

GRUNDFOS ALPHA2

Circulator pumps
50/60 Hz



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1. General description

GRUNDFOS ALPHA2 model B (referred to as ALPHA2 in the following) is a complete range of circulator pumps with the following features:

- AUTO_{ADAPT} function which is suitable for most installations.
- Integrated differential-pressure control enabling adjustment of pump performance to the actual system requirements.
- Automatic Night Setback (selectable).
- Display showing the actual power consumption in Watt or the actual flow in m³/h.
- Motor based on permanent-magnet rotor/compact-stator technology.

GRUNDFOS ALPHA2 is energy-optimised and complies with the EuP Directive (Commission Regulation (EC) No 641/2009) which will be effective as from 1st January 2013.

For GRUNDFOS ALPHA2 pumps, the energy efficiency index (EEI) is ≤ 0.20 , categorised as best in class. See page 14.

Grundfos blueflux[®] technology represents the best from Grundfos within energy-efficient motors and frequency converters. Grundfos blueflux[®] meets or exceeds legislative requirements for standard electric motors, such as EuP IE3 grade. See page 14.

The installation of a GRUNDFOS ALPHA2 pump will reduce the power consumption considerably, reduce noise from thermostatic radiator valves and similar fittings, and improve the control of the system.

GRUNDFOS ALPHA2 offers a host of advantages:

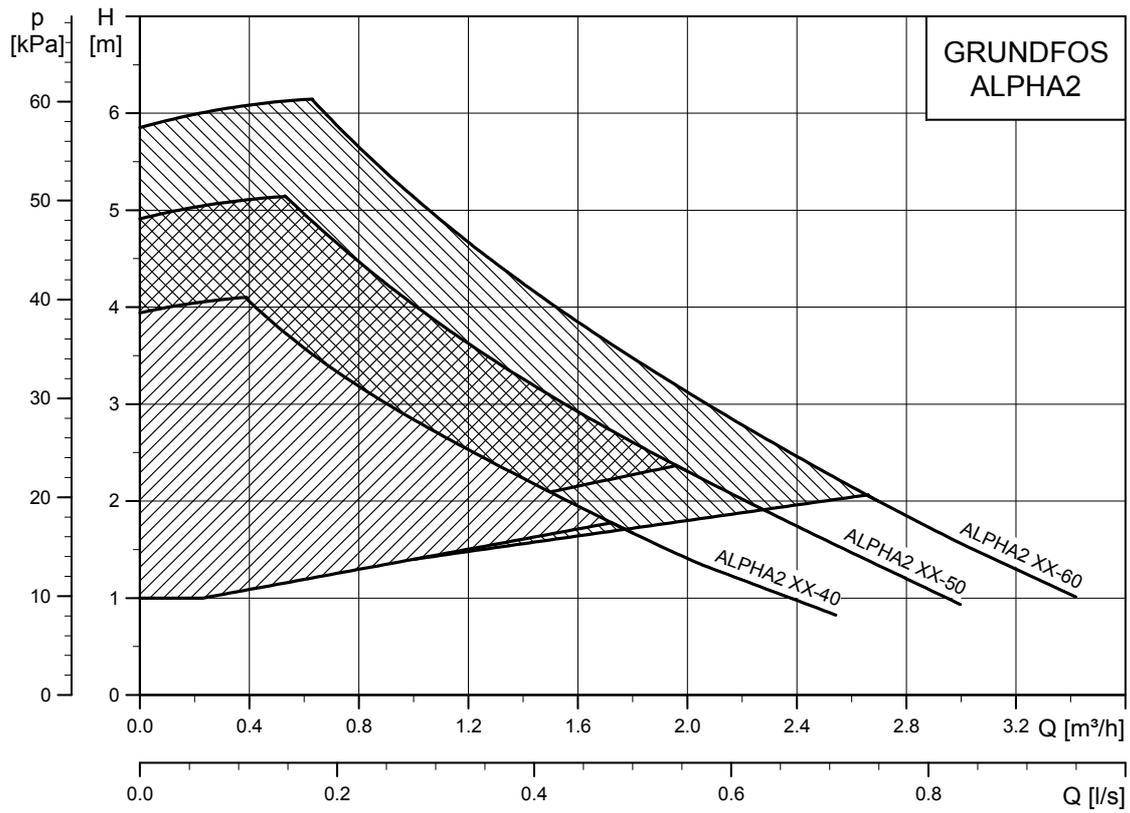
Energy savings	Automatic control of the differential pressure.
Flexibility	Suitable for installation in existing systems.
Night setback	Automatic Night Setback (selectable).
Comfort	Low-noise operation.
Safety	Built-in electrical and thermal protection of the pump.
User friendliness	Simple setting and operation.
Alarms	Alarms are indicated in the display.
Warnings	Warnings are indicated in the display.

Type key

Example	ALPHA2	25 - 40	180
Pump range			
Standard version			
L: Limited			
Nominal diameter (DN) of suction and discharge ports [mm] (15 = 1", 25 = 1 1/2", 32 = 2")			
Maximum head [dm]			
Cast-iron pump housing			
N: Stainless-steel pump housing			
A: Pump housing with air separator			
Port-to-port length [mm]			

* Exception: UK version, size 15 = 1 1/2".

Performance range



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Fig. 1 Performance range, GRUNDFOS ALPHA2

2. Applications

GRUNDFOS ALPHA2 is designed for circulating liquids in heating systems. Pumps with stainless-steel pump housing can also be used in domestic hot-water systems.

GRUNDFOS ALPHA2 is suitable for the following systems:

- Systems with constant or variable flows where it is desirable to optimise the pump duty point.
- Systems with variable flow-pipe temperature.
- Systems where night setback is desired.

The appropriate pump type for a heating system can be selected according to the following guidelines:

Range	Radiator system (Δt 20 °C)	Underfloor heating (Δt 5 °C)	Pump type	
[m ²]	[m ³ /h]	[m ³ /h]	1st choice ALPHA2	2nd choice ALPHA2 L
80-120	0.4	1.5	XX-40	XX-40
120-160	0.5	2.0	XX-50	XX-60
160-200	0.6	2.5	XX-60	XX-60

Note: The data are approximate values. Grundfos cannot be held responsible for wrong sizing of pumps in heating systems.

GRUNDFOS ALPHA2 is especially suitable for the following:

- Installation in existing systems where the differential pressure of the pump is too high during periods of reduced flow demand.
- Installation in new systems for fully automatic adjustment of the performance to flow demands without the use of bypass valves or similar expensive components.

Examples of systems

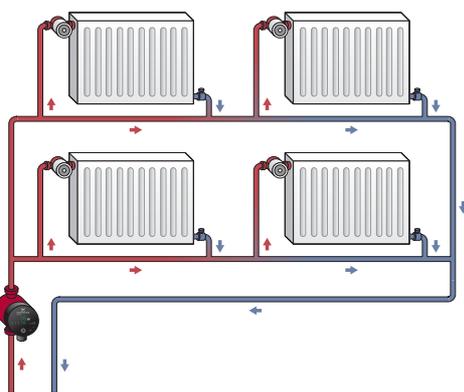


Fig. 2 One-pipe heating system

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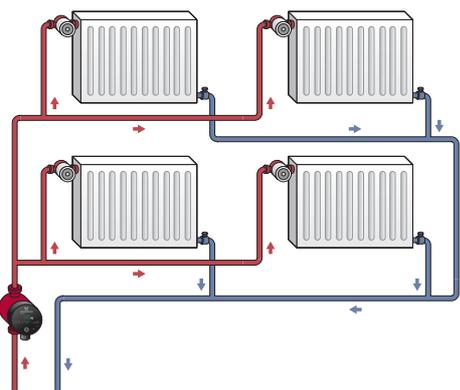


Fig. 3 Two-pipe heating system

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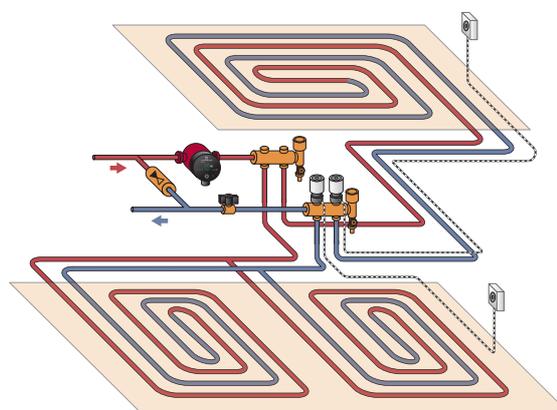


Fig. 4 Underfloor heating system

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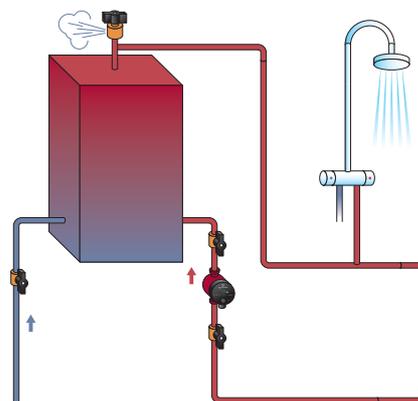


Fig. 5 Domestic hot-water recirculation system

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Pumped liquids

The pump is suitable for the following liquids:

- clean, thin, non-aggressive and non-explosive liquids, not containing solid particles or fibres
- cooling liquids, not containing mineral oil
- domestic hot water, max. 14 °dH, max. 65 °C, peak max. 70 °C
- softened water.

The kinematic viscosity of water is $\nu = 1 \text{ mm}^2/\text{s}$ (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 approx. 10 mm²/s (10 cSt) and a reduction of pump performance by approx. 15 %.

Do not use additives that in any way can/will disturb the functionality of the pump.

When selecting a pump, the viscosity of the pumped liquid must be taken into consideration.

Control of heating systems

The heating required in a building varies greatly during the day due to changing outdoor temperatures, solar radiation and heat emanating from people, electric appliances, etc.

Add to this that the need for heating may vary from one section of the building to another and that the thermostatic valves of some radiators may have been turned down by the users.

These circumstances will cause an uncontrolled pump to produce a too high differential pressure when the heat demand is low.

Possible consequences:

- too high energy consumption
- irregular control of the system
- noise in thermostatic radiator valves and similar fittings.

GRUNDFOS ALPHA2 automatically controls the differential pressure by adjusting the pump performance to the actual heat demand, without the use of external components.

AUTO_{ADAPT}

The integrated AUTO_{ADAPT} function is especially developed for the following:

- underfloor heating systems
- two-pipe heating systems.

The AUTO_{ADAPT} function (factory setting) automatically adjusts the pump performance to the actual heat demand, i.e. the size of the system and the changing heat demand. The performance is adjusted gradually over time. An optimum pump setting cannot be expected from day one.

If the power supply fails or is disconnected, the pump stores the AUTO_{ADAPT} setting in an internal memory and will resume the automatic adjustment when the power supply has been restored.

Operation

The AUTO_{ADAPT} function enables the GRUNDFOS ALPHA2 to control the pump performance automatically:

- adjustment of the pump performance to the heat demand in the system
- adjustment of the pump performance to the variations in load over 24 hours.

In AUTO_{ADAPT} mode, the pump is set to proportional-pressure control.

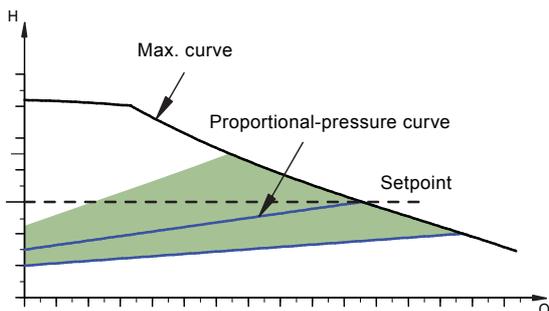


Fig. 6 AUTO_{ADAPT} performance range

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The AUTO_{ADAPT} function differs from other control functions as it moves the control curve within a performance range. The marked area indicates the limits for the movement of the proportional-pressure curve. See fig. 6.

Advantages of pump control

In GRUNDFOS ALPHA2, control is effected by adapting the differential pressure to the flow (proportional-pressure and constant-pressure control).

Contrary to an uncontrolled pump, the proportional-pressure-controlled ALPHA2 reduces the differential pressure as a result of falling heat demand.

If the heat demand falls, for instance due to solar radiation, the thermostatic radiator valves will close, and, for the uncontrolled pump, the flow resistance of the system will rise, for instance from A_1 to A_2 . See fig. 7.

In a heating system with an uncontrolled pump, this situation will cause a pressure rise in the system by ΔH_1 .

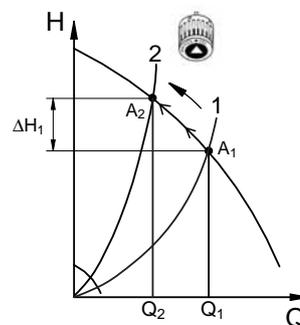


Fig. 7 Uncontrolled pump

In a system with a GRUNDFOS ALPHA2 pump, the pressure will be reduced by ΔH_2 and result in a reduced energy consumption. See fig. 8.

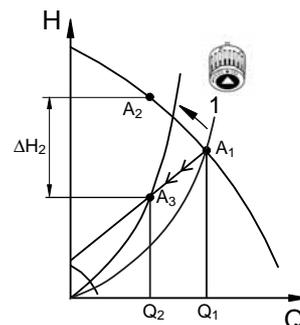


Fig. 8 Pump in proportional-pressure control mode

In a system with an uncontrolled pump, a pressure rise will often cause flow-generated noise in the thermostatic radiator valves. This noise will be reduced considerably with the GRUNDFOS ALPHA2.

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Automatic Night Setback

GRUNDFOS ALPHA2 features selectable Automatic Night Setback.

Automatic Night Setback is enabled with the  button on the control box.

Factory setting: Disabled.

Note: If the pump has been set to speed I, II or III, it is not possible to enable Automatic Night Setback.

Once Automatic Night SetBack has been enabled, the pump automatically changes between normal duty and night setback. The changeover depends on the flow-pipe temperature measured by the integrated temperature sensor.

Function

If Automatic Night Setback is to be used in the system, the pump must be installed in the flow pipe.

Changeover between normal duty and night setback depends on the flow-pipe temperature.

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

Changeover to normal duty takes place without a time lag when the flow-pipe temperature has increased by approx. 10 °C.

3. Construction

GRUNDFOS ALPHA2 is of the canned-rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricated by the pumped liquid.

The pump is characterised by the following:

- integrated AUTO_{ADAPT} control
- integrated proportional-pressure control
- integrated constant-pressure control
- various constant curves (fixed speed)
- frequency converter
- permanent-magnet rotor/compact-stator motor
- display showing the actual pump power consumption in Watt (integer) or the actual flow in m³/h (in steps of 0.1 m³/h) during operation
- ceramic shaft and radial bearings
- carbon thrust bearing
- stainless-steel rotor can, bearing plate and rotor cladding
- composite impeller
- cast-iron or stainless-steel pump housing
- automatic air venting
- compact design featuring pump head with integrated control box and control panel
- user-friendly fault finding if faults should occur.

Sectional drawing

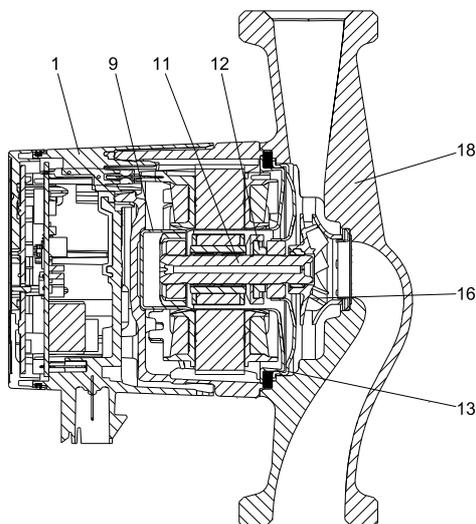


Fig. 9 Position numbers

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Material specification

Pos.	Description	Material	EN/DIN	AISI/ASTM
1	Controller complete	Composite, PC		
9	Rotor can	Stainless steel	1.4401	316
	Radial bearing	Ceramics		
11	Shaft	Ceramics		
	Rotor cladding	Stainless steel	1.4401	316
12	Thrust bearing	Carbon		
	Thrust bearing retainer	EPDM rubber		
13	Bearing plate	Stainless steel	1.4301	304
16	Impeller	Composite, PES		
18	Pump housing	Cast iron	EN-GJL-150	A48-150B
		Stainless steel	1.4308	351 CF8
	Gaskets	EPDM rubber		

Motor and control box

The motor is a 4-pole synchronous permanent-magnet motor.

The pump controller is incorporated in the control box, which is fitted to the stator housing with two screws and connected to the stator via a terminal plug.

The control box has an integrated control panel with three push-buttons (pos. 1, 2 and 3) and a 2-digit 7-segment display. See fig. 10.

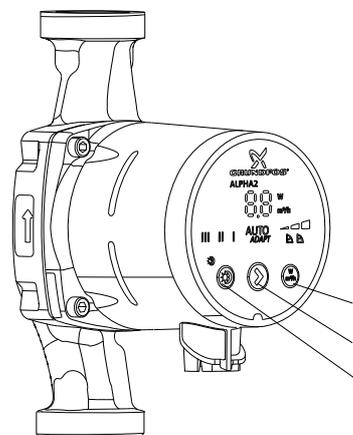


Fig. 10 Position of push-buttons

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Pos.	Description
1	Push-button for selection of pump setting.
2	Push-button for enabling or disabling of Automatic Night Setback.
3	Push-button for selection of parameter to be shown in the display, i.e. actual power consumption in Watt or actual flow in m ³ /h.

The display is on when the power supply has been switched on. The display shows the actual pump power consumption in Watt (integer) or the actual flow in m³/h (in steps of 0.1 m³/h) during operation.

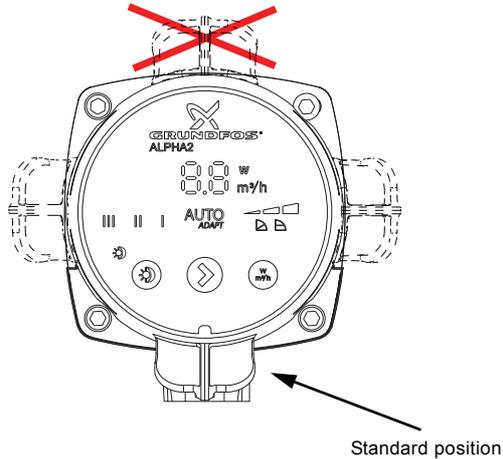
Accuracy: ± 5 %.

Faults preventing the pump from operating properly (for example blocked rotor) are indicated by fault codes in the display.

The following faults can be indicated in the display:

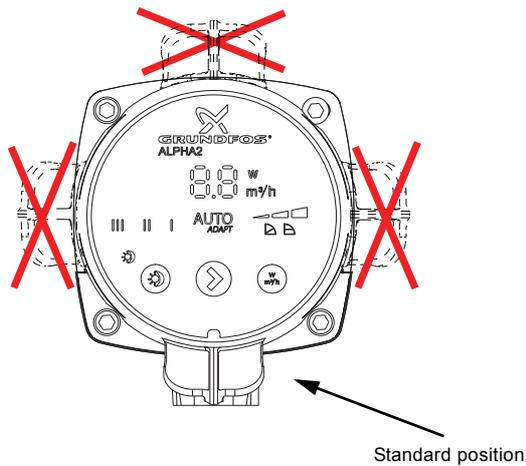
- blocked rotor (E1)
- insufficient supply voltage (E2)
- electrical fault (E3).

Figures 11 and 12 show the possible control box positions in heating systems as well as in air-conditioning and cold-water systems.



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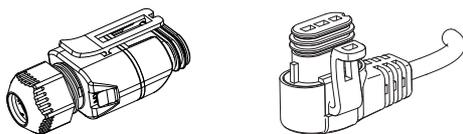
Fig. 11 Possible control box positions, heating systems



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Fig. 12 Possible control box position, air-conditioning and cold-water systems

The plug incorporates cable relief and a locking function for securing the connection of the supply cable.



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Fig. 13 ALPHA plug with cable relief and APLPHA plug, angled, with fixed cable

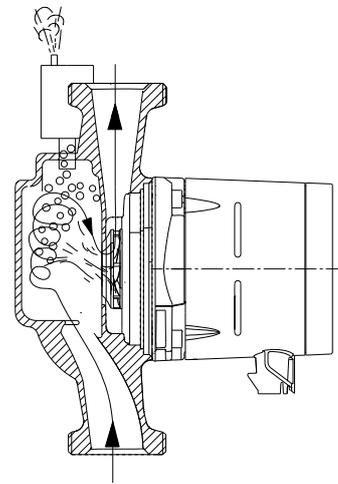
Grundfos offers a special cable with an active built-in NTC protection circuit which will reduce possible inrush currents.

Pump housing with air separator

The pump housing with air separator is installed in systems where the liquid contains so much air that a circulator pump without air separator cannot start or keep up a continuous circulation. The pump housing is available only for upward water flows.

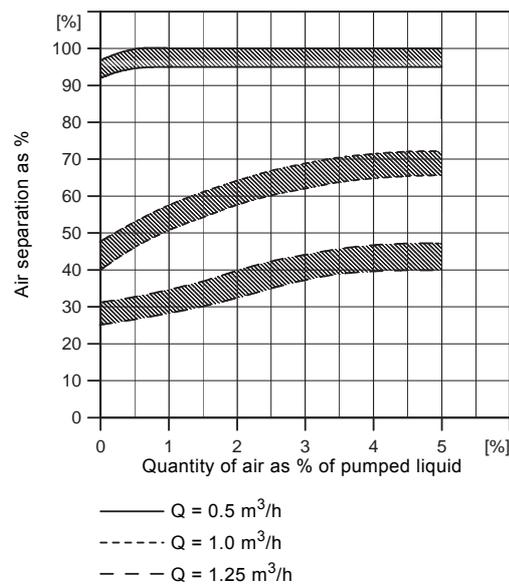
The air-containing liquid is guided from the suction port to the nozzle of the air-separating chamber and caused to circulate considerably in the relatively large chamber, thus creating a relatively lower pressure at the back (top) of the chamber. This lower pressure combined with the reduced velocity of the liquid in the air-separating chamber will cause a separation of air from the liquid. Due to its lower density, the air will escape through an automatic air vent fitted to the air-separating chamber.

The pump housing has an Rp 3/8 tapping for fitting of an air vent. The air vent is not supplied with the pump.



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Fig. 14 Pump housing with air-separating chamber



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Fig. 15 Air separation

4. Installation and start-up

Installation

In most cases, the installation of the GRUNDFOS ALPHA2 is reduced to the mechanical installation and the connection to the power supply.

The pump must always be installed with horizontal motor shaft.

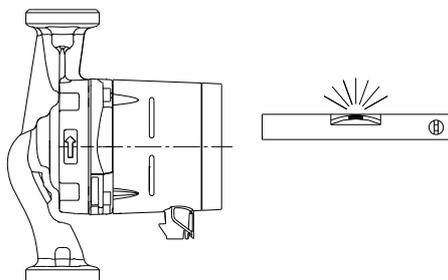


Fig. 16 Horizontal motor shaft

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Electrical data

Supply voltage	1 x 230 V ± 10 %, 50/60 Hz, PE.
Motor protection	The pump requires no external motor protection.
Enclosure class	IPX4D.
Insulation class	F.
Relative air humidity	Maximum 95 %.
Ambient temperature	0 °C to +40 °C.
Temperature class	TF110 to CEN 335-2-51.
EMC (electromagnetic compatibility)	2004/108/EC Standards used: EN 55014-1:2006 and EN 55014-2:1997.
Sound pressure level	≤ 43 dB(A).

Start-up

The pump must not be started until the system has been filled with liquid and vented. Furthermore, the required minimum inlet pressure must be available at the pump inlet. The system cannot be vented through the pump.

The pump is self-venting. It need not be vented before start-up.

Liquid temperature

Cast-iron pumps: +2 °C to +110 °C.

Stainless-steel pumps in domestic hot-water systems: +15 °C to +65 °C.

In domestic hot-water systems, we recommend to keep the liquid temperature between 45 and 65 °C to eliminate the risk of lime precipitation and legionella bacteria.

To avoid condensation in the control box and stator, the liquid temperature must always be higher than the ambient temperature. See table below.

Ambient temperature [°C]	Liquid temperature	
	Min. [°C]	Max. [°C]
0	2	110
10	10	110
20	20	110
30	30	110
35	35	90
40	40	70

The GRUNDFOS ALPHA2 pump can, however, run at ambient temperatures higher than the liquid temperature if the plug connection in the pump head is pointing downwards. See figs 11 and 12.

System pressure

PN 10: Maximum 1.0 MPa (10 bar).

Inlet pressure

To avoid cavitation noise and damage to the pump bearings, the following minimum pressures are required at the pump suction port.

Liquid temperature	75 °C	90 °C	110 °C
	0.5 m head	2.8 m head	10.8 m head
Inlet pressure	0.005 MPa	0.028 MPa	0.108 MPa
	0.05 bar	0.28 bar	1.08 bar

Setting the pump

With the push-button on the control box, the electronically controlled pump can be set to the following:

- AUTO_{ADAPT}
- three proportional-pressure curves (PP1, PP2, PP3)
- three constant-pressure curves (CP1, CP2, CP3)
- three constant curves/constant speeds (I, II, III).

Factory setting

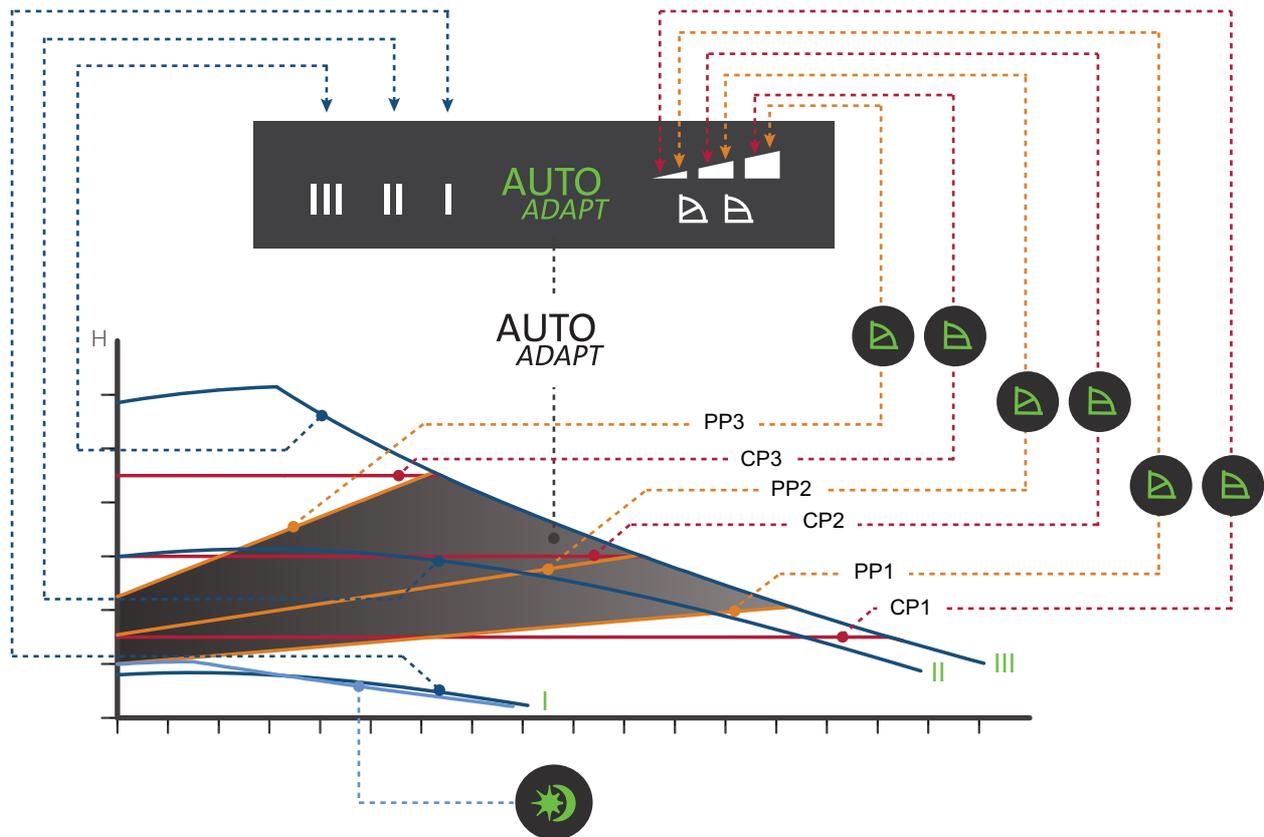
The push-buttons on the pump control box have been factory-set as shown in the table below.

These settings are suitable for a large majority of all single-family houses.

Pump type	Setting	Automatic Night Setback
ALPHA2 XX-40 ALPHA2 XX-50 ALPHA2 XX-60	AUTO _{ADAPT}	Disabled

Change of performance

The pump performance (flow and head) can be changed by pressing the control box push-button as indicated in fig. 17 and the table below.



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Fig. 17 Pump setting in relation to pump performance

Setting	Pump curve	Function
AUTO _{ADAPT} (factory setting)	Highest to lowest proportional-pressure curve	The AUTO _{ADAPT} function enables the pump to control the pump performance automatically within a defined performance range. See fig. 17: <ul style="list-style-type: none"> Adjusting the pump performance to the size of the system. Adjusting the pump performance to the variations in load over time. In AUTO _{ADAPT} , the pump is set to proportional-pressure control.
PP1	Lowest proportional-pressure curve	The duty point of the pump will move up or down on the lowest proportional-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is reduced at falling heat demand and increased at rising heat demand.
PP2	Intermediate proportional-pressure curve	The duty point of the pump will move up or down on the intermediate proportional-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is reduced at falling heat demand and increased at rising heat demand.
PP3	Highest proportional-pressure curve	The duty point of the pump will move up or down on the highest proportional-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is reduced at falling heat demand and increased at rising heat demand.
CP1	Lowest constant-pressure curve	The duty point of the pump will move out or in on the lowest constant-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is kept constant, irrespective of the heat demand.
CP2	Intermediate constant-pressure curve	The duty point of the pump will move out or in on the intermediate constant-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is kept constant, irrespective of the heat demand.
CP3	Highest constant-pressure curve	The duty point of the pump will move out or in on the highest constant-pressure curve, depending on the heat demand in the system. See fig. 17. The head (pressure) is kept constant, irrespective of the heat demand.
III	Speed III	The pump runs on a constant curve which means that it runs at a constant speed. In speed III, the pump is set to run on the max. curve under all operating conditions. See fig. 17. Quick venting of the pump can be obtained by setting the pump to speed III for a short period.
II	Speed II	The pump runs on a constant curve which means that it runs at a constant speed. In speed II, the pump is set to run on the intermediate curve under all operating conditions. See fig. 17.
I	Speed I	The pump runs on a constant curve which means that it runs at a constant speed. In speed I, the pump is set to run on the min. curve under all operating conditions. See fig. 17.
	Automatic Night Setback	The pump changes to the curve for Automatic Night Setback, i.e. absolute minimum performance and power consumption, provided that certain conditions are met. See section <i>Automatic Night Setback</i> .

5. Guide to performance curves

Each pump setting has its own performance curve (Q/H curve). However, AUTO_{ADAPT} covers a performance range. A power curve (P1 curve) belongs to each Q/H curve. The power curve shows the pump power consumption (P1) in Watt at a given Q/H curve.

The P1 value corresponds to the value that can be read from the pump display. See fig. 18.

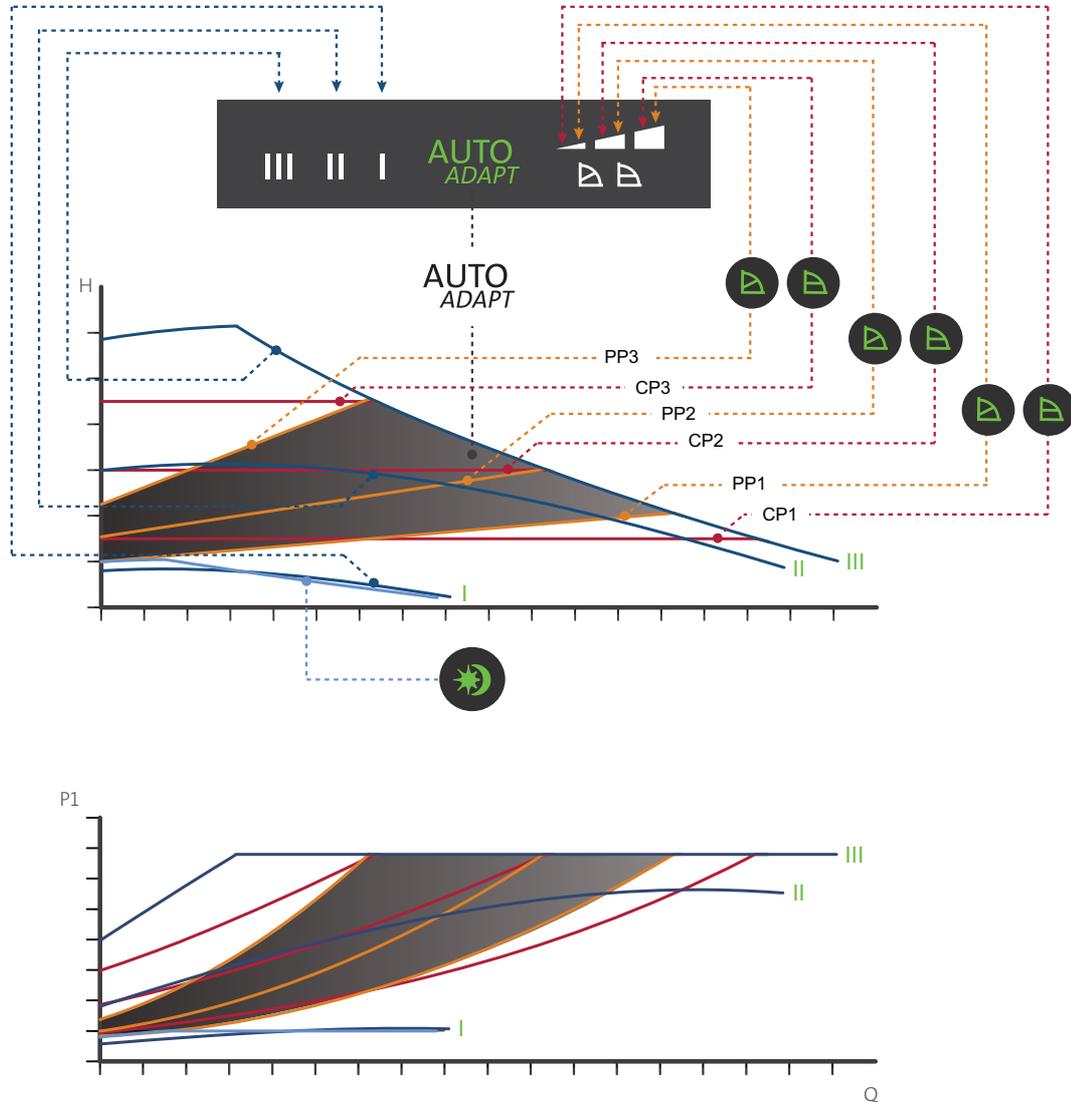


Fig. 18 Performance curves in relation to pump setting

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Setting	Pump curve
AUTO _{ADAPT} (factory setting)	Setpoint within the marked area
PP1	Lowest proportional-pressure curve
PP2	Intermediate proportional-pressure curve
PP3	Highest proportional-pressure curve
CP1	Lowest constant-pressure curve
CP2	Intermediate constant-pressure curve
CP3	Highest constant-pressure curve
III	Constant curve/constant speed III
II	Constant curve/constant speed II
I	Constant curve/constant speed I
	Curve for Automatic Night Setback

Curve conditions

The guidelines below apply to the performance curves on pages 15 to 25:

- Test liquid: airless water.
- The curves apply to a density of $\rho = 983.2 \text{ kg/m}^3$ and a liquid temperature of $+60 \text{ }^\circ\text{C}$.
- All curves show average values and should 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 $\nu = 0.474 \text{ mm}^2/\text{s}$ (0.474 cSt).
- The conversion between head H [m] and pressure p [kPa] has been made for water with a density of $\rho = 1000 \text{ kg/m}^3$. For liquids with other densities, for example hot water, the discharge pressure is proportional to the density.
- Curves obtained according to EN 16297.

Symbols used on the following pages



Fig. 19 Energy efficiency index (EEI)

The ALPHA2 is energy-optimised and complies with the EuP Directive (Commission Regulation (EC) No 641/2009) which will be effective as from 1st January 2013.

For ALPHA2 pumps, the average energy efficiency index (EEI) is 0.15, categorised as best in class.

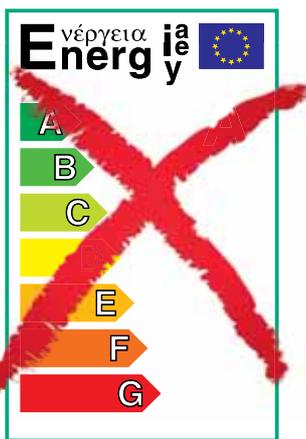


Fig. 20 Old energy label

From 1st January 2013, the old A to G energy label will be replaced by the new energy efficiency index (EEI). Only the best of today's A-labelled circulator pumps will meet the new requirements.

The ALPHA2 with its AUTO_{ADAPT} function is the preferred choice for domestic installations and a true efficiency frontrunner.

The energy efficiency index (EEI) is the difference between the annual energy consumption of the ALPHA2 and the standard consumption of a typical similar model.

The AUTO_{ADAPT} function ensures an energy consumption that is even lower than the indicated EEI, but due to the calculation method, this is not reflected in the EEI.

The ALPHA2 EEI is far below the EuP 2013 and 2015 requirements and even exceeds the best in class benchmark level. See fig. 21.

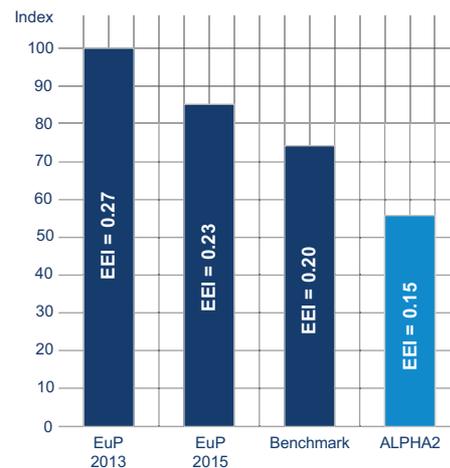


Fig. 21 EEI limits and the current positioning of the ALPHA2

With an energy efficiency index (EEI) well below the EuP benchmark level, you can achieve energy savings of up to 90 % compared to a typical circulator and thus a remarkably fast return on investment. This means, of course, that the ALPHA2 more than meets the standards of the EuP legislation.



Fig. 22 Grundfos blueflux[®]

The Grundfos blueflux[®] label is your guarantee that the ALPHA2 incorporates the most energy-efficient motor currently available. Grundfos blueflux[®] motors are designed to cut the power consumption by up to 60 % and thus reduce CO₂ emissions and operating costs.

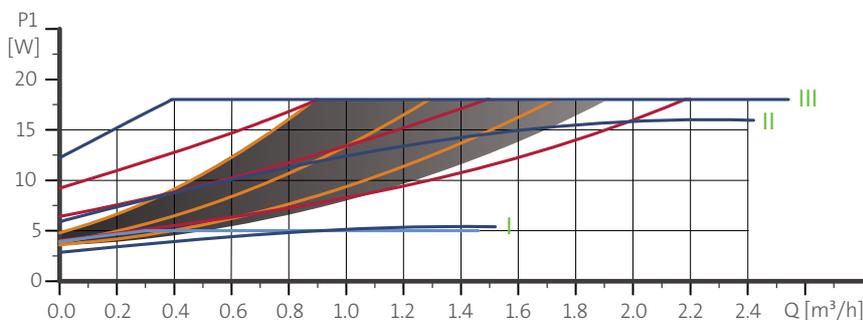
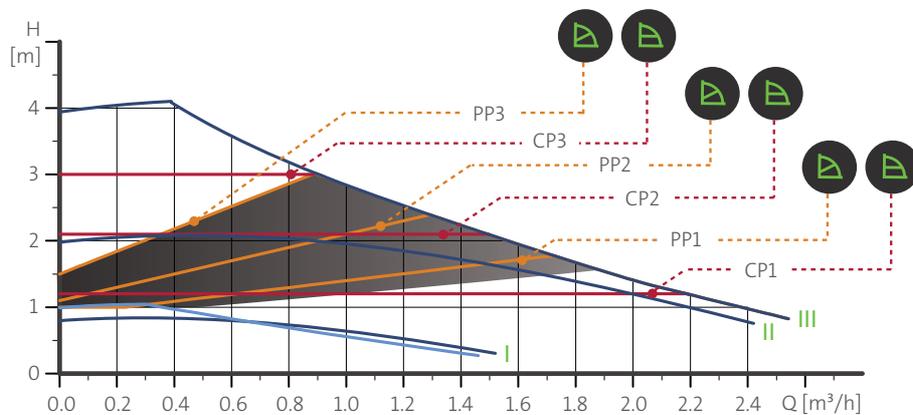
For more information about the new energy directive, please visit:



energy.grundfos.com

6. Performance curves and technical data

ALPHA2 15-40

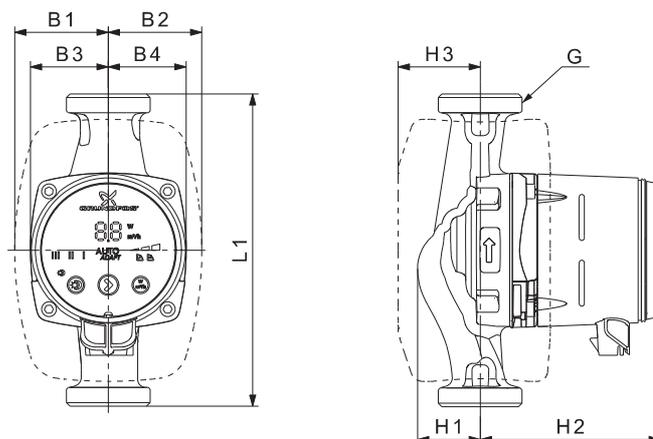


TM05 1672 4111 - TM05 2712 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 18	0.04 to 0.18
Min.	3	0.04
Max.	18	0.18

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Specific EEI: ≤ 0.15.

The pump incorporates overload protection.

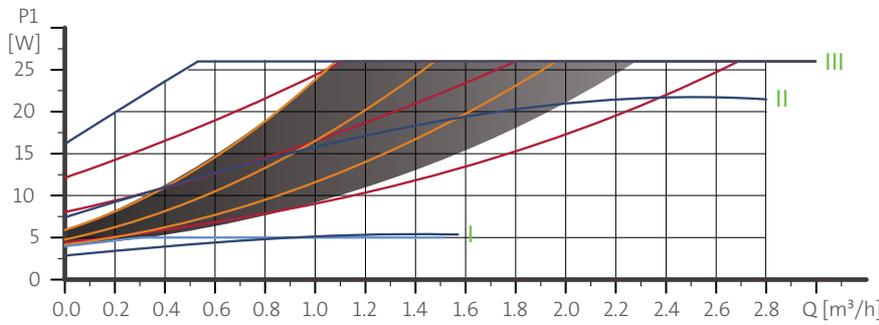
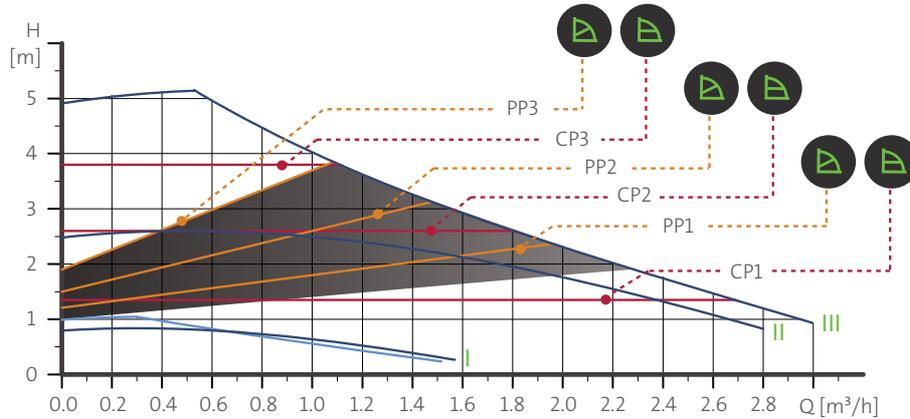


TM05 2364 5011

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA2 15-40	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 15-50 (N)

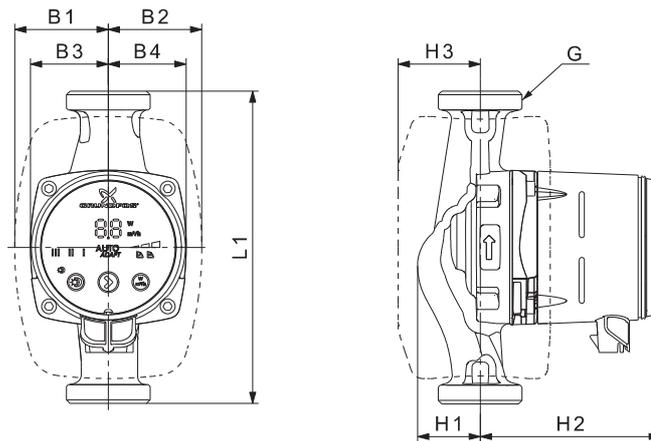


TM05 1673 4111 - TM05 2713 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO_{ADAPT}	4 to 26	0.04 to 0.24
Min.	3	0.04
Max.	26	0.24

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Specific EEI: ≤ 0.16.

The pump incorporates overload protection.



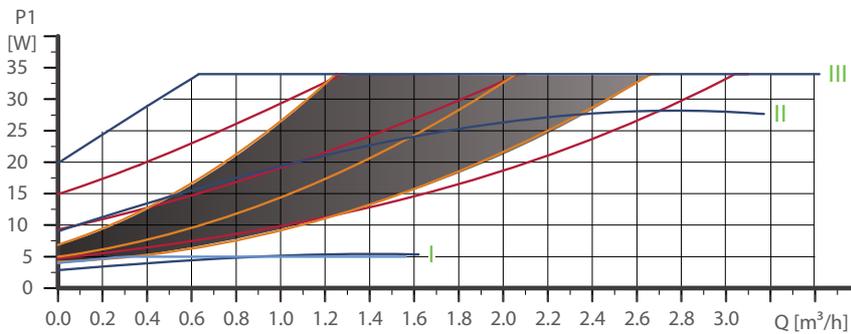
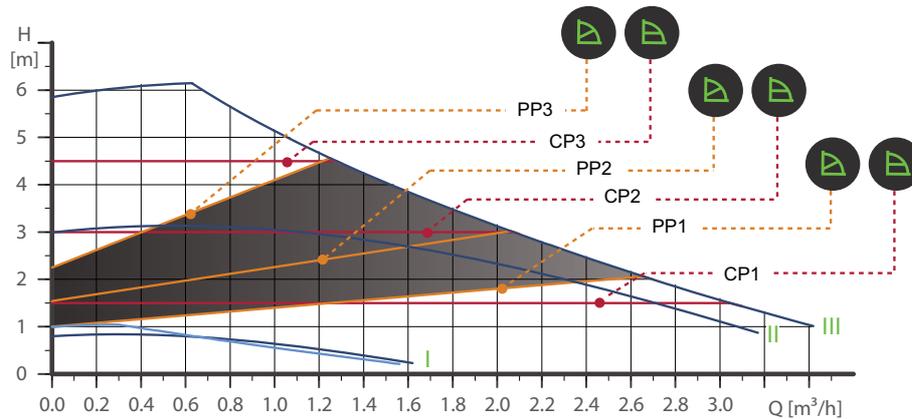
TM05 2364 5011

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 15-50	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1*	1.8	2.0	0.00364
ALPHA2 15-50 N	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1*	1.8	2.0	0.00364

* UK version: G 1 1/2.

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 15-60 (N)

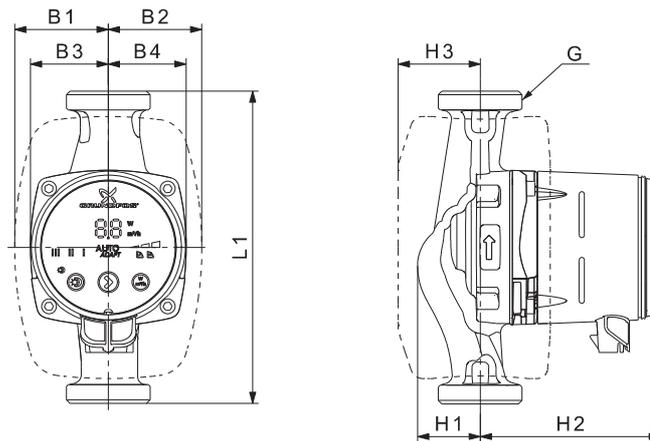


TM05 1674-4111 - TM05 2714 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 34	0.04 to 0.32
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections: See Unions and valve kits, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.17.



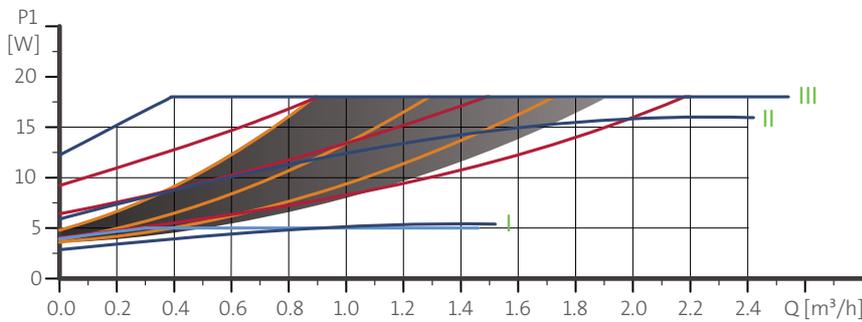
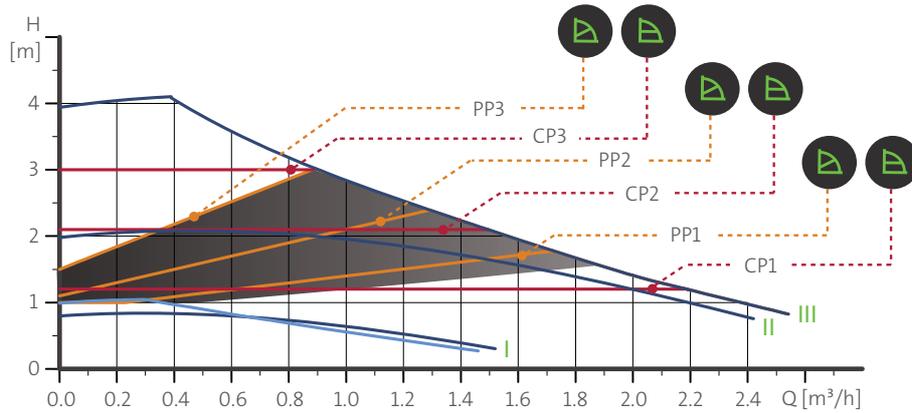
TM05 2364 5011

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA2 15-60	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1*	1.8	2.0	0.00364
ALPHA2 15-60 N	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1*	1.8	2.0	0.00364

* UK version: G 1 1/2.

See product numbers and QR codes in section 8. Product range, page 27.

ALPHA2 25-40 (N)

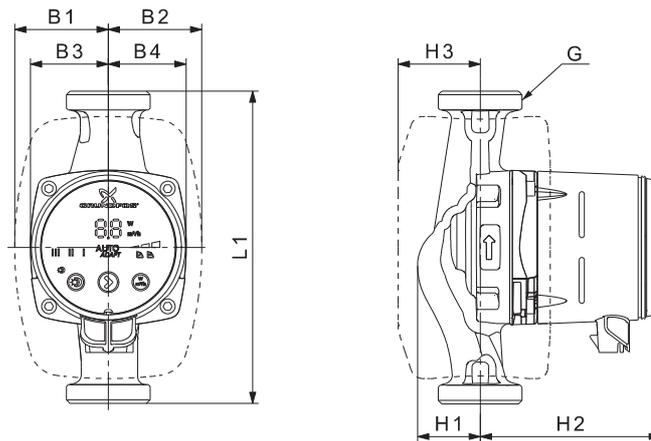


TM05 1672 4111 - TM05 2712 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 18	0.04 to 0.18
Min.	3	0.04
Max.	18	0.18

The pump incorporates overload protection.

Connections: See Unions and valve kits, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.15.

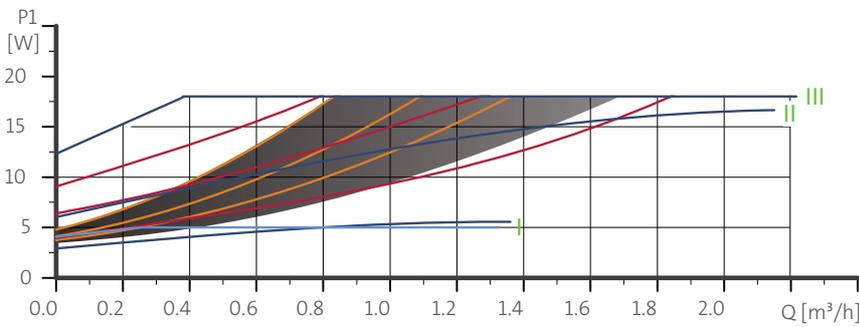
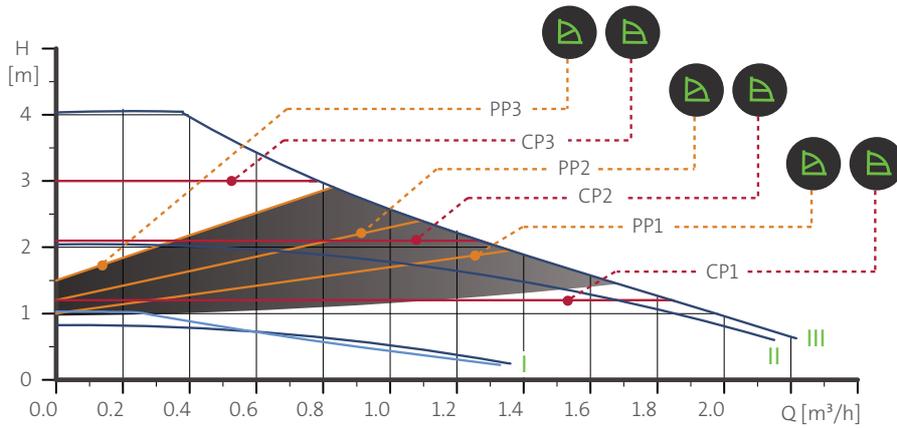


TM05 2364 5011

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 25-40	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-40 N	130	60.5	60.5	44.5	44.5	36.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-40	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-40 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 1 1/2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 25-40 A

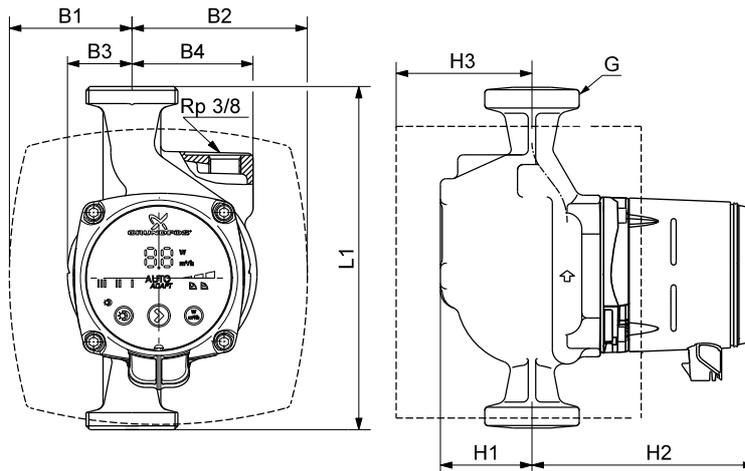


TM05 2016 4211 - TM05 2715 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 18	0.04 to 0.18
Min.	3	0.04
Max.	18	0.18

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Specific EEI: ≤ 0.18.

The pump incorporates overload protection.

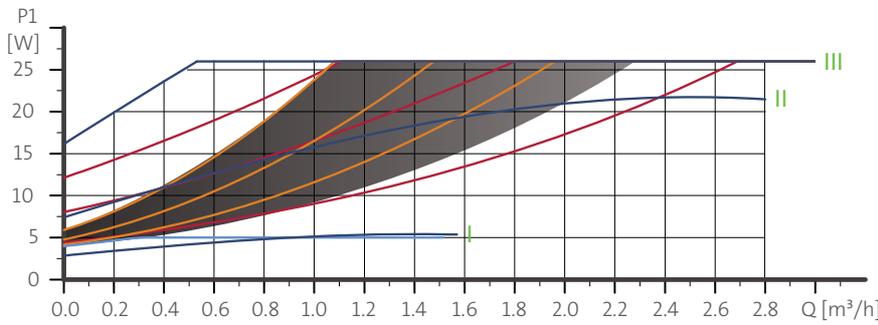
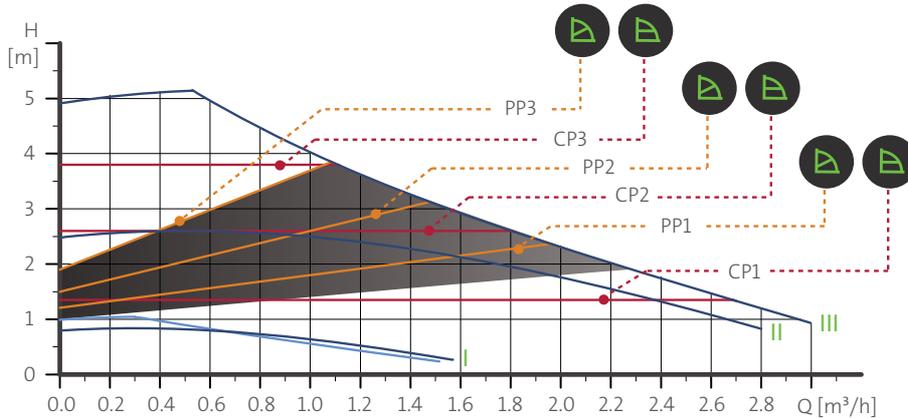


TM05 2574 0212

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA2 25-40 A	180	63.5	98	32	63	50	124	81	G 1 1/2	2.8	3.0	0.00396

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 25-50 (N)

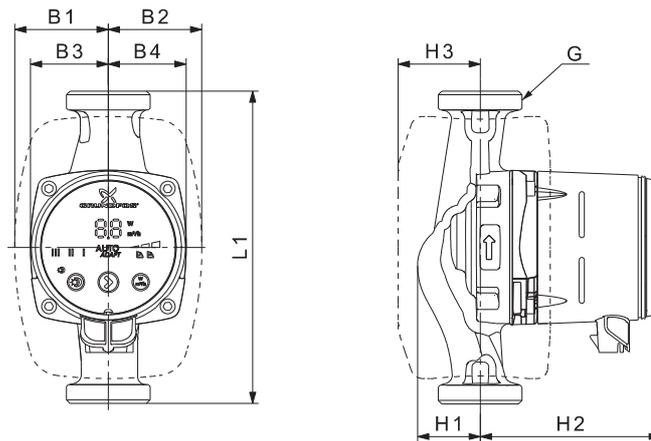


TM05 1673 4111 - TM05 2713 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO_{ADAPT}	4 to 26	0.04 to 0.24
Min.	3	0.04
Max.	26	0.24

The pump incorporates overload protection.

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.16.

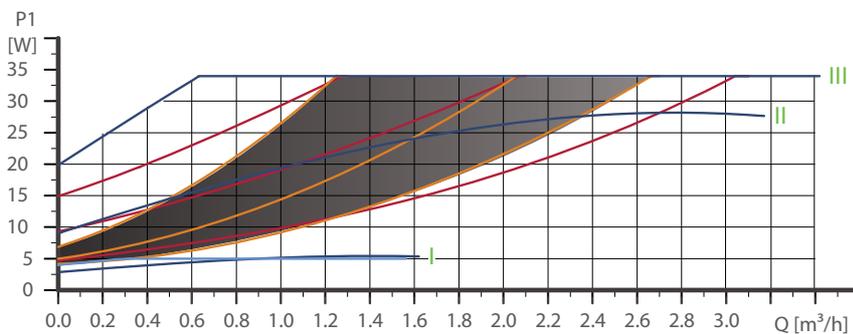
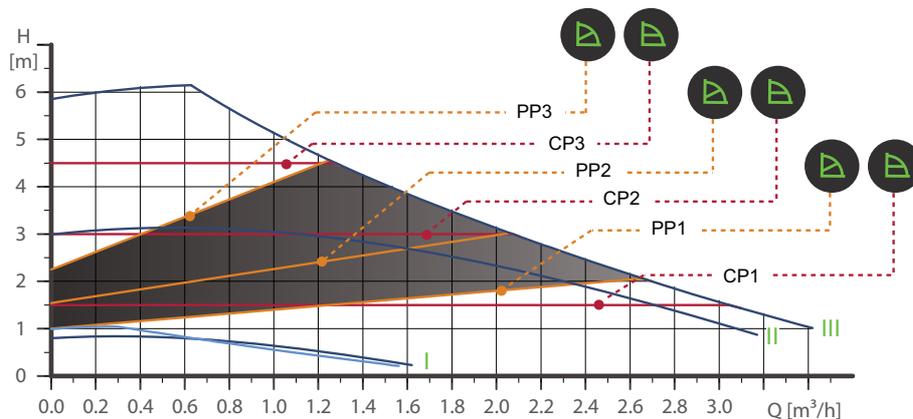


TM05 2364 5011

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 25-50	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-50 N	130	60.5	60.5	44.5	44.5	36.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-50	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-50 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 1 1/2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 25-60 (N)

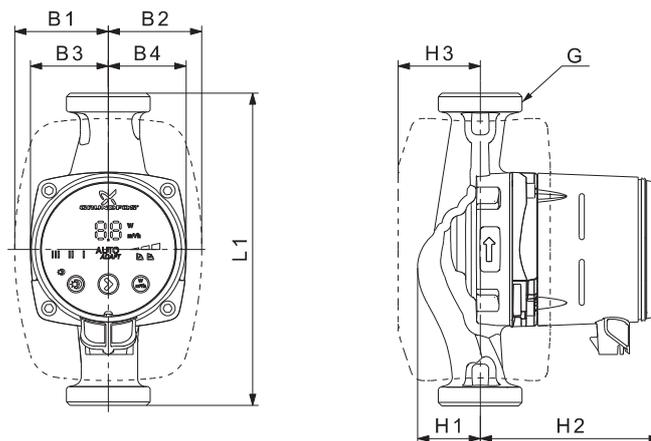


TM05 1674 4111 - TM05 2714 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 34	0.04 to 0.32
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections: See Unions and valve kits, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.17.

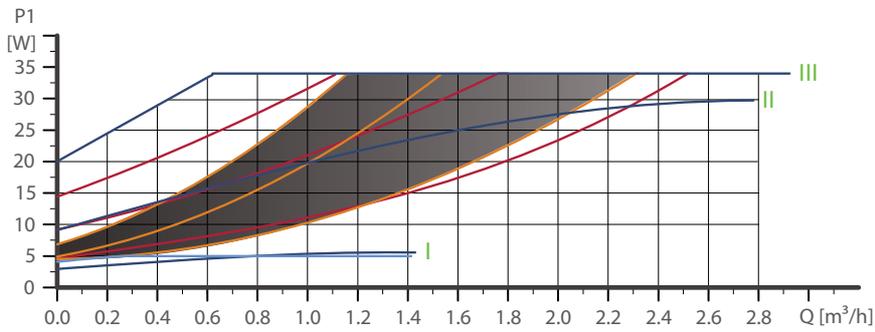
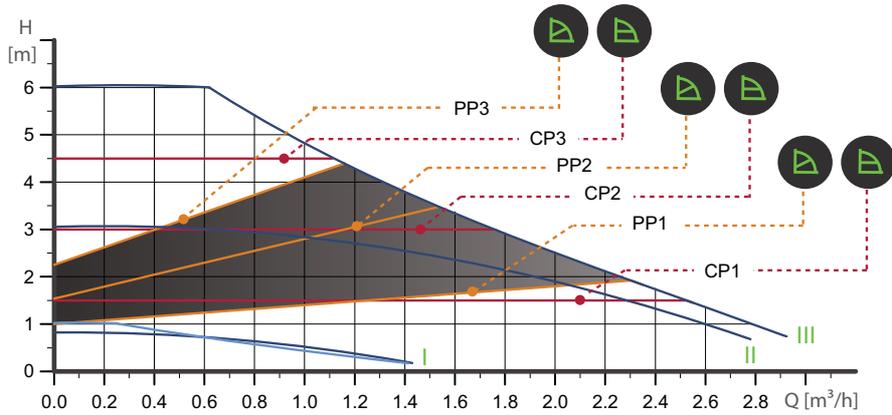


TM05 2364 5011

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 25-60	130	60.5	60.5	44.5	44.5	35.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-60 N	130	60.5	60.5	44.5	44.5	36.8	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-60	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 1 1/2	1.8	2.0	0.00364
ALPHA2 25-60 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 1 1/2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. Product range, page 27.

ALPHA2 25-60 A

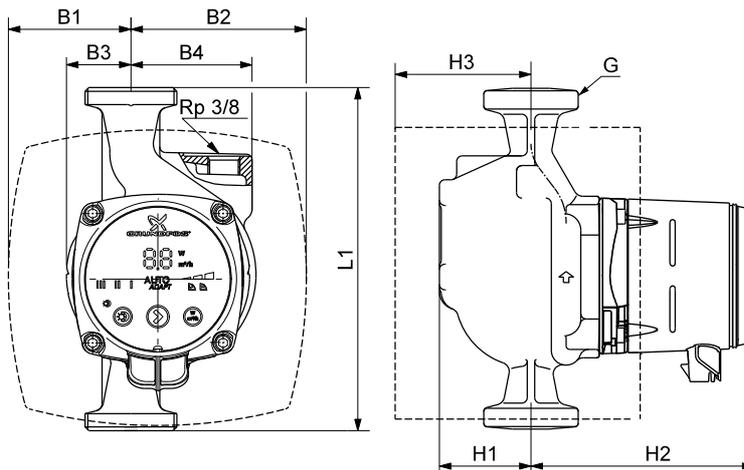


TM05 2017 4211 - TM05 2682 0312 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 34	0.04 to 0.32
Min.	3	0.04
Max.	34	0.32

Connections: See Unions and valve kits, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Specific EEI: ≤ 0.20.

The pump incorporates overload protection.

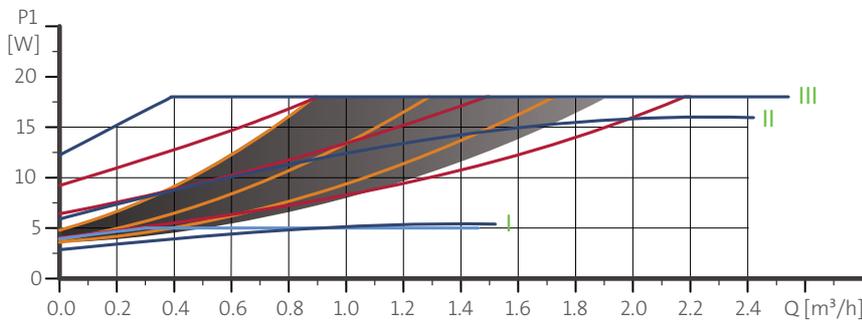
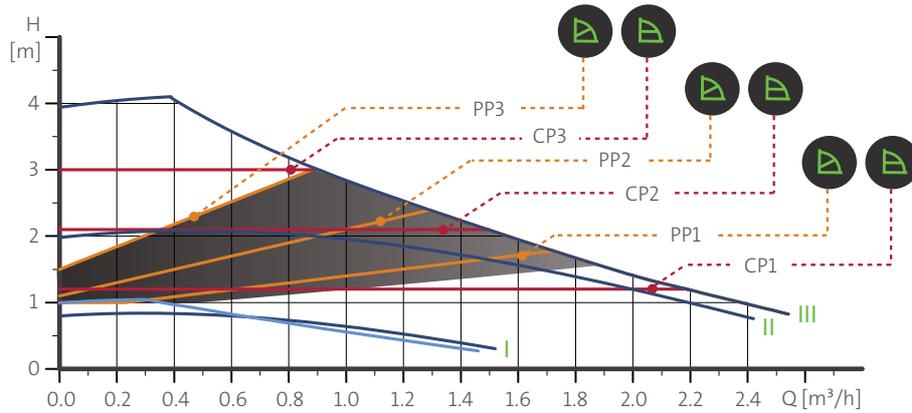


TM05 2574 0212

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 25-60 A	180	63.5	98	32	63	50	124	81	G 1 1/2	2.8	3.0	0.00396

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 32-40 (N)

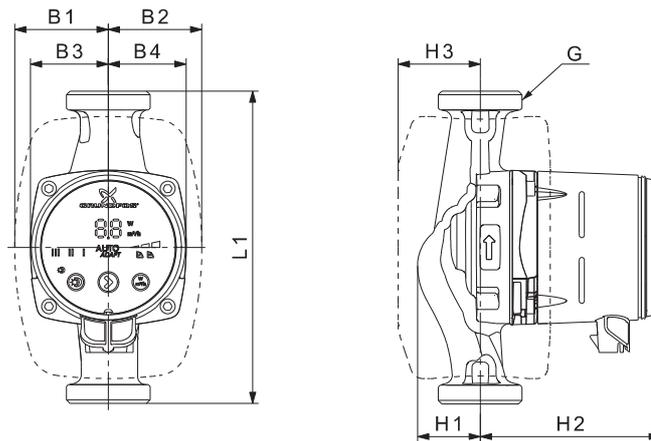


TM05 1672 4111 - TM05 2712 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 18	0.04 to 0.18
Min.	3	0.04
Max.	18	0.18

The pump incorporates overload protection.

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.15.

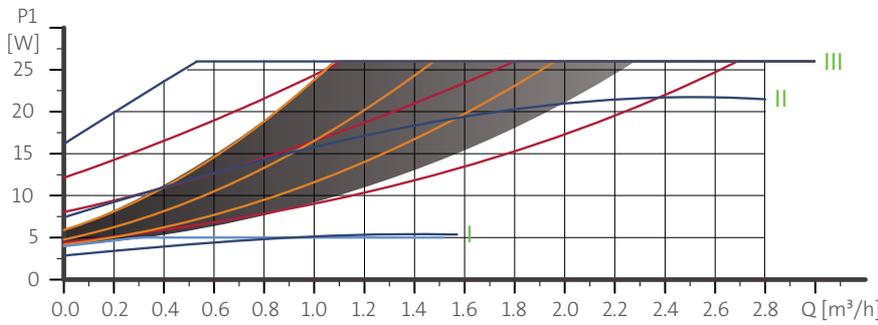
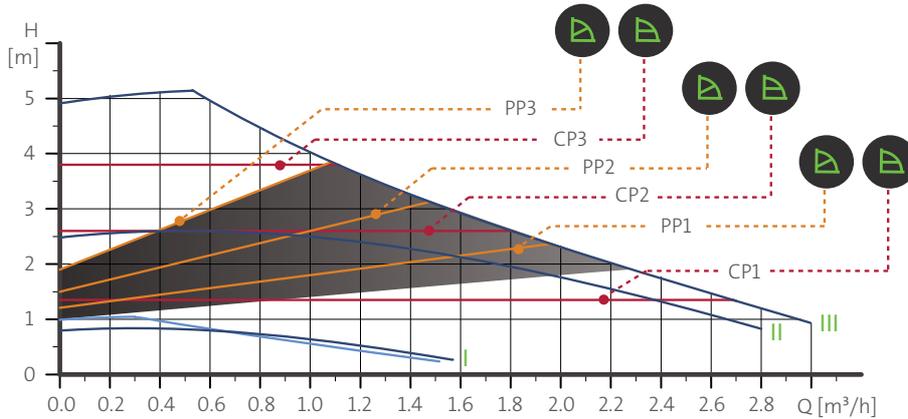


TM05 2364 5011

Pump type	Dimensions [mm]								Weights [kg]		Ship. vol. [m³]	
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net		Gross
ALPHA2 32-40	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 2	1.8	2.0	0.00364
ALPHA2 32-40 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 32-50 (N)

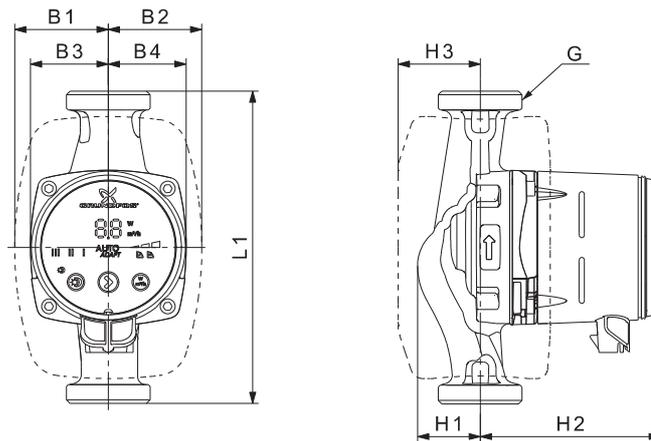


TM05 1673 4111 - TM05 2713 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO_{ADAPT}	4 to 26	0.04 to 0.24
Min.	3	0.04
Max.	26	0.24

The pump incorporates overload protection.

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.16.

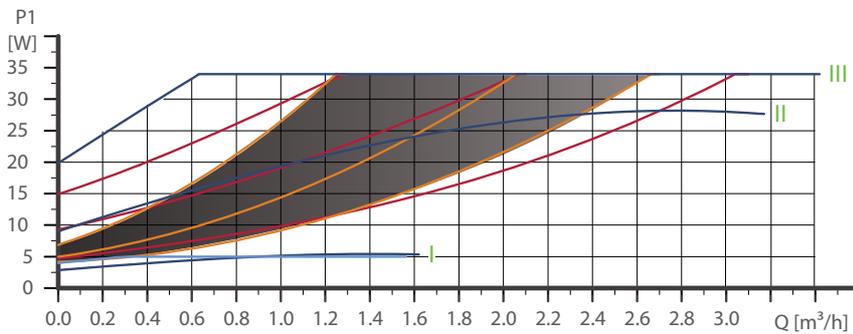
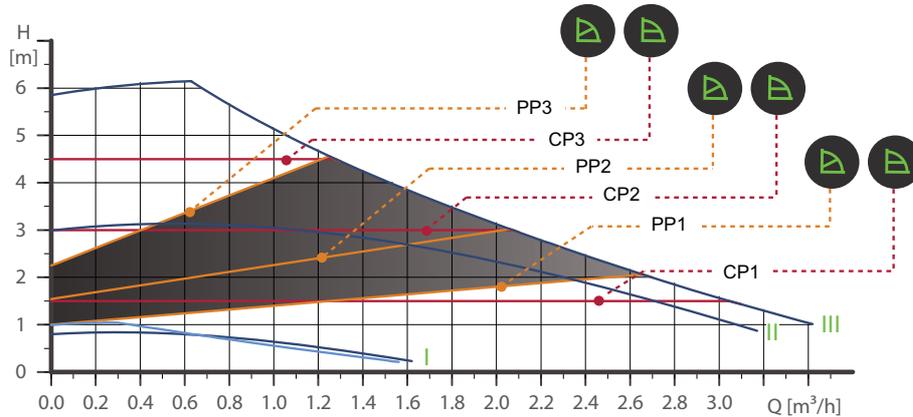


TM05 2364 5011

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA2 32-50	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 2	1.8	2.0	0.00364
ALPHA2 32-50 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

ALPHA2 32-60 (N)

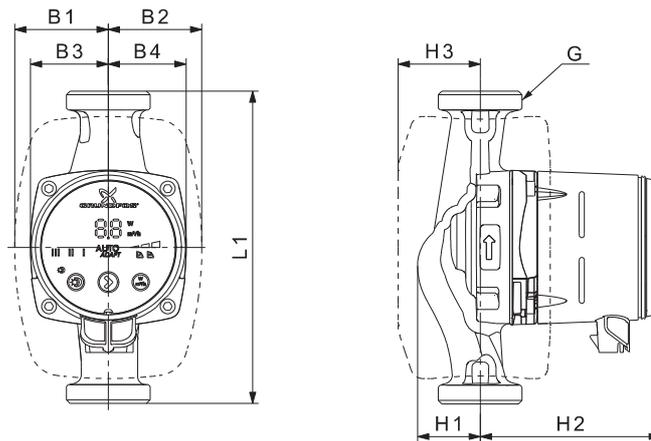


TM05 1674 4111 - TM05 2714 0412 - TM05 2683 0312

Speed	P1 [W]	I _{1/1} [A]
AUTO _{ADAPT}	4 to 34	0.04 to 0.32
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections: See *Unions and valve kits*, page 26.
 System pressure: Max. 1.0 MPa (10 bar).
 Liquid temperature: +2 °C to +110 °C (TF 110).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: ≤ 0.17.



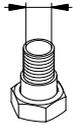
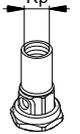
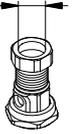
TM05 2364 5011

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA2 32-60	180	60.5	60.5	44.5	44.5	35.9	103.5	52	G 2	1.8	2.0	0.00364
ALPHA2 32-60 N	180	60.5	60.5	44.5	44.5	36.9	103.5	52	G 2	1.8	2.0	0.00364

See product numbers and QR codes in section 8. *Product range*, page 27.

7. Accessories

Unions and valve kits

		Product numbers, unions														
ALPHA2	Connection															
		3/4	1	1 1/4	1	1 1/4	3/4	1	1 1/4	Ø22	Ø28	Ø15	Ø18	Ø22	Ø28	Ø42
15-xx*	G 1	•														
15-xx N*	G 1	•														
25-xx	G 1 1/2	529921	529922	529821	529925	529924										
25-xx N		529971	529972				519805	519806	519807	519808	519809		529977	529978	529979	
32-xx	G 2		509921	509922												
32-xx N				509971											•	529995

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

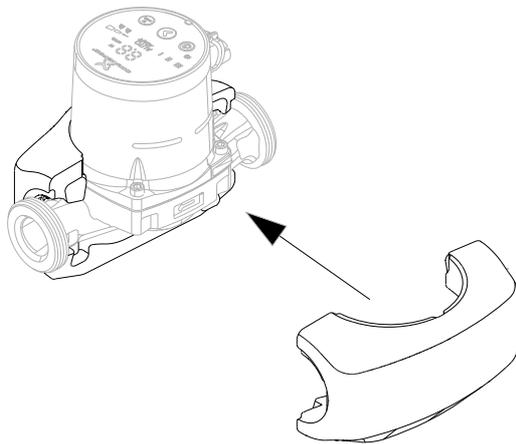
• Available on request.

Insulating kits

The pump is supplied with two insulating shells.

The insulation thickness of the insulating shells corresponds to the nominal diameter of the pump.

The insulating kit, which is tailored to the individual pump type, encloses the entire pump housing. The two insulating shells are easy to fit around the pump.

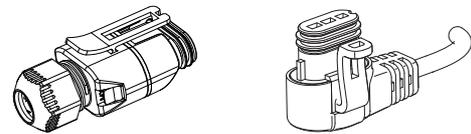


TM05 2523 0112

Fig. 23 Insulating shells

Pump type	Product number
ALPHA2 XX-XX 130	98091786
ALPHA2 XX-XX 180	98091787
ALPHA2 XX-XX A	505822

Service kits



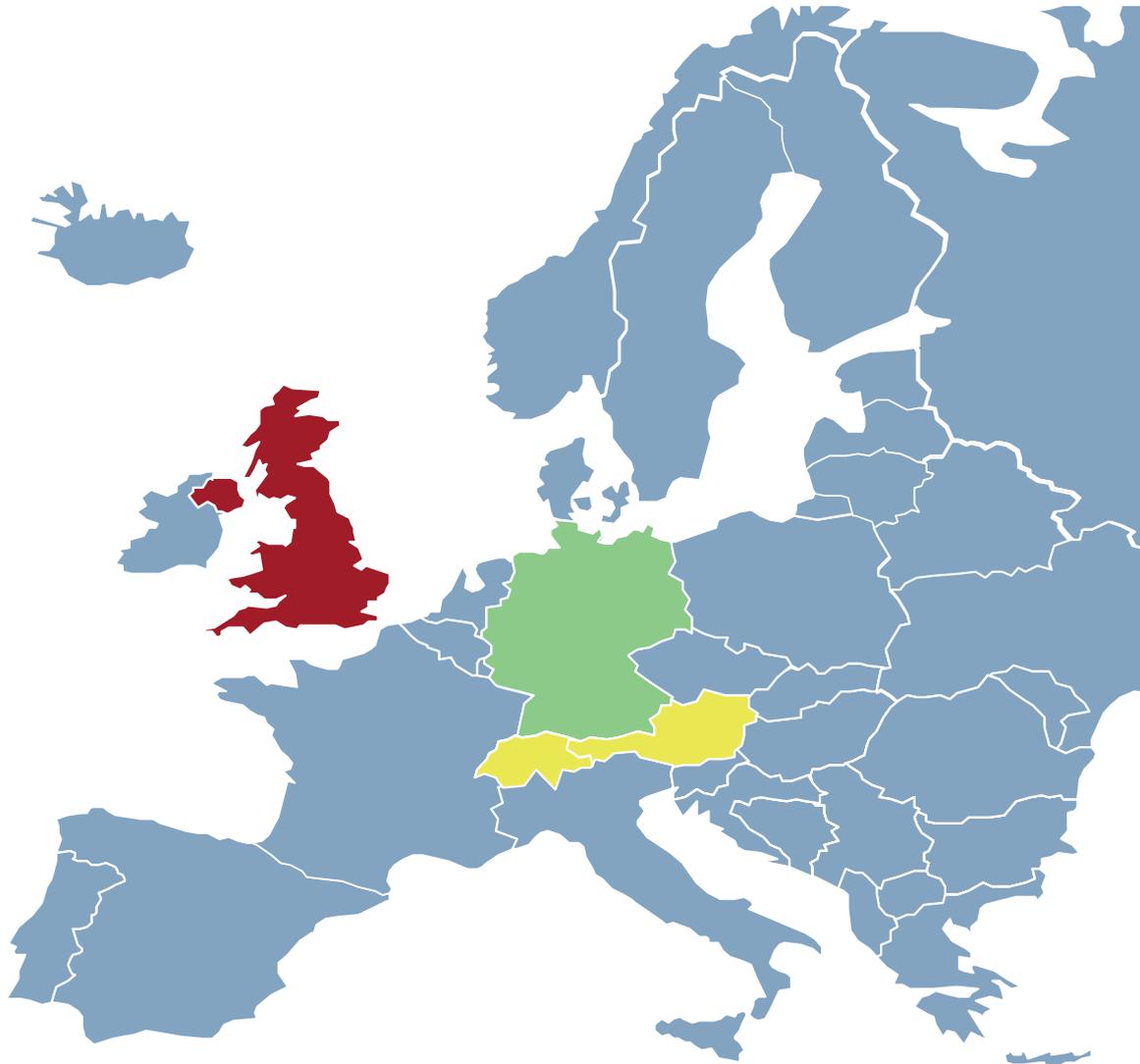
TM05 2677 - 2676 0312

Fig. 24 ALPHA plugs

Description	Product number
ALPHA plug with cable relief	97928845
ALPHA plug, angled, with 4 m cable	96884669
ALPHA plug, angled, with inrush protection incl. 1 m cable	97844632

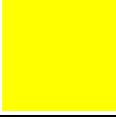
8. Product range

The sales regions for the ALPHA2 pump are structured as shown in the map.



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Fig. 25 Sales regions (clusters)

Colour	Companies	Countries	Installation and operating instructions
	GWS	Germany	
	GB	United Kingdom	
	GPO, GPS	Austria, Switzerland	
		All other countries, except Japan and North America	

ALPHA2 for the German market

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 15-40	130	G 1	97914899	98091786	15	
ALPHA2 15-60	130	G 1	97914900	98091786	17	
ALPHA2 25-40	130	G 1 1/2	97914901	98091786	18	
ALPHA2 25-40 N	130	G 1 1/2	97914909	98091786	18	
ALPHA2 25-60	130	G 1 1/2	97914902	98091786	21	
ALPHA2 25-60 N	130	G 1 1/2	97914910	98091786	21	
ALPHA2 25-40	180	G 1 1/2	97914903	98091787	18	
ALPHA2 25-40 N	180	G 1 1/2	97914911	98091787	18	
ALPHA2 25-40 A	180	G 1 1/2	97914904	505822	19	
ALPHA2 25-60 A	180	G 1 1/2	97914906	505822	22	
ALPHA2 32-40	180	G 2	97914907	98091787	23	
ALPHA2 32-40 N	180	G 2	97914913	98091787	23	
ALPHA2 32-60	180	G 2	97914908	98091787	25	
ALPHA2 32-60 N	180	G 2	97914914	98091787	25	

ALPHA2 for the international market

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 15-40	130	G 1	97993192	98091786	15	
ALPHA2 15-50	130	G 1	97993193	98091786	16	
ALPHA2 15-60	130	G 1	97993194	98091786	17	
ALPHA2 25-40	130	G 1 1/2	97993195	98091786	18	
ALPHA2 25-40 N	130	G 1 1/2	97993206	98091786	18	
ALPHA2 25-40	180	G 1 1/2	97704990	98091787	18	
ALPHA2 25-40 N	180	G 1 1/2	97993209	98091787	18	
ALPHA2 25-50	130	G 1 1/2	97993196	98091786	20	
ALPHA2 25-50 N	130	G 1 1/2	97993207	98091786	20	
ALPHA2 25-50	180	G 1 1/2	97993200	98091787	20	
ALPHA2 25-50 N	180	G 1 1/2	97993210	98091787	20	
ALPHA2 25-60	130	G 1 1/2	97993197	98091786	21	
ALPHA2 25-60 N	130	G 1 1/2	97993208	98091786	21	
ALPHA2 25-60	180	G 1 1/2	97993201	98091787	21	

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 25-60 A	180	G 1 1/2	97993202	505822	22	
ALPHA2 25-60 N	180	G 1 1/2	97993211	98091787	21	
ALPHA2 32-40	180	G 2	97993203	98091787	23	
ALPHA2 32-40 N	180	G 2	97993212	98091787	23	
ALPHA2 32-50	180	G 2	97993204	98091787	24	
ALPHA2 32-50 N	180	G 2	97993213	98091787	24	
ALPHA2 32-60	180	G 2	97993205	98091787	25	
ALPHA2 32-60 N	180	G 2	97993214	98091787	25	

ALPHA2 for the UK market

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 15-50	130	G 1 1/2	97993149	98091786	16	
ALPHA2 15-60	130	G 1 1/2	97993150	98091786	17	
ALPHA2 15-50 N	130	G 1 1/2	97993151	98091786	16	
ALPHA2 15-60 N	130	G 1 1/2	97993152	98091786	17	

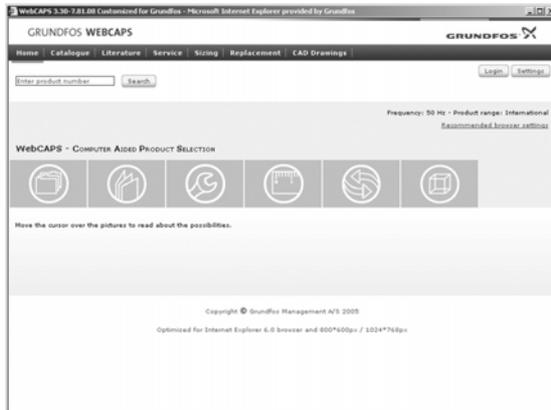
ALPHA2 for the Austrian and Swiss markets

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 15-40	130	G 1	97993153	98091786	15	
ALPHA2 15-60	130	G 1	97993154	98091786	17	
ALPHA2 25-40	130	G 1 1/2	97993155	98091786	18	
ALPHA2 25-40 N	130	G 1 1/2	97993163	98091786	18	
ALPHA2 25-40	180	G 1 1/2	97993157	98091787	18	
ALPHA2 25-40 A	180	G 1 1/2	97993158	505822	19	
ALPHA2 25-40 N	180	G 1 1/2	97993165	98091787	18	
ALPHA2 25-60	130	G 1 1/2	97993156	98091786	21	
ALPHA2 25-60 N	130	G 1 1/2	97993164	98091786	21	
ALPHA2 25-60	180	G 1 1/2	97993159	98091787	21	
ALPHA2 25-60 A	180	G 1 1/2	97993160	505822	22	
ALPHA2 25-60 N	180	G 1 1/2	97993166	98091787	21	
ALPHA2 32-40	180	G 2	97993161	98091787	23	
ALPHA2 32-40 N	180	G 2	97993167	98091787	23	

Pump type	Port-to-port length [mm]	Connection	Product number (incl. insulating shells)	Insulating kit (separate)	Data sheet Page	QR code for Mobile CAPS
ALPHA2 32-60	180	G 2	97993162	9809178	25	
ALPHA2 32-60 N	180	G 2	97993167	98091787	25	

9. Further product documentation

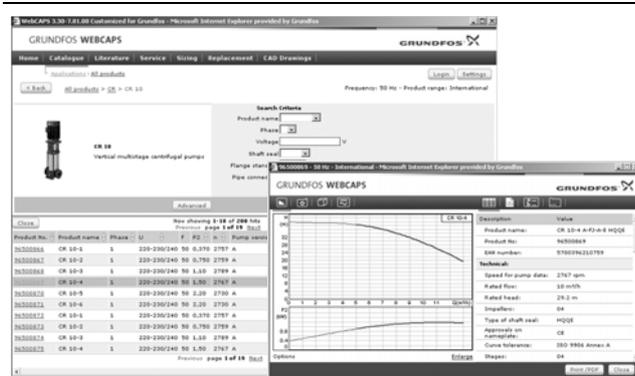
WebCAPS



WebCAPS is a **Web**-based **Computer Aided Product Selection** program available on www.grundfos.com. WebCAPS contains detailed information on more than 220,000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

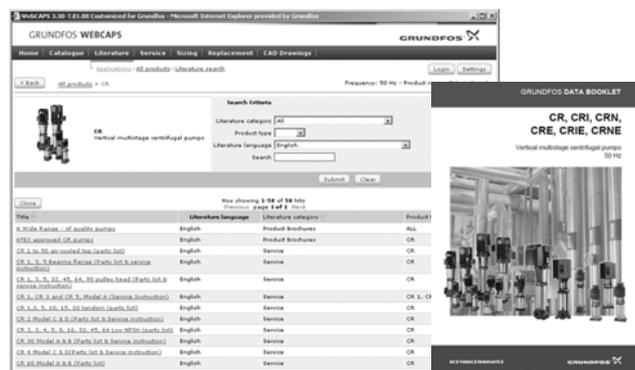
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

Based on fields of application and pump types, this section contains the following:

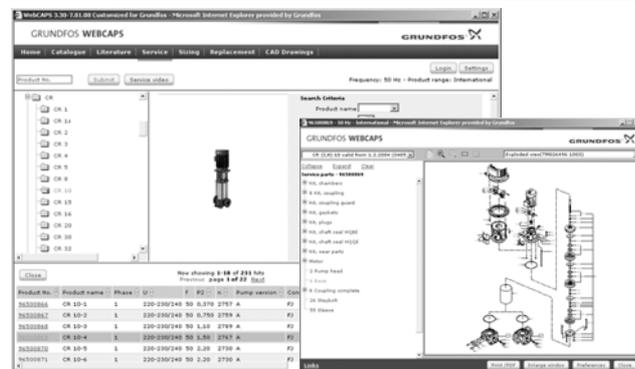
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

This section contains all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.

Furthermore, the section contains service videos showing you how to replace service parts.



Sizing

This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

- Select the most suitable and efficient pump for your installation.
- Carry out advanced calculations based on energy, consumption, payback periods, load profiles, life cycle costs, etc.
- Analyse your selected pump via the built-in life cycle cost tool.
- Determine the flow velocity in wastewater applications, etc.

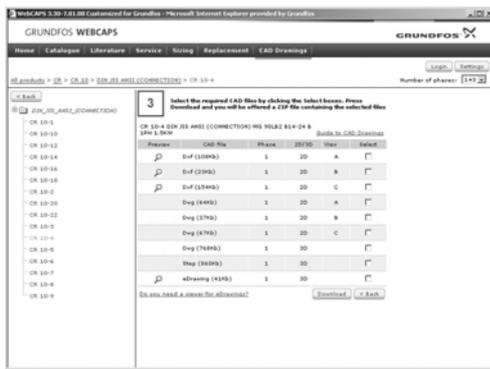


Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.

The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section, it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

- 2-dimensional drawings:
- .dxf, wireframe drawings
 - .dwg, wireframe drawings.
- 3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
 - .stp, solid drawings (with surfaces)
 - .eprt, E-drawings.



WinCAPS



Fig. 26 WinCAPS DVD

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 220,000 Grundfos products in more than 30 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no internet connection is available.

WinCAPS is available on DVD and updated once a year.

Subject to alterations.

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ECM: 1093401

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