ALPHA3

Model B

Installation and operating instructions

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Original installation and operating instructions

These installation and operating instructions describe Grundfos ALPHA3 model B.

Sections 1-5 give the information necessary to be able to unpack, install and start up the product in a safe way.

Sections 6-12 give important information about the product, as well as information on service, fault finding and disposal of the product.

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1. General information

1.1 Target group

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

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

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

1.2 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 hazard

Consequence of ignoring the warning.

- Action to avoid the hazard.

1.3 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. Receiving the product

2.1 Inspecting the product

CAUTION

Crushing of feet

Minor or moderate personal injury

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

Check that the product received is in accordance with the order.

Check that the voltage and frequency of the product match the voltage and frequency of the installation site. See section *5.4.2 Nameplate*.

2.2 Scope of delivery

The box contains the following items:

- ALPHA3 pump
- ALPHA plug
- insulating shells
- two gaskets
- quick guide.

3. Installing the product

DANGER

Electric shock

Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

WARNING

Electric shock

Death or serious personal injury

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

WARNING

Steam

Death or serious personal injury

- The pumped liquid may be scalding hot and under high pressure. A damaged product must be repaired or replaced by Grundfos or a service workshop authorised by Grundfos.

CAUTION

Crushing of feet

Minor or moderate personal injury

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

The pump must always be installed with a horizontal motor shaft within ± 5 °.

3.1 Mechanical installation

3.1.1 Mounting the product

The arrows on the pump housing indicate the flow direction through the pump. See fig. 1 (A).

1. Fit the two gaskets supplied with the pump when you mount the pump in the pipe. See fig. 1 (B).
2. Install the pump with a horizontal motor shaft within ± 5 °. See fig. 1 (C). See also section *3.2 Pump positions*.
3. Tighten the fittings.

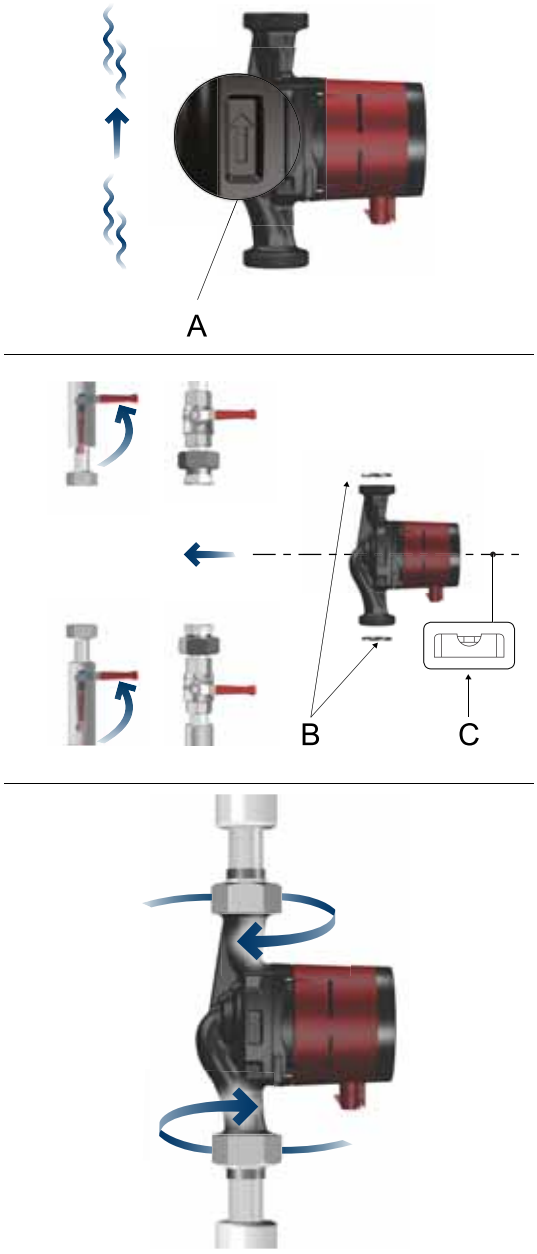

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Fig. 1 Mounting ALPHA3

3.2 Pump positions

Always install the pump with a horizontal motor shaft within ± 5 °.

- Pump installed correctly in a vertical pipe. See fig. 2 (A).
- Pump installed correctly in a horizontal pipe. See fig. 2 (B).

Do not install the pump with a vertical motor shaft. See fig. 2 (C and D).

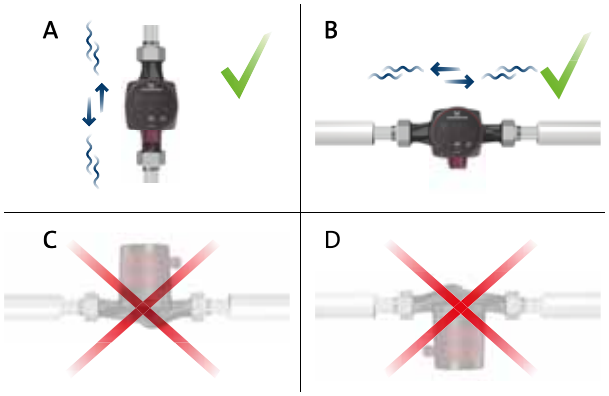

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Fig. 2 Control box positions

3.3 Control box positions

3.3.1 Positioning of the control box in heating systems

You can position the control box in position 3, 6 and 9 o'clock. See fig. 3.

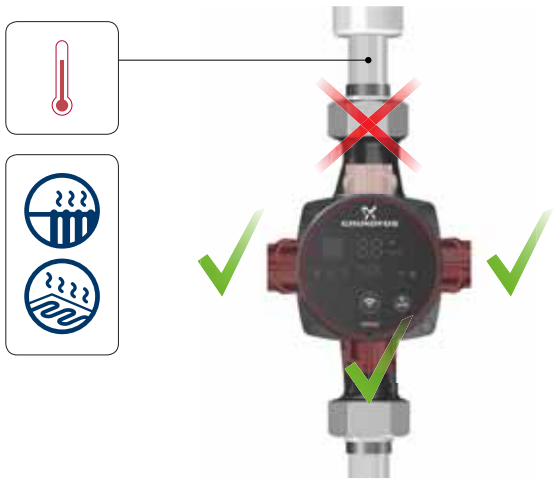

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Fig. 3 Control box positions, heating systems

3.3.2 Positioning the control box in air-conditioning and cold-water systems

Position the control box with the plug pointing downwards. See fig. 4.

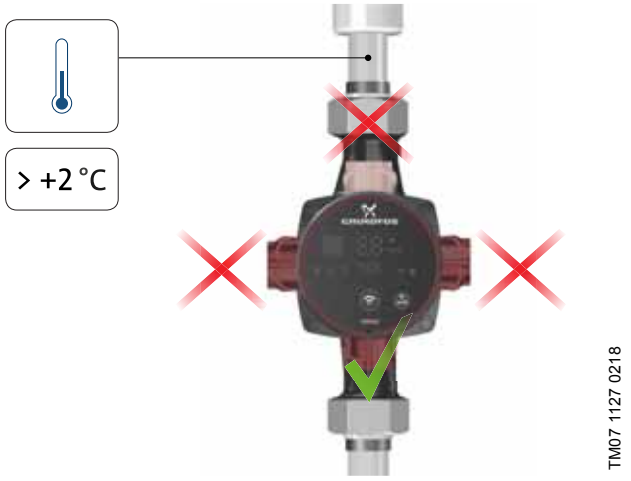
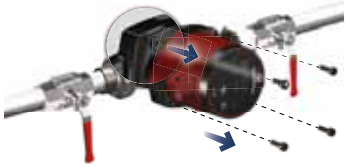
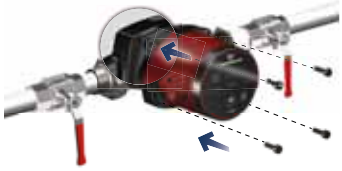


Fig. 4 Control box position, air-conditioning and cold-water systems

3.3.3 Changing the control box position

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

Step	Action	Illustration
1	Remove the four screws.	 TM05 5538 3812
2	Turn the pump head to the desired position. You can turn the control box in steps of 90 °.	TM05 5539 3812
3	Insert and cross-tighten the screws.	 TM05 5540 3812

CAUTION

Hot surface

Minor or moderate personal injury

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

CAUTION

Pressurised system

Minor or moderate personal injury

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

If you change the position of the control box, fill the system with the liquid to be pumped or open the isolating valves.

3.4 Insulating the pump housing

You can reduce the heat loss from the product by insulating the pump housing with the insulating shells supplied with the pump. See fig. 5.

Fig. 5 Insulating the pump housing

Do not insulate the control box or cover the operating panel.

3.5 Electrical installation

WARNING
Electric shock
Death or serious personal injury
- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

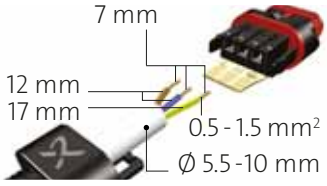
WARNING
Electric shock
Death or serious personal injury
- Connect the pump to earth.

WARNING
Electric shock
Death or serious personal injury
- If national legislation requires a Residual Current Device (RCD) or equivalent in the electrical installation, or if the pump is connected to an electric installation where an RCD is used as an additional protection, this must be type A or better, due to the nature of the pulsating DC leakage current. The RCD must be marked with the symbol shown below;

WARNING
Electric shock
Death or serious personal injury
- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.

- The pump requires no external motor protection.
- Check that the supply voltage and frequency correspond to the values stated on the nameplate. See section *5.4.2 Nameplate*.
- Connect the pump to the power supply with the plug supplied with the pump. See steps 1 to 7 below.

3.5.1 Assembling the plug

Step	Action	Illustration
1	Fit the cable gland and plug cover to the cable. Strip the cable conductors as illustrated.	 TM05 5538 3812
2	Connect the cable conductors to the power supply plug.	TM05 5539 3812
3	Bend the cable with the cable conductors pointing upwards.	TM05 5540 3812
4	Pull out the conductor guide plate and throw it away.	TM05 5541 3812
5	Click the plug cover onto the power supply plug.	TM05 5542 3812
6	Screw the cable gland onto the power supply plug.	TM05 5543 3812
7	Insert the power supply plug into the male plug in the pump control box.	TM07 1194 1118

4. Starting up the product

4.1 Before startup

Do not start the pump until the system has been filled with liquid and vented. Make sure that the required minimum inlet pressure is available at the pump inlet. See section *10. Technical data*.

4.2 First startup

After installing the product, turn on the power supply. The light in the operating panel shows that the power supply has been switched on. See fig. 6.

Factory setting

The pump is factory set to radiator mode with $AUTO_{ADAPT}$.

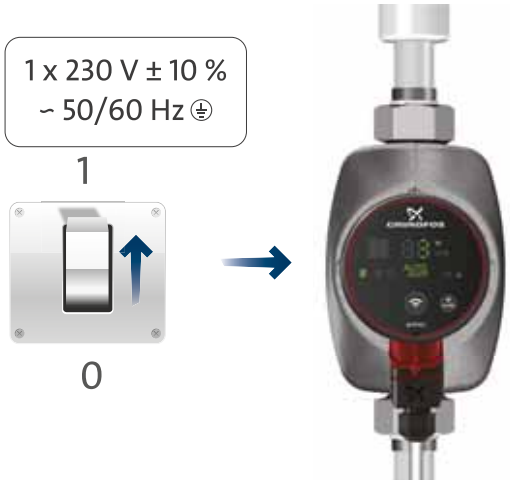


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Fig. 6 Starting up the pump

4.2.1 Dry-running protection

The dry-running protection protects the pump against dry running during startup and normal operation. See section *9. Fault finding the product*.

During first startup and in case of dry-run, the pump will show a warning. See section *9.5 Fault finding tables*.

4.3 Venting the pump

TM07 1192 1118

Fig. 7 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.

Venting the pump at the first startup

When the pump is connected to Grundfos GO Remote, the app takes you through a setup wizard. See section *7.4 Setup wizard*. When the setup is completed, a "Pump venting" dialogue box appears after approximately two seconds, which guides you through the pump venting process.

The venting process lasts 30 minutes.

Venting the pump via the "Assist" menu

You access the "Pump venting" menu in the "Assist" menu. Do as follows:

1. Connect the pump to Grundfos GO Remote. See section *7.2 Connecting the pump to Grundfos GO Remote*.
2. Go to the "Assist" menu and choose "Pump venting". Follow the instructions given in Grundfos GO Remote. The venting process lasts 30 minutes.

TM07 1210 1118

Fig. 8 Operating panel during venting process

The pump automatically returns to its initial settings after venting.

The pump must not run dry.

You cannot vent the system through the pump.

5. Product introduction

5.1 Product description

The Grundfos ALPHA3 pump is designed for circulating liquids in systems with variable flow rates where it is desirable to optimise the setting of the pump duty point to reduce energy costs.

ALPHA3 is completely controlled with Grundfos GO Remote via Bluetooth, which gives you step-by-step assistance to pump configuration, maintenance and repair, including:

- operating and control modes
- scheduling for when the pump should operate and when not
- warning and alarm status with up to 20 entries.

Furthermore, ALPHA3 is able to connect to the Grundfos GO Balance app, which allows you to hydronically balance two-pipe radiators and underfloor heating systems in a fast and safe way.

5.2 Intended use

The pump is designed for circulating liquids in heating and air conditioning systems with temperatures equal to or higher than 2 °C.

5.3 Pumped liquids

In heating systems, the water must meet the requirements of accepted standards on water quality in heating systems, for example the German guideline VDI 2035.

The pump is suitable for the following liquids:

- Thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres.
- Cooling liquids, not containing mineral oil.
- Softened water.

The kinematic viscosity of water is 1 mm^2/s (1 cSt) at 20 °C. If the pump is used for a liquid with a higher viscosity, the hydraulic performance of the pump will be reduced.

Example: 50 % glycol at 20 °C means a viscosity of approximately 10 mm^2/s (10 cSt) and a reduction of the pump performance by approximately 15 %.

Do not use additives that can disturb the functionality of the pump.

When selecting a pump, take the viscosity of the pumped liquid into consideration.

For more information about the pumped liquids, warnings and operating conditions, see section *10. Technical data*.

CAUTION

Flammable material

Minor or moderate personal injury

- Do not use the pump for flammable liquids, such as diesel oil and petrol.

CAUTION

Corrosive substance

Minor or moderate personal injury

- Do not use the pump for aggressive liquids, such as acids and seawater.

5.4 Identification

5.4.1 Model type

These installation and operating instructions cover Grundfos ALPHA3 model B. The model type is stated on the packaging and nameplate. See figs 9 and 10.

TM07 0356 1318

Fig. 9 Model type on the packaging

TM07 1191 1118

Fig. 10 Model type on the nameplate

5.4.2 Nameplate

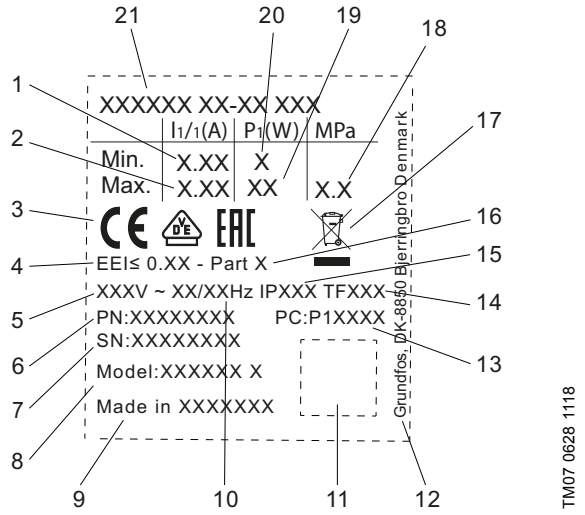


Fig. 11 Nameplate

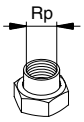
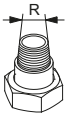
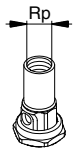
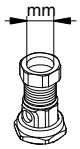
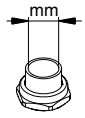
Pos.	Description
1	Minimum rated current [A]
2	Maximum rated current [A]
3	CE mark and approvals
4	EEI: Energy Efficiency Index
5	Voltage [V]
6	Product number
7	Serial number
8	Pump model
9	Country of origin
10	Frequency [Hz]
11	Data matrix code
12	Grundfos address
13	Production code: • 1st and 2nd figures: production site code • 3rd and 4th figures: year • 5th and 6th figures: week
14	Temperature class
15	Enclosure class
16	Part, according to EEI
17	Crossed-out wheeled bin according to EN 50419
18	Maximum system pressure [MPa]
19	Maximum input power P1 [W]
20	Minimum input power P1 [W]
21	Product type

5.4.3 Type key

Example	ALPHA3	25	-40	N	180
Pump type [ ]: Standard version					
Nominal diameter (DN) of inlet and outlet ports [mm]					
Maximum head [dm]					
[ ]: Cast-iron pump housing					
Port-to-port length [mm]					

5.5 Accessories

5.5.1 Unions and valve kits

Product numbers, unions															
		Union nut with internal threads			Union nut with external threads		Ball valve with internal threads			Ball valve with compression fitting		Union nut with soldering fitting			
ALPHA3	Connection														
		3/4	1	1 1/4	1	1 1/4	3/4	1	1 1/4	∅22	∅28	∅18	∅22	∅28	∅42
15-xx*	G 1														
25-xx	G 1 1/2	529921	529922	529821	529925	529924	519805	519806	519807	519808	519809	529977	529978	529979	
32-xx	G 2		509921	509922											529995

Note: The product numbers are always for one complete set, incl. gaskets.

* When ordering for UK 15-xx versions, use product numbers for 25-xx (G 1 1/2).

G-threads have a cylindrical form in accordance with the EN ISO 228-1 standard and are not sealing the thread. It requires a flat gasket. You can only screw male G-threads (cylindrical) into female G-threads. The G-threads are standard thread on the pump housing.

R-threads are tapered external threads in accordance with the EN 10226-1 standard.

Rc- or Rp-threads are internal threads with either tapered or cylindrical (parallel) threads. You can screw male R-threads (conical) into female Rc- or Rp-threads. See fig. 12.

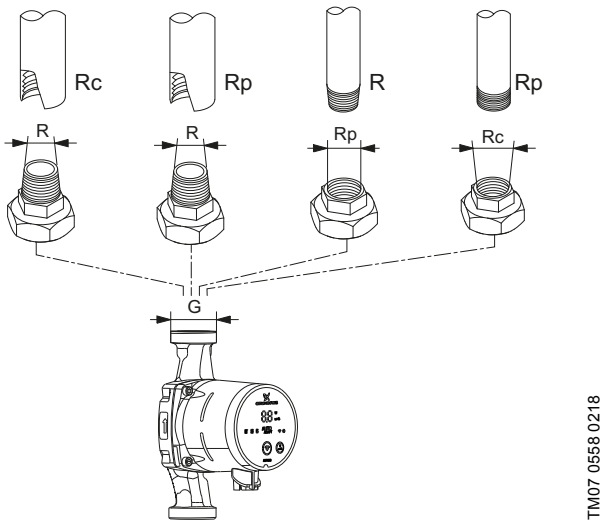


Fig. 12 G-threads and R-threads

5.5.2 Insulating shells, ALPHA3

The pump is supplied with two insulating shells.

The insulating shells, which are tailored to the individual pump type, enclose the entire pump housing. The insulating shells are easy to fit around the pump. See fig. 13.

Pump type	Product number
ALPHA3 XX-XX 130	98091786
ALPHA3 XX-XX 180	98091787

TM07 1128 0218

Fig. 13 Insulating shells

5.5.3 ALPHA plugs

TM06 5823 0216

Fig. 14 ALPHA plugs

Pos.	Description	Product number
1	ALPHA straight plug, standard plug connector, complete	98284561
2	ALPHA angle plug, standard angle plug connection, complete	98610291
3	ALPHA plug, 90 ° bend to the left, including 4 m cable	96884669
4	ALPHA plug, 90 ° bend to the left, including 1 m cable and integrated NTC protection resistor*	97844632

* This special cable with an active built-in NTC protection circuit, reduces possible inrush currents. To be used in case of for instance poor quality of relay components that are sensitive to inrush current.

5.5.4 ALPHA Reader

TM06 8574 1517

Fig. 15 ALPHA Reader

When performing hydronic balancing in a heating system, the Bluetooth signal between the pump and the smart device may become too weak due to the maximum Bluetooth range of approximately 10 m. In such cases the ALPHA Reader can be used as an extender.

The ALPHA Reader is the receiver and transmitter of pump real time performance data.

The unit uses a CR2032 lithium battery.

The unit is together with the Grundfos GO Balance app used for balancing heating system primarily in one- and two-family houses. The app is available for both Android and iOS devices, and you can download it free of charge from Google Play and App Store.

See separate installation and operating instructions.

Description	Product number
ALPHA Reader MI401	98916967

6. Control functions

6.1 Operating modes

Normal

The pump runs according to the selected control mode.

Stop

The pump stops.

Normal

Stop.

The [ ] LEDs blink in a pulsating motion.

TM07 1195 1218

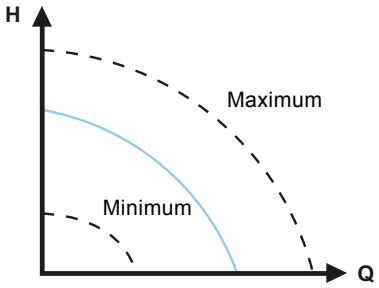
Fig. 16 Operating panel in the Normal and Stop operating modes

Min.

You can use the minimum curve mode in periods in which a minimum flow is required. This operating mode is for instance suitable for manual night setback if automatic night setback is not desired.

Max.

You can use the maximum curve mode in periods in which a maximum flow is required.



TM07 1001 0918

Fig. 17 Maximum and minimum curves

6.2 Control modes

6.2.1 Radiator mode

If the pump is placed in a two-pipe radiator heating system, we recommend that the pump operates in "Radiator mode".

The radiator mode uses the AUTO$_{ADAPT}$ function to automatically adjust the pump performance to the actual heat demand in the system. The pump performance follows a proportional-pressure curve within the AUTO$_{ADAPT}$ range, which is anywhere between the maximum and minimum proportional curve.

For further information, see section *6.2.4 AUTO$_{ADAPT}$*.

The pump is factory set to radiator mode.

If operating in a one-pipe system, the pump must be set to constant pressure. See section *6.2.6 Constant pressure*.

TM07 1634 1218

Fig. 18 Operating panel in radiator mode

6.2.2 Underfloor mode

If the pump is placed in an underfloor heating system, we recommend that the pump operates in "Underfloor mode".

The underfloor mode uses the AUTO$_{ADAPT}$ function to automatically adjust the pump performance to the actual heat demand in the system. The pump performance follows a constant-pressure curve within the AUTO$_{ADAPT}$ range, which is anywhere between the maximum and minimum constant curve.

For further information, see section *6.2.4 AUTO$_{ADAPT}$*.

TM07 1635 1218

Fig. 19 Operating panel in underfloor mode

6.2.3 Radiator and underfloor mode

If the pump is placed in a system that consists of both radiator and underfloor heating, it is possible to select a combination of the two, called "Radiator & Underfloor mode".

The mode uses the AUTO$_{ADAPT}$ function to automatically adjust the pump performance to the actual heat demand in the system. The pump performance follows a proportional-pressure curve within the AUTO$_{ADAPT}$ range, which is anywhere between the maximum and minimum proportional curve.

For further information, see section *6.2.4 AUTO$_{ADAPT}$*.

TM07 1636 1218

Fig. 20 Operating panel in radiator and underfloor mode

6.2.4 AUTO$_{ADAPT}$

AUTO$_{ADAPT}$ is an integrated function in the radiator, underfloor and radiator and underfloor mode.

AUTO$_{ADAPT}$ selects the best control curve under the given operating conditions, meaning that the pump performance is automatically adjusted to the actual heat demand, that is the size of the system and the changing heat demand over time, by continuously selecting either a proportional-pressure curve or constant-pressure curve within the AUTO$_{ADAPT}$ performance range. See fig. 21.

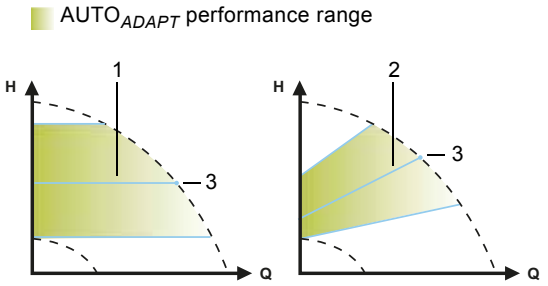


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Fig. 21 AUTO$_{ADAPT}$

Pos.	Description
1	Constant-pressure curve (underfloor mode)
2	Proportional-pressure curve (radiator mode / radiator and underfloor mode)
3	Setpoint

You cannot expect an optimum pump setting from day one. If the power supply fails or is disconnected, the pump stores the AUTO$_{ADAPT}$ setting in an internal memory and resumes the automatic adjustment when the power supply has been restored.

6.2.5 Proportional pressure

Proportional-pressure mode adjusts the pump performance to the actual heat demand in the system, but the pump performance follows the selected proportional-pressure curve. The selection of the proportional-pressure setting depends on the characteristics of the heating system and the actual heat demand.

The curve's setpoint is user defined in the Grundfos GO Remote app. The setpoint can be chosen anywhere between the minimum and maximum proportional curve in intervals of 0.1 m. The head against a closed valve is half the setpoint H_{set}, although never below 1 m.

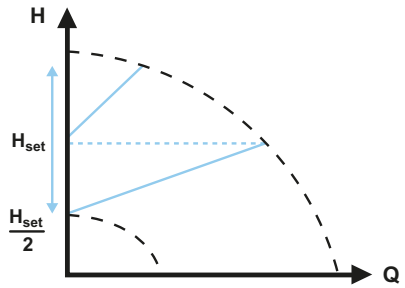

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Fig. 22 Proportional-pressure settings

TM07 1195 1218

Fig. 23 Operating panel in proportional-pressure mode

6.2.6 Constant pressure

Constant-pressure mode adjusts the pump performance to the actual heat demand in the system, but the pump performance follows the selected constant-pressure curve. The selection of the constant-pressure setting depends on the characteristics of the heating system and the actual heat demand.

The curve's setpoint is user defined in the Grundfos GO Remote app. The setpoint can be chosen anywhere between the minimum and maximum constant-pressure curve in intervals of 0.1 m.

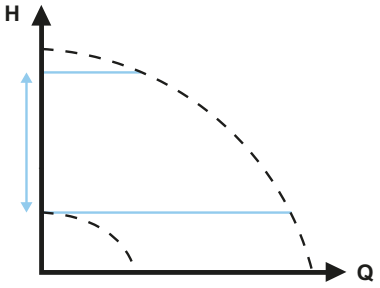

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Fig. 24 Constant-pressure settings

TM07 1637 1218

Fig. 25 Operating panel in constant-pressure mode

6.2.7 Constant curve

At constant curve, the pump runs at a constant curve independently of the actual flow rate demand in the system. The pump performance follows the selected constant curve. The selection of the constant-curve setting depends on the characteristics of the heating system and the actual heat demand.

The curve's setpoint is user defined in the Grundfos GO Remote app. The speed in % of maximum speed can be chosen anywhere between the minimum and maximum constant curve in intervals of 1 %.

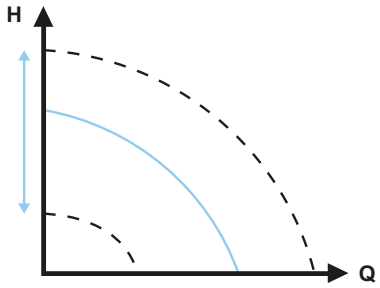

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Fig. 26 Constant-curve settings

TM07 1195 1218

Fig. 27 Operating panel in constant-curve mode

6.2.8 Automatic night setback

With automatic night setback enabled the pump automatically changes between normal operation and the automatic night setback curve.

The pump changes to automatic night setback when a flow-pipe temperature drop of more than 10 to 15 °C within approximately two hours is registered. The temperature drop must be at least 0.1 °C/min.

Changeover to normal operation takes place without a time lag when the flow-pipe temperature has increased by approximately 10 °C. You do not have to re-enable automatic night setback if the power supply has been switched off.

If the power supply is switched off when the pump is running on the curve for automatic night setback, the pump starts in normal operation. The pump changes back to the curve for automatic night setback when the condition for automatic night setback is fulfilled again.

If there is insufficient heat in the heating system, check whether automatic night setback has been enabled. If yes, disable the function.

To ensure the optimum function of automatic night setback, the following conditions must be fulfilled:

- The pump must be installed in the flow pipe.
- The boiler must incorporate automatic control of the liquid temperature.

To activate "Automatic night setback", follow the instructions in section *7.6 Activating and deactivating "Automatic night setback"*.

Do not use automatic night setback when the pump is installed in the return pipe of the heating system.

Automatic night setback is available in all control modes. The pump must be set to "Normal" operating mode.

6.3 Guide to control mode selection

System type	Pump setting	
	Recommended	Alternative
One-pipe system	Constant pressure	Constant curve
Two-pipe system	Radiator mode	Proportional pressure
Underfloor heating	Underfloor mode	Constant pressure
Combined two-pipe and underfloor heating system	Radiator and underfloor mode	Proportional pressure

Changing from recommended to alternative pump setting

Heating systems are relatively slow systems that cannot be set to the optimum operation within minutes or hours.

If the recommended pump setting does not give the desired distribution of heat in the rooms of the house, change the pump setting to the shown alternative.

7. Setting the product

All settings to the pump is made via the Grundfos GO Remote app, which is available for iOS and Android devices and free of charge. Grundfos GO Remote connects to the pump via Bluetooth.

In addition you can select four different operating modes via the pump's operating panel. See section *7.10 Setting the operating mode using the operating panel*.

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Fig. 28 Operating panel

Pos.	Description
1	QR code: When scanned with Grundfos GO Remote you get access to detailed product information, documentation and service information. The QR scanner is found in the app's side menu.
2	Four light fields indicating the pump setting.
3	Connectivity button: Push-button for connecting the pump to Grundfos GO Remote and Grundfos GO Balance. The button can also be used for setting the pump's operating mode.
4	Light field indicating either the actual pump power consumption in watt or the actual flow rate in m^3/h in steps of 0.1 m^3/h during operation.
5	Alarm and warning indication. See section *9. Fault finding the product*.
6	Connectivity symbol. When lit, the pump is connected to Grundfos GO Remote.
7	Push-button for selection of parameter to be shown in the display, that is actual power consumption in watt or actual flow rate in m^3/h.

7.1 Light fields indicating the pump setting

The pump setting is indicated by four light fields in the display. See fig. 28 (3). The settings are configured via the Grundfos GO Remote app.

Factory setting

The pump is factory set to radiator mode.

Active light fields	Description
	Radiator mode
	Underfloor mode
	Radiator and underfloor mode
	User set control mode (proportional-pressure, constant-pressure and constant-curve mode) including min. and max. operation mode.

For information about the control settings, see section *6. Control functions*.

7.2 Connecting the pump to Grundfos GO Remote

ALPHA3 is designed to communicate with the Grundfos GO Remote app. Before connecting, you must download the app.

To connect do as follows:

1. Turn on Bluetooth on your smart device.
2. Open Grundfos GO Remote.
3. Choose to connect via Bluetooth. If you connect via the "List" button, choose "ALPHA3" from the list.
   Follow the instructions given in Grundfos GO Remote.
4. When the pump detects that Grundfos GO Remote is trying to establish connection, the connectivity symbol on the pump operating panel starts to flash blue. See fig. 29 (A).
   When Grundfos GO Remote is connected to the pump, the symbol on the operating panel is permanently on. See fig. 29 (B).

A B

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Fig. 29 Operating panel when connecting the pump to Grundfos GO Remote

When the pump connects to Grundfos GO Remote, a setup wizard automatically pops up after approximately two seconds.

7.2.1 Identifying and connecting to a pump in a multiple pump setup

In order to communicate with a pump in areas with multiple pumps, do as follows:

1. Turn on Bluetooth on your smart device.
2. Open Grundfos GO Remote.
3. Choose to connect via Bluetooth and tap the "List" button.
4. Grundfos GO Remote shows a list of all the pumps in the Bluetooth communication range. The connectivity symbol on the operating panels of all ALPHA3 pumps within the Bluetooth communication range starts to flash blue. See fig. 29 (A).
5. **Identifying a pump**
   Choose a product from the list. Next:
   – Tap the grey icon to the left. See fig. 30 (1).
   – Grundfos Eye begins to blink. See fig. 30 (2).
   – The connectivity symbol on the corresponding pump starts to flash blue.
6. **Connecting to the pump**
   When you have identified your pump, tap anywhere on the box to connect with Grundfos GO Remote. See fig. 30 (3). Once connection is established, the pump's connectivity symbol will be permanently on. See fig. 29 (B). The connectivity symbol on the remaining pumps will turn off.

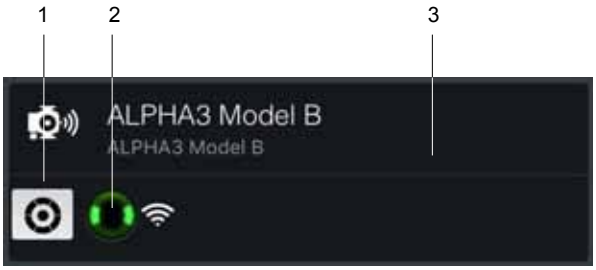

Fig. 30 Identifying a pump in Grundfos GO Remote

7.3 Grundfos GO Remote menu overview

Status	This menu gives an overview of the pump's current operating status.
Settings	Here, settings such as operating and control modes, automatic night setback and date and time are set. You can also restore factory settings, see section *7.9 Resetting to factory settings*, and update firmware, see section *7.8 Firmware update*.
Scheduling	This menu lets you predefine a start and stop schedule for the pump. See section *7.5 Scheduling*.
Alarms and warnings	Reset any warnings or alarms. Up to 20 entries are saved. See section *9. Fault finding the product*.
Assist	This menu guides you through the pump setup and pump venting as well as offers recommendations to fault corrections.

7.4 Setup wizard

When connecting the pump to Grundfos GO Remote, a setup wizard will pop up in the "Dashboard" menu in Grundfos GO Remote.

The wizard guides you through the selection of the following:

- Application
- Hydronic balancing (optional)
  In this step Grundfos GO Remote opens up the Grundfos GO Balance app, from which the balancing is done.
  If you to skip this step in the setup wizard, balancing is done directly via the Grundfos GO Balance app. See section *7.7 Hydronic balancing*.
- Control mode
  In proportional-pressure, constant-pressure and constant-curve mode you will be asked to set the setpoint as well.
- Naming of the pump.

7.4.1 Pump venting dialogue box

When the setup wizard has completed, a "Pump venting" dialogue box appears, which guides you through the pump venting process. We recommend venting the pump in new installations or when the pipes have been emptied and refilled with water. For further information, see section *4.3 Venting the pump*.

The pump venting function can also be accessed via the "Assist" menu.

7.5 Scheduling

In some applications it can be useful to predefine a start and stop schedule for the pump in order to lower energy costs.

The scheduling function allows you to customise the operating time in several ways:

- Individual schedule for each day of the week: Total customisation of pump operation cycles.
- 9-to-5 work week template: Inserts an adjustable template for a typical work week. Suitable when no operation is needed on weekends.
- Stop at night only.
- Summer mode: Presets the pump to stop operation in a specific time period and automatically start again.

When scheduling is activated, the pump will automatically run for two minutes every 24 hours at low speed to avoid blocking the rotor as well as sticky valves and non-return valves.

7.5.1 Scheduling operating periods

To customise the pump's operating periods, do as follows:

1. Connect the pump to Grundfos GO Remote. See section *7.2 Connecting the pump to Grundfos GO Remote*.
2. Tap the "Scheduling" menu.
3. Activate the scheduling function by tapping the grey slide-button in the top right corner of the screen.
4. Choose the weekday for which you want to schedule the pump performance.
5. Insert a time period by tapping the light grey perimeter of the clock. Customise the time period by dragging the bar clockwise or counterclockwise on the light grey perimeter. You can insert more than one time period per day.
   Delete a time period by dragging it outside the clock wheel.

You can assign more weekdays to the schedule by tapping the weekdays in the bottom of the screen. Days are chosen when they are shown as green.

7.5.2 Additional settings

"Use template"

This template allows you to select between two schedule patterns, either "9-to-5 work week" or "Stop at night only".

The "9-to-5 work week" template inserts an adjustable template for a typical work week.

"Summer mode"

In order to avoid damage to property and pipes, the pump must only operate in "Summer mode" when there is no risk of the pipes freezing.

This setting allows you to preset the pump to stop operation in a specific time period and automatically start again. The pump will automatically start up at low speed for a short period of time every day to avoid blocking the rotor as well as sticky valves and non-return valves. It is not possible to choose a time period that lies further ahead than one year.

Normal operation

Scheduled stop.
The [ ] LEDs blink in a pulsating motion.

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Fig. 31 Operating panel when pump is scheduled to start and stop

7.6 Activating and deactivating "Automatic night setback"

To activate or deactivate "Automatic night setback", do as follows:

1. Connect the pump to Grundfos GO Remote. See section *7.2 Connecting the pump to Grundfos GO Remote*.
2. Tap the "Settings" menu.
3. Choose "Automatic night setback" and either enable or disable the function. Press "OK".

When the pump is operating in either proportional-pressure, constant-pressure or constant-curve control mode, "Automatic night setback" can also be (de)activated in the "Setpoint" menu available in the "Dashboard" menu via the "Automatic night setback" icon:

"Automatic night setback" is available in all control modes. The pump must be set to "Normal" operating mode.

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Fig. 32 Operating panel in "Automatic night setback"

7.7 Hydronic balancing

ALPHA3 allows you to balance two-pipe radiators and underfloor heating systems. Balancing is primarily used in one- and two-family houses.

In order to start balancing, you must make sure to have the Grundfos GO Balance app installed on your smart device. The app is free of charge and available for both iOS and Android devices.

Connect the pump to the Grundfos GO Balance app via Bluetooth. When moving from room to room, the Bluetooth signal between the pump and the app is likely to be too weak and the pump and app will disconnect. In such cases use an ALPHA reader as extender. See section *5.5.4 ALPHA Reader*.

Balancing at initial startup

When connecting the pump to Grundfos GO Remote, the setup wizard asks you whether or not you want to balance your system. See section *7.4 Setup wizard*.

Balancing the system

To balance your system, do as follows:

1. Turn on Bluetooth on your smart device.
2. Open the Grundfos GO Balance app.
3. The app will ask you a few questions before letting you connect to the pump.
4. Follow the instructions on connecting given by Grundfos GO Balance.
5. When the pump is connected, the connectivity symbol on the pump lights blue. See fig. 28 (6).
6. Follow the instructions on balancing given by Grundfos GO Balance.

Grundfos GO Balance automatically sets the control mode according to the information given by the user.

7.8 Firmware update

When connecting the pump to Grundfos GO Remote, the app searches for new firmware updates. If an update is available, Grundfos GO Remote notifies you and you will be given the option to update now or later.

Before updating make sure that your smart device fulfils the following conditions:

- There is sufficient power.
- Your smart device is connected to the pump.
- Your smart device stays within the Bluetooth communication range.

The firmware menu can also be accessed via the "Settings" menu.

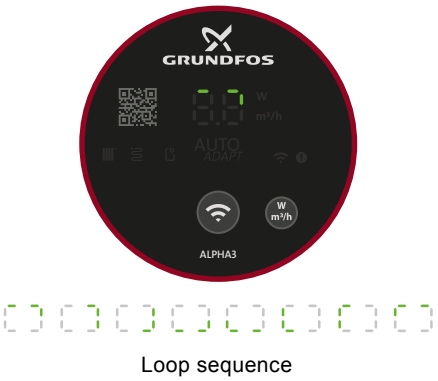

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Fig. 33 Operating panel when updating the firmware

7.9 Resetting to factory settings

The pump can be reset to its factory settings via the "Settings" menu in Grundfos GO Remote or by using the pump operating panel. The pump is factory set to radiator mode.

7.9.1 Using Grundfos GO Remote

1. Connect the pump to Grundfos GO Remote. See section *7.2 Connecting the pump to Grundfos GO Remote*.
2. Go to the "Settings" menu.
3. Choose "Factory reset".
4. Tap the "Reset user settings to factory" button.
5. Confirm by tapping "Reset".
6. The pump and Grundfos GO Remote disconnect and you will need to reconnect in order to adjust the pump setting.

7.9.2 Using the pump operating panel

To reset the user settings, press the parameter push-button, see fig. 28 (7), for 10 s. All LEDs on the operating panel will flash, followed by a loop sequence. See fig. 34. The pump will now begin operating according to its factory settings.

TM07 1196 1218

Fig. 34 Resetting user settings via the operating panel

7.10 Setting the operating mode using the operating panel

By using the connectivity button you can set four different operating modes directly on the pump's operating panel.

The pump is factory set to radiator mode. To change operating mode press and hold the connectivity button for two seconds. See fig. 35.

The operating panel will reflect the chosen operating mode. See section *7.1 Light fields indicating the pump setting*. Note that maximum constant pressure is indicated using the "User set control mode" light field.

The sequence is as follows:

1. Radiator mode
2. Underfloor mode
3. Radiator and underfloor mode
4. Maximum constant pressure.

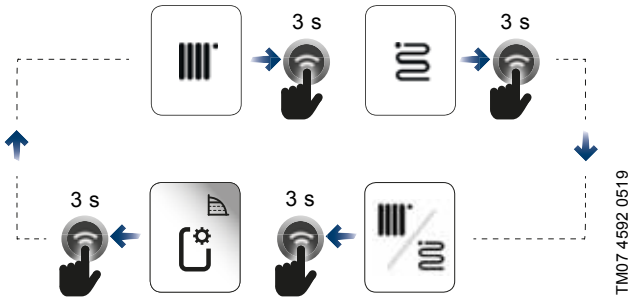


Fig. 35 Operating mode sequence when set via the pump's operating panel

8. Servicing the product

DANGER

Electric shock

Death or serious personal injury

- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.

DANGER

Electric shock

Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

WARNING

Electric shock

Death or serious personal injury

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

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 unpressurise the system. The pumped liquid may be scalding hot and under high pressure.

CAUTION

Sharp element

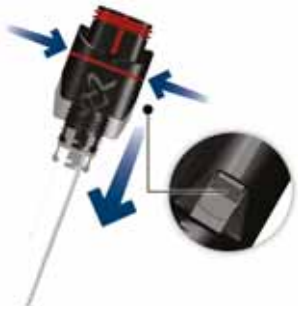
Minor or moderate personal injury

- Use protective gloves when servicing the product.

8.1 Dismantling the product

1. Switch off the power supply.
2. Pull out the plug. For instructions on how to dismantle the plug, see section *8.2 Dismantling the plug*.
3. Close the two isolating valves on both sides of the pump.
4. Loosen the fittings.
5. Remove the pump from the system.

8.2 Dismantling the plug

Step	Action	Illustration
1	Loosen the cable gland and remove it from the plug.	TM05 5545 3812
2	Pull off the plug cover while pressing on both sides.	 TM05 5546 3812
3	Add the conductor guide plate to loosen all three cable conductors at the same time. If the guide plate is missing, then loosen the cable conductors one by one by pressing a screwdriver gently into the terminal clip.	TM05 5547 3812
4	The plug has now been removed from the power supply cord.	TM05 5548 3812

9. Fault finding the product

DANGER

Electric shock

Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

CAUTION

Pressurised system

Minor or moderate personal injury

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

WARNING

Electric shock

Death or serious personal injury

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

WARNING

Hot surface

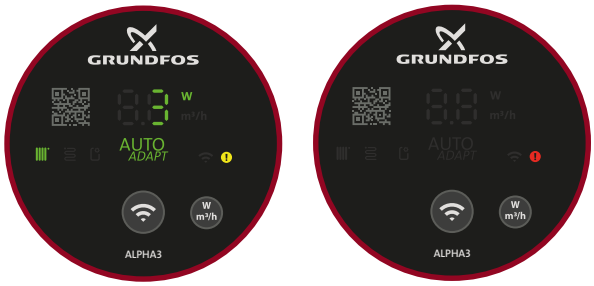
Minor or moderate personal injury

- 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.

9.1 Fault indication on the pump operating panel

Faults preventing the pump from operating properly are indicated on the operating panel with either a yellow or red LED. A warning is indicated with yellow and the LED is permanently on. An alarm is indicated with red and the LED flashes.

For more information about alarms and warnings, see section *9.5 Fault finding tables*.



Warning Alarm

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Fig. 36 Warning and alarm indication on the operating panel

9.2 Resetting an alarm or warning

When the pump experiences a fault, use Grundfos GO Remote to read out alarm codes and texts. Do as follows:

1. Connect the pump to Grundfos GO Remote, see section *7.2 Connecting the pump to Grundfos GO Remote*. Grundfos Eye in the top center of the "Dashboard" menu will be either yellow or red, indicating either a warning or alarm.
2. Tap Grundfos Eye or choose the "Alarms and warnings" menu in the list.
3. The menu shows an error code and a short description of the error.
4. Correct the fault.
5. Tap the "Reset alarm" button.

If the pump does not revert to normal duty, the fault is not corrected. Turning the power off and on again will not reset the alarm.

Recommendations on how to correct the fault can be found in the "Assist" menu under "Assisted fault advise".

9.3 Alarm and warning code logs

Grundfos GO Remote will save up to 40 alarms and warnings in total in the "Alarms and warnings" menu.

9.4 Automatic deblocking

In case of a blocked rotor, the pump will start vibrating automatically with a frequency of around 3 Hz during startup. Any dirt deposits that might prevent the impeller from rotating will be broken up swiftly, and the pump will resume normal operation.

9.5 Fault finding tables

9.5.1 Faults indicated on the pump and in Grundfos GO Remote

Alarms	Fault	Remedy
"Blocked motor" (51)	The pump is blocked and cannot start.	Try to remove deposits by lightly tapping on cast iron pump housing. Alternatively, shut off the pump on the medium side, remove the pump head and remove deposits (such work must only be performed by a specialist company).
"Internal fault" (72, 76, 85)	Internal fault.	Replace the pump and dispose in an environmentally sound way according to local regulations, or contact Grundfos Service.
"Dry running" (57)	Water is missing in the system or the system pressure is too low.	Prime and vent the pump before a new startup.
"Overvoltage" (74)	The supply voltage to the pump is too high.	Make sure that the power supply is within the specified range.
"Undervoltage" (40, 75)	The supply voltage to the pump is too low.	Make sure that the power supply is within the specified range.
Warnings	**Fault**	**Remedy**
"Turbine operation" (43)	Other pumps or sources flow through the pump even if the pump is stopped ad switched off.	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. Check the system for defective non-return valves and replace the valves if necessary. Check the system for correct position of non-return valves.
"Internal fault" (84)	Internal fault.	Replace the pump and dispose in an environmentally sound way according to local regulations, or contact Grundfos Service.
"Real-time clock out of order" (157)	Internal fault.	Normal pump operation is not affected, but the fault might have an impact on scheduled operation. Replace the pump and dispose in an environmentally sound way according to local regulations, or contact Grundfos Service.

9.5.2 Faults with no indication on the pump and Grundfos GO Remote

Pump operating status	Fault	Remedy
Not operating	A fuse in the installation is blown.	Replace the fuse.
	The current-operated or voltage-operated circuit breaker has tripped.	Cut in the circuit breaker.
	The pump is defective.	Contact Grundfos Service or replace the pump.
Noise in the system	There is air in the system.	Vent the system.
	The flow rate is too high.	Reduce the suction head.
Noise in the pump	There is air in the pump.	Let the pump run. The pump vents itself over time. Alternatively, vent the pump via Grundfos GO Remote. See section *4.3 Venting the pump*.
	The inlet pressure is too low.	Increase the inlet pressure, or make sure that the air volume in the expansion tank is sufficient, if installed.
Insufficient heat	The pump performance is too low.	Increase the suction head.

10. Technical data

Operating conditions		
Relative humidity	Maximum 95 % RH	
System pressure	Maximum 1.0 MPa (10 bar), 102 m head	
Inlet pressure	**Liquid temperature**	**Minimum inlet pressure**
	≤ 75 °C	0.005 MPa (0.05 bar), 0.5 m head
	90 °C	0.028 MPa (0.28 bar), 2.8 m head
	110 °C	0.108 MPa (1.08 bar), 10.8 m head
Radio Equipment Directive	2014/53/EU	
Sound pressure level	The sound pressure level of the pump is lower than 43 dB(A).	
Ambient temperature	0-40 °C	
Surface temperature	The maximum surface temperature will not exceed 125 °C.	
Liquid temperature	2-110 °C	
Electrical data		
Supply voltage	1 x 230 V ± 10 %, 50/60 Hz, PE	
Insulation class	F	
Power consumption when the pump is stopped, that is operating mode "Stop" and when configured according to a schedule ("Scheduling" and "Summer mode")	≤ 0.8 watt	
Miscellaneous data		
Motor protection	The pump requires no external motor protection.	
Temperature class	TF110 to EN 60335-2-51	
Enclosure class	IPX4D	
Specific EEI values	ALPHA3 XX-40: EEI ≤ 0.15	
	ALPHA3 XX-60: EEI ≤ 0.17	
	ALPHA3 XX-80: EEI ≤ 0.18	
Radio communication	Bluetooth	

To avoid condensation in the stator, the liquid temperature must always be higher than the ambient temperature.

Ambient temperature [°C]	**Liquid temperature**
	Min. [°C]
0	2
10	10
20	20
30	30
35	35
40	40

The pump can run at ambient temperatures higher than the liquid temperature if the plug connection in the pump head is pointing downwards.

10.1 Dimensions, ALPHA3, XX-40, XX-60, XX-80

Dimensional sketches and table of dimensions.

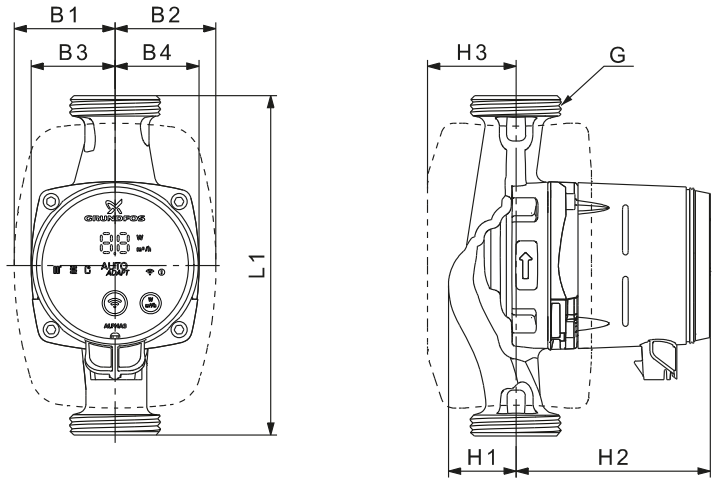

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Fig. 37 ALPHA3, XX-40, XX-60, XX-80

Pump type	Dimensions								
	L1	B1	B2	B3	B4	H1	H2	H3	G
ALPHA3 15-40 130	130	54	54	44	44	36	104	47	G 1
ALPHA3 15-60 130	130	54	54	44	44	36	104	47	G 1*
ALPHA3 15-80 130	130	54	54	44	44	36	104	47	G 1
ALPHA3 25-40 130	130	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 25-60 130	130	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 25-80 130	130	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 25-40 180	180	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 25-60 180	180	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 25-80 180	180	54	54	44	44	36	104	47	G 1 1/2
ALPHA3 32-40 180	180	54	54	44	44	36	104	47	G 2
ALPHA3 32-60 180	180	54	54	44	44	36	104	47	G 2
ALPHA3 32-80 180	180	54	54	44	44	36	104	47	G 2

* UK version: ALPHA3, 15-50/60 G 1 1/2.

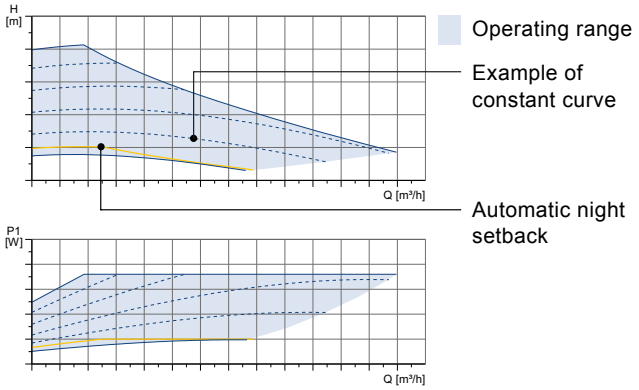
11. Performance curves

11.1 Guide to performance curves

Each control mode has a performance range (Q, H) within which a performance curve is selected. Control modes with AUTO$_{ADAPT}$ automatically select a performance curve within the performance range.

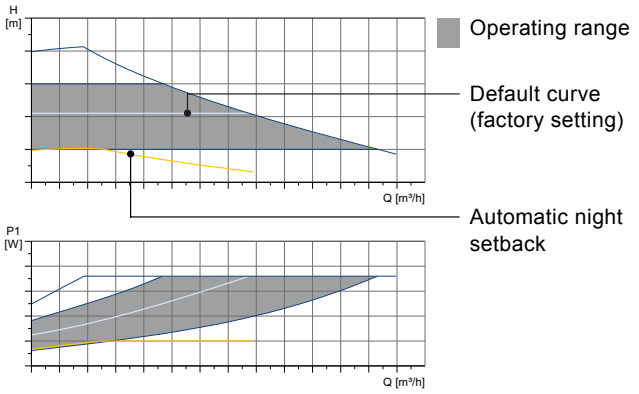
A power curve, P1, belongs to each QH curve. The power curve shows the pump power consumption in watt at a given QH curve. The P1 value corresponds to the value that you can read from the pump display.

Constant curve



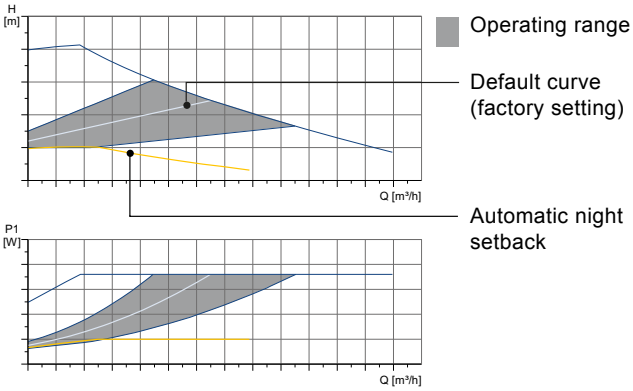
Control mode	Operating panel	Curve	Setpoint adjustment
Constant curve		User defined within range	1 % intervals set in % of maximum speed.

Constant pressure



Control mode	Operating panel	Curve	Setpoint adjustment
Underfloor mode	AUTO ADAPT	Anywhere within range	AUTO$_{ADAPT}$
Constant pressure		User defined within range	0.1 m intervals

Proportional pressure



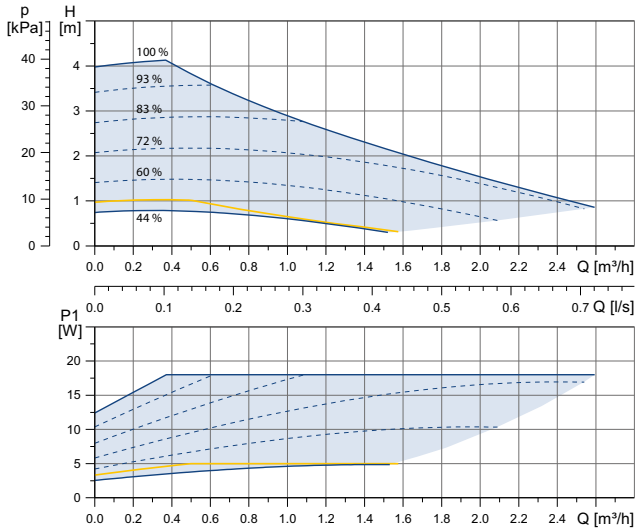
Control mode	Operating panel	Curve	Setpoint adjustment
Radiator mode	AUTO ADAPT	Anywhere within range	AUTO$_{ADAPT}$
Radiator and underfloor mode	AUTO ADAPT	Anywhere within range	
Proportional pressure		User defined within range	0.1 m intervals

11.2 Curve conditions

The guidelines below apply to the performance curves on the following pages:

- Test liquid: airless water.
- The curves apply to a density of 983.2 kg/m^3 and a liquid temperature of 60 °C.
- All curves show average values and must not be used as guarantee curves. If a specific minimum performance is required, individual measurements must be made.
- The curves for speeds I, II and III are marked.
- The curves apply to a kinematic viscosity of 0.474 mm^2/s (0.474 cSt).
- The conversion between head, H [m], and pressure, p [kPa], has been made for water with a density of 1000 kg/m^3. For liquids with other densities, for example hot water, the outlet pressure is proportional to the density.
- Curves are obtained according to EN 16297 part 2.

11.3 ALPHA3, XX-40

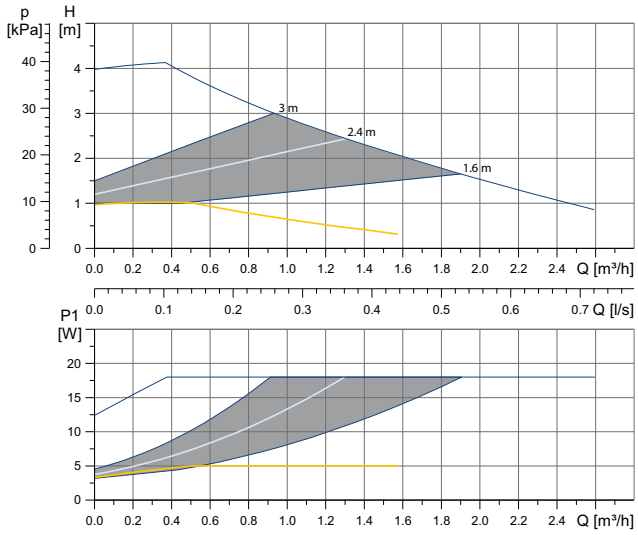


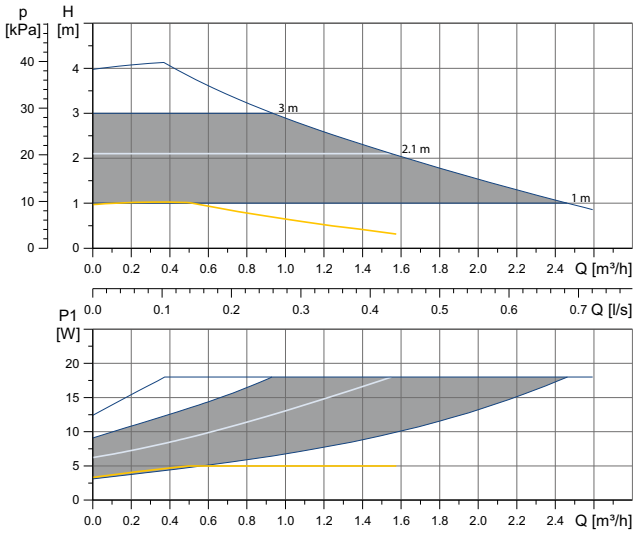
Operating range

Automatic night setback

Default curve (factory setting)

Example of constant curve with corresponding setpoint.





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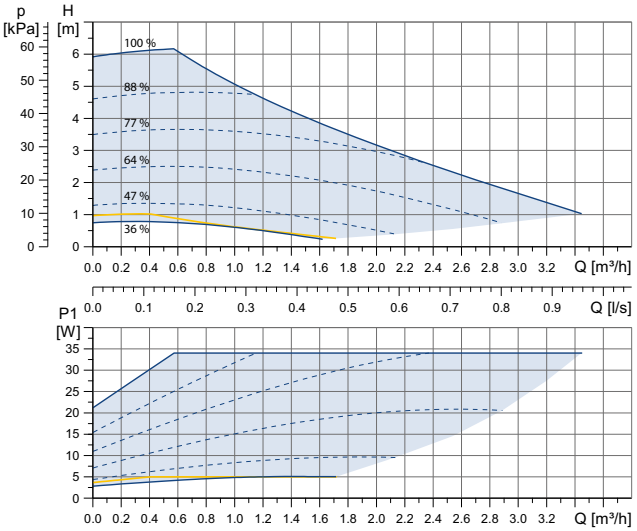
		P1 [W]	I_1 [A]
Speed	Min.	3	0.04
	Max.	18	0.18
Connections	See section *5.5.1 Unions and valve kits*.		
System pressure	Maximum 1.0 MPa (10 bar)		
Liquid temperature	2-110 °C (TF 110)		
Specific EEI	≤ 0.15		

The pump incorporates overload protection.

11.4 ALPHA3, XX-60

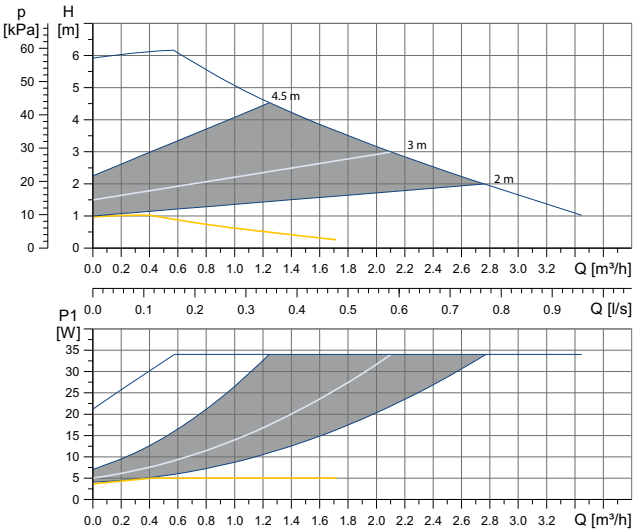


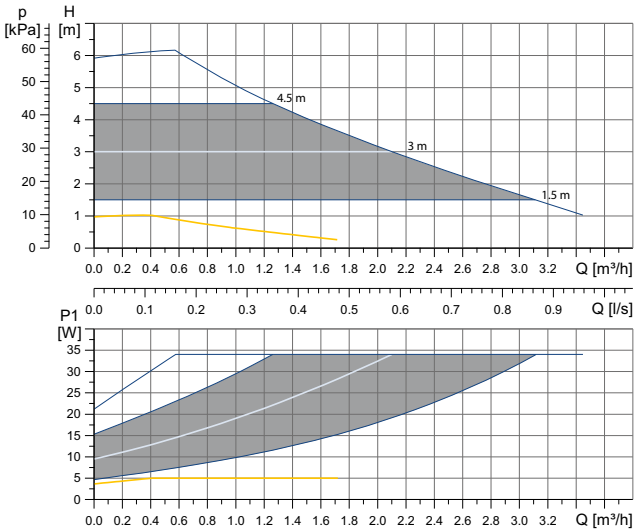
Operating range

Automatic night setback

Default curve (factory setting)

Example of constant curve with corresponding setpoint.



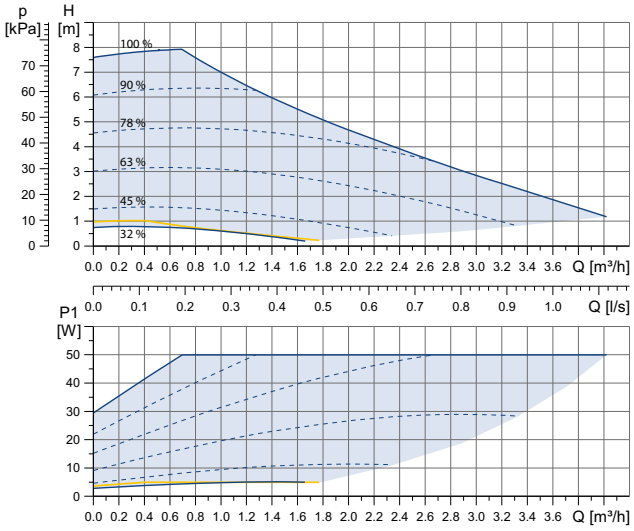


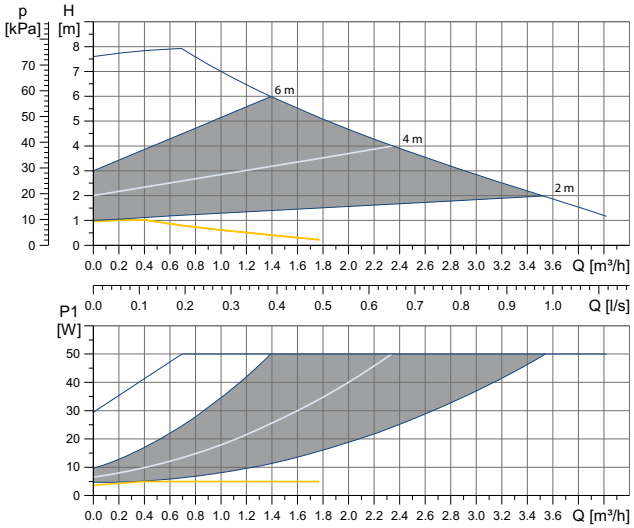
TM07 1594 1218

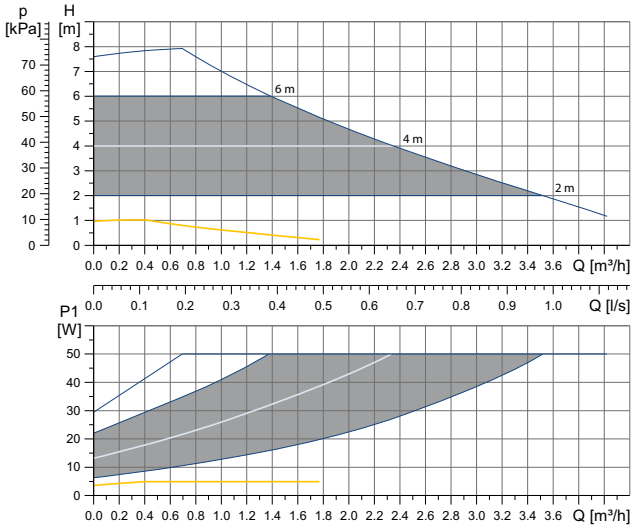
		P1 [W]	I_1 [A]
Speed	Min.	3	0.04
	Max.	34	0.32
Connections	See section *5.5.1 Unions and valve kits*.		
System pressure	Maximum 1.0 MPa (10 bar)		
Liquid temperature	2-110 °C (TF 110)		
Specific EEI	≤ 0.17		

The pump incorporates overload protection.

11.5 ALPHA3, XX-80







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		P1 [W]	I_1 [A]
Speed	Min.	3	0.04
	Max.	50	0.44
Connections	See section *5.5.1 Unions and valve kits*.		
System pressure	Maximum 1.0 MPa (10 bar)		
Liquid temperature	2-110 °C (TF 110)		
Specific EEI	≤ 0.18		

The pump incorporates overload protection.

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. 37.500 Centro Industrial Garin
1619 Garín Pcia. de B.A.
Phone: +54-3327 414 444
Telefax: +54-3327 45 3190

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

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

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

Belarus
Представительство ГРУНДФОС в Минске
220125, Минск
ул. Шафарнянская, 11, оф. 56, БЦ «Порт»
Тел.: +7 (375 17) 286 39 72/73
Факс: +7 (375 17) 286 39 71
E-mail: minsk@grundfos.com

Bosnia and Herzegovina
GRUNDFOS Sarajevo
Zmaja od Bosne 7-7A,
BH-71000 Sarajevo
Phone: +387 33 592 480
Telefax: +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
Phone: +55-11 4393 5533
Telefax: +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
email: bulgaria@grundfos.bg

Canada
GRUNDFOS Canada Inc.
2941 Brighton Road
Oakville, Ontario
L6H 6C9
Phone: +1-905 829 9533
Telefax: +1-905 829 9512

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

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

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

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

Denmark
GRUNDFOS DK A/S
Martin Bachs Vej 3
DK-8850 Bjerringbro
Tlf.: +45-87 50 50 50
Telefax: +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
Phone: +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)
Tél.: +33-4 74 82 15 15
Télécopie: +33-4 74 94 10 51

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

Greece
GRUNDFOS Hellas A.E.B.E.
20th km. Athinon-Markopoulou Av.
P.O. Box 71
GR-19002 Peania
Phone: +0030-210-66 83 400
Telefax: +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
Phone: +852-27861706 / 27861741
Telefax: +852-27858664

Hungary
GRUNDFOS Hungária Kft.
Tópark u. 8
H-2045 Törökbálint,
Phone: +36-23 511 110
Telefax: +36-23 511 111

India
GRUNDFOS Pumps India Private Limited
118 Old Mahabalipuram Road
Thoraipakkam
Chennai 600 096
Phone: +91-44 2496 6800

Indonesia
PT. GRUNDFOS POMPA
Graha Intirub Lt. 2 & 3
Jln. Cililitan Besar No.454. Makasar,
Jakarta Timur
ID-Jakarta 13650
Phone: +62 21-469-51900
Telefax: +62 21-460 6910 / 460 6901

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

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

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

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

Latvia
SIA GRUNDFOS Pumps Latvia
Deglava biznesa centrs
Augusta Deglava ielā 60, LV-1035, Rīga,
Tālr.: + 371 714 9640, 7 149 641
Fakss: + 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
Phone: +60-3-5569 2922
Telefax: +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
Phone: +52-81-8144 4000
Telefax: +52-81-8144 4010

Netherlands
GRUNDFOS Netherlands
Veluwezoom 35
1326 AE Almere
Postbus 22015
1302 CA ALMERE
Tel.: +31-88-478 6336
Telefax: +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
Phone: +64-9-415 3240
Telefax: +64-9-415 3250

Norway
GRUNDFOS Pumper A/S
Strømsveien 344
Postboks 235, Leirdal
N-1011 Oslo
Tlf.: +47-22 90 47 00
Telefax: +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
Telefax: +351-21-440 76 90

Romania
GRUNDFOS Pompe România SRL
Bd. Biruintei, nr 103
Pantelimon county Ilfov
Phone: +40 21 200 4100
Telefax: +40 21 200 4101
E-mail: romania@grundfos.ro

Russia
ООО Грундфос Россия
ул. Школьная, 39-41
Москва, RU-109544, Russia
Тел. (+7) 495 564-88-00 (495) 737-30-00
Факс (+7) 495 564 8811
E-mail grundfos.moscow@grundfos.com

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

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

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

Slovenia
GRUNDFOS LJUBLJANA, d.o.o.
Leskoškova 9e, 1122 Ljubljana
Phone: +386 (0) 1 568 06 10
Telefax: +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
Telefax: +34-91-628 0465

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

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

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

Thailand
GRUNDFOS (Thailand) Ltd.
92 Chaloem Phrakiat Rama 9 Road,
Dokmai, Pravej, Bangkok 10250
Phone: +66-2-725 8999
Telefax: +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
Phone: +90 - 262-679 7979
Telefax: +90 - 262-679 7905
E-mail: satis@grundfos.com

Ukraine
Бізнес Центр Європа
Столичне шосе, 103
м. Київ, 03131, Україна
Телефон: (+38 044) 237 04 00
Факс.: (+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
Phone: +971 4 8815 166
Telefax: +971 4 8815 136

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

U.S.A.
GRUNDFOS Pumps Corporation
9300 Loiret Blvd.
Lenexa, Kansas 66219
Phone: +1-913-227-3400
Telefax: +1-913-227-3500

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

Addresses Revised 15.01.2019

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