | 6.5" (165 mm)                              |
|                         | 8.5" (216 mm) with extension: PN: 93602598 |
| Operating pressure      | Max. 150 psi (10.3 bar)                    |
| Pump housing            | Electrocoated cast iron                    |
| Connection type         | 2-bolt flange                              |
| Connection size         | GF 15/26/40/43                             |
| Pipe size               | 3/4" - 2"                                  |

### Product size

|              | Max. flow rate (Q) US<br>GPM [m³/h] | Max. head (H) ft [m] |
|--------------|-------------------------------------|----------------------|
| ALPHA 26-99  | 43 [9.7]                            | 34.1 ft [10.4 m]     |
| ALPHA 26-150 | 52 [(11.7)]                         | 46.3 ft [14.1 m]     |

### Power consumption

|              | Min. | Max.  |
|--------------|------|-------|
| ALPHA 26-99  | 2 W  | 110 W |
| ALPHA 26-150 | 2 W  | 200 W |

### Liquid and ambient temperature

|              | Liquid temperature              | Ambient temperature            |
|--------------|---------------------------------|--------------------------------|
| ALPHA 26-99  | -4 to 230 °F<br>(-20 to 110 °C) | -4 to 131 °F<br>(-20 to 55 °C) |
| ALPHA 26-150 | -4 to 212 °F<br>(-20 to 100 °C) | -4 to 131 °F<br>(-20 to 55 °C) |

### Inlet pressure

| Liquid temperature<br>[°C] | Min. inlet pressure<br>[bar] |
|----------------------------|------------------------------|
| 167 [75]                   | 0.75 [0.05]                  |
| 203 [95]                   | 7.25 [0.5]                   |
| 230 [110]                  | 15.7 [1.08]                  |

## 16. Disposing of the product

### WARNING Magnetic field



Death or serious personal injury

- Persons with a pacemaker or a similar device dismantling this product must exercise caution when handling the magnetic materials embedded in the rotor.

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 wheeled 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](http://www.grundfos.com/product-recycling).

## 17. Document quality feedback

To provide feedback about this document, scan the QR-code using your phone's camera or a QR code app.



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## Limited consumer warranty

### 1. Limited consumer warranty

This Limited Warranty is provided for Consumer Products sold in the United States only and applies to Consumer Transactions as defined in and applicable under the Magnusson-Moss Warranty Act and any other applicable Federal and/or State laws. In case of non-Consumer Products, please refer to Grundfos' warranty terms defined in clause 10 of Grundfos US Terms and Conditions of Sale of Product and Services available at <https://www.grundfos.com/legal/grundfos-customer-terms/usa-grundfos-general-terms-for-sales-of-products-and-services>

**This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from State to State.**

New products manufactured by Grundfos are warranted to the original purchaser only and are to be free from defects in design, material and workmanship under normal use and service for no greater than a period of thirty (30) months from the date of manufacture which is set forth on the product's nameplate and on the product's packaging or the minimum period required by the applicable State law. For New Jersey, the applicable period is one year from the date of purchase.

The warranty period for replacement products, parts and components expires thirty (30) months from the original date of manufacture of the product originally purchased, unless a longer period is required under the applicable State law. For New Jersey, the warranty period for replacement products, parts and components expires one year from the original date of purchase of the product, not the date of replacement. Products sold by Grundfos that are manufactured by others are not covered by this warranty.

**Note that when purchasing a Grundfos product online, it is important to check the date of manufacture and the duration of the warranty with the seller as the product might no longer be covered under this Limited Warranty.**

**When a product is subject to this Limited Warranty a purchaser should contact the seller from which it purchased the product to make a claim.**

If the seller of a product is no longer in business, the purchaser should contact a Grundfos Authorized Service Partner, which can be found at [www.grundfos.com/us](http://www.grundfos.com/us) under > Support > Contact Service.

As part of making a claim, a purchaser shall return a defective product at the purchaser's cost, to the extent allowed by applicable law, along with proof of purchase and an explanation of the defect, date the defect occurred and circumstances surrounding the defect. For New Jersey there is no prohibition on returning a defective product at a purchaser's cost. If Grundfos is required by applicable State law to pay for the cost of shipment under applicable State law, then a purchaser should contact a Grundfos Authorized Service Partner to arrange for shipment. A purchaser also needs to promptly respond to Grundfos as to any inquiries regarding a warranty claim.

**Grundfos' liability under this Limited Warranty to purchaser is limited to the repair or replacement of a product (at Grundfos' decision) that is the sole and exclusive remedy for purchaser to the extent permissible by applicable law.** For New Jersey this limitation is permissible.

This warranty does not cover the following: ordinary wear and tear; use of a product for applications for which it is not intended; use of a product in an unsuitable environment; modifications, alterations or repair undertaken by anyone not acting with Grundfos' written authorization; failure to follow Grundfos' instructions, operations manuals, any other guidelines or good industry practice; use of faulty or inadequate ancillary equipment in combination with a product; application of spare or replacement parts not provided or authorized by Grundfos; accidental or intentional damage or misuse of a product.

The time period for making a claim under the implied warranty of merchantability and implied warranty of fitness are limited to the same time period as provided by this warranty to the extent permissible by applicable law. For residents of New Jersey, this limitation is permissible, but note that some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

**Grundfos shall not be liable for any incidental and consequential damages in connection with a product to the extent permissible by applicable law.** For residents of New Jersey, this limitation is permissible, but note that some states do not allow limitations of incidental or consequential damages, so the above limitation may not apply to you.

## Limited manufacturer's warranty

### 1. Limited manufacturer's warranty

This Limited Manufacturer's Warranty outlines applicable coverage and claims procedures for the pumps manufactured by Grundfos (the "Product").

This Limited Manufacturer's Warranty is provided for consumer products sold and used in Canada only and applies to consumer transactions as defined in the applicable provincial and territorial laws. In case of non-consumer products, please refer to Grundfos' warranty terms defined in clause 10 of Grundfos Canada Terms and Conditions of Sale of Product and Services available at: <https://www.grundfos.com/ca/legal/general-terms-and-conditions-of-sales-and-delivery>

This Limited Manufacturer's Warranty provides specific rights and limitations. Some of the limitations may not apply to you, and you may also have other rights that vary from province to province.

#### Scope of the Limited Manufacturer's Warranty

Subject to the following warranty terms and conditions, Grundfos Canada Inc. of 2941 Brighton Rd, Oakville, ON L6H 6C9, Canada ("Grundfos"), warrants to the original consumer (the "Purchaser") that the new Product manufactured by Grundfos is free from defects in design, material and workmanship under normal use and service for a period of twenty-four (24) months from the date of retail purchase but no greater than a period of thirty (30) months from the date of manufacture which is set forth on the Product's nameplate and on the Product's packaging (the "Warranty Period").

**Note that when purchasing a Grundfos Product online, it is important to check the date of manufacture and the duration of the warranty with the seller as the Product might no longer be covered under this Limited Manufacturer's Warranty.**

This Limited Manufacturer's Warranty applies exclusively to a new Grundfos Product sold and used in Canada. This Limited Manufacturer's Warranty does not apply to any Product sold "as is" or "sales final". This Limited Manufacturer's Warranty is not transferrable by the original Purchaser. Products sold by Grundfos that are manufactured by others are not covered by this warranty.

The sole and exclusive remedy under this Limited Manufacturer's Warranty is the repair or, at the discretion of Grundfos, the replacement of the Product, as set out below. Defects or damages are not covered by the Limited Manufacturer's Warranty if they are due to:

- ordinary wear and tear;
- use of the Product for an application for which it is not intended;
- installation of the Product in an environment not suitable for the Product;
- any modification, alteration or repair of the Product undertaken by the Purchaser or a third party (not acting on Grundfos' behalf);
- failure to follow Grundfos' instructions, including in the installation manual, operation manual, maintenance manual or service manual;
- installation, commissioning, operation (including the use of the Product or any Grundfos product outside its specifications) or maintenance of the Product other than in accordance with Grundfos installation manual, operation manual, maintenance manual or service manual or with good industry practice;
- use of faulty or inadequate ancillary equipment in combination with the Product;
- the application of spare parts of poor quality (excluding the application of any Grundfos original spare parts);
- accidental or intentional damage or misuse of the Products or services by the Purchaser or a third party (not acting on Grundfos' behalf); or
- the non-compliance of the Purchaser or of the Purchaser's own products with applicable law and regulation.

#### How to get service under the Limited Manufacturer's Warranty:

When a Product is subject to this Limited Manufacturer's Warranty, the Purchaser should contact the seller from which it purchased the Product to make a claim within 24 months from the date of retail purchase but no later than thirty (30) months from the date of manufacture which is set forth on the Product's nameplate and on the Product's packaging (the "Warranty Notification Period").

If the seller of a Product is no longer in business, the Purchaser should contact Grundfos Service at [www.grundfos.com/us](http://www.grundfos.com/us) under **Support > Contact Service**.

To exercise the rights under this Limited Manufacturer's Warranty, the Purchaser shall return a defective Product at the Purchaser's cost, to the extent allowed by applicable law, along with proof of purchase and an explanation of the defect, date the defect occurred and circumstances surrounding the defect.

The Purchaser is responsible for any expenses for dismounting and mounting the Product and for any and costs related to removal, reinstallation, transportation, and insurance. If Grundfos is required by applicable provincial or territorial law to pay for the cost of transportation, then the Purchaser should contact Grundfos Service Partner to arrange for shipment. The Purchaser also needs to promptly respond to Grundfos as to any inquiries regarding a warranty claim.

Unless requested by Grundfos, the Product may not be disassembled prior to remedy. Any failure to comply herewith will render this Limited Manufacturer's Warranty void.

Grundfos will either arrange the repair of the defective Product under this Limited Manufacturer's Warranty or, at Grundfos' option, provide the Purchaser with a replacement of the defective Product. The replacement unit can be new or remanufactured.

**To the extent permissible by applicable law, Grundfos shall not be liable for any incidental and consequential damages or losses of any kind whatsoever arising under, relating to or in connection with the Product, use of the Product or the inability to use the Product.**

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