

MAGNA1

Circulator pumps

60 Hz



Intertek

4002198

Conforms to ANSI/UL Std. 778
Certified to CAN/CSA Standard C22.2 No. 108

be
think
innovate

GRUNDFOS 

| | | | |
|--|-----------|--|-----------|
| 1. Product introduction | 3 | Technical data | 29 |
| Features and benefits | 3 | | |
| Applications | 3 | | |
| 2. Performance range | 5 | | |
| 3. Product range | 6 | | |
| Pump selection | 6 | | |
| 4. Identification | 7 | | |
| Type key | 7 | | |
| 5. Construction | 8 | | |
| Sectional drawing | 8 | | |
| Material specification | 8 | | |
| Mechanical construction | 8 | | |
| Motor and electronic controller | 8 | | |
| Pump connections | 8 | | |
| Surface treatment | 8 | | |
| 6. Operating conditions | 9 | | |
| Pumped liquids | 9 | | |
| General recommendations | 9 | | |
| Temperatures | 9 | | |
| Pressures | 9 | | |
| 7. Installation | 10 | | |
| Mechanical installation | 10 | | |
| Electrical installation | 10 | | |
| 8. Functions | 12 | | |
| Selection of control mode | 12 | | |
| Control modes | 13 | | |
| Control panel | 14 | | |
| Overview of settings | 15 | | |
| 9. Guide to performance curves | 16 | | |
| Curve conditions | 17 | | |
| 10. Performance curves and technical data | 18 | | |
| MAGNA1 32-60 F (N) | 18 | | |
| MAGNA1 32-100 F (N) | 19 | | |
| MAGNA1 40-80 F (N) | 20 | | |
| MAGNA1 40-120 F (N) | 21 | | |
| MAGNA1 40-180 F (N) | 22 | | |
| MAGNA1 50-80 F (N) | 23 | | |
| MAGNA1 50-150 F (N) | 24 | | |
| MAGNA1 65-120 F (N) | 25 | | |
| MAGNA1 65-150 F (N) | 26 | | |
| MAGNA1 80-100 F (N) | 27 | | |
| MAGNA1 100-120 F (N) | 28 | | |
| | | 11. Grundfos Product Center | 30 |

1. Product introduction

The Grundfos MAGNA1 circulator pumps are designed for circulating liquids in the following systems:

- heating systems
- air conditioning and cooling systems.

The pump range can also be used for the following systems:

- ground source heat pump systems
- solar heating systems.



Single-head MAGNA1 pumps

Features and benefits

Features

- Proportional pressure control.
- Constant pressure control.
- Constant curve/constant speed duty.
- No external motor protection required.
- Insulating shells supplied with single-head pumps for heating systems.
- Wide temperature range where the liquid temperature and the ambient temperature are independent of each other.

Benefits

- Simple installation.
- Low energy consumption.
- Eight light fields for indication of pump setting.
- Low noise level.
- No maintenance and long life.

Applications

Heating systems

- Main pump
- Mixing loops
- Heating surfaces
- Air conditioning surfaces.

The MAGNA1 circulator pumps are designed for circulating liquids in systems with variable flows where it is desirable to optimize the setting of the pump duty point, thus reducing energy costs.

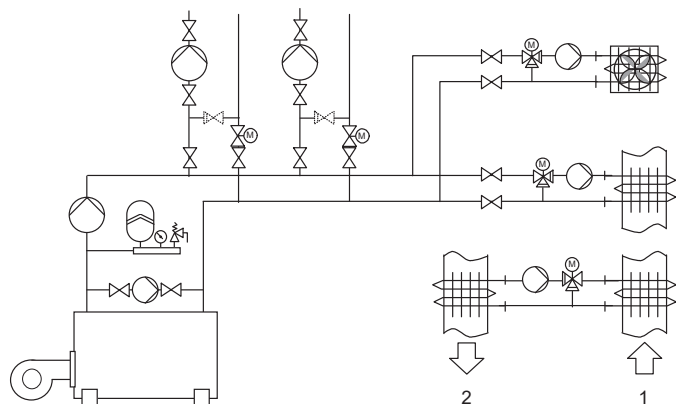
To ensure correct operation, it is important that the sizing range of the system falls within the duty range of the pump.

Duty range

| Data | MAGNA1 (N) Single-head pumps |
|-------------------------|---------------------------------------|
| Maximum flow rate, Q | 313 gpm (71 m ³ /h) |
| Maximum head, H | 59 ft (18 m) |
| Maximum system pressure | 175 psi (12 bar) |
| Liquid temperature | +14 °F to +230 °F (-10 °C to +110 °C) |

System applications

Heating systems

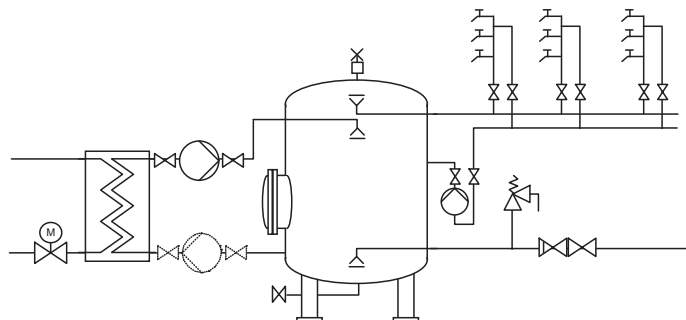


- One- and two-pipe heating systems
- Main pumps
- Zone pumps
- Mixing loops
- Boiler shunt pumps
- Pumps for heating surfaces
- Calorifiers
- Underfloor heating systems
- Solar heating systems
- Ground source heat pump systems
- Heat recovery systems.

TM079317

| Pos. | Description |
|------|-------------|
| 1 | In |
| 2 | Out |

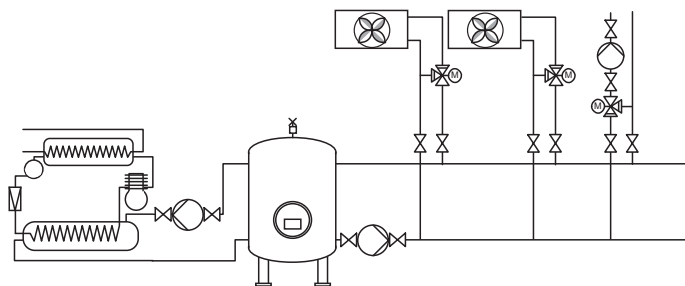
Domestic hot-water systems



- Domestic hot-water systems.

TM010169

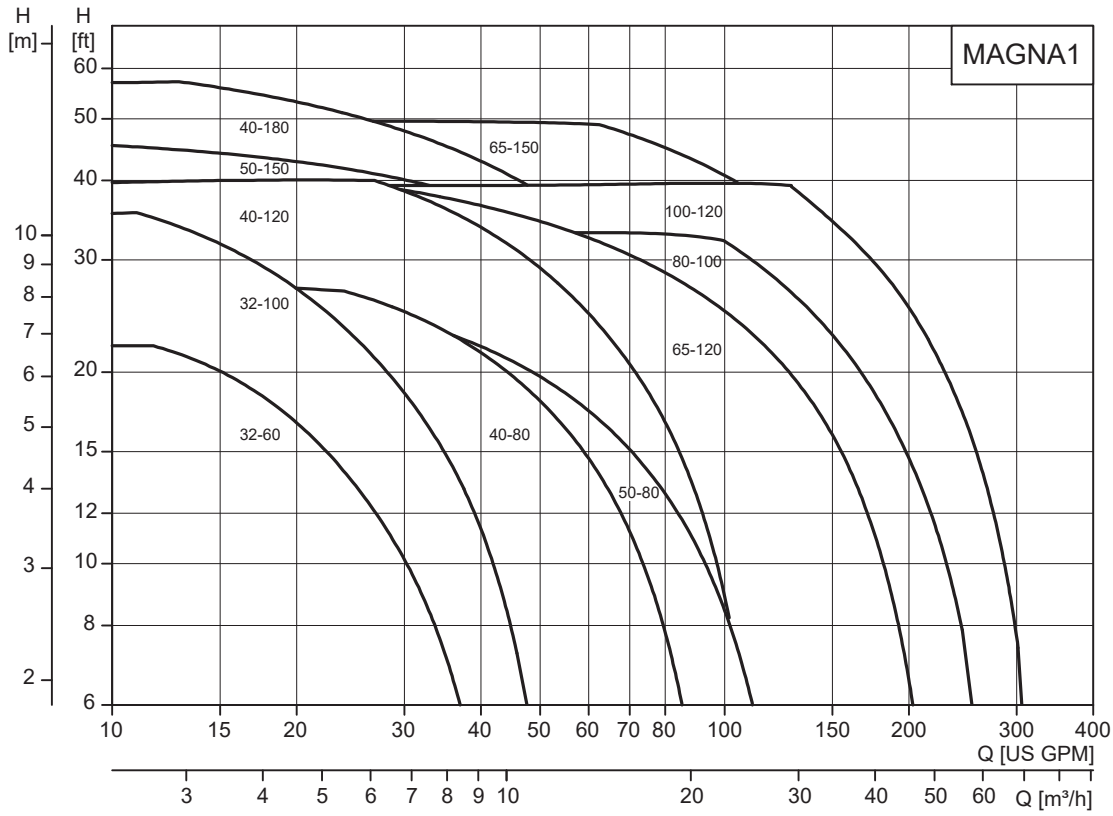
Air conditioning and cooling systems



- Two-pipe air conditioning systems
- Main pumps
- Zone pumps
- Pumps for refrigeration units
- Heat pump systems
- Ground source heat pump systems
- Heat recovery systems
- Air conditioning surfaces.

TM010170

2. Performance range



TM060740

Performance range, MAGNA1

3. Product range

| Single-head pump | Cast Iron | | Stainless steel (N) | |
|----------------------|-----------|-----------|---------------------|-----------|
| | 115 V | 208-230 V | 115 V | 208-230 V |
| MAGNA1 32-60 F (N) | 98126819 | | 98126821 | |
| MAGNA1 32-100 F (N) | 98126823 | | 98126825 | |
| MAGNA1 40-80 F (N) | 98126799 | 98126827 | 98126801 | 98126829 |
| MAGNA1 40-120 F (N) | 98126803 | 98126831 | 98126805 | 98126833 |
| MAGNA1 40-180 F (N) | 98126807 | 98126835 | 98126809 | 98126837 |
| MAGNA1 50-80 F (N) | 98126811 | 98126839 | 98126813 | 98126841 |
| MAGNA1 50-150 F (N) | 98126815 | 98126843 | 98126817 | 98126845 |
| MAGNA1 65-120 F (N) | 98124695 | 98126847 | 98126853 | 98126849 |
| MAGNA1 65-150 F (N) | - | 98126851 | - | 98126853 |
| MAGNA1 80-100 F (N) | - | 98126855 | - | 98126857 |
| MAGNA1 100-120 F (N) | - | 98126859 | - | 98126861 |

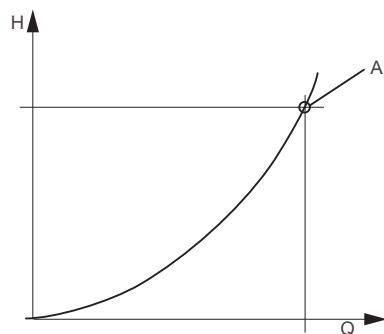
Pump selection

Pump size

The selection of pump size should be based on the following:

- required maximum flow
- maximum pressure loss in the system.

Refer to the system characteristics to determine the duty point. See fig. System characteristic.



TM022040

System characteristic

| Pos. | Description |
|------|-------------|
| A | Duty point |

Operating conditions

It should be checked whether the operating conditions are fulfilled, i.e.

- liquid quality and temperature
- ambient conditions
- minimum inlet pressure
- maximum operating pressure.

Control modes

- Proportional pressure control in systems with considerable pressure losses in relation to large flow variations.
- Constant pressure control in systems with insignificant pressure losses in relation to large flow variations.
- In constant curve/constant speed operation, the pump will run at a constant speed, independent of the actual flow demand in the system.

4. Identification

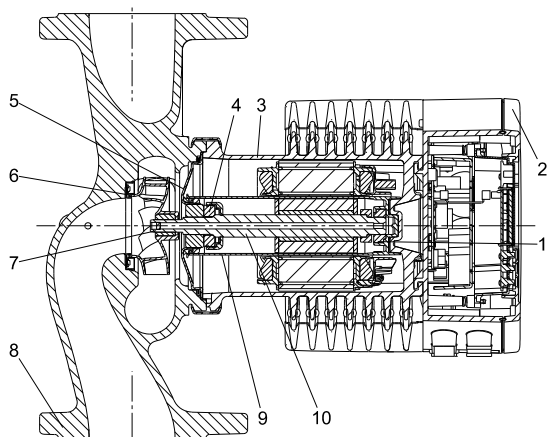
Type key

Example: MAGNA1 80-100 (F) (N) 360

| Code | Explanation |
|------------------------------|---|
| MAGNA1 | Type range |
| 80 | Nominal diameter (DN) of suction and discharge ports [mm] |
| 100 | Maximum head [dm] |
| Pipe connection | |
| | Threaded |
| F | Flange |
| Pump housing material | |
| | Cast iron |
| N | Stainless steel |
| 360 | Port-to-port length [mm] |

5. Construction

Sectional drawing



TM052319_3012

MAGNA1 flanged version with PPS-composite rotor can

Material specification

See fig. MAGNA1 flanged version with PPS-composite rotor can.

| Pos. | Component | Material | |
|------|--------------------|------------------------------------|-------------------------------------|
| 1 | Outer bearing ring | Aluminium oxide | |
| 2 | Control box | Polycarbonate | |
| 3 | Stator housing | Aluminium | |
| | O-rings/gaskets | EPDM | |
| 4 | Thrust bearing | Aluminium oxide/carbon | |
| 5 | Bearing plate | Stainless steel | AISI 304/ EN 1.4301 |
| 6 | Neck ring | Stainless steel | AISI 304/ EN 1.4301 |
| 7 | Impeller | PES | |
| 8 | Pump housing | Cast iron | ASTM A48/ EN 1561/ EN-GJL-250 |
| 9 | Rotor can | PPS or stainless steel | |
| 10 | Shaft | Ceramic (Pumps < 200 W) | |
| | | Stainless steel (Pumps > 200 W) | AISI 316L/ EN 1.4404 |

Related information

[Sectional drawing](#)

Mechanical construction

The MAGNA1 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 characterized by the following:

- controller integrated in the control box
- control panel on the control box
- cast-iron or stainless-steel pump housing
- no external motor protection required
- insulating shells supplied with single-head pumps for heating systems.

Motor and electronic controller

The MAGNA1 incorporates a 4-pole synchronous, permanent-magnet motor (PM motor). This motor type is characterized by higher efficiency than a conventional asynchronous squirrel-cage motor. The pump speed is controlled by an integrated frequency converter.

Pump connections

See individual product pages.

Surface treatment

The pump housing and pump head are electrocoated to improve the corrosion resistance.

Electrocoating includes:

- alkaline cleaning
- pretreatment with zinc phosphate coating
- cathodic electrocoating (epoxy)
- curing of paint film at +392 to +482 °F (+200 to +250 °C).

Color

Color codes for the pump:

| Color | Code |
|-------|-----------|
| Red | NCS40-50R |
| Black | NCS9000 |

6. Operating conditions

Pumped liquids

The pump is suitable for thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibers that may attack the pump mechanically or chemically.

In heating systems, the water should meet the requirements of accepted standards on water quality in heating systems.

In domestic hot-water systems, we recommend to use MAGNA1 pumps only for water with a degree of hardness lower than approx. 14 °dH.

In domestic hot-water systems, we recommend to keep the liquid temperature below +149 °F (+65 °C) to eliminate the risk of lime precipitation.

The MAGNA1 pumps can be used for pumping water/glycol mixtures up to 50 %.

Example of a water/ethylene glycol mixture:

Maximum viscosity: 50 cSt ~ 50 % water / 50 % ethylene glycol mixture at +14 °F (-10 °C).

The pump is controlled by a power-limiting function that protects against overload.

The pumping of glycol mixtures will affect the max. curve and reduce the performance, depending on the water/ethylene glycol mixture and the liquid temperature.

To prevent the ethylene glycol mixture from degrading, avoid temperatures exceeding the rated liquid temperature and minimize the operating time at high temperatures.

It is important to clean and flush the system before the ethylene glycol mixture is added.

To prevent corrosion or lime precipitation, check and maintain the ethylene glycol mixture regularly. If further dilution of the supplied ethylene glycol is required, follow the glycol supplier's instructions.

General recommendations

| | |
|---------------------------------|---|
| Water in heating systems | Water quality according to local standards |
| Domestic hot water | Degree of hardness up to 14 °dH |
| Water containing glycol | Maximum viscosity = 50 cSt ~ 50 % water / 50 % ethylene glycol at +14 °F (-10 °C) |

Temperatures

Liquid temperature

| Application | Temperature range |
|----------------------------|------------------------------------|
| General | +14 to +230 °F (-10 to +110 °C) |
| Domestic hot-water systems | +150 °F (Up to +65 °C) recommended |

Ambient conditions

| Ambient conditions | |
|--|--------------------------------|
| Ambient temperature during operation | +32 to +104 °F (0 to +40 °C) |
| Ambient temperature during storage and transport | -40 to +158 °F (-40 to +70 °C) |
| Relative air humidity | Maximum 95 % |

Pressures

Maximum operating pressure

175 psi (12 bar).

Minimum inlet pressure

The following relative minimum pressure must be available at the pump inlet during operation to avoid cavitation noise and damage to the pump bearings.

The values in the table below apply to single-head pumps and twin-head pumps in single-head operation.

| MAGNA1 DN | Liquid temperature | | |
|--------------------------|--------------------|--------------------|---------------------|
| | +167 °F (75 °C) | +203 °F (95 °C) | +230 °F (110 °C) |
| Inlet pressure psi [bar] | | | |
| 32-60/100 | 1.5 (0.10) | 5.0 (0.35) | 14.5 (1.0) |
| 40-80 | 1.5 (0.10) | 7.3 (0.50) | 16.0 (1.1) |
| 40-120/150/180 | 1.5 (0.10) | 5.8 (0.40) | 14.5 (1.0) |
| 50-80 | 1.5 (0.10) | 1.5 (0.10) | 10.2 (0.7) |
| 50-150 | 2.9 (0.20) | 8.7 (0.60) | 17.4 (1.2) |
| 65-120 | 1.5 (0.10) | 7.3 (0.50) | 16.0 (1.1) |
| 65-150 | 5.8 (0.40) | 11.6 (0.80) | 17.4 (1.2) |
| 80-100 | 7.3 (0.50) | 13.1 (0.90) | 21.8 (1.5) |
| 100-120 | 7.3 (0.50) | 13.1 (0.90) | 21.8 (1.5) |

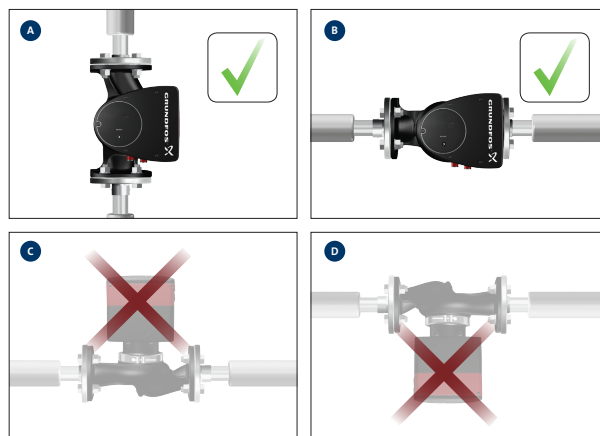
Note: Actual inlet pressure plus pump pressure against a closed valve must be lower than the maximum permissible system pressure.

The relative minimum inlet pressures apply to pumps installed up to 984 ft (300 m) above sea level. For altitudes above 984 ft (300 m), the required relative inlet pressure must be increased by 1.45 psi per 330 ft (0.1 bar / 0.01 MPa per 100 m) altitude. The MAGNA1 pump is only approved for an altitude of 6560 ft (2000 m).

7. Installation

Mechanical installation

The MAGNA1 is designed for indoor installation.
The pump must be installed with horizontal motor shaft.
The pump may be installed in horizontal as well as vertical pipes.



Installation positions

Arrows on the pump housing indicate the liquid flow direction through the pump.
The control box must be in horizontal position with the Grundfos logo in vertical position. See fig. Installation positions.

This is described in the installation and operating instructions.

The pump must be installed in such a way that it is not stressed by the pipework.

The pump may be suspended direct in the pipes, provided that the pipework can support the pump.

To ensure adequate cooling of motor and electronics, the following must be observed:

- Position the pump in such a way that sufficient cooling is ensured.
- The ambient temperature must not exceed +104 °F (+40 °C).

Insulating shells

The insulating shells supplied with MAGNA1 pumps are for heating systems and should be fitted as part of the installation.

For cooling applications, if the supplied insulation shell is to be used then a silicon sealant must be liberally applied to the inside of the insulation shell to ensure all air gaps are eliminated between the shell and pump housing to prevent condensation between the shell and pump housing.

Electrical installation

The electrical connection and protection should be carried out in accordance with local regulations.

- The pump must be connected to an external mains switch.
- The pump must always be correctly grounded.
- The pump requires no external motor protection.
- The pump incorporates thermal protection against slow overloading and blocking.
- When switched on via the power supply, the pump will start pumping after approximately 5 seconds.

Note: The number of starts and stops via the power supply must not exceed four times per hour.

The pump mains connection must be made as shown in fig. Example of terminal connection, 1 x 230 V ± 10 %, 50/60 Hz.

Cables

All cables used must be connected in accordance with local regulations.

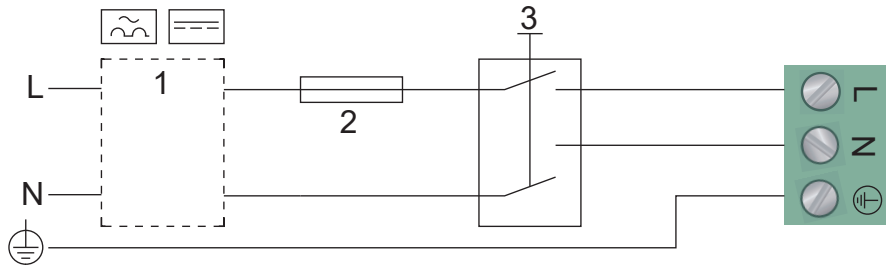
Additional protection

Ground fault circuit interrupter (GFCI)

Use a suitable type of GFCI capable of handling ground fault currents with a DC content (pulsating DC). If the pump is connected to an electrical installation where a GFCI is used for additional protection, this GFCI must be able to trip when ground fault currents with DC content occur.

Connection diagrams

For models 32-XX

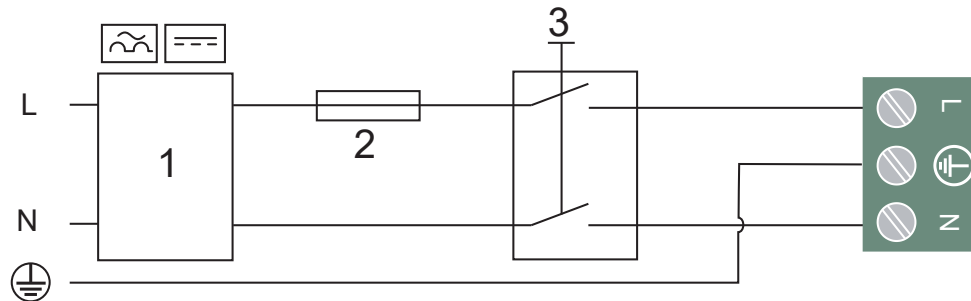


TM079319

Example of terminal connection, 1 x 230 V ± 10 %, 50/60 Hz

| Pos. | Description |
|------|-----------------|
| 1 | GFCI |
| 2 | Fuse |
| 3 | External switch |

For models 40-XX, 50-XX, 65-XX, 80-XX, 100-XX



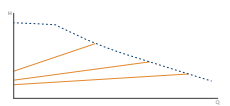
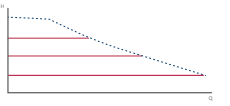
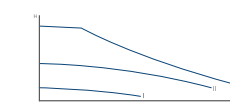
TM079412

Example of terminal connection, 1 x 230 V ± 10 %, 50/60 Hz, PE

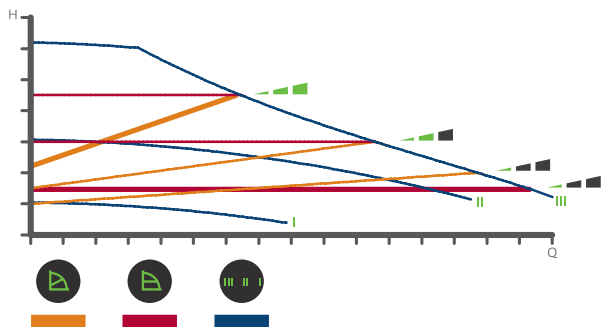
| Pos. | Description |
|------|-----------------|
| 1 | GFCI |
| 2 | Fuse |
| 3 | External switch |

8. Functions

Selection of control mode

| System application | Select this control mode |
|--|--|
| <p>In systems with relatively large pressure losses in the distribution pipes and in air conditioning and cooling systems.</p> <ul style="list-style-type: none"> • Two-pipe heating systems with thermostatic valves and <ul style="list-style-type: none"> - very long distribution pipes - strongly throttled pipe balancing valves - differential pressure regulators - large pressure losses in those parts of the system through which the total quantity of water flows (for example boiler, heat exchanger and distribution pipe up to the first branching). • Primary circuit pumps in systems with large pressure losses in the primary circuit. • Air conditioning systems with <ul style="list-style-type: none"> - heat exchangers (fan coils) - cooling ceilings - cooling surfaces. | <p style="text-align: center;">Proportional pressure</p>  |
| <p>In systems with relatively small pressure losses in the distribution pipes.</p> <ul style="list-style-type: none"> • Two-pipe heating systems with thermostatic valves and <ul style="list-style-type: none"> - dimensioned for natural circulation - small pressure losses in those parts of the system through which the total quantity of water flows (for example boiler, heat exchanger and distribution pipe up to the first branching) or - modified to a high differential temperature between flow pipe and return pipe (for example district heating). • Underfloor heating systems with thermostatic valves. • One-pipe heating systems with thermostatic valves or pipe balancing valves. • Primary circuit pumps in systems with small pressure losses in the primary circuit. | <p style="text-align: center;">Constant pressure</p>  |
| <p>The pump can also be set to operate according to the max. or min. curve, like an uncontrolled pump:</p> <ul style="list-style-type: none"> • The max. curve mode can be used in periods in which a maximum flow is required. This operating mode is for instance suitable for hot-water priority. • The min. curve mode can be used in periods in which a minimum flow is required. This operating mode is for instance suitable for manual night setback. | <p style="text-align: center;">Constant curve</p>  |

Control modes



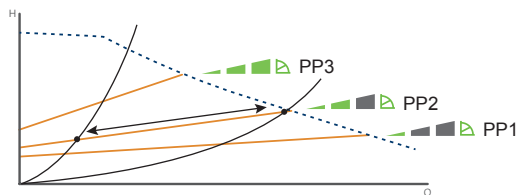
Selection of pump setting for system type

Factory setting: Intermediate proportional-pressure curve, referred to as PP2.

Proportional pressure curve (PP1, PP2 or PP3)

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. Three proportional pressure curves/ settings where PP2 has been selected.

See Selection of control mode for further information.



Three proportional pressure curves/settings

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

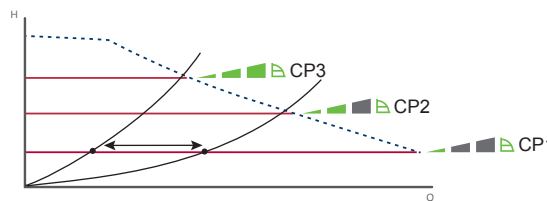
Related information

[Selection of control mode](#)

Constant pressure curve (CP1, CP2 or CP3)

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. Three constant pressure curves/ settings where CP1 has been selected.

See Selection of control mode for further information.



Three constant pressure curves/settings

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

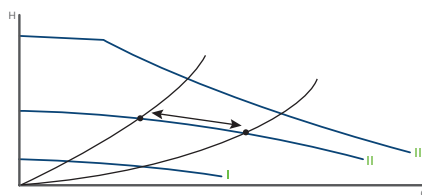
Related information

[Selection of control mode](#)

Constant curve/constant speed (I, II or III)

In constant curve/constant speed operation, the pump will run 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. Three constant curve/constant speed settings where II has been selected.

See Selection of control mode for further information.



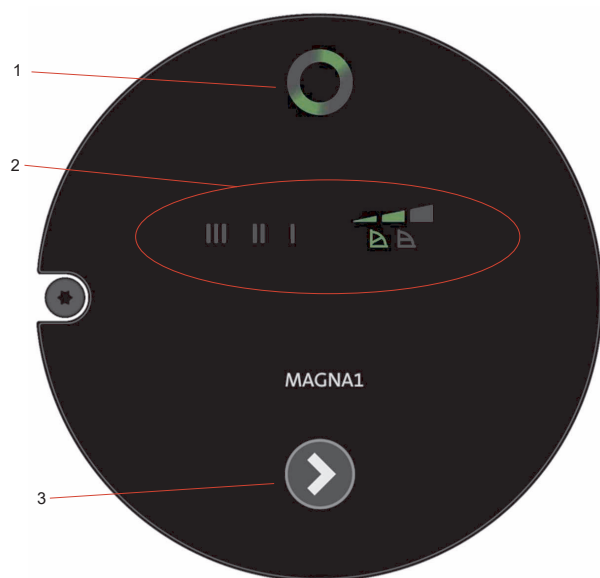
Three constant curve/constant speed settings

The selection of the right constant curve/constant speed setting depends on the characteristics of the heating system in question.

Related information

[Selection of control mode](#)

Control panel



TM079318

Control panel at first start-up

The control panel on the pump comprises the following:

| Pos. | Description |
|------|--|
| 1 | Grundfos Eye operating status. See section Grundfos Eye. |
| 2 | Eight light fields indicating the pump setting. See section Light fields indicating the pump setting. |
| 3 | Push-button for selection of pump setting. |

Related information

[Grundfos Eye](#)

[Light fields indicating the pump setting](#)

Grundfos Eye

The Grundfos Eye is on when the power supply has been switched on. See fig. Control panel at first start-up, pos. 1.

The Grundfos Eye is an indicator light providing information about the actual pump status.

The indicator light will flash in different sequences and provide information about the following:

- power on/off
- pump alarms.

Related information

[Control panel](#)

Light fields indicating the pump setting

The pump has nine optional performance settings which can be selected with the push-button. See fig. Control panel at first start-up, pos. 3.

The pump setting is indicated by eight light fields in the display. See fig. Control panel at first start-up, pos. 2.



TM055553

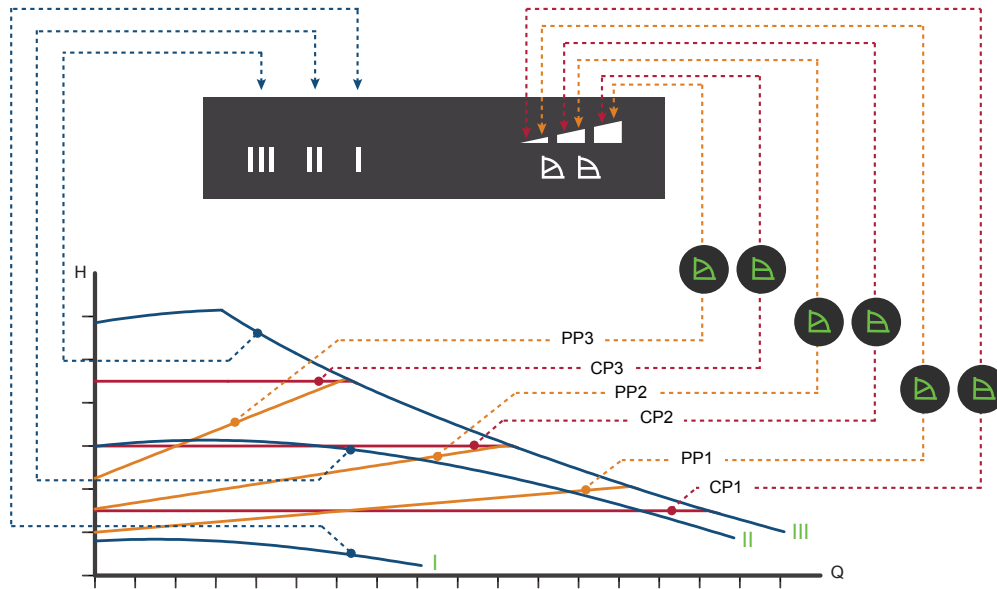
Factory setting, PP2

| Button presses | Active light fields | Description |
|----------------|---------------------|--|
| 0 | | Intermediate proportional pressure curve, referred to as PP2 |
| 1 | | Highest proportional pressure curve, referred to as PP3 |
| 2 | | Lowest constant pressure curve, referred to as CP1 |
| 3 | | Intermediate constant pressure curve, referred to as CP2 |
| 4 | | Highest constant pressure curve, referred to as CP3 |
| 5 | | Constant curve/constant speed III |
| 6 | | Constant curve/constant speed II |
| 7 | | Constant curve/constant speed I |
| 8 | | Lowest proportional pressure curve, referred to as PP1 |

Related information

[Control panel](#)

Overview of settings



TM052777

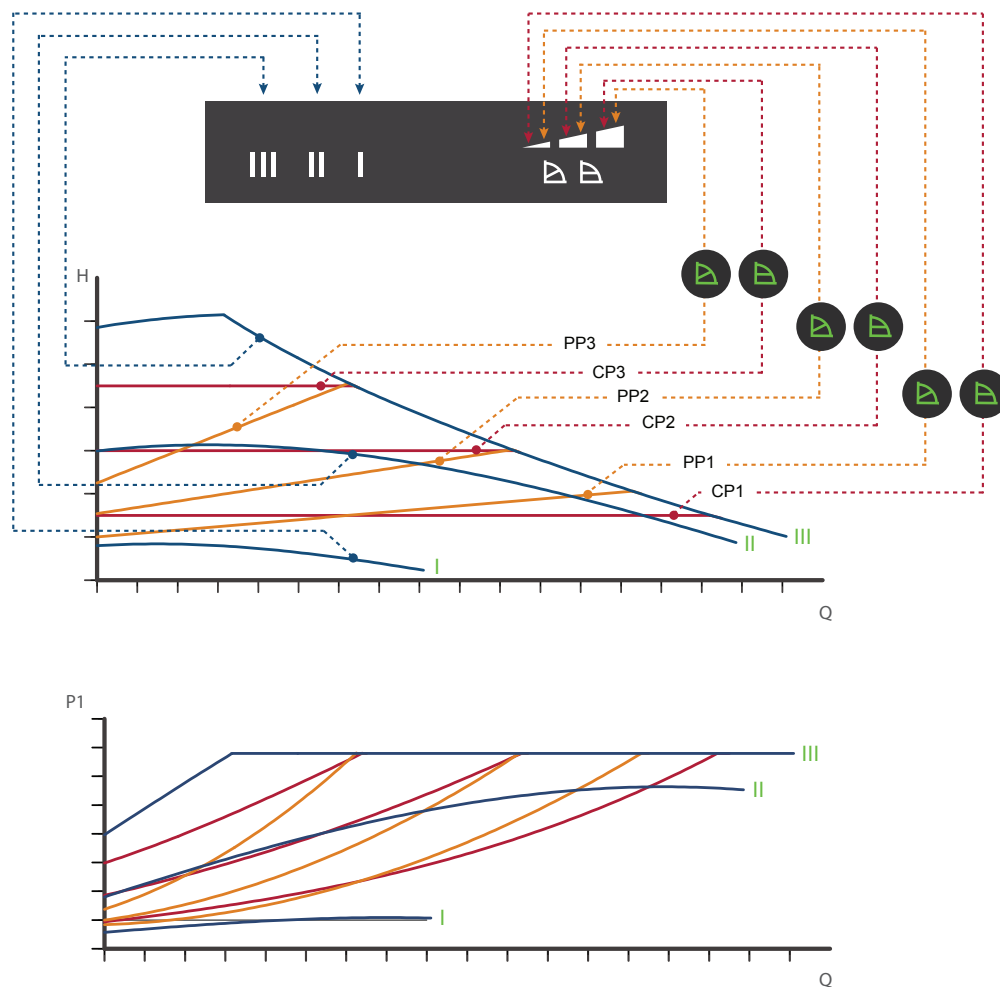
Pump setting in relation to pump performance

| 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. See fig. Pump setting in relation to pump performance. 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. See fig. Pump setting in relation to pump performance. 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. See fig. Pump setting in relation to pump performance. 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. Pump setting in relation to pump performance. 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. Pump setting in relation to pump performance. 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. Pump setting in relation to pump performance. 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. Pump setting in relation to pump performance. 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. Pump setting in relation to pump performance. |
| 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. Pump setting in relation to pump performance. |

9. Guide to performance curves

Each pump setting has its own performance curve (Q/H curve). 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. Performance curves in relation to pump setting.



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 duty, fixed speed III |
| II | Constant curve duty, fixed speed II |
| I | Constant curve duty, fixed speed I |

TM052778

Curve conditions

Performance curves

The guidelines below apply to the performance curves.

- Test liquid: airless water.
- The curves apply to a density of $\rho = 61.38 \text{ lb/ft}^3$ (983.2 kg/m^3) and a liquid temperature of $+140 \text{ }^\circ\text{F}$ ($+60 \text{ }^\circ\text{C}$).
- 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 apply to a kinematic viscosity of $\nu = 0.474 \text{ mm}^2/\text{s}$ (0.474 cSt).
- Reference supply voltage: $1 \times 230 \text{ V}$, 50 Hz .
- EEI obtained according to EN 16297.

QR code on pump nameplate



TM075027

QR code on pump nameplate

With the Grundfos GO Remote or a smartphone, it is possible to get the following information about the MAGNA1:

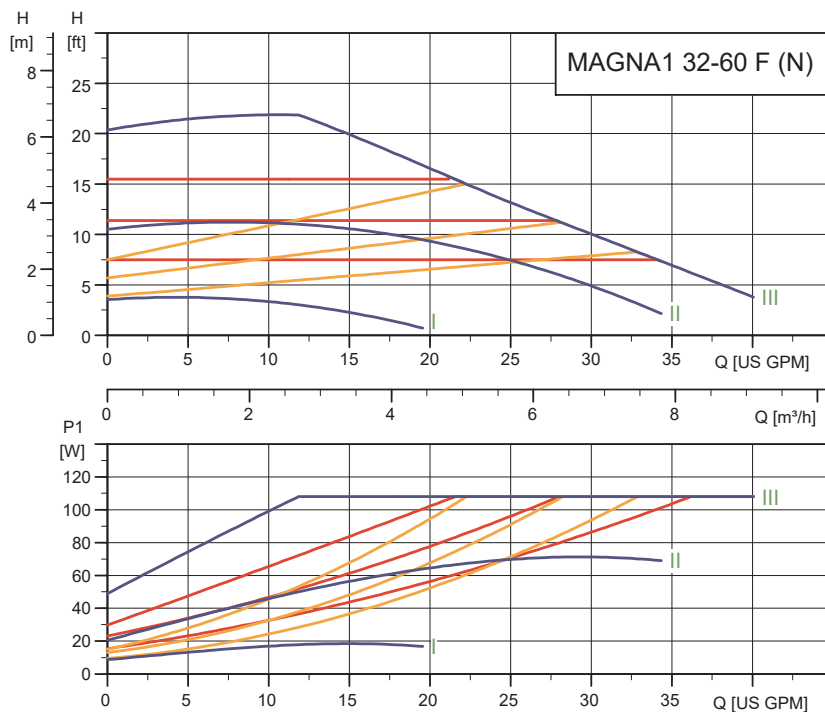
- product photo
- pump performance curves
- dimensional sketches
- wiring diagram
- quotation text
- technical data
- PDF files, such as data booklet and installation and operating instructions.

Note: The GO Remote or Smart phone may be used to read the QR Code to download product information from GO CAPS. The MAGNA1 does not communicate with the GO.

10. Performance curves and technical data

MAGNA1 32-60 F (N)

1 x 115-230 V, 50/60 Hz



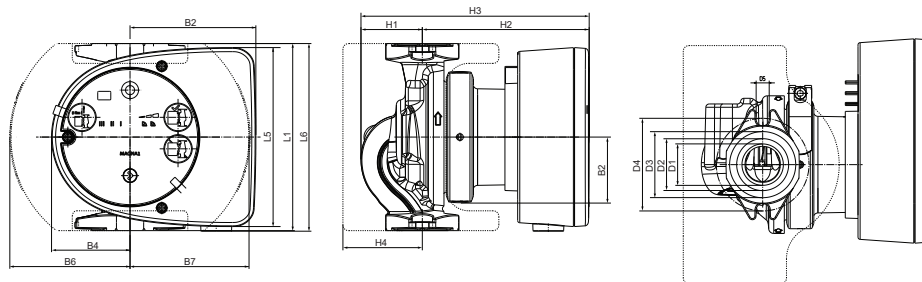
TM060661

| Speed | I _{1/1} [A] | P1 [W] |
|-------|----------------------|--------|
| Min. | 0.28 | 8.70 |
| Max. | 1.01 | 107.00 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.20

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 11.0 (5.0) | 13.2 (6.0) | 0.46 (0.014) |



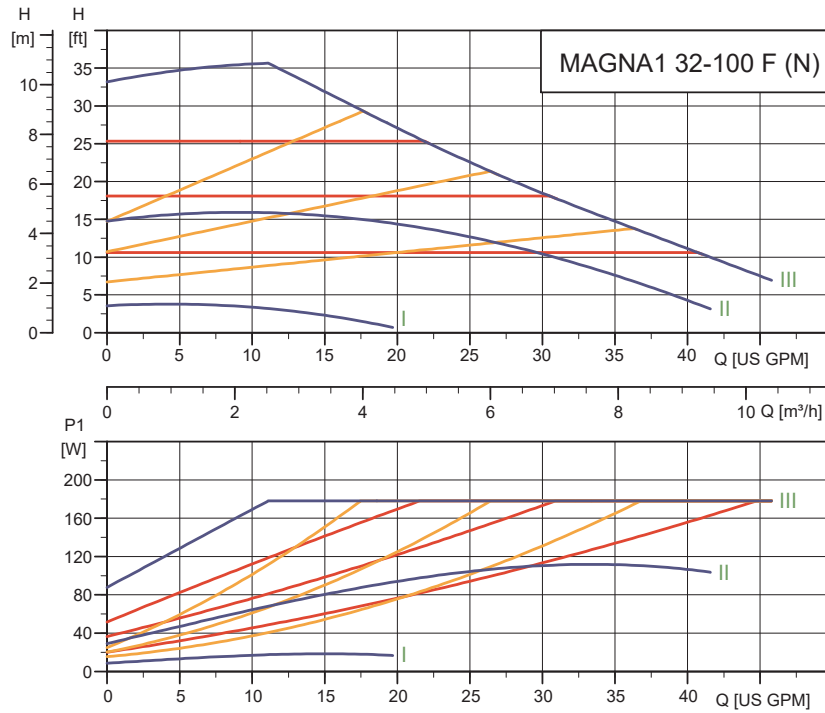
TM074768

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|--------------------|----------------------|------------|------------|-------------|------------|------------|------------|------------|-----------|
| | L1 | L5 | L6 | B1 | B2 | B4 | B6 | B7 | D1 |
| MAGNA1 32-60 F (N) | 6.50 (165) | 6.23 (158) | 6.62 (168) | 2.29 (58) | 4.38 (111) | 2.72 (69) | 4.18 (106) | 4.18 (106) | 1.26 (32) |
| | D2 | D3 | D4 | D5 | H1 | H2 | H3 | H4 | |
| | 1.82 (46) | 2.29 (58) | 3.15 (80) | 0.46 (11.5) | 2.13 (54) | 5.79 (147) | 7.92 (201) | 2.76 (70) | |

For product numbers, see section Product range.

MAGNA1 32-100 F (N)

1 x 115-230 V, 50/60 Hz



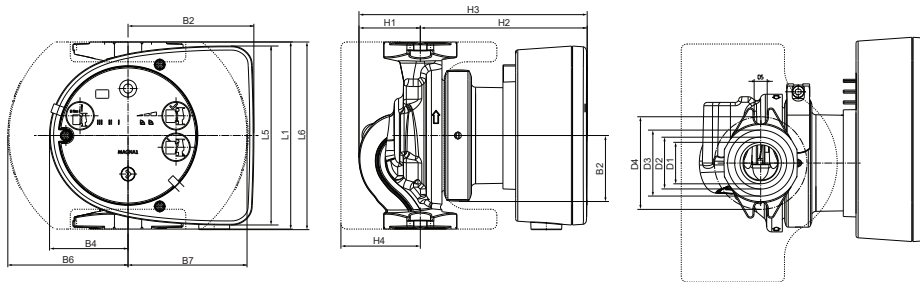
TM060663

| Speed | I _{1/1} [A] | P1 [W] |
|-------|----------------------|--------|
| Min. | 0.28 | 8.62 |
| Max. | 1.61 | 178.00 |

The pump incorporates overload protection.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft ³ (m ³)] |
|------------------------|--------------------------|--|
| 11.0 (5.0) | 13.2 (6.0) | 0.46 (0.014) |

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.19



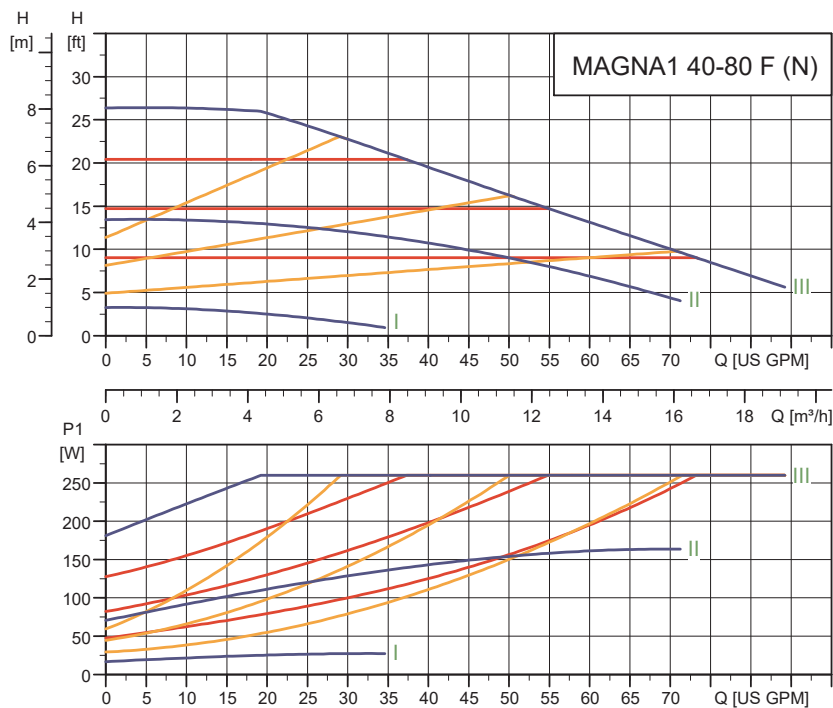
TM074768

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|------------|-------------|------------|------------|------------|------------|-----------|
| | L1 | L5 | L6 | B1 | B2 | B4 | B6 | B7 | D1 |
| MAGNA1 32-100 F (N) | 6.50 (165) | 6.23 (158) | 6.62 (168) | 2.29 (58) | 4.38 (111) | 2.72 (69) | 4.18 (106) | 4.18 (106) | 1.26 (32) |
| | D2 | D3 | D4 | D5 | H1 | H2 | H3 | H4 | |
| | 1.82 (46) | 2.29 (58) | 3.15 (80) | 0.46 (11.5) | 2.13 (54) | 5.79 (147) | 7.92 (201) | 2.76 (70) | |

For product numbers, see section Product range.

MAGNA1 40-80 F (N)

1 x 115 & 208-230 V, 50/60 Hz



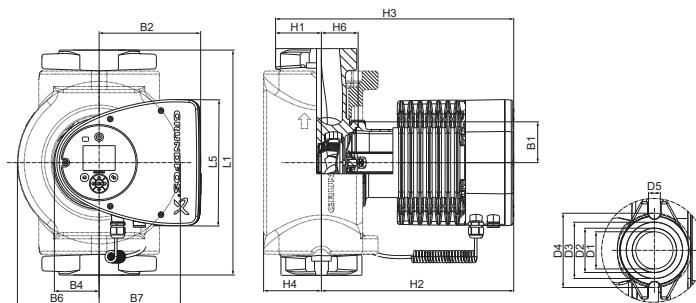
TM058799

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230 V |
|-------|----------------------------|--------------|----------------------------|--------------|
| Min. | 0.3 | 16 | 0.19 | 16 |
| Max. | 2.45 | 276 | 1.20 | 265 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.19.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 35 (15.9) | 41 (18.7) | 1.41 (0.04) |



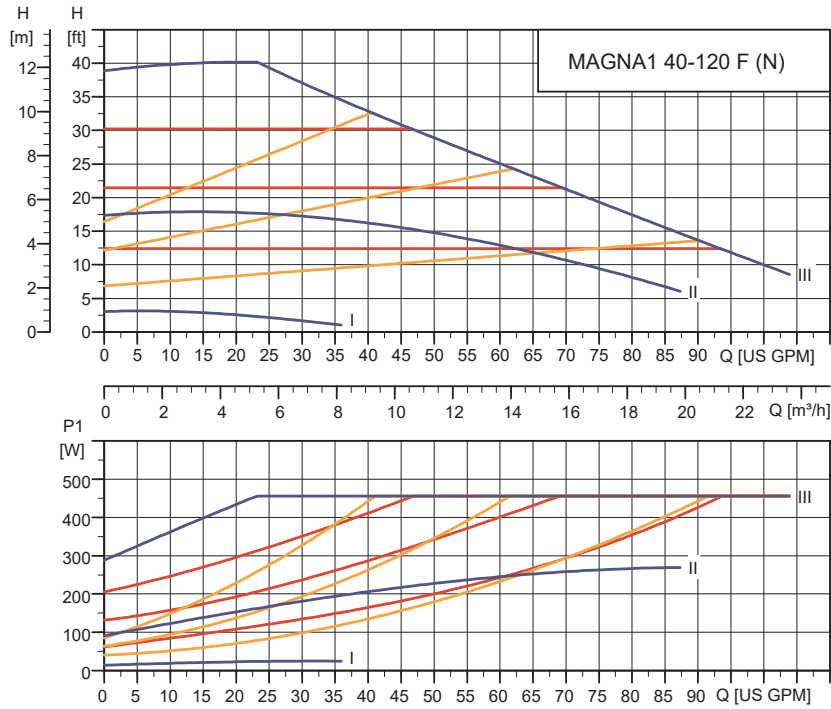
TM057651

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|--------------------|----------------------|------------|------------|------------|-------------|------------|------------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | 7 | D1 | D2 |
| MAGNA1 40-80 F (N) | 8.5 (216) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 4.37 (111) | 4.37 (111) | 1.57 (40) | 1.93 (49) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 2.4 (60) | 3.15 (80) | 0.5 (12.8) | - | 11.97 (304) | - | 2.76 (70) | 1.97 (50) | |

For product numbers, see section Product range.

MAGNA1 40-120 F (N)

1 x 115 & 208-230 V, 50/60 Hz



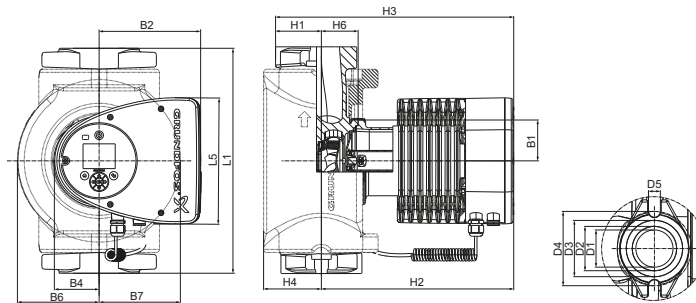
TM058800

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230 V |
|-------|----------------------------|--------------|----------------------------|--------------|
| Min. | 0.26 | 16 | 0.19 | 16 |
| Max. | 3.88 | 442 | 1.95 | 440 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.18.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 35 (15.9) | 41 (18.7) | 1.41 (0.04) |



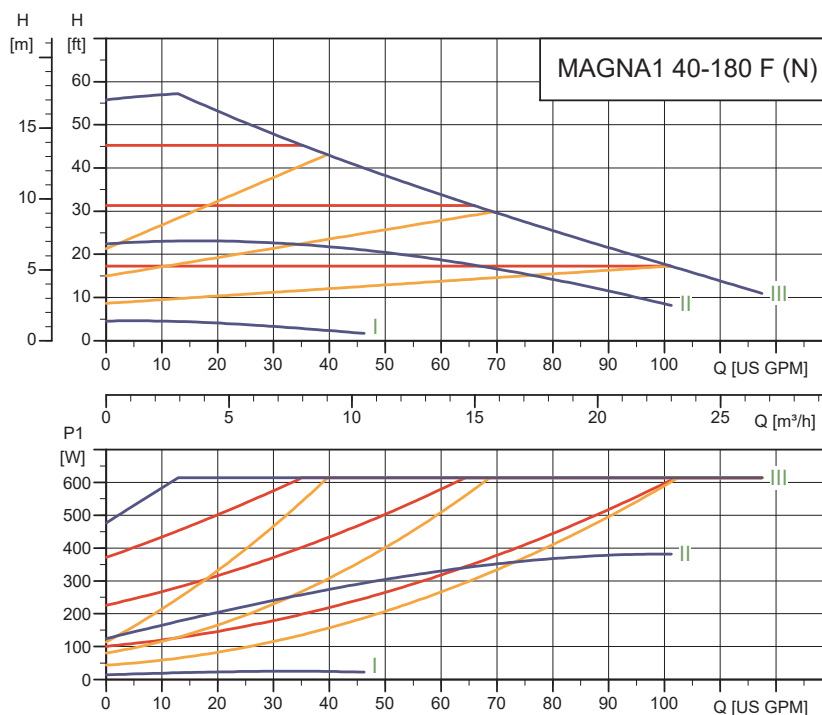
TM057651

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|------------|------------|-------------|------------|------------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 40-120 F (N) | 8.5 (216) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 4.37 (111) | 4.37 (111) | 1.57 (40) | 1.93 (49) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 2.4 (60) | 3.15 (80) | 0.5 (12.8) | - | 11.97 (304) | - | 2.76 (70) | 1.97 (50) | |

For product numbers, see section Product range.

MAGNA1 40-180 F (N)

1 x 115 & 208-230 V, 50/60 Hz



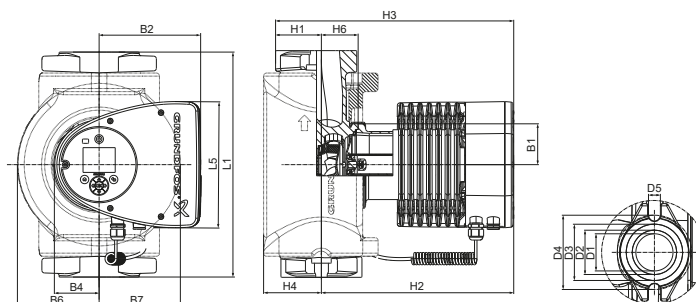
TM058801

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230 V |
|-------|----------------------------|--------------|----------------------------|--------------|
| Min. | 0.26 | 16 | 0.18 | 16 |
| Max. | 5.39 | 614 | 2.68 | 607 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.18.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 35 (15.9) | 41 (18.7) | 1.41 (0.04) |



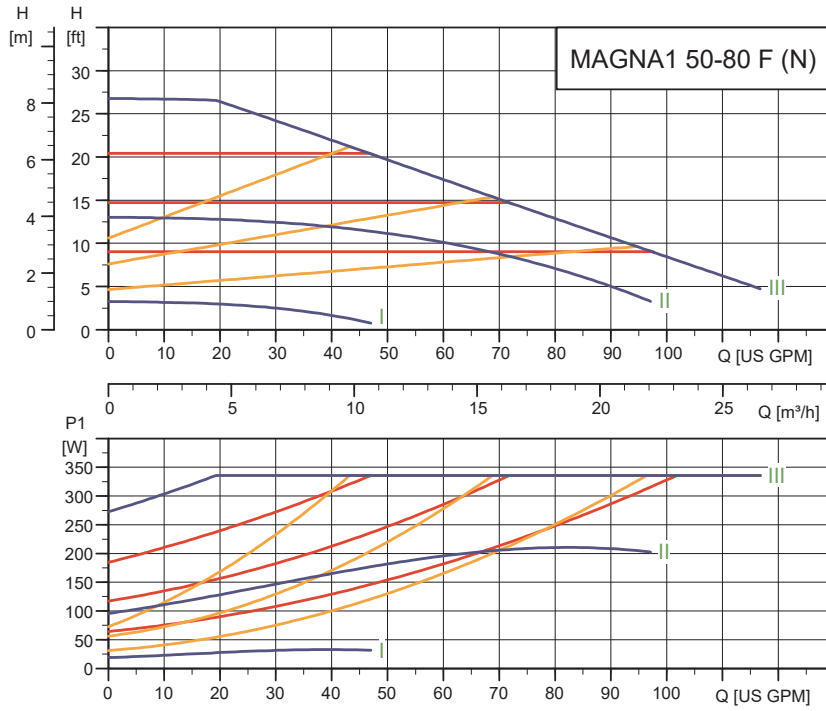
TM057651

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|------------|------------|-------------|------------|------------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 40-180 F (N) | 8.5 (216) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 4.37 (111) | 4.37 (111) | 1.57 (40) | 1.93 (49) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 2.4 (61) | 3.15 (80) | 0.5 (12.8) | - | 11.97 (304) | - | 2.76 (70) | 1.97 (50) | |

For product numbers, see section Product range.

MAGNA1 50-80 F (N)

1 x 115 & 208-230 V, 50/60 Hz



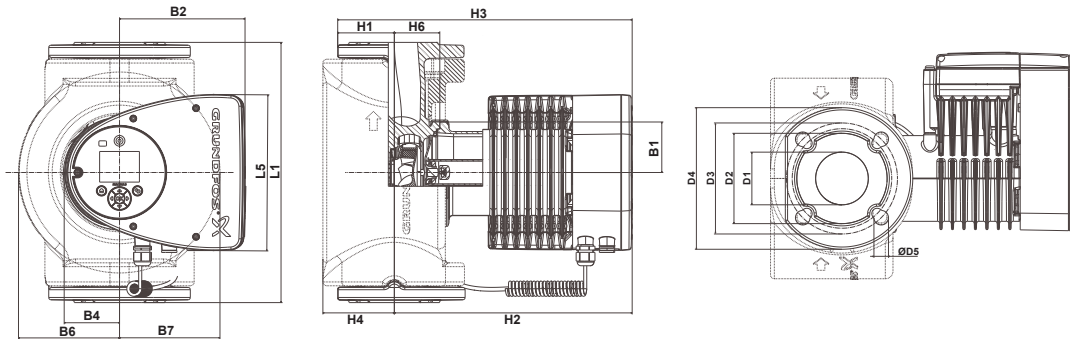
TM058802

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230 V |
|-------|----------------------------|--------------|----------------------------|--------------|
| Min. | 0.31 | 18.5 | 0.22 | 18.5 |
| Max. | 2.81 | 318 | 1.46 | 325 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.18.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 37 (17.0) | 45 (20.4) | 1.77 (0.05) |



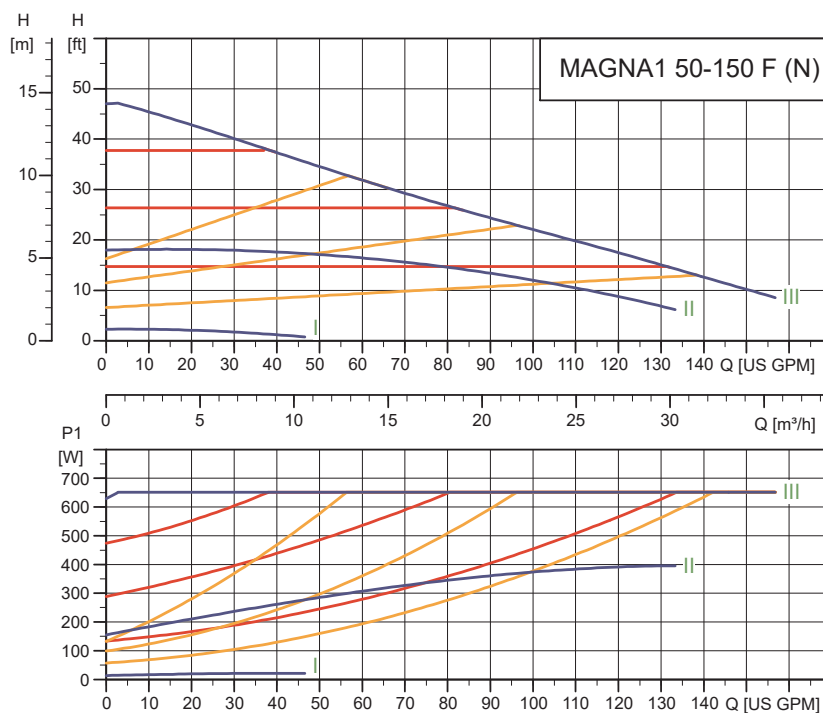
TM057652

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|--------------------|----------------------|------------|-------------------|------------|-------------|-------------|-----------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 50-80 F (N) | 9.45 (240) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 5 (127) | 5 (127) | 1.97 (50) | 3.90 (99) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 4.33/4.92 (110/125) | 6.5 (165) | 0.55/0.75 (14/19) | 2.8 (71) | 12.05 (306) | 14.84 (377) | 3.82 (97) | 2.05 (52) | |

For product numbers, see section Product range.

MAGNA1 50-150 F (N)

1 x 115 & 208-230 V, 50/60 Hz



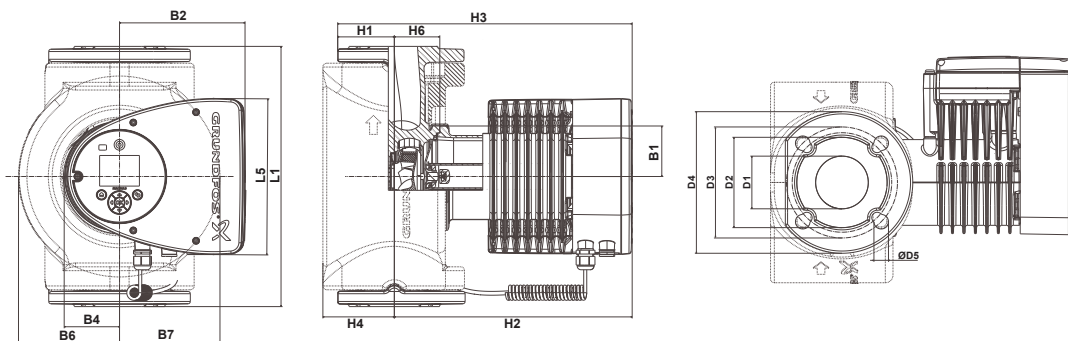
TM058803

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230 V |
|-------|----------------------------|--------------|----------------------------|--------------|
| Min. | 0.31 | 18.5 | 0.23 | 18.5 |
| Max. | 5.54 | 630 | 2.78 | 630 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.17.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 40 (18.3) | 49 (22.0) | 1.77 (0.05) |



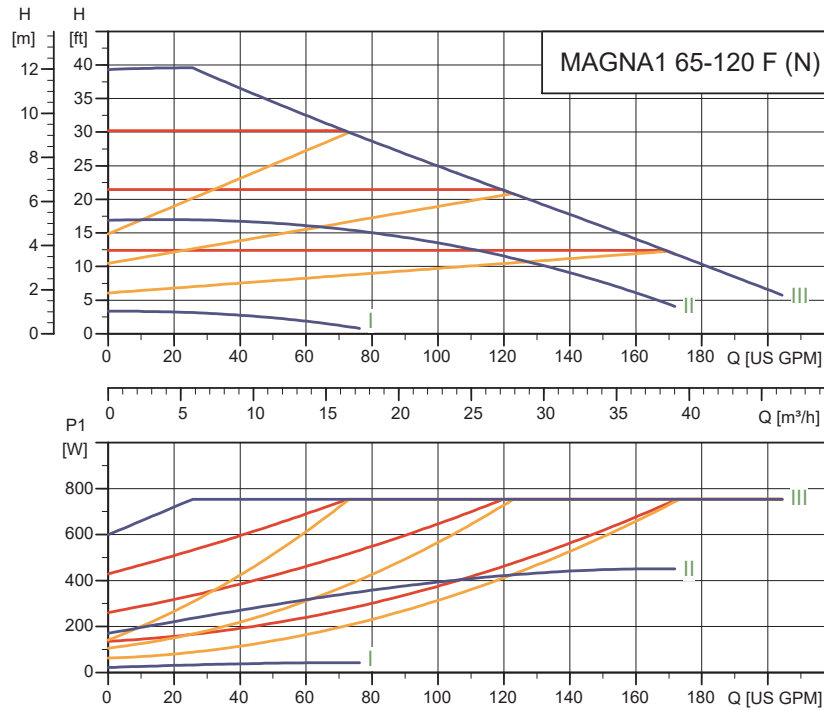
TM057652

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|-------------------|------------|-------------|------------|-----------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 50-150 F (N) | 11.02 (280) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 5 (127) | 5 (127) | 1.97 (50) | 3.90 (99) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 4.33/4.92 (110/125) | 6.5 (165) | 0.55/0.75 (14/19) | 2.83 (72) | 12.05 (306) | 14.9 (378) | 3.82 (97) | 2.05 (52) | |

For product numbers, see section Product range.

MAGNA1 65-120 F (N)

1 x 115 & 208-230 V, 50/60 Hz



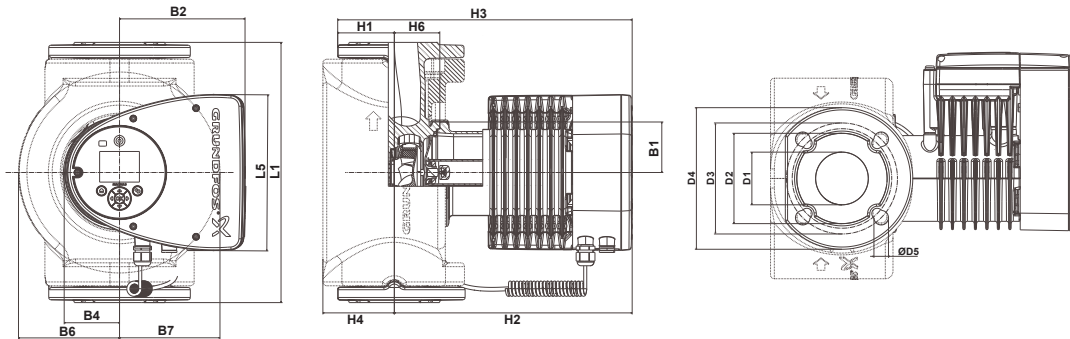
TM058804

| Speed | I _{1/1} [A] 115 V | P1 [W] 115 V | I _{1/1} [A] 230 V | P1 [W] 230V |
|-------|----------------------------|--------------|----------------------------|-------------|
| Min. | 0.36 | 20.5 | 0.18 | 20.5 |
| Max. | 6.67 | 772 | 3.38 | 769 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to+230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.17.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 46 (21.0) | 54 (24.7) | 2.12 (0.06) |



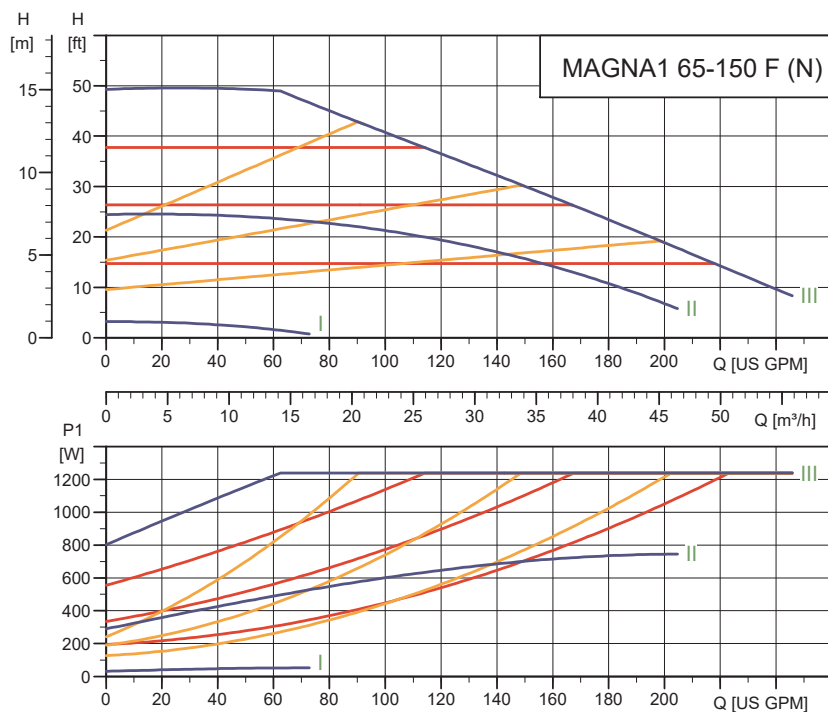
TM057652

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|-------------------|------------|-------------|------------|------------|-----------|------------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 65-120 F (N) | 13.4 (340) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 5.24 (133) | 5.24 (133) | 2.56 (65) | 4.65 (118) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 5.0/5.51 (127/140) | 7.28 (185) | 0.63/0.75 (16/19) | 2.91 (74) | 12.28 (312) | 15.2 (386) | 3.7 (94) | 2.32 (59) | |

For product numbers, see section Product range.

MAGNA1 65-150 F (N)

1 x 208-230 V, 50/60 Hz



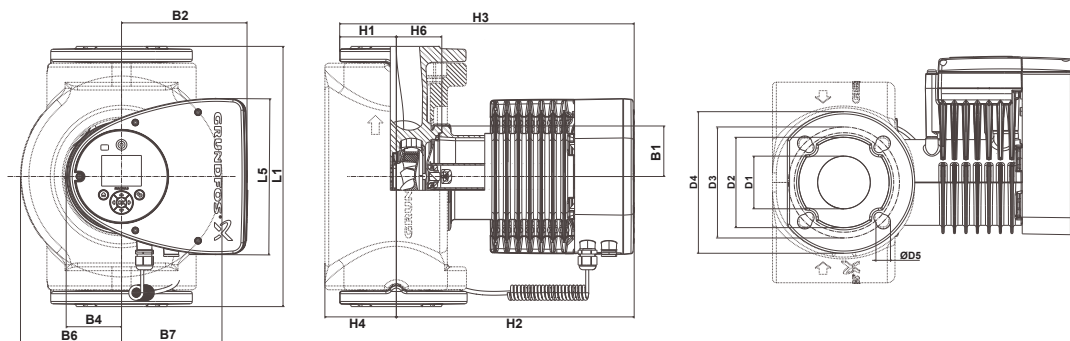
TM058805

| Speed | P1 [W] | I _{1/1} [A] |
|-------|--------|----------------------|
| Min. | 29 | 0.30 |
| Max. | 1301 | 5.68 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.17.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 53 (24.0) | 61 (27.8) | 2.12 (0.06) |



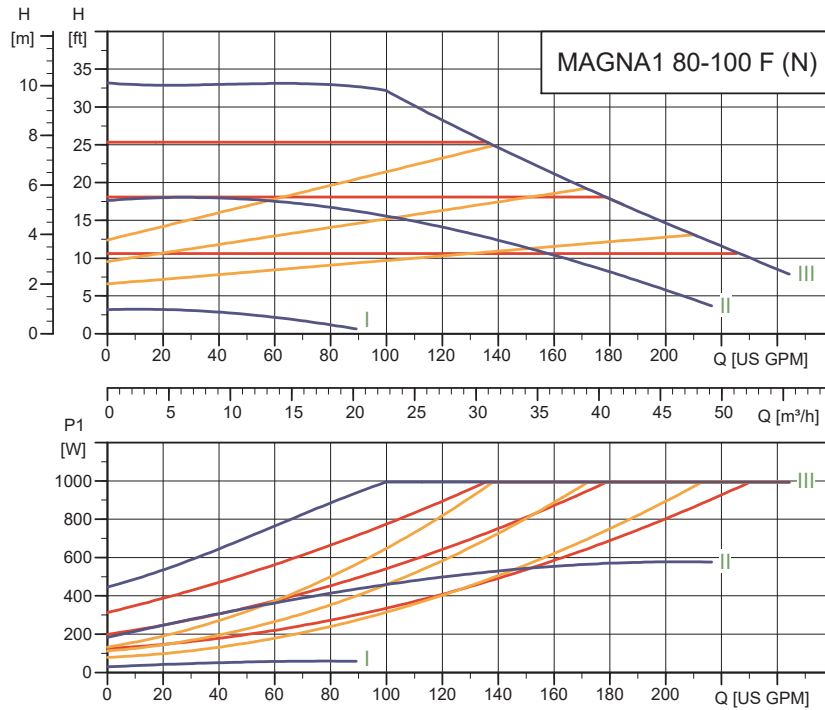
TM057652

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|-------------------|------------|-------------|------------|------------|-----------|------------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 65-150 F (N) | 13.4 (340) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 5.24 (133) | 5.24 (133) | 2.56 (65) | 4.65 (118) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 5.0/5.51 (127/140) | 7.28 (185) | 0.63/0.75 (16/19) | 2.91 (74) | 12.28 (312) | 15.2 (386) | 3.7 (94) | 2.32 (59) | |

For product numbers, see section Product range.

MAGNA1 80-100 F (N)

1 x 208-230 V, 50/60 Hz



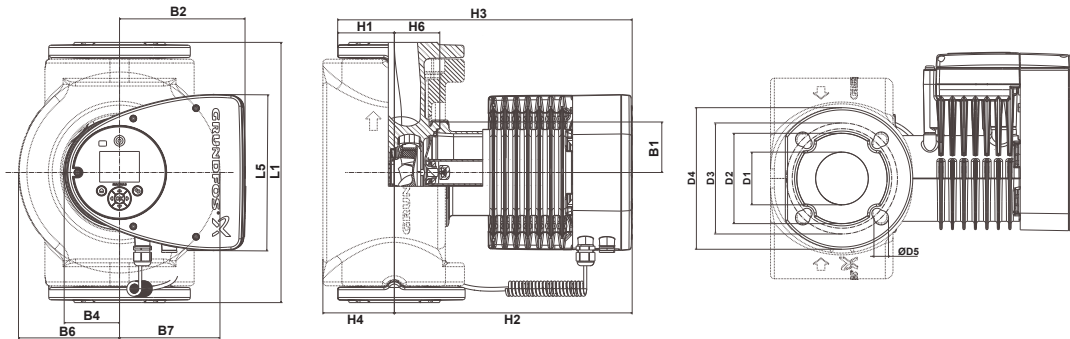
TM058806

| Speed | P1 [W] | I _{1/1} [A] |
|-------|--------|----------------------|
| Min. | 31 | 0.32 |
| Max. | 1041 | 4.60 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.17.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 63 (28.8) | 72 (32.6) | 2.47 (0.07) |



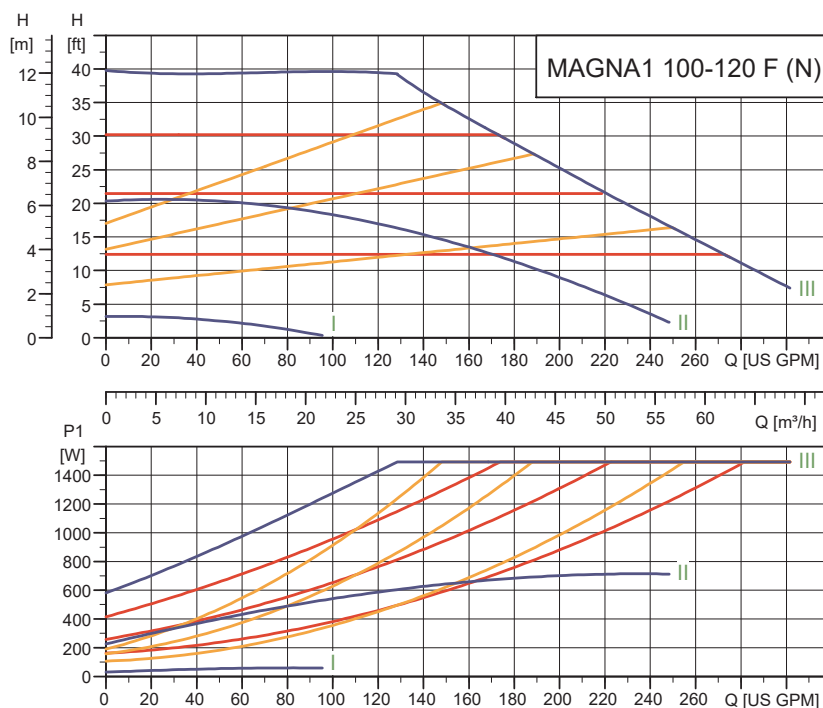
TM057652

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|---------------------|----------------------|------------|-----------|------------|-------------|-------------|------------|-----------|-----------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 80-100 F (N) | 14.17 (360) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 6.42 (163) | 6.42 (163) | 3.15 (80) | 5.2 (132) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 5.91 (150) | 7.87 (200) | 0.75 (19) | 3.7 (94) | 12.52 (318) | 16.22 (412) | 4.53 (115) | 2.6 [66] | |

For product numbers, see section Product range.

MAGNA1 100-120 F (N)

1 x 208-230 V, 50/60 Hz



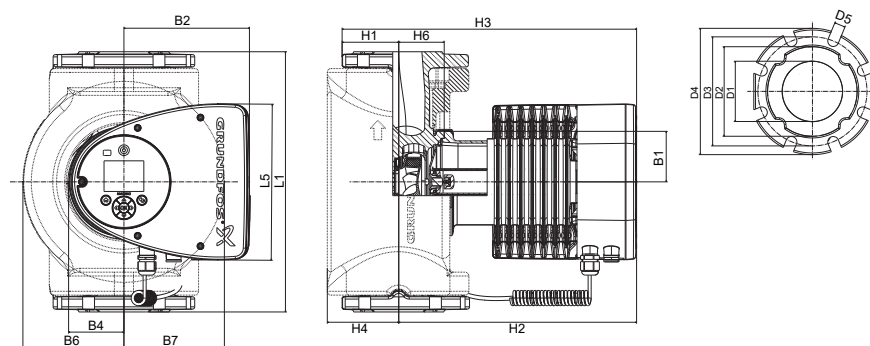
TM058807

| Speed | P1 [W] | I _{1/1} [A] |
|-------|--------|----------------------|
| Min. | 31 | 0.32 |
| Max. | 1576 | 6.97 |

The pump incorporates overload protection.

System pressure: Max. 175 psi (12 bar).
 Liquid temperature: +14 to +230 °F (-10 °C to +110 °C).
 Also available with: Stainless-steel pump housing, type N.
 Specific EEI: 0.17.

| Net weights [lbs (kg)] | Gross weights [lbs (kg)] | Ship. vol. [ft³ (m³)] |
|------------------------|--------------------------|-----------------------|
| 73 (33.1) | 82 (37.0) | 3.53 (0.1) |



TM057650

| Pump type | Dimensions [in (mm)] | | | | | | | | |
|----------------------|----------------------|------------|-----------|------------|-------------|-------------|------------|------------|------------|
| | L1 | L5 | B1 | B2 | B4 | B6 | B7 | D1 | D2 |
| MAGNA1 100-120 F (N) | 17.72 (450) | 8.03 (204) | 3.31 (84) | 6.46 (164) | 2.87 (73) | 7.01 (178) | 7.01 (178) | 3.94 (100) | 6.14 (156) |
| | D3 | D4 | D5 | H1 | H2 | H3 | H4 | H6 | |
| | 7.52 (191) | 8.66 (220) | 0.75 (19) | 4.02 (102) | 12.99 (330) | 17.01 (432) | 4.72 (120) | 3.11 (79) | |

For product numbers, see section Product range.

Technical data

Electrical data

| | |
|-------------------------|--|
| Pump type | MAGNA1 |
| Enclosure class | Type 2, IPX4D (EN 60529). |
| Insulation class | F. |
| Supply voltage | MAGNA1 S: 1 x 115-230 V +-10% 50/60 Hz MAGNA M/L: 1 x 115 V ± 10 % 50/60 Hz, 1 x 208-230 V ± 10 % 50/60 Hz. |
| Leakage current | $I_{leakage} < 3.5$ mA. The leakage current is measured in accordance with EN 60335-1. |
| EMC | EN 55014-1:2006, EN 55014-2:1998, EN 61800-3-3:2008 and EN 61000-3-2:2006. |

Sound pressure level

The sound pressure level of the pump is dependent on the power consumption. Levels are determined in accordance with ISO 3745 and ISO 11203, method Q2.

| Size | Maximum dB(A) |
|--------------|---------------|
| 32-60/100 F | 39 |
| 40-80 F | 45 |
| 50-80 F | |
| 40-120/180 F | 50 |
| 50-150 F | |
| 65-120 F | |
| 65-150 F | 55 |
| 80-100 F | |
| 100-120 F | |

11. Grundfos Product Center

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

From the international view, you can select your specific country to view the product range available to you.

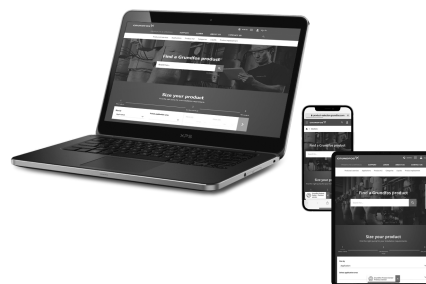
International view: <https://product-selection.grundfos.com>

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.



When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.

Example: <https://product-selection.grundfos.com/uk>

| Pos. | Description |
|------|---|
| 1 | Products & services enables you to find products and documents by typing a product number or name into the search field. |
| 2 | Applications enables you to choose an application to see how Grundfos can help you design and optimise your system. |
| 3 | Products A-Z enables you to look through a list of all the Grundfos products. |
| 4 | Categories enables you to look for a product category. |
| 5 | Liquids enables you to find pumps designed for aggressive, flammable or other special liquids. |
| 6 | Product replacement enables you to find a suitable replacement. |
| 7 | WWW enables you to select the country, which changes the language, the available product range and the structure of the website. |
| 8 | Sizing enables you to size a product based on your application and operating conditions. |

U.S.A.

GRUNDFOS Water Utility Headquarters
856 Koomey Road
Brookshire, Texas 77423 USA

GRUNDFOS CBS Inc.
902 Koomey Road
Brookshire, TX 77423 USA
Phone: 281-994-2700
Toll Free: 1-800-955-5847
Fax: 1-800-945-4777

GRUNDFOS Pumps Corporation
9300 Loiret Boulevard
Lenexa, Kansas 66219 USA
Tel.: +1 913 227 3400
Fax: +1 913 227 3500

Canada

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

Mexico

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

Revision Info

Last revised on 04-2021

