ALPHA1

Model B

Circulator pumps

50/60 Hz

be
think
innovate

GRUNDFOS

1. Product data

TM06 4400 2315

Grundfos ALPHA1 model B is a complete range of circulator pumps with the following features:

- Integrated differential-pressure control enabling adjustment of pump performance to the actual system requirements.
- High-torque start.
- Display showing the actual power consumption in watt.
- Motor based on permanent-magnet rotor and compact-stator technology.

ALPHA1 is energy-optimised and complies with the ErP Directive, Commission Regulation (EC) No 641/2009 and Commission Regulation (EU) No 622/2012 which has been effective as from 1 January 2013.

ALPHA1 offers a host of advantages:

Energy savings	Automatic control of the differential pressure.
Flexibility	Suitable for installation in existing systems.
High-torque start	Improved startup under harsh conditions.
Comfort	Low-noise operation.
Safety	Built-in electrical and thermal protection of the pump.
User friendliness	Simple setting and operation.
Alarms and warnings	Alarms indicated in the display.

Type key

Example	**ALPHA1**	**25 -**	**40**	**180**
Pump range				
Nominal diameter (DN) of inlet and outlet ports [mm] (15 = G 1, 25 = G 1 1/2, 32 = G 2)				
Maximum head [dm]				
Cast-iron pump housing				
N: Stainless-steel pump housing				
Port-to-port length [mm]				

Model type

This data booklet covers all models. The model type is stated on the nameplate. See fig. 1.

TM06 9103 4317

Fig. 1 Model type on the nameplate

Performance range

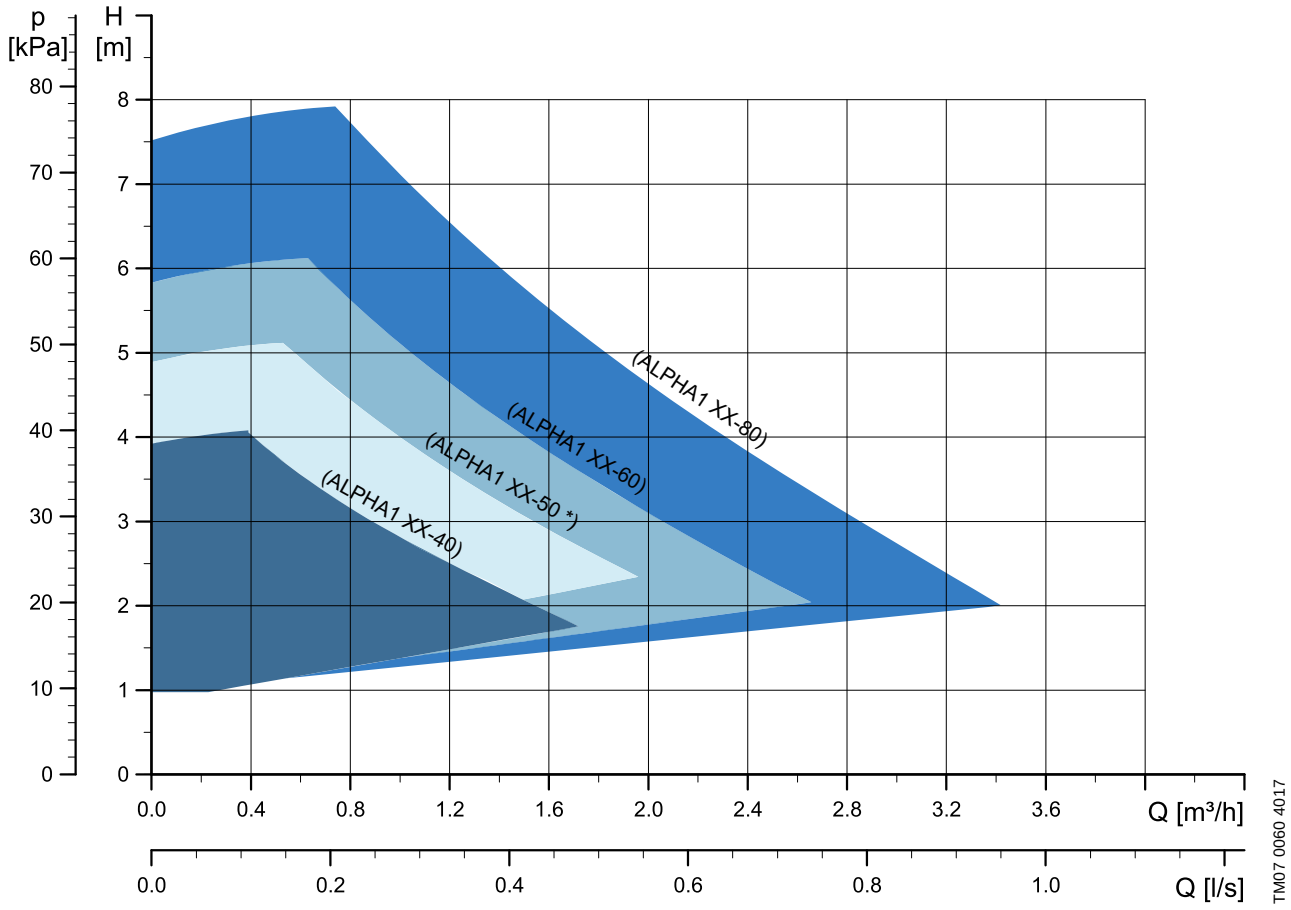


Fig. 2 Performance range, ALPHA1

* Not available in all countries.

Applications

ALPHA1 is designed for circulating liquids in heating systems. Pumps with stainless-steel pump housing can also be used in domestic hot-water systems.

ALPHA1 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.

You can select the appropriate pump type for a heating system 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]	ALPHA1
80-120	0.4	1.5	XX-40
120-160	0.5	2.0	XX-50*
160-200	0.6	2.5	XX-60
200-300	0.8	3.5	XX-80

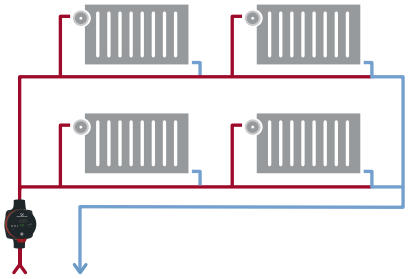
* Not available in all countries.

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

ALPHA1 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



TM06 8563 1417

Fig. 3 One-pipe heating system

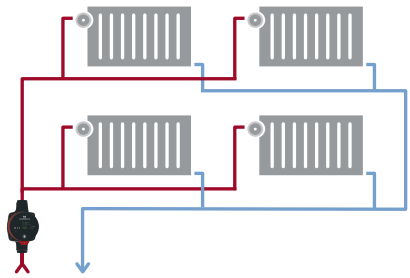


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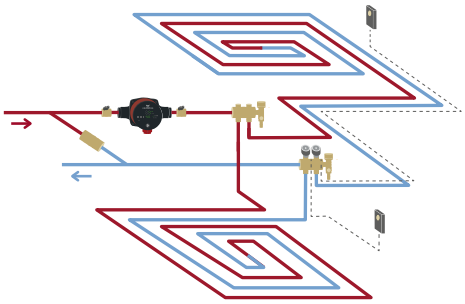
Fig. 4 Two-pipe heating system



TM06 8560 1417

Fig. 5 Underfloor heating system

TM06 8562 1417

Fig. 6 Domestic hot-water recirculation system

2. Construction

ALPHA1 is designed for long and trouble-free operation as a canned-rotor type, i.e. the pump and motor form an integral unit without shaft seal, with only one gasket for sealing. The bearings are lubricated by the pumped liquid. These constructions ensure maintenance-free operation.

The pump is characterised by the following:

- Permanent-magnet rotor and compact-stator motor which contributes to high efficiency and high starting torque.
- Ceramic shaft and radial bearings which contribute to long life.
- Carbon thrust bearing which contributes to long life.
- Stainless-steel rotor can, bearing plate and rotor cladding which contribute to corrosion-free long life.
- Composite impeller which contributes to corrosion-free long life.
- Cast-iron or stainless-steel pump housing which contributes to flexibility. Compact design featuring a pump head with integrated control box and operating panel which fits into most common installations.

Sectional drawing

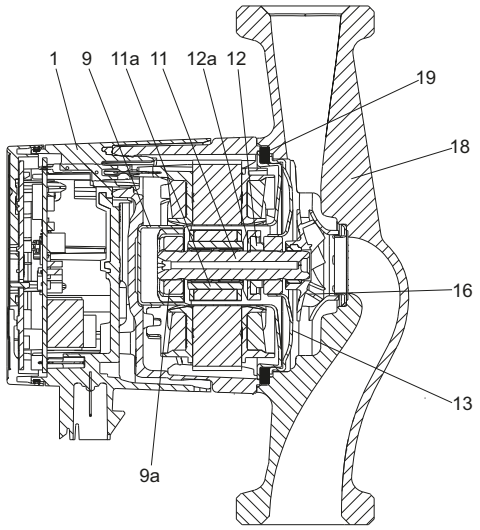


Fig. 7 Position numbers

Material specification

Pos.	Description	Material	EN/DIN	AISI/ASTM
1	Controller complete	Composite, PC		
9	Rotor can	Stainless steel	1.4401	316
9a	Radial bearing	Ceramics		
11	Shaft	Ceramics		
11a	Rotor cladding	Stainless steel	1.4401	316
12	Thrust bearing	Carbon		
12a	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
19	Gasket	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 and connected to the stator via a terminal plug.

The control box has an integrated operating panel with a push-button and a 2-digit 7-segment display. See fig. 8.

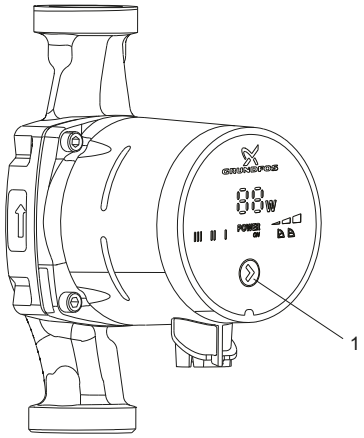


Fig. 8 Position of push-buttons

The display is on when you have switched on the power supply. The display shows the actual pump power consumption in watt (integer)

Figures 9 and 10 show the possible control box positions in heating systems as well as in air-conditioning and cold-water systems.

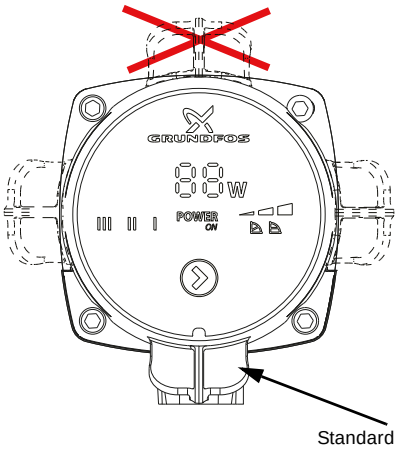


Fig. 9 Possible control box positions, heating systems

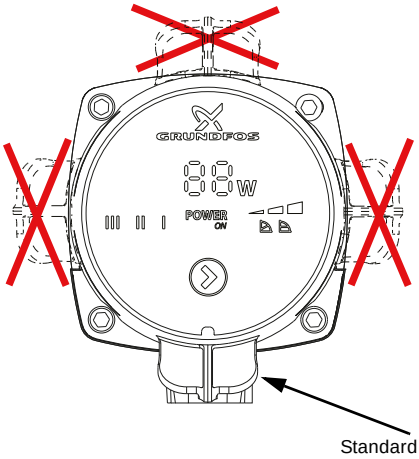


Fig. 10 Possible control box position, air-conditioning and cold-water systems

The plug incorporates cable relief and a locking function for securing the connection of the power cable. See also page 26.

Fig. 11 ALPHA plugs

Pos.	Description
1	ALPHA plug with cable gland, standard plug connector, complete
2	ALPHA plug angled 90 ° left, with cable gland
3	ALPHA plug angled 90 ° left, including 4 m cable

3. Operation

Advantages of ALPHA1 pump control

In ALPHA1, 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 ALPHA1 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. 12.

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

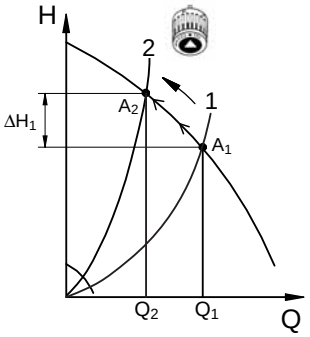


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Fig. 12 Uncontrolled pump

In a system with an ALPHA1 pump set to proportional-pressure control, the differential pressure will be reduced by ΔH_2 and result in reduced energy consumption. See fig. 13.

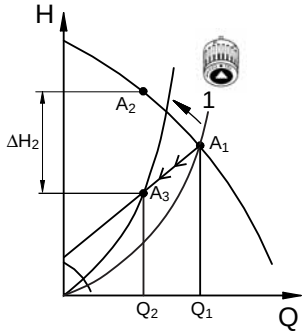

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Fig. 13 Pump in proportional-pressure control mode

Overview of control mode

Application	Control mode
Floor heating	Constant pressure
Two-pipe system	Proportional pressure
Boiler-shunt	Speed 1, 2 or 3
One-pipe system	Speed 1, 2 or 3 or constant pressure
Domestic hot water	Speed 1, 2 or 3

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.

Operating conditions

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
- softened water.

The kinematic viscosity of water is $\upsilon = 1$ mm^2/s (1 cSt) at 20 °C. If you use the pump 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 pump performance by approximately 15 %.

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

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

Liquid temperature

ALPHA1 pumps: 2-110 °C.

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 ALPHA1 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 9 and 10.

Ambient temperature

0-40 °C.

Relative humidity

Maximum 95 %.

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 inlet port.

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

Technical data

Sound pressure level

≤ 43 dB(A).

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.
Temperature class	TF110 to EN 60335-2-51.
EMC (electromagnetic compatibility)	EMC Directive (2014/30/EU) Standards used: EN 55014-1:2006/A1:2009/A2:2011 EN 55014-2:2015 EN61000-3-2:2014 EN61000-3-3:2013

Installation and startup

Installation

In most cases, the installation of ALPHA1 is reduced to the mechanical installation and connection to the power supply.

Always install the pump with horizontal motor shaft.

Grundfos recommends that the pump is connected to 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;

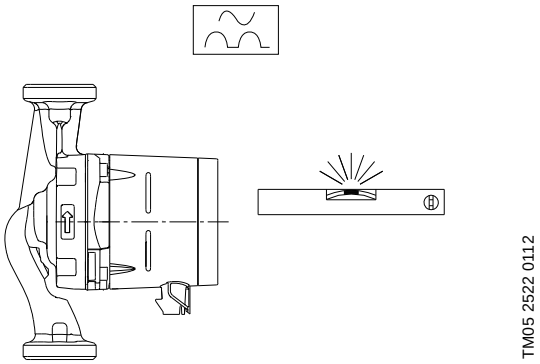


Fig. 14 Horizontal motor shaft

Startup

Do not start the pump until the system has been filled with liquid. Make sure that the required minimum inlet pressure is available at the pump inlet.

When using the pump for the first time, the system must be vented at the highest point.

The pump is self-venting through the system.

Setting the pump

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

- three proportional-pressure curves (PP1, PP2, PP3)
- three constant-pressure curves (CP1, CP2, CP3)
- three constant curves or constant speeds (I, II, III).

The pump will start up in PP2 mode, which is set from factory.

ALPHA1, the choice for 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 ALPHA1 controls the differential pressure by adjusting the pump performance to the actual heating demand, without the use of external components.

The pump has the following control modes:

- proportional-pressure control
- constant-pressure control
- constant-curve control.

See also section *Advantages of ALPHA1 pump control* on page 7.

Proportional-pressure control

Proportional-pressure control adjusts the pump performance to the actual heat demand in the system, but the pump performance follows the selected performance curve, PP1, PP2 or PP3. See fig. 15 where PP2 has been selected. See section *Change of performance* on page 10 for further information.

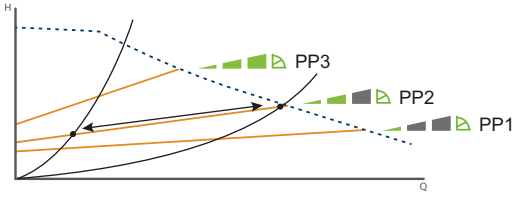


Fig. 15 Three proportional-pressure curves and settings

Constant-pressure control

Constant-pressure control adjusts the pump performance to the actual heat demand in the system, but the pump performance follows the selected performance curve, CP1, CP2 or CP3. See fig. 16 where CP1 has been selected. See section *Change of performance* on page 10 for further information.

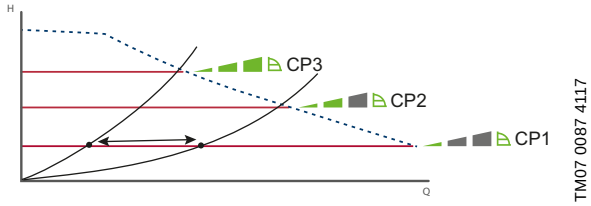


Fig. 16 Three constant-pressure curves and settings

The selection of the right constant-pressure setting depends on the characteristics of the heating system in question and the actual heat demand.

Constant-curve control

At constant-curve/constant-speed operation, the pump runs at a constant speed, independent of the actual flow demand in the system. The pump performance follows the selected performance curve, I, II or III. See fig. 17 where II has been selected. See section *Change of performance* on page 10 for further information.

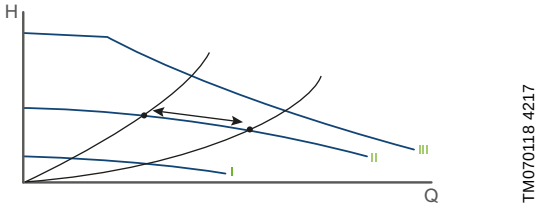


Fig. 17 Three constant-curve/constant-speed settings

The selection of the right constant-curve/constant-speed setting depends on the characteristics of the heating system in question and the number of taps likely to be opened at the same time.

Change of performance

You can change the pump performance (flow rate and head) by pressing the control box push-button as indicated in fig. 18 and the table below.

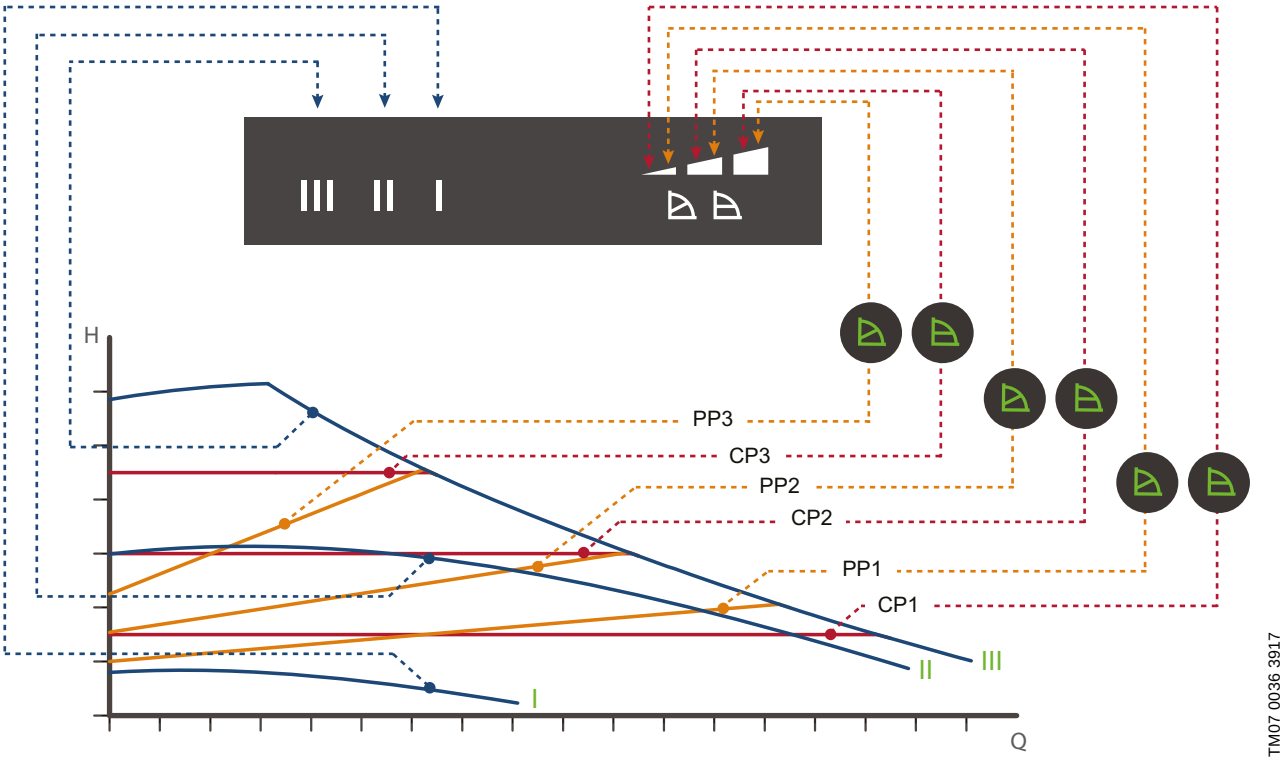


Fig. 18 Pump setting in relation to pump performance

Setting	Pump curve	Function
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. 18. 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. 18. 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. 18. 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. 18. 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. 18. 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. 18. 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 maximum curve under all operating conditions. See fig. 18. You can obtain quick venting of the pump 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. 18.
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 minimum curve under all operating conditions. See fig. 18.

4. Performance curves

Curve charts

How to read the curve charts

Each pump setting has its own performance curve (Q/H curve). A power curve, P1, belongs to each Q/H curve. The power curve shows the pump power consumption in watt at a given Q/H curve.

The P1 value corresponds to the value that you can read from the pump display. See fig. 19.

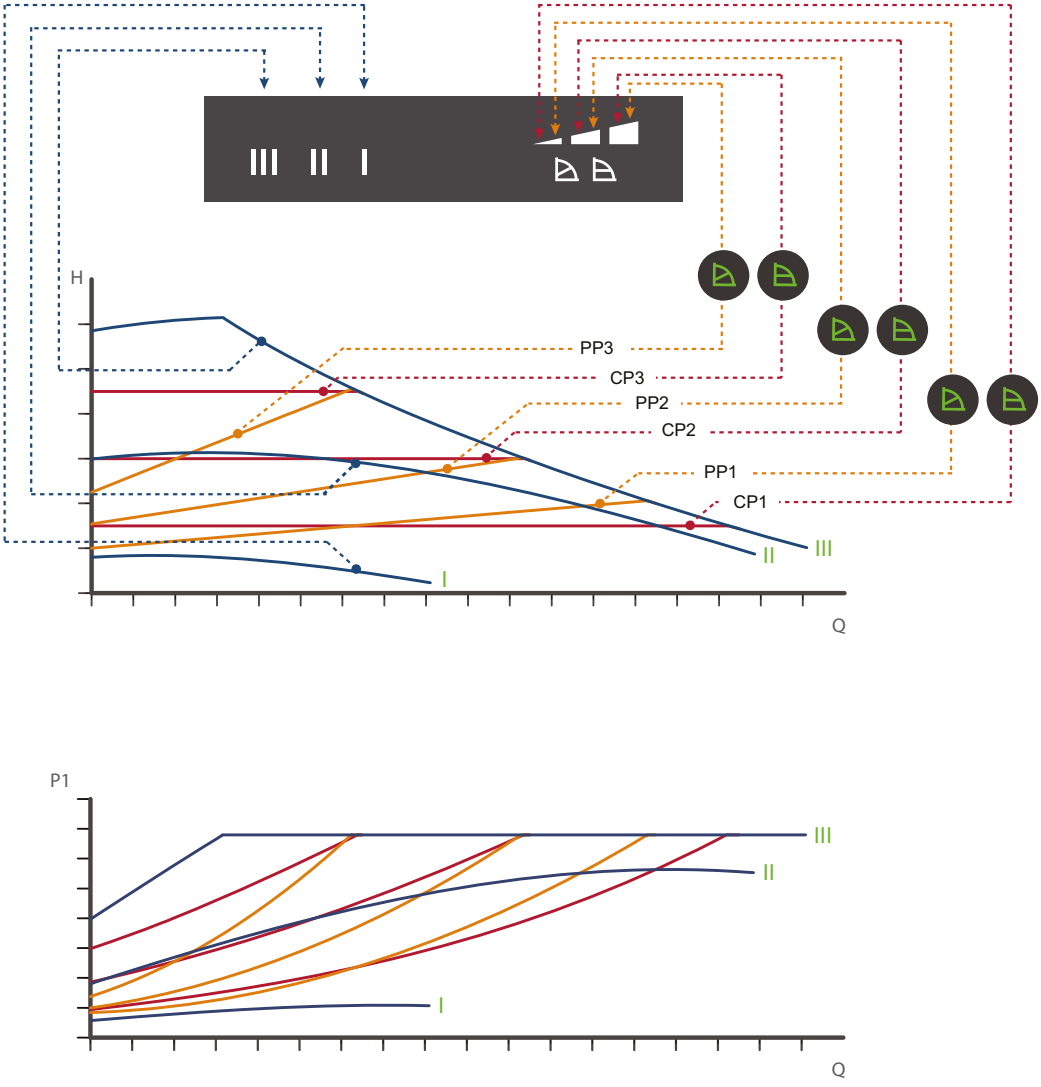


Fig. 19 Performance curves in relation to pump setting

Setting	Pump curve
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 conditions

The guidelines below apply to the performance curves on pages 17 to 29:

- Test liquid: airless water.
- The curves apply to a density of ρ = 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, make individual measurements.
- The curves for speeds I, II and III are marked.
- The curves apply to a kinematic viscosity of υ = 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 ρ = 1000 kg/m^3. For liquids with other densities, for example hot water, the outlet pressure is proportional to the density.
- Curves obtained according to EN 16297.

Energy efficiency

For ALPHA1 pumps, the energy efficiency index (EEI) is down to EEI ≤ 0.20.The ALPHA1 EEI is below the ErP 2015 requirements and equal to the benchmark for most efficient circulators. See fig. 20.

The benchmark for the most efficient circulators is EEI ≤ 0.20.

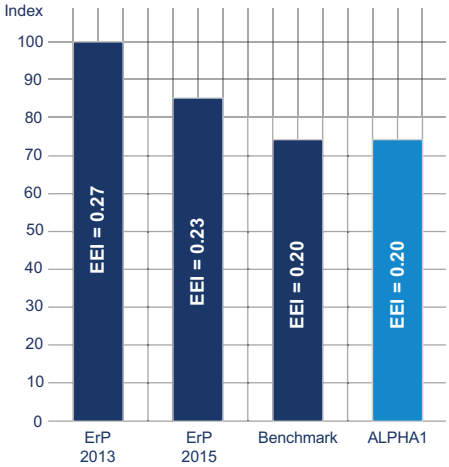
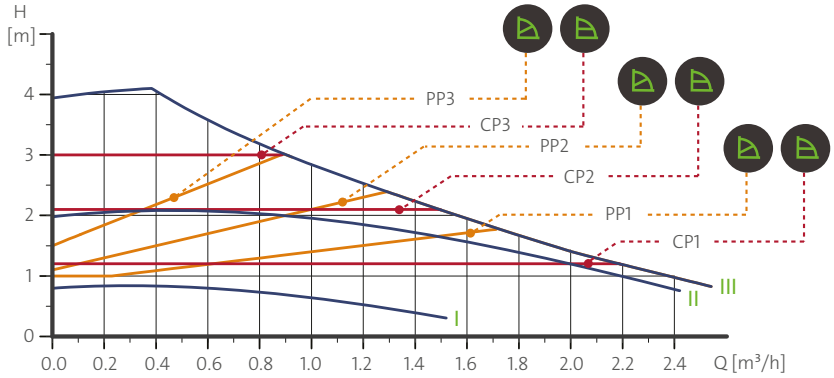


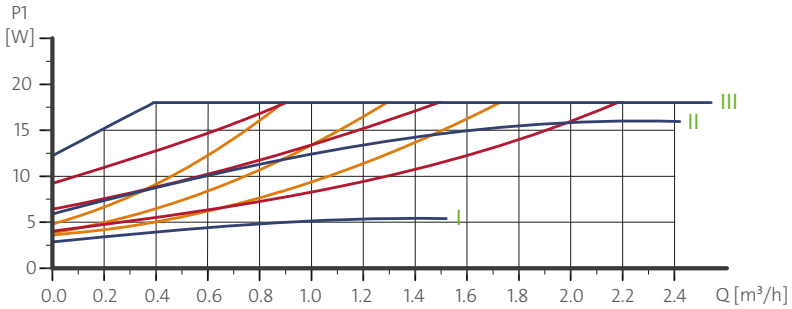
Fig. 20 EEI limits and the current positioning of the ALPHA1

With an energy efficiency index (EEI) below the EuP 2015 requirement level, you can achieve considerable energy savings compared to a typical circulator pump and thus a remarkably fast return on investment.

Performance curves and technical data

ALPHA1 15-40





TM07 0056 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	18	0.18

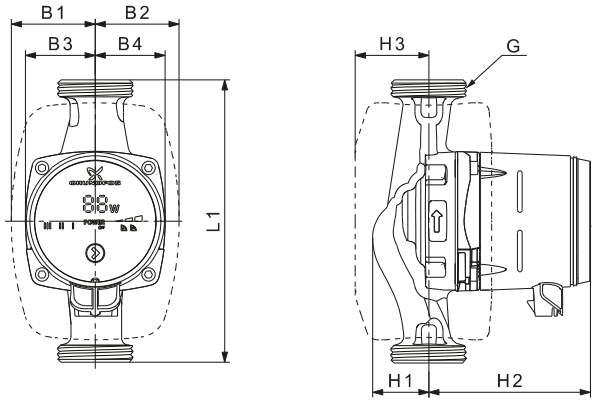
The pump incorporates overload protection.

Connections: See section *Unions and valve kits*, page 31.

System pressure: Maximum 1.0 MPa (10 bar).

Liquid temperature: 2-110 °C (TF 110).

Specific EEI: ≤ 0.20.

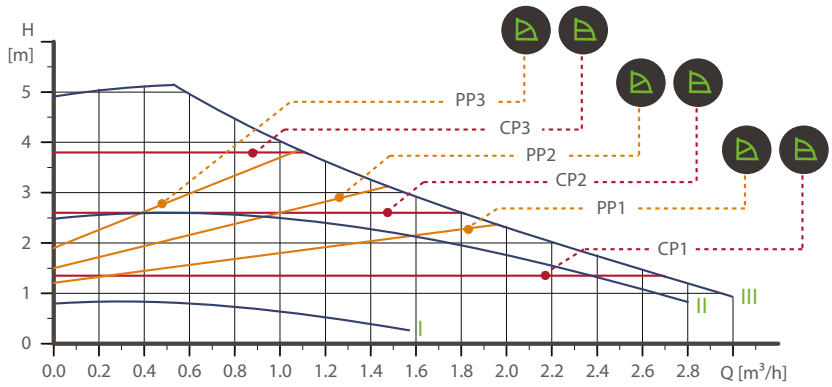


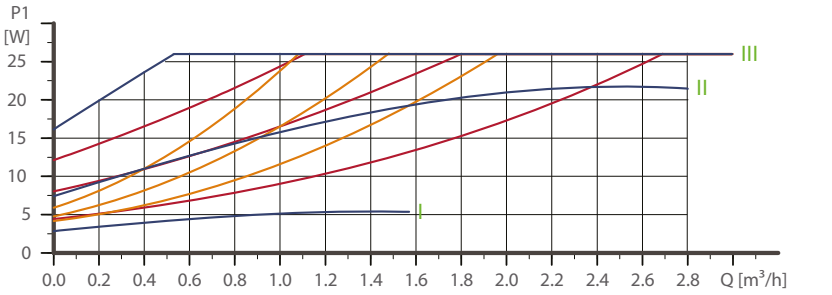
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 15-40	130	54	54	44	44	36	104	47	G 1	1.7	1.9	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 15-50





TM07 0057 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	26	0.24

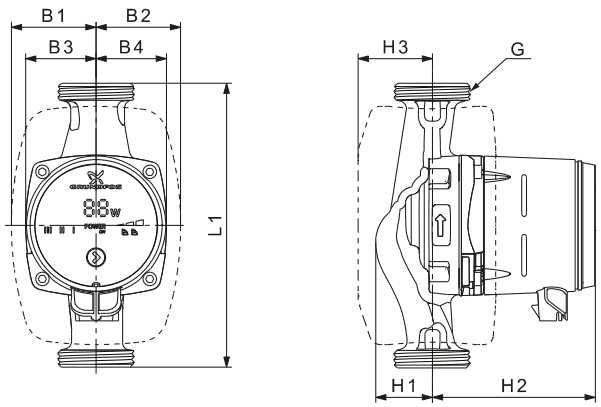
The pump incorporates overload protection.

Connections: See section *Unions and valve kits*, page 31.

System pressure: Maximum 1.0 MPa (10 bar).

Liquid temperature: 2-110 °C (TF 110).

Specific EEI: ≤ 0.20.

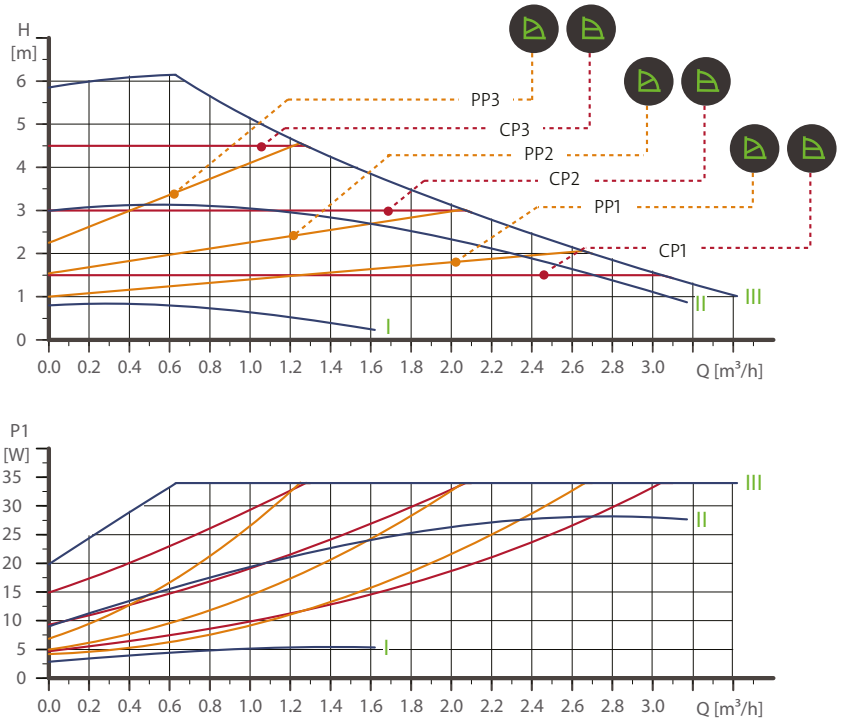


TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 15-50	130	54	54	44	44	36	104	47	G 1	1.7	1.9	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 15-60

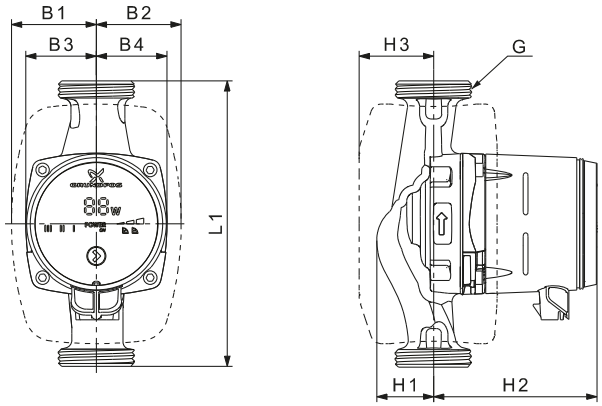


TM07 0058 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Specific EEI:	≤ 0.20.

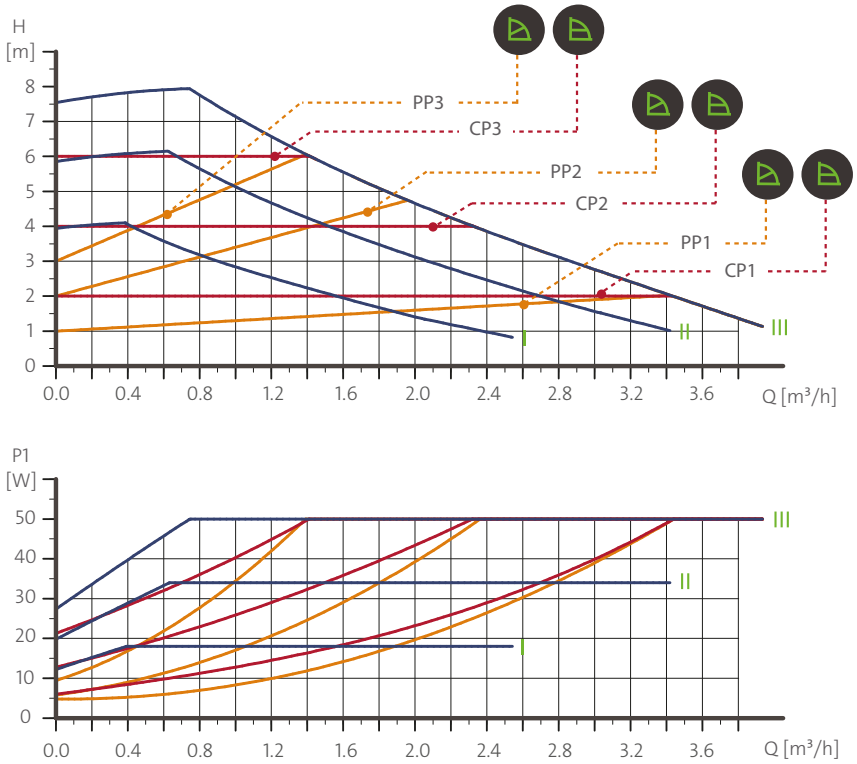


TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 15-60	130	54	54	44	44	36	104	47	G 1*	1.7	1.9	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 15-80

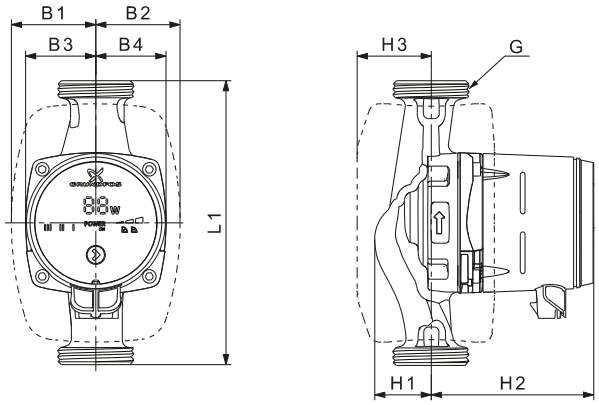


TM07 0059 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	50	0.44

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Specific EEI:	≤ 0.20.

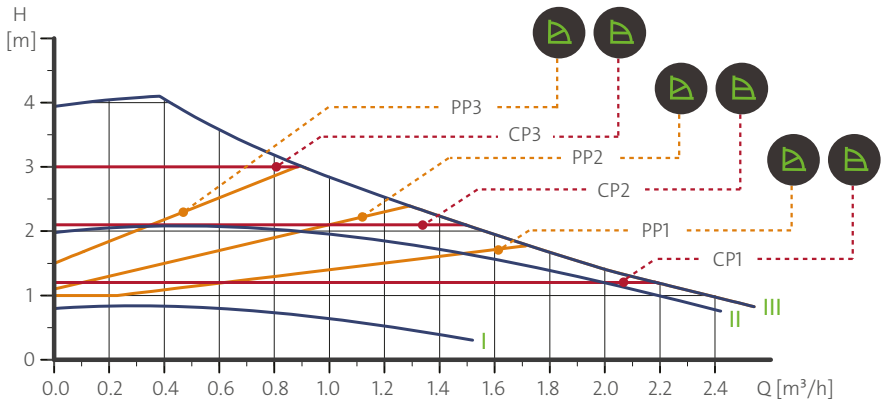


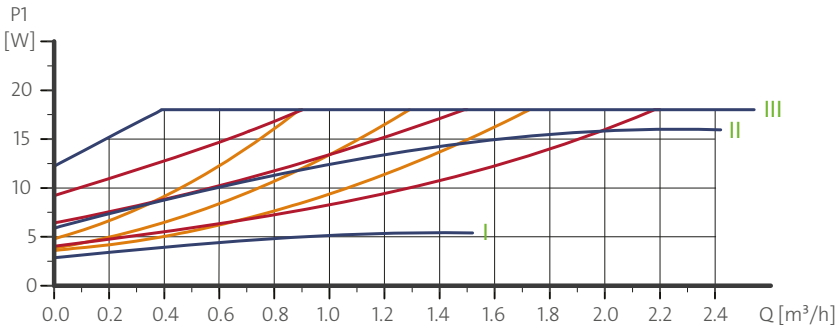
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 15-80	130	54	54	44	44	36	104	47	G 1	1.7	1.9	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 25-40 (N)



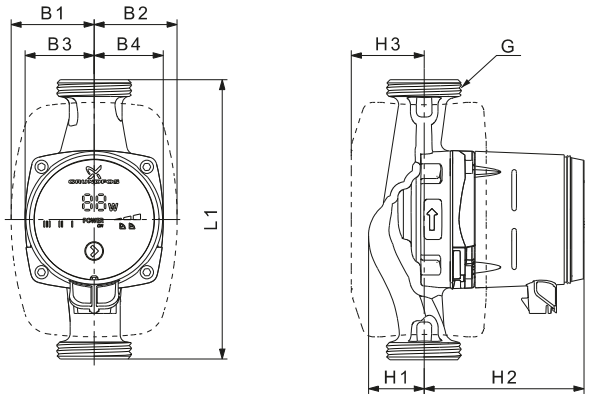


TM070056 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	18	0.18

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

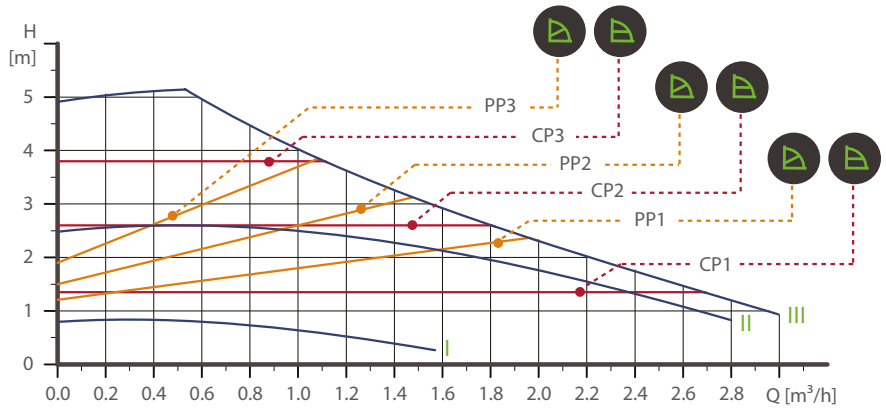


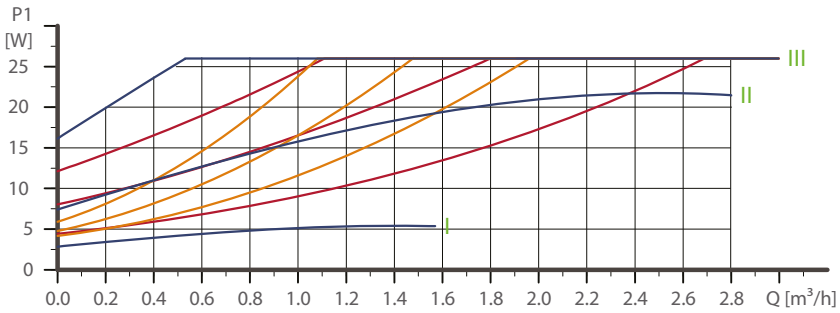
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 25-40	130	54	54	44	44	36	104	47	G 1 1/2	1.9	2.0	0.004
ALPHA1 25-40 N	130	54	54	44	44	37	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-40	180	54	54	44	44	36	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-40 N	180	54	54	44	44	37	104	47	G 1 1/2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 25-50 (N)



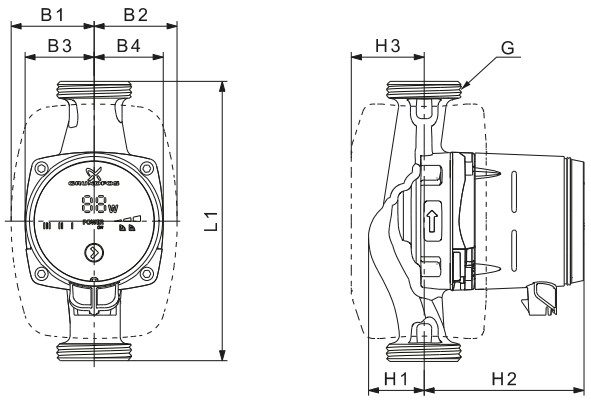


TM05 1673 4111

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	26	0.24

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

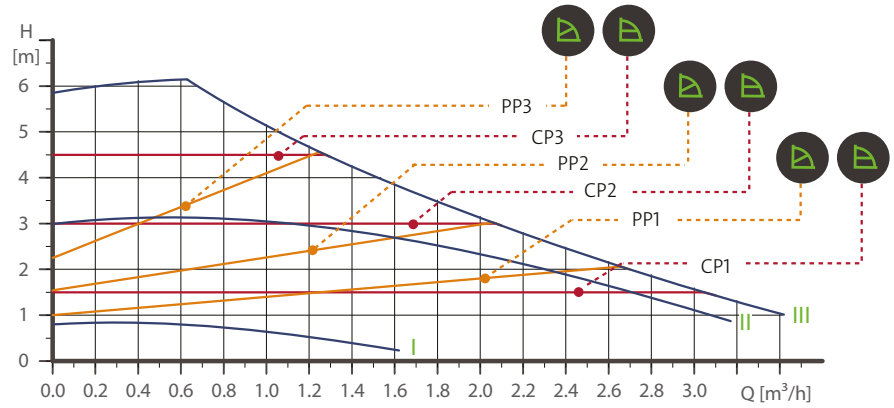


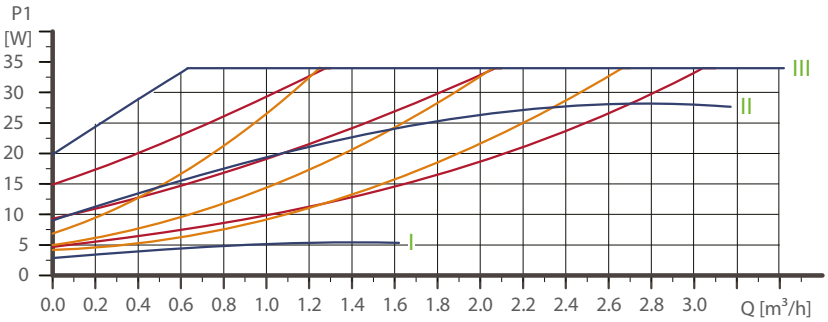
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 25-50	130	54	54	44	44	36	104	47	G 1 1/2	1.9	2.0	0.004
ALPHA1 25-50 N	130	54	54	44	44	37	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-50	180	54	54	44	44	36	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-50 N	180	54	54	44	44	37	104	47	G 1 1/2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 25-60 (N)



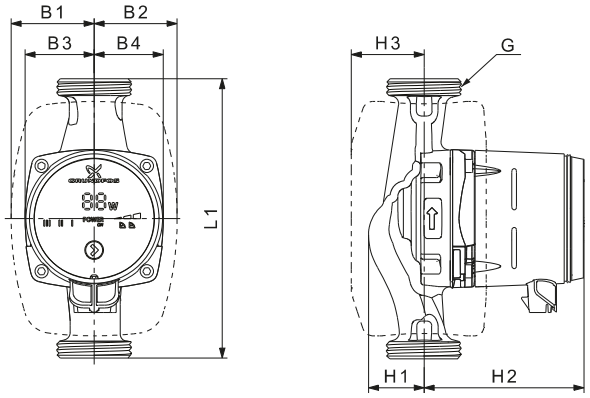


TM07 0058 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

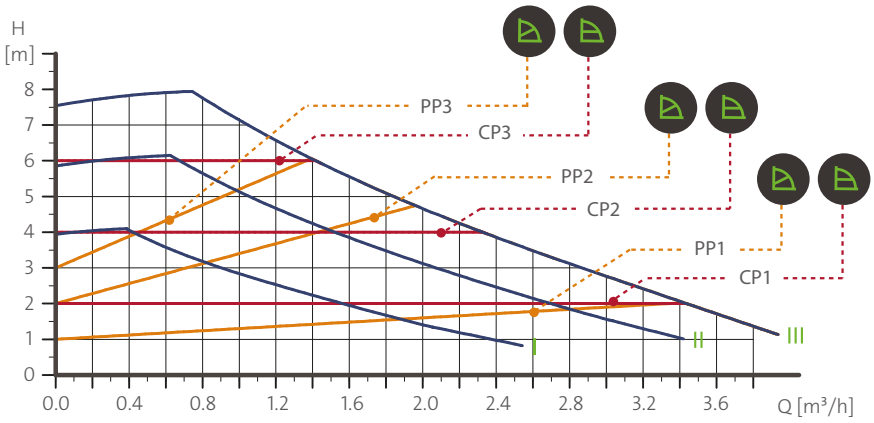


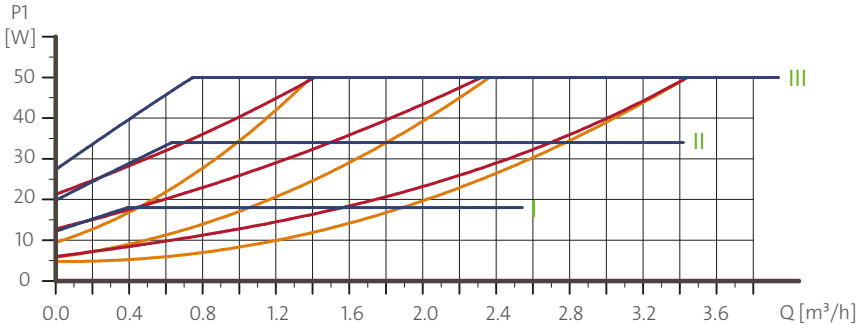
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 25-60	130	54	54	44	44	36	104	47	G 1 1/2	1.9	2.0	0.004
ALPHA1 25-60 N	130	54	54	44	44	37	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-60	180	54	54	44	44	36	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-60 N	180	54	54	44	44	37	104	47	G 1 1/2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 25-80 (N)



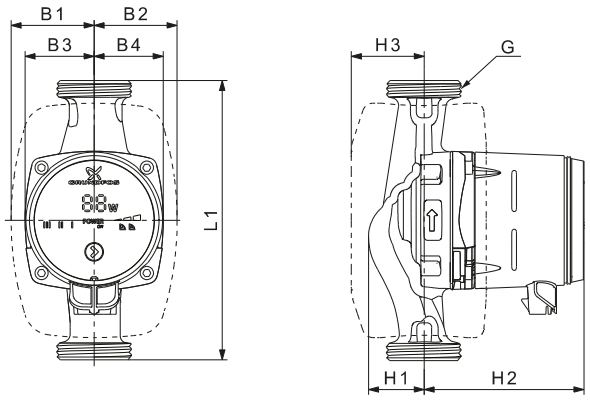


TM07 0059 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	50	0.44

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

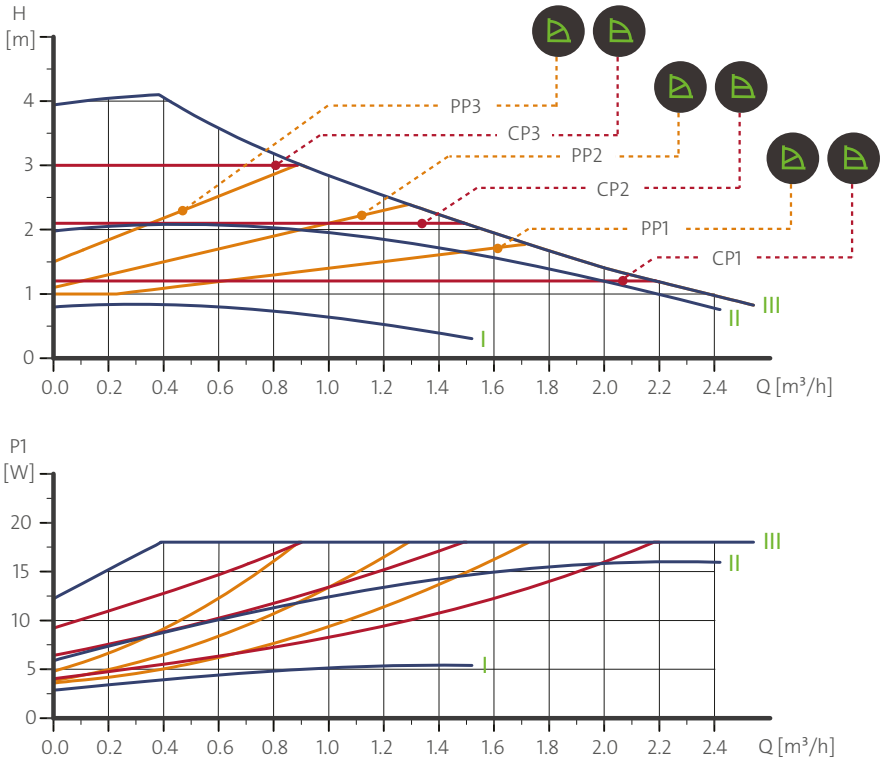


TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 25-80	130	54	54	44	44	36	104	47	G 1 1/2	1.9	2.0	0.004
ALPHA1 25-80 N	130	54	54	44	44	37	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-80	180	54	54	44	44	36	104	47	G 1 1/2	2.0	2.1	0.004
ALPHA1 25-80 N	180	54	54	44	44	37	104	47	G 1 1/2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 32-40

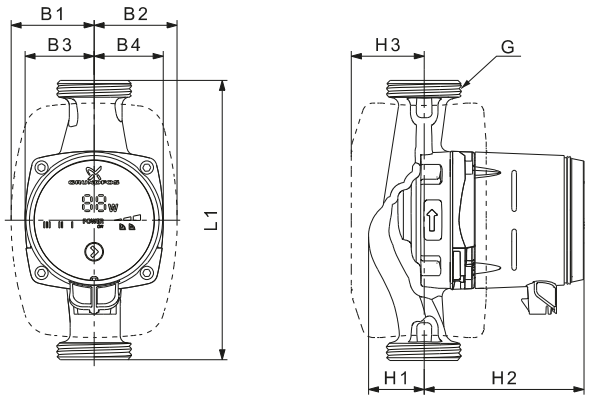


TM07 0056 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	18	0.18

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

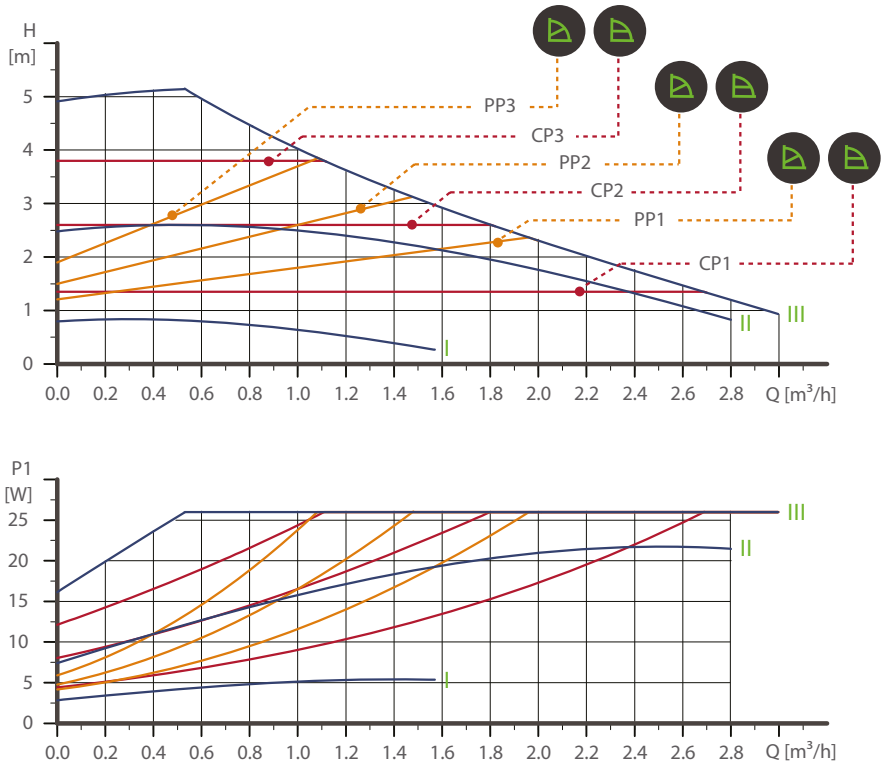


TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m³]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 32-40	180	54	54	44	44	36	104	47	G 2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 32-50

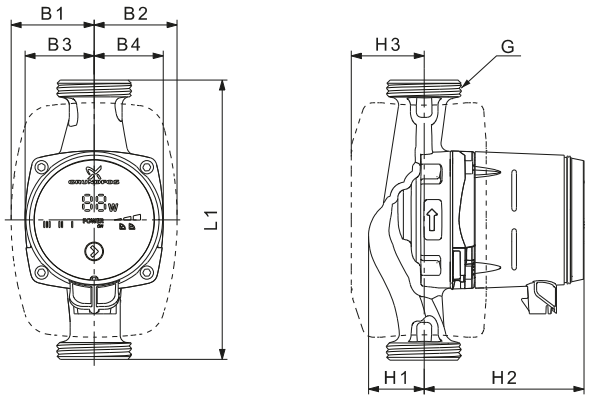


TM07 0057 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	26	0.24

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

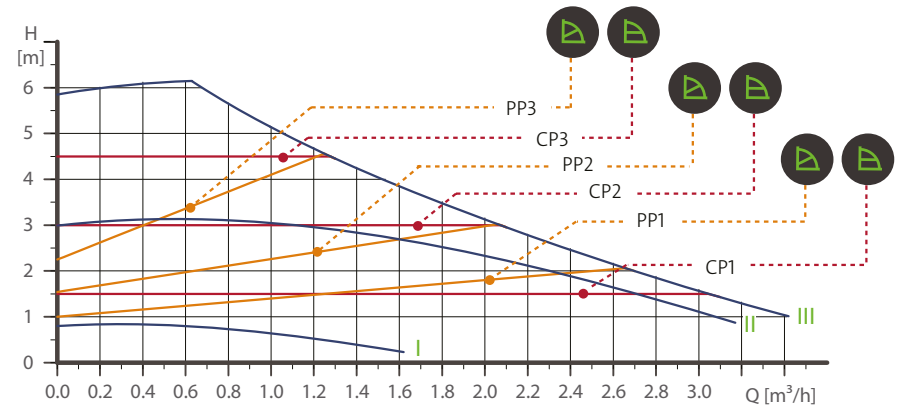


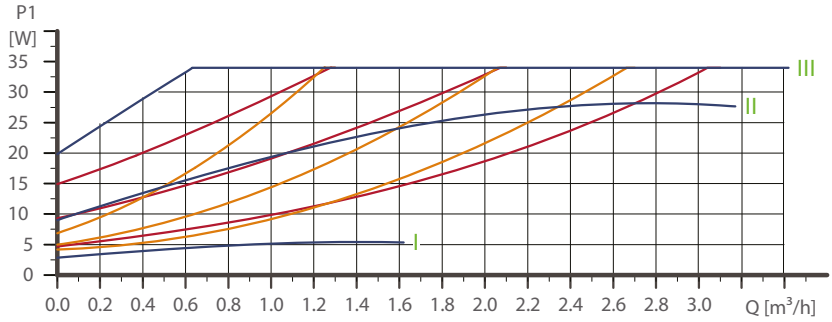
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 32-50	180	54	54	44	44	36	104	47	G 2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 32-60



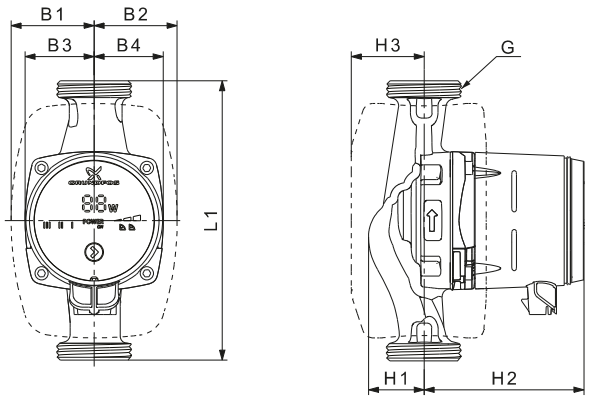


TM07 0058 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	34	0.32

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.

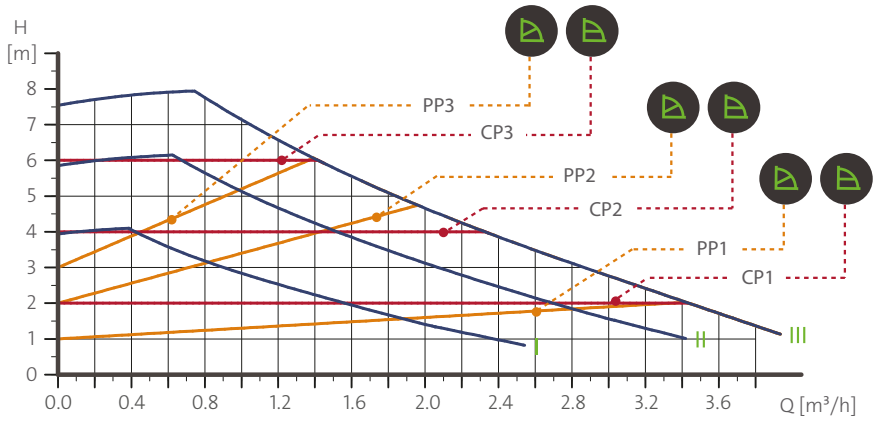


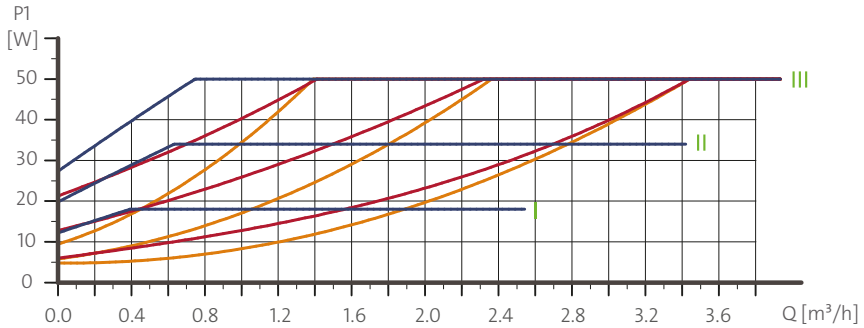
TM07 0102 4217

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 32-60	180	54	54	44	44	36	104	47	G 2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

ALPHA1 32-80 (N)



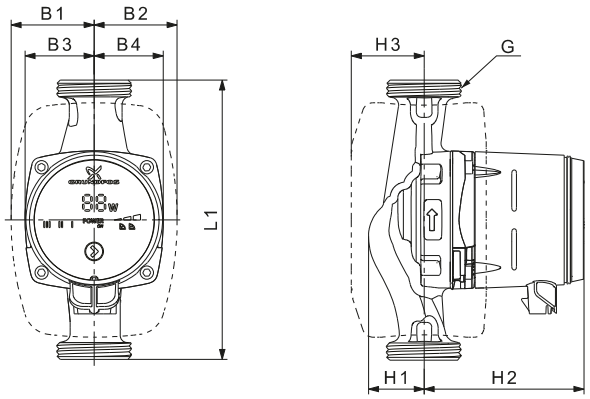


TM07 0059 4017

Speed	P1 [W]	I_1 [A]
Min.	3	0.04
Max.	50	0.44

The pump incorporates overload protection.

Connections:	See section *Unions and valve kits*, page 31.
System pressure:	Maximum 1.0 MPa (10 bar).
Liquid temperature:	2-110 °C (TF 110).
Also available with:	Stainless-steel pump housing, type N.
Specific EEI:	≤ 0.20.



TM07 0102 4217

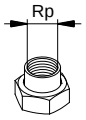
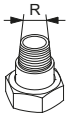
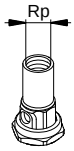
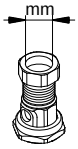
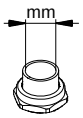
Pump type	Dimensions [mm]									Weights [kg]		Ship. vol. [m^3]
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	
ALPHA1 32-80	180	54	54	44	44	36	104	47	G 2	2.1	2.3	0.004

See product numbers and QR codes in section *Product numbers* on page 33.

5. Accessories

Unions

Product numbers, unions

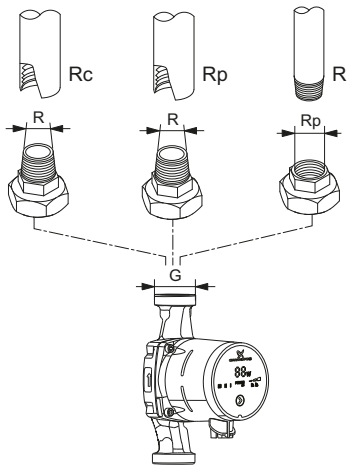
ALPHA1	Connection	Union nut with internal threads			Union nut with external threads		Ball valve with internal threads			Ball valve with compression fitting		Union nut with soldering fitting			
															
		3/4	1	1 1/4	1	1 1/4	3/4	1	1 1/4	∅22	∅28	∅18	∅22	∅28	∅42
25-xx	G 1 1/2	529921	**529922**	529821	529925	529924									
25-xx N	G 1 1/2	529971	**529972**				519805	519806	519807	519808	519809	529977	529978	529979	
32-xx	G 2		509921	**509922**											
32-xx N	G 2			**509971**											529995

Note: The product numbers are always for one complete set, including gaskets.
The product numbers for the standard sizes are printed in bold.
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 10226-2 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. 21.



TM07 0321 4817

Fig. 21 Thread types and combinations (examples)

Insulating kits

The pump is supplied with two insulating shells.

The insulating kit, which is tailored to the individual pump type, encloses the entire pump housing. It is easy to fit the two insulating shells around the pump. See fig. 22.

Pump type	Product number
ALPHA1 XX-XX 130	98091786
ALPHA1 XX-XX 180	98091787

TM06 9093 4317

Fig. 22 Insulating shells

ALPHA plugs

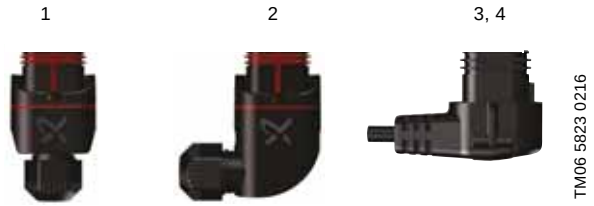


Fig. 23 ALPHA plugs

Pos.	Description	Product number
1	ALPHA plug with cable gland, standard plug connector, complete	98284561
2	ALPHA plug angled 90 ° left, with cable gland	98610291
3	ALPHA plug angled 90 ° left, including 4 m cable	96884669
4*	ALPHA plug angled 90 ° left, including 1 m cable and integrated NTC protection resistor	97844632

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

6. Product numbers

ALPHA1 for the D-A-CH market (Germany, Austria and Switzerland)

Note: Click on the product number and go directly to the performance curve in Grundfos Product Center (GPC).

Pump type	Port-to-port length [mm]	Connection	Product number	Data sheet Page	Weights gross [kg]	Ship. vol. [m^3]	QR code for GPC
ALPHA1 15-40	130	G 1	99236206	17	1.9	0.004	
ALPHA1 15-60	130	G 1	99160397	19	1.9	0.004	
ALPHA1 15-80	130	G 1	99345904	20	1.9	0.004	
ALPHA1 25-40	130	G 1 1/2	99236213	22	2.0	0.004	
ALPHA1 25-60	130	G 1 1/2	99160418	25	2.0	0.004	
ALPHA1 25-80	130	G 1 1/2	99345909	26	2.0	0.004	
ALPHA1 25-40	180	G 1 1/2	99236214	22	2.1	0.004	
ALPHA1 25-40 N	180	G 1 1/2	99236218	22	2.3	0.004	
ALPHA1 25-60	180	G 1 1/2	99160420	25	2.1	0.004	
ALPHA1 25-60 N	180	G 1 1/2	99160424	24	2.3	0.004	
ALPHA1 25-80	180	G 1 1/2	99345910	26	2.1	0.004	
ALPHA1 32-40	180	G 2	99236216	27	2.3	0.004	
ALPHA1 32-60	180	G 2	99160423	29	2.3	0.004	

Pump type	Port-to-port length [mm]	Connection	Product number	Data sheet Page	Weights gross [kg]	Ship. vol. [m^3]	QR code for GPC
ALPHA1 32-80	180	G 2	99345911	30	2.3	0.004	

ALPHA1 for the international market

Note: Click on the product number and go directly to the performance curve in Grundfos Product Center (GPC).

Pump type	Port-to-port length [mm]	Connection	Product number	Data sheet Page	Weights gross [kg]	Ship. vol. [m^3]	QR code for GPC
ALPHA1 15-40	130	G 1	99199550	17	1.9	0.004	
ALPHA2 15-50	130	G 1	99199573	18	1.9	0.004	
ALPHA1 15-60	130	G 1	99199551	19	1.9	0.004	
ALPHA1 15-80	130	G 1	99199595	20	1.9	0.004	
ALPHA1 25-40	130	G 1 1/2	99199574	21	2.0	0.004	
ALPHA1 25-40 N	130	G 1 1/2	99199587	21	2.1	0.004	
ALPHA1 25-50	130	G 1 1/2	99199578	23	2.0	0.004	
ALPHA1 25-50 N	130	G 1 1/2	99199588	23	2.1	0.004	
ALPHA1 25-60	130	G 1 1/2	99199575	24	2.0	0.004	
ALPHA1 25-60 N	130	G 1 1/2	99199589	24	2.1	0.004	
ALPHA1 25-80	130	G 1 1/2	99199596	26	2.0	0.004	
ALPHA1 25-80 N	130	G 1 1/2	99199590	26	2.1	0.004	

Pump type	Port-to-port length [mm]	Connection	Product number	Data sheet Page	Weights gross [kg]	Ship. vol. [m^3]	QR code for GPC
ALPHA1 25-40	180	G 1 1/2	99199576	21	2.1	0.004	
ALPHA1 25-40 N	180	G 1 1/2	99199591	21	2.3	0.004	
ALPHA1 25-50	180	G 1 1/2	99348059	23	2.1	0.004	
ALPHA1 25-50 N	180	G 1 1/2	99199592	23	2.3	0.004	
ALPHA1 25-60	180	G 1 1/2	99199579	24	2.1	0.004	
ALPHA1 25-60 N	180	G 1 1/2	99199593	24	2.3	0.004	
ALPHA1 25-80	180	G 1 1/2	99199577	26	2.1	0.004	
ALPHA1 25-80 N	180	G 1 1/2	99199594	26	2.3	0.004	
ALPHA1 32-40	180	G 2	99199580	27	2.3	0.004	
ALPHA1 32-50	180	G 2	99348063	28	2.3	0.004	
ALPHA1 32-60	180	G 2	99199581	29	2.3	0.004	
ALPHA1 32-80	180	G 2	99199597	30	2.4	0.004	

7. Grundfos Product Center

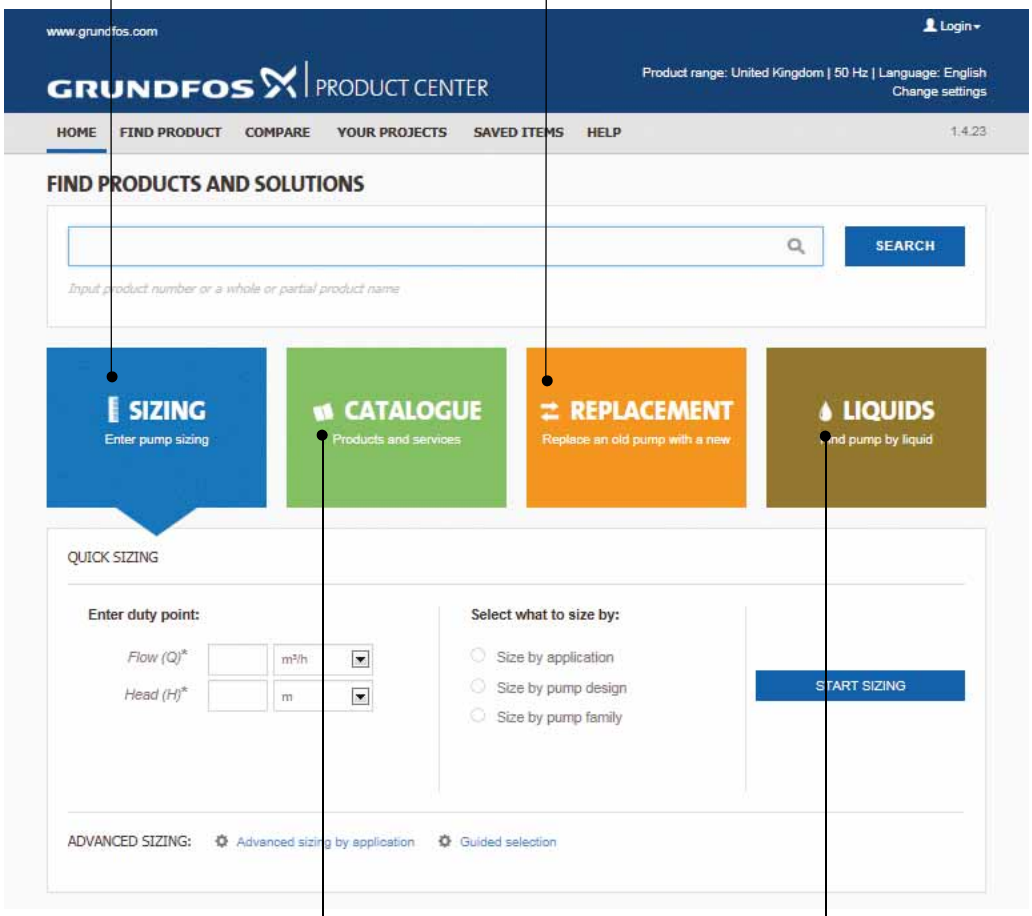
Online search and sizing tool to help you make the right choice.

http://product-selection.grundfos.com

"SIZING" enables you to size a pump based on entered data and selection choices.

"REPLACEMENT" enables you to find a replacement product. Search results will include information on the following:

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.



"CATALOGUE" gives you access to the Grundfos product catalogue.

"LIQUIDS" enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

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