MAGNA3

Model A-B-C

Circulator pumps

50/60 Hz

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Table of contents

1. Product description

The Grundfos MAGNA3 circulator pumps are designed for circulating liquids in the following systems:

- heating systems
- air-conditioning and cooling systems
- domestic hot-water systems.

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

- ground source heat pump systems
- solar-heating systems.

Duty range

Data	MAGNA3 (N) Single-head pumps	MAGNA3 D Twin-head pumps
Maximum flow rate, Q	78.5 m^3/h	150 m^3/h
Maximum head, H	18 metres	
Maximum system pressure	1.6 MPa (16 bar)	
Liquid temperature	-10 to 110 °C	

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Fig. 1 MAGNA3 pumps

Characteristic features

- $AUTO_{ADAPT}$
- $FLOW_{ADAPT}$
- Proportional-pressure control
- Constant-pressure control
- Constant-temperature control
- Differential-temperature control
- Constant-curve duty
- Maximum or minimum curve duty
- $FLOW_{LIMIT}$
- Automatic night setback
- No external motor protection required
- Insulating shells supplied with single-head pumps for heating systems
- Wide temperature range due to thermal separation of the control box and pump media
- Multipump function.

Benefits

- Low energy consumption. The $AUTO_{ADAPT}$ function ensures energy savings.
- $FLOW_{ADAPT}$ which is a combination of the well-known $AUTO_{ADAPT}$ control mode and a new $FLOW_{LIMIT}$ function.
- Built-in Grundfos differential-pressure and temperature sensor.
- Simple installation.
- No maintenance and long life.
- Extended user interface with TFT display.
- Control panel with self-explanatory push-buttons made of high-quality silicone.
- Operating log.
- Easy system optimisation.
- Heat energy monitor.
- External control and monitoring enabled via add-on modules.
- The complete range is available for a maximum system pressure of 16 bar (PN 16).

Main applications

Heating systems

- Main pump
- mixing loops
- domestic hot water
- heating surfaces
- air-conditioning surfaces.

The MAGNA3 circulator pumps are designed for circulating liquids in heating systems with variable flows where you want to optimise the setting of the pump duty point, thus reducing energy costs. The pumps are also suitable for domestic hot-water systems. Observe local legislation regarding pump house material. Grundfos strongly recommend that you use stainless-steel pumps in domestic hot-water applications to avoid corrosion.

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

The pump is especially suitable for installation in existing systems where the differential pressure across the pump is too high in periods with reduced flow demand. The pump is also suitable for new systems where automatic adjustment of the head to the actual flow demand is required, without using expensive bypass valves or similar components.

Furthermore, the pump is suitable for systems with hot-water priority as an external signal can immediately force the pump to operate according to the maximum curve, for example in solar-heating systems.

Type key

Code	Example	MAGNA3	(D)	80	-120	(F)	(N)	360
	Type range MAGNA3							
	Single-head pump D Twin-head pump							
	Nominal diameter (DN) of inlet and outlet ports [mm]							
	Maximum head [dm]							
	Pipe connection **Threaded** F Flange							
	Pump housing material Cast iron N Stainless steel							
	Port-to-port length [mm]							

Model type

This data booklet covers MAGNA3 model A , B and C. The model version is stated on the nameplate. See fig. 2.

Fig. 2 Model type on pump nameplate

The difference in model types can be seen in section *Functions* on page 17.

Performance range, MAGNA3

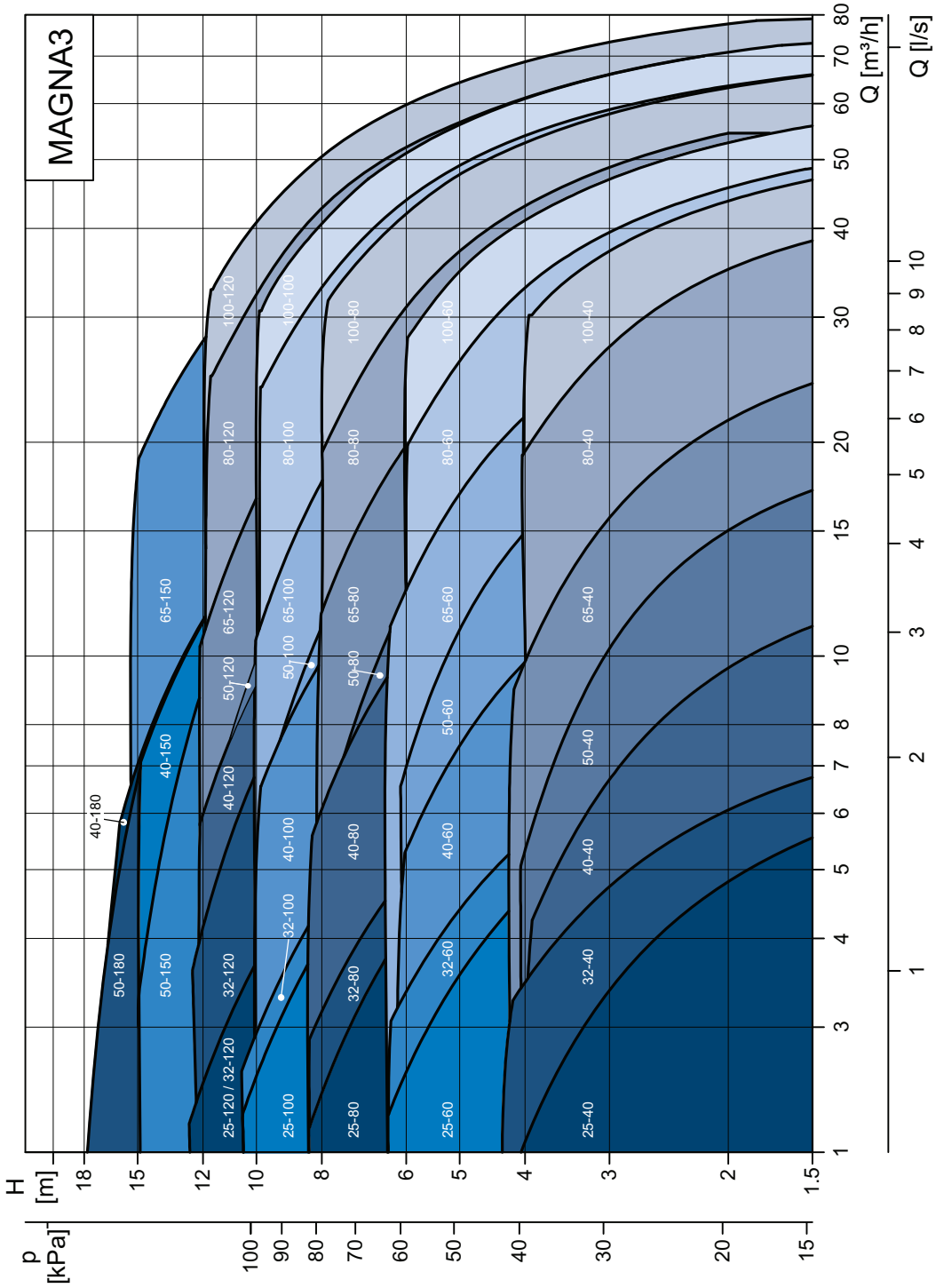

Fig. 3 Performance range, MAGNA3

Note: MAGNA3 32-120 is available both as a flange model and a threaded model but with different performance.

Performance range, MAGNA3 D single-head operation

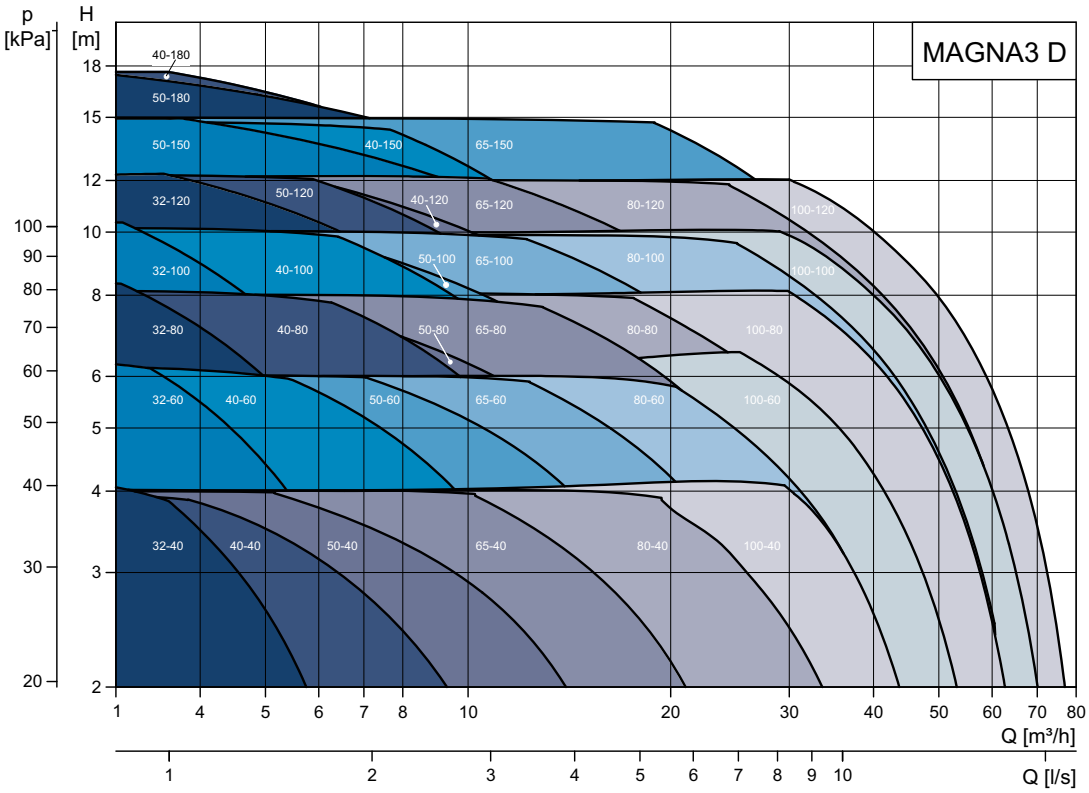

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Fig. 4 Performance range, MAGNA3 D single-head operation

Performance range, MAGNA3 D twin-head operation

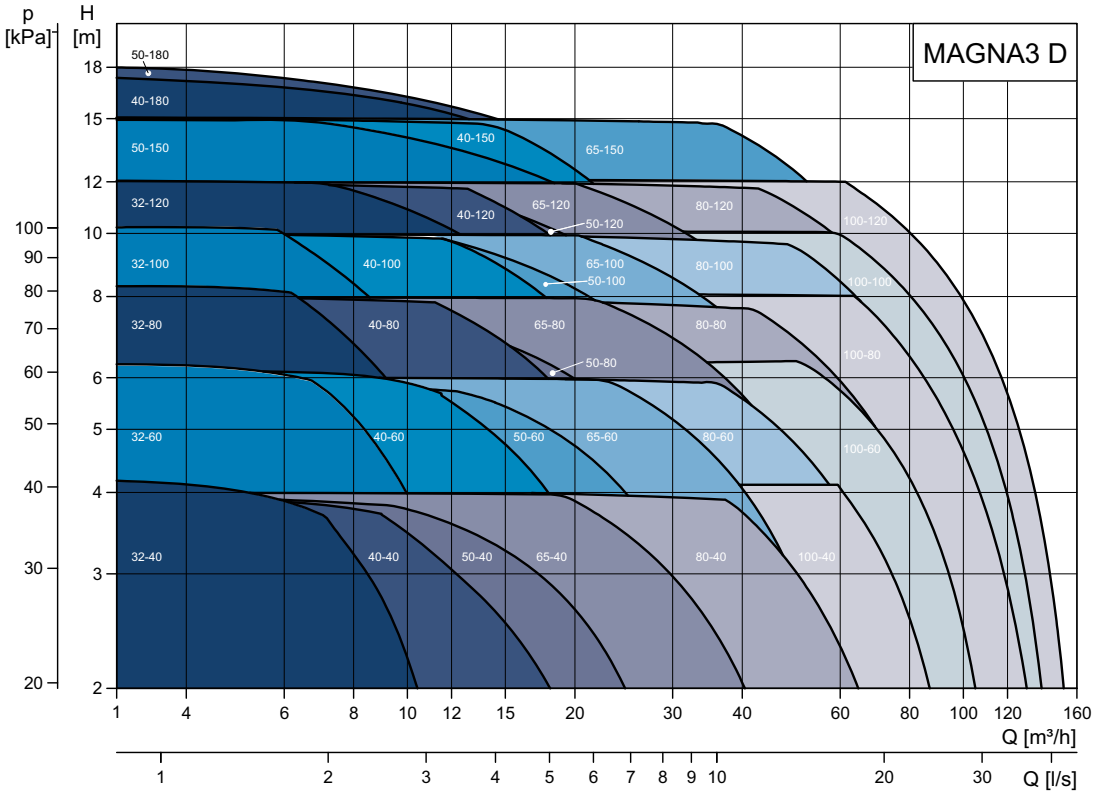

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Fig. 5 Performance range, MAGNA3 D twin-head operation

2. Product range

Single-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection			Electrical connection	Data sheet Page
		Cast iron		Stainless steel		
		PN 10	PN 16	PN 10		
MAGNA3 25-40 (N)	180	•	•	•	Plug	45
MAGNA3 25-60 (N)	180	•	•	•	Plug	46
MAGNA3 25-80 (N)	180	•	•	•	Plug	47
MAGNA3 25-100 (N)	180	•	•	•	Plug	48
MAGNA3 25-120 (N)	180	•	•	•	Plug	49
MAGNA3 32-40 (N)	180	•	•	•	Plug	50
MAGNA3 32-60 (N)	180	•	•	•	Plug	52
MAGNA3 32-80 (N)	180	•	•	•	Plug	54
MAGNA3 32-100 (N)	180	•	•	•	Plug	56
MAGNA3 32-120 (N)	180	•	•	•	Plug	58

Pump type	Port-to-port length [mm]	Flange connection					Electrical connection	Data sheet Page
		Cast iron				Stainless steel		
		PN 6	PN 10	PN 6/10	PN 16	PN 6/10		
MAGNA3 32-40 F (N)	220			•	•	•	Plug	59
MAGNA3 32-60 F (N)	220			•	•	•	Plug	61
MAGNA3 32-80 F (N)	220			•	•	•	Plug	63
MAGNA3 32-100 F (N)	220			•	•	•	Plug	65
MAGNA3 32-120 F (N)	220			•	•	•	Terminals	67
MAGNA3 40-40 F (N)	220			•	•	•	Plug	69
MAGNA3 40-60 F (N)	220			•	•	•	Plug	71
MAGNA3 40-80 F (N)	220			•	•	•	Terminals	73
MAGNA3 40-100 F (N)	220			•	•	•	Terminals	75
MAGNA3 40-120 F (N)	250			•	•	•	Terminals	77
MAGNA3 40-150 F (N)	250			•	•	•	Terminals	79
MAGNA3 40-180 F (N)	250			•	•	•	Terminals	81
MAGNA3 50-40 F (N)	240			•	•	•	Terminals	83
MAGNA3 50-60 F (N)	240			•	•	•	Terminals	85
MAGNA3 50-80 F (N)	240			•	•	•	Terminals	87
MAGNA3 50-100 F (N)	280			•	•	•	Terminals	89
MAGNA3 50-120 F (N)	280			•	•	•	Terminals	91
MAGNA3 50-150 F (N)	280			•	•	•	Terminals	93
MAGNA3 50-180 F (N)	280			•	•	•	Terminals	95
MAGNA3 65-40 F (N)	340			•	•	•	Terminals	97
MAGNA3 65-60 F (N)	340			•	•	•	Terminals	99
MAGNA3 65-80 F (N)	340			•	•	•	Terminals	101
MAGNA3 65-100 F (N)	340			•	•	•	Terminals	103
MAGNA3 65-120 F (N)	340			•	•	•	Terminals	105
MAGNA3 65-150 F (N)	340			•	•	•	Terminals	107
MAGNA3 80-40 F	360	•	•		•		Terminals	109
MAGNA3 80-60 F	360	•	•		•		Terminals	111
MAGNA3 80-80 F	360	•	•		•		Terminals	113
MAGNA3 80-100 F	360	•	•		•		Terminals	115
MAGNA3 80-120 F	360	•	•		•		Terminals	117
MAGNA3 100-40 F	450	•	•		•		Terminals	119
MAGNA3 100-60 F	450	•	•		•		Terminals	121
MAGNA3 100-80 F	450	•	•		•		Terminals	123
MAGNA3 100-100 F	450	•	•		•		Terminals	125
MAGNA3 100-120 F	450	•	•		•		Terminals	127

Twin-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection		Electrical connection	Data sheet Page
		Cast iron			
		PN 10	PN 16		
MAGNA3 D 32-40	180	•	•	Plug	51
MAGNA3 D 32-60	180	•	•	Plug	53
MAGNA3 D 32-80	180	•	•	Plug	55
MAGNA3 D 32-100	180	•	•	Plug	57

Pump type	Port-to-port length [mm]	Flange connection				Electrical connection	Data sheet Page
		Cast iron					
		PN 6	PN 10	PN 6/10	PN 16		
MAGNA3 D 32-40 F	220			•	•	Plug	60
MAGNA3 D 32-60 F	220			•	•	Plug	62
MAGNA3 D 32-80 F	220			•	•	Plug	64
MAGNA3 D 32-100 F	220			•	•	Plug	66
MAGNA3 D 32-120 F	220			•	•	Terminals	68
MAGNA3 D 40-40 F	220			•	•	Plug	70
MAGNA3 D 40-60 F	220			•	•	Plug	72
MAGNA3 D 40-80 F	220			•	•	Terminals	74
MAGNA3 D 40-100 F	220			•	•	Terminals	76
MAGNA3 D 40-120 F	250			•	•	Terminals	78
MAGNA3 D 40-150 F	250			•	•	Terminals	80
MAGNA3 D 40-180 F	250			•	•	Terminals	82
MAGNA3 D 50-40 F	240			•	•	Terminals	84
MAGNA3 D 50-60 F	240			•	•	Terminals	86
MAGNA3 D 50-80 F	240			•	•	Terminals	88
MAGNA3 D 50-100 F	280			•	•	Terminals	90
MAGNA3 D 50-120 F	280			•	•	Terminals	92
MAGNA3 D 50-150 F	280			•	•	Terminals	94
MAGNA3 D 50-180 F	280			•	•	Terminals	96
MAGNA3 D 65-40 F	340			•	•	Terminals	98
MAGNA3 D 65-60 F	340			•	•	Terminals	100
MAGNA3 D 65-80 F	340			•	•	Terminals	102
MAGNA3 D 65-100 F	340			•	•	Terminals	104
MAGNA3 D 65-120 F	340			•	•	Terminals	106
MAGNA3 D 65-150 F	340			•	•	Terminals	108
MAGNA3 D 80-40 F	360	•	•		•	Terminals	110
MAGNA3 D 80-60 F	360	•	•		•	Terminals	112
MAGNA3 D 80-80 F	360	•	•		•	Terminals	114
MAGNA3 D 80-100 F	360	•	•		•	Terminals	116
MAGNA3 D 80-120 F	360	•	•		•	Terminals	118
MAGNA3 D 100-40 F	450	•	•		•	Terminals	120
MAGNA3 D 100-60 F	450	•	•		•	Terminals	122
MAGNA3 D 100-80 F	450	•	•		•	Terminals	124
MAGNA3 D 100-100 F	450	•	•		•	Terminals	126
MAGNA3 D 100-120 F	450	•	•		•	Terminals	128

Note: You find the product numbers of the various pump variants on page 141.

Pump selection

All pumps have a "best point" (η_{max}), indicating where the pump is working most efficiently.

Consider the parameters in the following section.

Pump size

The system characteristic is used together with the performance curve of the pump for sizing and correct pump selection.

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. 6.

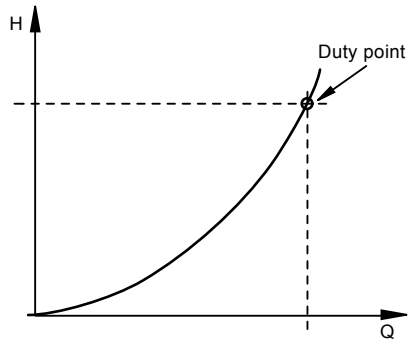


Fig. 6 System characteristic

Operating conditions

You must check whether the operating conditions are fulfilled, i.e:

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

Control modes

- AUTO$_{ADAPT}$ (factory setting) which is suitable for most installations.
- FLOW$_{ADAPT}$ in systems where a flow limitation is required.
- 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.
- Constant-temperature control in heating systems with a fixed system characteristic, for example domestic hot-water systems.
- Differential-temperature control in heating and cooling systems.
- Constant-curve duty.

Determination of precise setpoint

To determine the precise pump setpoint, consult Grundfos Product Center (GPC) on www.grundfos.com. See fig. 7.

You can determine the desired proportional pressure by marking the pump duty point as a yellow dot. In the upper right corner, you can read the precise setpoint of the proportional pressure and then enter the setpoint on the pump control panel.

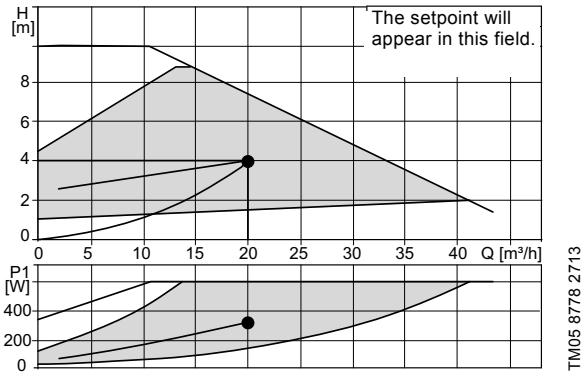


Fig. 7 Grundfos Product Center tool

Communication

The Grundfos CIM modules (CIM = Communication Interface Module) enable the MAGNA3 to connect to standard fieldbus networks, offering substantial benefits:

- complete process control and monitoring
- modular design, prepared for future requirements
- based on standard functional profiles
- simple configuration and easy installation
- open communication standards
- reading warning and alarm indications.

For further details, see section *CIM modules*, pages 30 and 31.

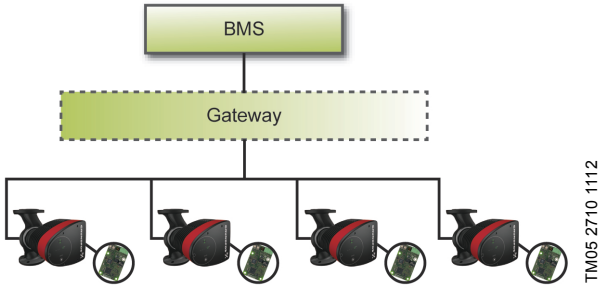


Fig. 8 Example of typical building management system (BMS)

Note: A gateway is a device that facilitates the transfer of data between two different networks based on different communication protocols.

3. Functions

System application

Heating systems

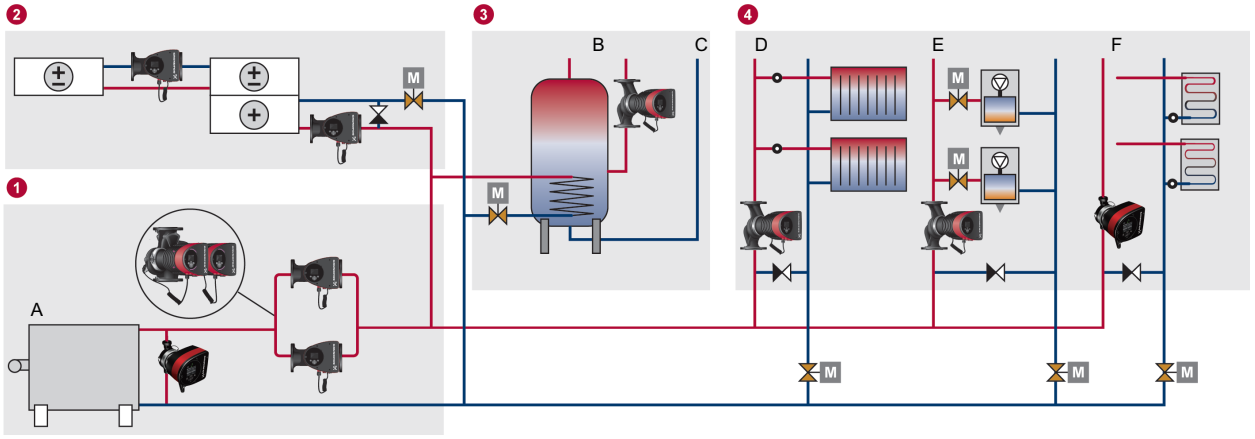


Fig. 9 Functional drawing of a heating system in a commercial building

Pos.	Description
1	**Main pumps**
A	Boiler
2	**Air handler heating coils**
3	**Domestic hot water**
B	Hot-water circulation
C	Cold water
4	**Mixing loops**
D	Radiators
E	Fan coils
F	Underfloor heating

Main pumps

Due to variations in the heat demand and water flow rate, we always recommend that you use speed-controlled MAGNA3 pumps in a heating system, either single-head pumps connected in parallel or twin-head pumps. Single-head pumps connected in parallel have several advantages. In alternating operation, each pump is sized for 100 % flow. In this operating mode, the second pump functions as backup for higher reliability. As the pumps alternate, an equal number of operating hours is ensured. Cascade operation of pumps connected in parallel meets demands in high-flow systems with low differential temperature (Δt), and 50 % backup is ensured at the same time.

The twin-head pump saves installation time and costs. By speed-controlling all pumps, it is possible to obtain maximum energy saving as the pumps will run at their best efficiency point (BEP).

In a variable-flow system, we recommend that you control the main pump in AUTO$_{ADAPT}$ or proportional-pressure

However, if a load (e.g. a radiator) is far from the pump, it can be advantageous to install a differential pressure sensor across this load and use a setpoint for differential pressure."

By using the FLOW$_{ADAPT}$ function to ensure correct balancing of the system, the need for pump throttling valves can be reduced significantly.

The built-in heat energy monitor allows monitoring of the heat energy consumption in the system only for optimisation purposes.

Air handler heating coils

The performance of heating surfaces is controlled by the heating-water temperature and flow. For this purpose, we recommend that you install variable-flow mixing loops at the heating surfaces. A speed-controlled mixing-loop pump is ideal for adaptation to the varying load in a heating surface. In this case, MAGNA3 will have full authority, making external pump throttling valves superfluous.

Domestic hot water

For domestic hot-water circulation, the constant-temperature control mode will ensure a constant temperature in the recirculation pipe, without the use of separate thermostatic valves, thus obtaining the maximum comfort.

Mixing loops

Due to variations in use, flow temperature and heat demand in different parts of the building, the heating system should be divided into zones controlled by independent mixing loops. Due to the flow variations, a speed-controlled mixing-loop pump will have the authority in the system. This will help obtain a better hydraulic balance in the total system. Speed control of the pump via selection of a control mode, depending on system application, ensures maximum energy saving. See section *Selection of control mode*, page 15.

Advantages of using mixing loops:

- Reduced excessive differential pressure in the system and hereby reduced risk of overflow.
- Increased control ability as the loop is provided with the exact flow and temperature demand.

Cooling systems

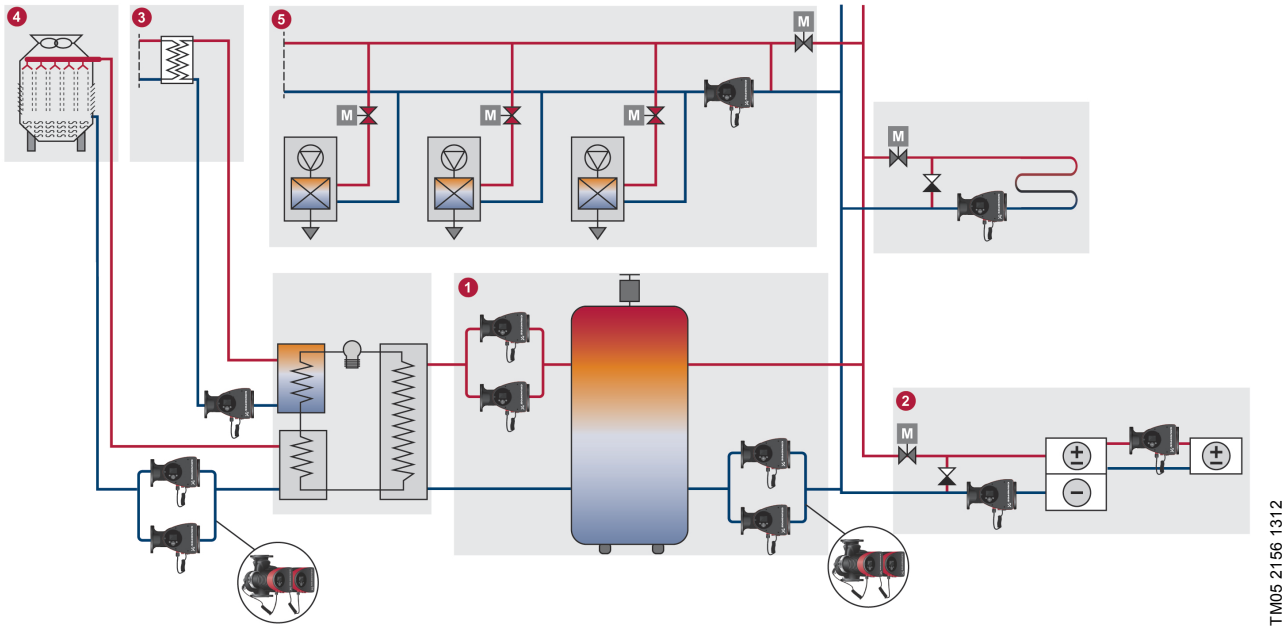


Fig. 10 Functional drawing of a cooling system in a commercial building

Pos.	Description
1	Primary and secondary pumps
2	Air handler cooling coils
3	Heat recovery system
4	Cooling tower
5	Mixing loops

Primary and secondary pumps

Due to variations in the cooling demand and water flow rate, we recommend that you use speed-controlled MAGNA3 pumps in a cooling system, either single-head pumps connected in parallel or twin-head pumps. Single-head pumps connected in parallel have several advantages. In alternating operation, each pump is sized for 100 % flow. In this operating mode, the second pump functions as backup for higher reliability. As the pumps alternate, an equal number of operating hours is ensured. Cascade operation of pumps connected in parallel meets demands in high-flow systems with low differential temperature (Δt), and 50 % backup is ensured at the same time.

The twin-head pump saves installation time and costs. By speed-controlling all pumps, you can obtain maximum energy saving as the pumps will run at their best efficiency point (BEP).

In a variable-flow system, we recommend that you control secondary pumps in $AUTO_{ADAPT}$ or proportional-pressure mode with a differential-pressure sensor in the flow pipe with the lowest pressure. This ensures maximum energy saving.

The built-in heat energy monitor allows monitoring of the heat energy consumption in the system.

Air handler cooling coils

The performance of cooling surfaces is controlled by the cooling-water temperature and flow. For this purpose, we recommend that you install variable-flow mixing loops at the cooling surfaces. A speed-controlled mixing-loop pump is ideal for adaptation to the varying load in a cooling surface. In this case, MAGNA3 will have full authority, making external pump throttling valves superfluous. The $FLOW_{LIMIT}$ ensures that the rated flow is never exceeded.

Heat recovery system

The heat recovery system is of paramount importance for the overall energy efficiency of an air-conditioning or cooling system. Due to high load and temperature variations in the system, it is important to use variable-speed pumps in a heat recovery system.

Cooling tower

Due to chiller load variations and changes in the temperature and moisture of the ambient air, the cooling-tower flow rate is continuously changing. In order to achieve maximum energy saving, cooling-tower pumps have to be able to adapt to these varying conditions. The pumps are controlled by a temperature setpoint which is measured at the condenser of the chiller. In this system, MAGNA3 will have full authority, making pump throttling valves superfluous. The $FLOW_{LIMIT}$ ensures that the rated flow is never exceeded.

Mixing loops

Due to the risk of condensation, the flow temperature through a cooling ceiling or floor must never be lower than the dew point temperature of the indoor air. The dew point temperature is varying due to variations in indoor moisture load and outdoor thermal conditions. The result is that the cooling-water setpoint has to be controlled. A mixing loop is ideal for obtaining the correct temperature in order to adapt to the varying setpoint.

Due to continuous cooling-load variations in the building cooling zones, the cooling performance in cooling ceilings and floors is controlled by motor valves via zone control units, and therefore you should always use a speed-controlled mixing-loop pump.

Solar-heating systems

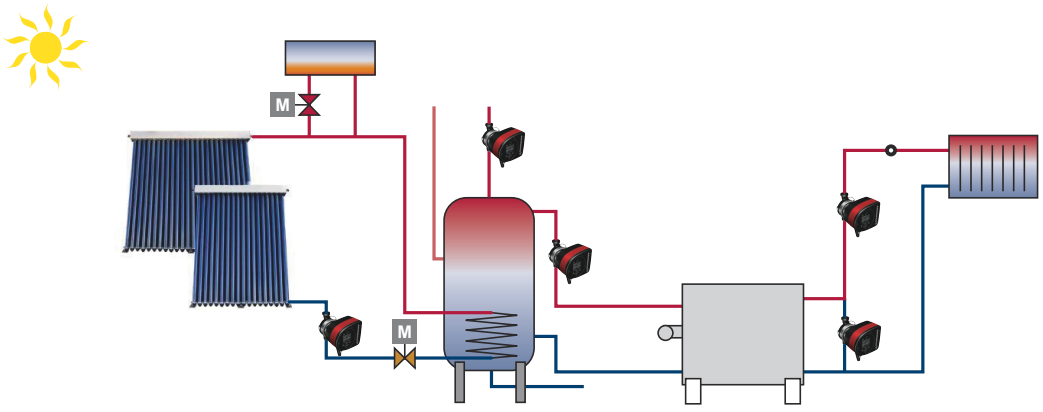


Fig. 11 Functional drawing of a solar-heating system

Main pumps

Solar-heating systems operate with very low flows compared to other heating systems, however, with relatively large pressure losses. With a conventional circulator pump, the flow must be controlled with a valve resulting in a significantly higher power consumption. To achieve major reductions in energy consumption, MAGNA3 is optimised with the $FLOW_{ADAPT}$ / $FLOW_{LIMIT}$ control mode for operation specifically under these conditions.

Ground source heat pump systems (GSHP)

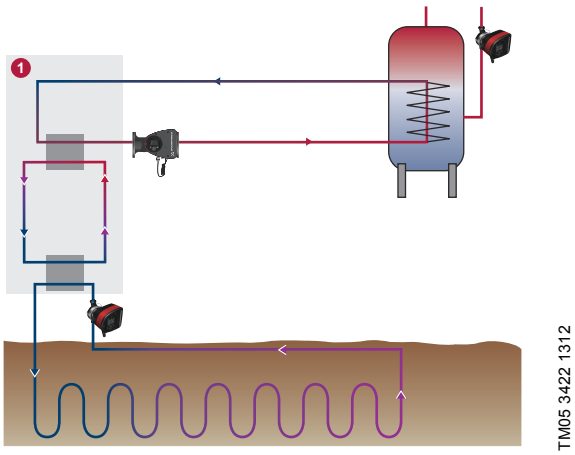


Fig. 12 Ground source heat pump system in a commercial building

Pos.	Description
1	Heat pump

Main pumps

MAGNA3 is optimised for operation as circulator pump in a closed-loop pipe system which is buried in the ground and filled with a mixture of water and antifreeze. MAGNA3 is therefore ideal for large ground source heat pump systems for commercial buildings.

MAGNA3 is designed for pumping liquids down to -10 °C. The pump can use all known antifreeze compositions.

It is important to note that all components are highly energy-efficient. No other circulator pump performs better in GSHP systems than MAGNA3 with the $FLOW_{ADAPT}$ control mode.

Use the benefit of the inputs/outputs of MAGNA3 to control the pump together with the heat pump.

Installation and commissioning

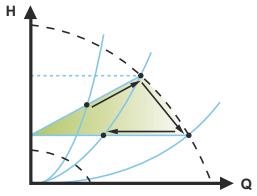
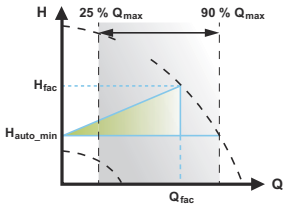
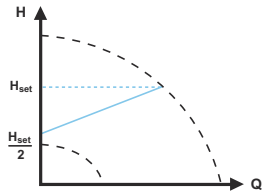
When installing MAGNA3, no external pressure sensor or motor protection is required. Installation is simple thanks to the built-in differential-pressure and temperature sensor, which enables proportional-pressure control without the installation of a sensor in the system.

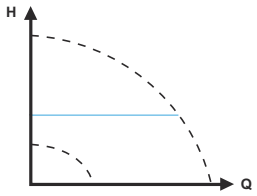
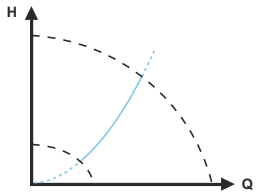
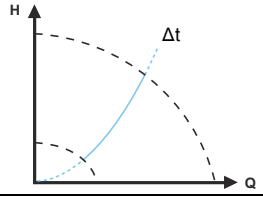
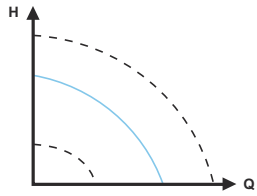
In systems where a differential pressure is desired at a certain point of the system, you must install an external pressure sensor. See section *Differential-pressure and temperature sensor* on page 34.

Pump selection is based on the required flow and calculated pressure losses. We recommend that you do not oversize the pump as it will lead to unnecessarily high energy consumption.

MAGNA3 features the $FLOW_{LIMIT}$ function. In circuits where MAGNA3 has full authority, the need for external pump throttling valves is reduced. The $FLOW_{LIMIT}$ ensures that the rated flow is never exceeded.

Selection of control mode

System application	Select this control mode
AUTO$_{ADAPT}$ Recommended for most heating systems, especially in systems with relatively large pressure losses in the distribution pipes. See description under proportional pressure. In replacement situations where the proportional-pressure duty point is unknown. The duty point has to be within the AUTO$_{ADAPT}$ operating range. During operation, the pump automatically makes the necessary adjustment to the actual system characteristic. This setting ensures minimum energy consumption and noise level from valves, which reduces operating costs and increases comfort.	AUTO$_{ADAPT}$ 
FLOW$_{ADAPT}$ The FLOW$_{ADAPT}$ control mode is a combination of AUTO$_{ADAPT}$ and FLOW$_{LIMIT}$. This control mode is suitable for systems where a maximum flow limit, FLOW$_{LIMIT}$, is desired. The pump continuously monitors and adjusts the flow, thus ensuring that the selected FLOW$_{LIMIT}$ is not exceeded. Main pumps in boiler applications where a steady flow through the boiler is required. No extra energy is used for pumping too much liquid into the system. In systems with mixing loops, you can use the control mode to control the flow in each loop. Benefits: • The dimensioned flow for each zone (required heat energy) is determined by the flow from the pump. This flow can be set precisely in the FLOW$_{ADAPT}$ control mode without the use of pump throttling valves. • When the flow is set lower than the balancing valve setting, the pump will ramp down instead of losing energy by pumping against a balancing valve. • Cooling surfaces in air-conditioning systems can operate at high pressure and low flow. • **Note:** The pump cannot reduce the flow on the inlet side, but is able to control that the flow on the outlet side is at least the same as on the inlet side. This is due to the fact that the pump has no built-in valve.	FLOW$_{ADAPT}$ 
Proportional pressure In systems with relatively large pressure losses in the distribution pipes and in air-conditioning and cooling systems: • Two-pipe heating systems with thermostatic valves and the following: – very long distribution pipes – strongly throttled pipe balancing valves – differential-pressure regulators – large pressure losses in those parts of the system where 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 the following: – heat exchangers (fan coils) – cooling ceilings – cooling surfaces.	Proportional pressure 

System application	Select this control mode
Constant pressure In systems with relatively small pressure losses in the distribution pipes: • Two-pipe heating systems with thermostatic valves: – dimensioned for natural circulation – small pressure losses in those parts of the system where the total quantity of water flows (for example boiler, heat exchanger and distribution pipe up to the first branching) – 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.	Constant pressure 
Constant temperature In heating systems with a fixed system characteristic, for example domestic hot-water systems, the control of the pump according to a constant return-pipe temperature may be relevant. You can use $FLOW_{LIMIT}$ with advantage to control the maximum circulation flow.	Constant temperature 
Differential temperature Select this control mode if the pump performance is to be controlled according to a differential temperature in the system where the pump is installed. This control mode requires two temperature sensors, the internal temperature sensor together with an external sensor.	Differential temperature 
Constant curve If an external controller is installed, the pump is able to change from one constant curve to another, depending on the value of the external signal. You can also set the pump to operate according to the maximum or minimum curve, like an uncontrolled pump: • You can use the maximum curve mode in periods where a maximum flow is required. This operating mode is for instance suitable for hot-water priority. • You can use the minimum curve mode in periods where a minimum flow is required. This operating mode is for instance suitable for manual night setback if automatic night setback is not desired.	Constant curve 
Multipump setup In systems with pumps operating in parallel. The multipump function enables the control of single-head pumps connected in parallel (two pumps) and twin-head pumps without the use of external controllers. The pumps in a multipump system communicate with each other via the wireless GENIair connection.	Assist menu Multi-pump setup

Functions

	Model A	Model B/C	Page
Operating modes			
Normal (control modes enabled)	●	●	18
Stop	●	●	18
Minimum curve	●	●	18
Maximum curve	●	●	18
Control modes			
$AUTO_{ADAPT}$ (factory setting)	●	●	18
$FLOW_{ADAPT}$	●	●	19
Proportional pressure	●	●	19
Constant pressure	●	●	19
Constant temperature	●	●	20
Differential temperature		●	20
Constant curve	●	●	20
Additional features for control modes			
$FLOW_{LIMIT}$	●	●	22
Automatic Night Setback	●	●	22
Additional operating modes for multipump setup			
Alternating operation	●	●	26
Backup operation	●	●	26
Cascade operation	●	●	26
Readings and settings on the pump			
Control panel and display	●	●	26
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Pump performance	●	●	27
Warning and alarm	●	●	27
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Pump information to BMS via CIM modules	●	●	30
Digital inputs	●	●	30
Relay outputs	●	●	30
Analog input	●	●	30
24 V DC output	●	●	29
Bus via GENIbus	●	●	31
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Bus via PROFIBUS DP	●	●	31
Bus via Modbus RTU	●	●	31
Bus via BACnet MS/TP	●	●	31
Grundfos Remote Management	●	●	31

Operating modes

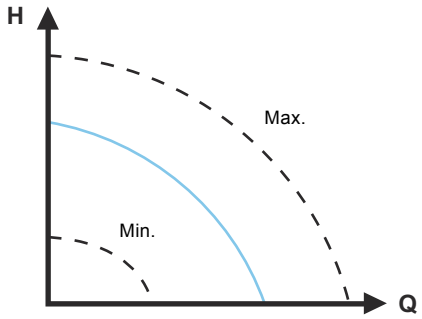


Fig. 13 Maximum and minimum curves

Normal: The pump runs according to the selected control mode.

Note: You can select the control mode and setpoint even if the pump is not running in Normal mode.

Stop: The pump stops.

Min.: You can use the minimum curve mode in periods in which a minimum flow is required.

This operating mode is for instance suitable for manual night setback if automatic night setback is not desired.

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

This operating mode is for instance suitable for hot-water priority.

You can select the normal, stop, min. and max. operating modes directly by use of the built-in digital inputs. See section *Connection to power supply, terminal-connected versions*, page 40.

Control modes

Factory setting

The pumps have been factory-set to AUTO$_{ADAPT}$ without automatic night setback.

The setpoint has been factory-set. See section *Setting values for control modes*, page 23.

The factory setting is suitable for most installations.

Note: When switched on via the power supply, the pump will start in AUTO$_{ADAPT}$ after approx. 5 seconds.

If the buttons on the control panel are not touched for 15 minutes, the display will go into sleep mode. When a button is touched, the Home display will appear.

AUTO$_{ADAPT}$

Recommended for most heating systems.

During operation, the pump automatically makes the necessary adjustment to the actual system characteristic.

This setting ensures minimum energy consumption and noise level from valves which reduces operating costs and increases comfort.

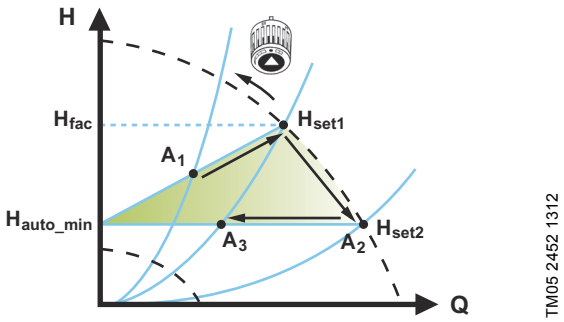


Fig. 14 AUTO$_{ADAPT}$ control

Note: Manual setting of the setpoint is not possible.

When you have enabled the AUTO$_{ADAPT}$ control mode, the pump will start with the factory setting, H_{fac} = H_{set1}, corresponding to approx. 55 % of its maximum head, and then adjust its performance to A_1. See fig. 14.

When the pump registers a lower head on the maximum curve, A_2, the AUTO$_{ADAPT}$ function automatically selects a correspondingly lower control curve, H_{set2}.

If the valves in the system close, the pump adjusts its performance to A_3.

A_1: Original duty point.
A_2: Lower registered head on the max. curve.
A_3: New duty point after AUTO$_{ADAPT}$ control.
H_{set1}: Original setpoint setting.
H_{set2}: New setpoint after AUTO$_{ADAPT}$ control.
H_{fac}: See page 23.
H_{auto_min}: A fixed value of 1.5 m.

The AUTO$_{ADAPT}$ control mode is a form of proportional-pressure control where the control curves have a fixed origin, H_{auto_min}.

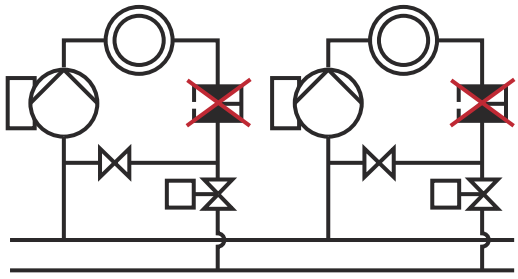
The AUTO$_{ADAPT}$ control mode has been developed specifically for heating systems and we do not recommend it for air-conditioning and cooling systems.

$FLOW_{ADAPT}$

The typical pump selection is based on the required flow and calculated pressure losses. The pump is typically oversized by 30 to 40 % to ensure that it can overcome the pressure losses in the system. Under these conditions, the full benefit of $AUTO_{ADAPT}$ cannot be obtained.

To adjust the maximum flow of this "oversized" pump, balancing valves are built into the circuit to increase the resistance and thus reduce the flow. The $FLOW_{ADAPT}$ function reduces the need for a pump throttling valve.

Note: This function cannot eliminate the need for balancing valves in heating systems.

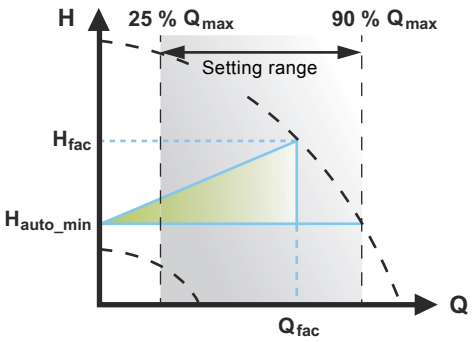


TM05 2685 1212

Fig. 15 Reduced need for a pump throttling valve

The $FLOW_{ADAPT}$ control mode combines a control mode and a function:

- The pump is running $AUTO_{ADAPT}$.
- The flow will never exceed a selected $FLOW_{LIMIT}$ value which reduces the need for a pump throttling valve connected in series with the pump.



TM05 3334 1312

Fig. 16 $FLOW_{ADAPT}$ control

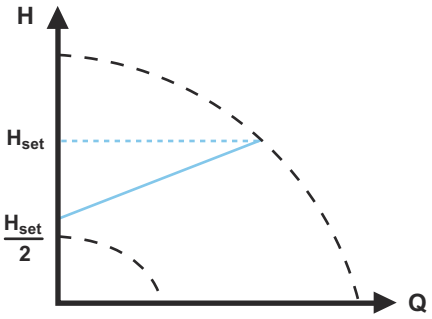
If you select $FLOW_{ADAPT}$, the pump will run $AUTO_{ADAPT}$ and ensure that the flow never exceeds the entered $FLOW_{LIMIT}$ value.

The factory setting of the $FLOW_{ADAPT}$ is the flow where the $AUTO_{ADAPT}$ factory setting meets the maximum curve. See fig. 16 and section *Selection of control mode*, page 15.

Proportional pressure

This control mode is used in systems with relatively large pressure losses in the distribution pipes. The head of the pump will increase proportionally to the flow in the system to compensate for the large pressure losses in the distribution pipes.

The head against a closed valve is half the setpoint H_{set}.



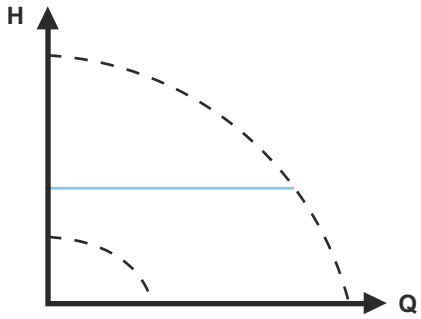
TM05 2448 1212

Fig. 17 Proportional-pressure control

Constant pressure

We recommend this control mode in systems with relatively small pressure losses.

The pump head is kept constant, independent of the flow in the system.



TM05 2449 0312

Fig. 18 Constant-pressure control

Differential temperature

The differential-temperature control mode is available from model B. The model version is stated on the nameplate. See fig. 19.

Fig. 19 Production code on nameplate

This control mode ensures a constant differential temperature drop across heating and cooling systems.

In this control mode, the pump will maintain a constant differential temperature between the pump and the external sensor. See figures 20 and 21.

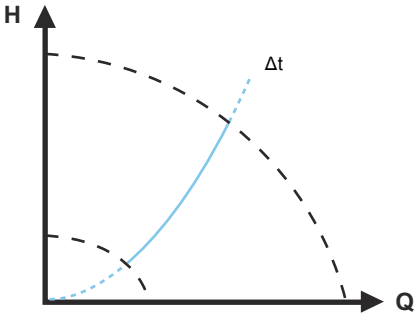


Fig. 20 Differential temperature

Temperature sensor

If the pump is installed in the flow pipe, you can use the internal temperature sensor. Install an external temperature sensor in the return pipe of the system. Install the sensor as close as possible to the consumer (radiator, heat exchanger, etc.). See fig. 21.

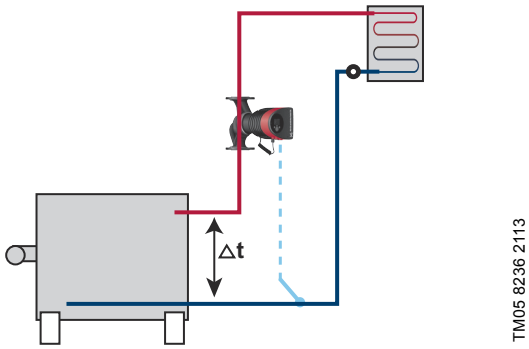


Fig. 21 Differential temperature

Constant temperature

In heating systems with a fixed system characteristic, for example domestic hot-water systems, the control of the pump according to a constant return-pipe temperature is relevant.

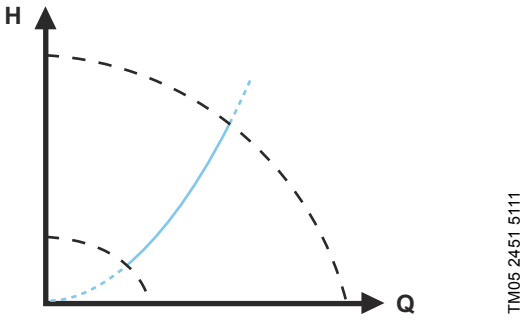


Fig. 22 Constant-temperature control

The inverse control for cooling application is available from model B.

Temperature sensor

If the pump is installed in the flow pipe, install an external temperature sensor in the return pipe of the system. See fig. 23. Install the sensor as close as possible to the consumer (radiator, heat exchanger, etc.).

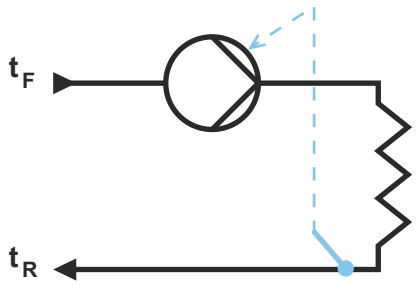


Fig. 23 Pump with external sensor

If the pump is installed in the return pipe of the system, you can use the internal temperature sensor. In this case, install the pump as close as possible to the consumer (radiator, heat exchanger, etc.).

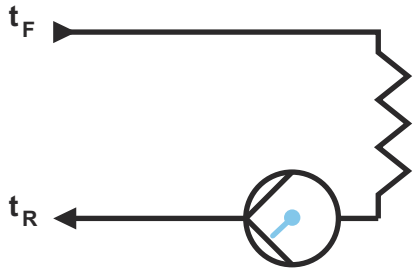


Fig. 24 Pump with internal sensor

Constant curve

The pump can be set to operate according to a constant curve, like an uncontrolled pump. See fig. 25.

You can set the desired speed in % of the maximum speed in the range from minimum to 100 %.

Depending on the pump model, you can set the desired speed in % of the maximum speed. The span of control depends on the minimum speed, power and pressure limitation of the pump.

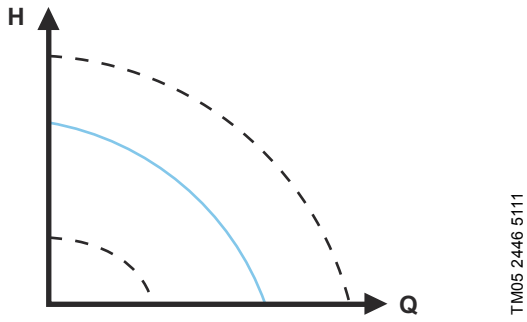


Fig. 25 Constant-curve duty

Note: If the pump speed is set in the range between minimum and maximum, the power and pressure are limited when the pump is running on the maximum curve. This means that the maximum performance can be achieved at a speed lower than 100 %. See fig. 26.

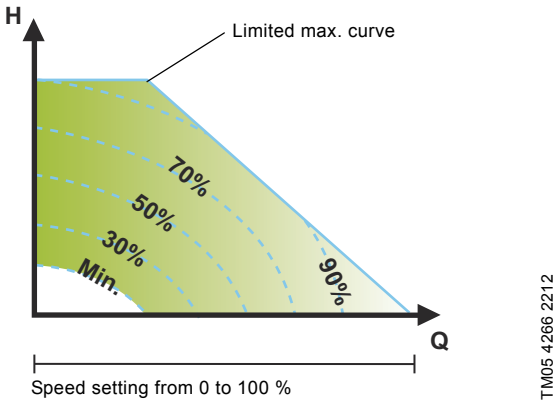


Fig. 26 Power and pressure limitations influencing the maximum curve

You can also set the pump to operate according to the maximum or minimum curve, like an uncontrolled pump:

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

You can select these two operating modes via the digital inputs.

In the control mode constant curve, you can obtain constant flow by choosing a setpoint at 100 % and choosing the desired value for the flow with the flow limit function $FLOW_{LIMIT}$. Take the accuracy of the flow estimation into consideration.

Additional features for control modes

MAGNA3 offers additional features for the control modes to meet specific demands.

FLOW$_{LIMIT}$

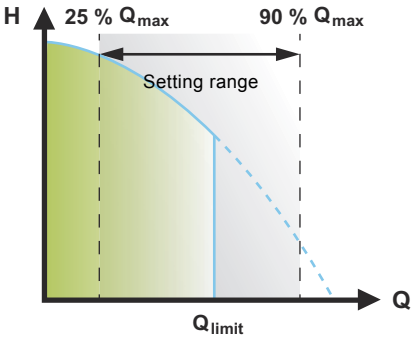


Fig. 27 FLOW$_{LIMIT}$

The setting range for the FLOW$_{LIMIT}$ is 25 to 90 % of the Q_{max} of the pump.

Note: Do not set the FLOW$_{LIMIT}$ lower than the dimensioned duty point.

The FLOW$_{LIMIT}$ function offers the possibility of limiting the maximum flow delivered by the pump.

You can enable the FLOW$_{LIMIT}$ function when the pump is in one of the following control modes:

- proportional pressure
- constant pressure
- constant temperature
- constant curve.

In the flow range between 0 and Q_{limit}, the pump will run according to the selected control mode.

When Q_{limit} is reached, the FLOW$_{LIMIT}$ function will reduce the pump speed to ensure that the flow never exceeds the FLOW$_{LIMIT}$ set, no matter if the system requires a higher flow due to a reduced resistance in the system. See fig. 28, 29 or 30.

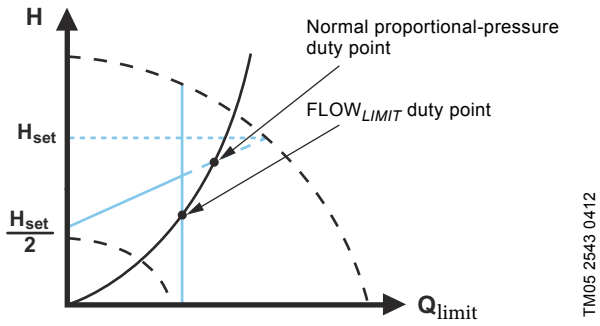


Fig. 28 Proportional-pressure control with FLOW$_{LIMIT}$

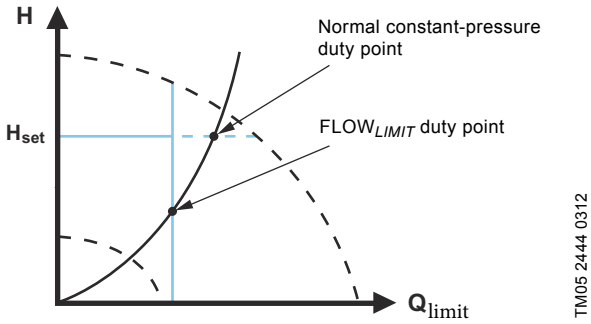


Fig. 29 Constant-pressure control with FLOW$_{LIMIT}$

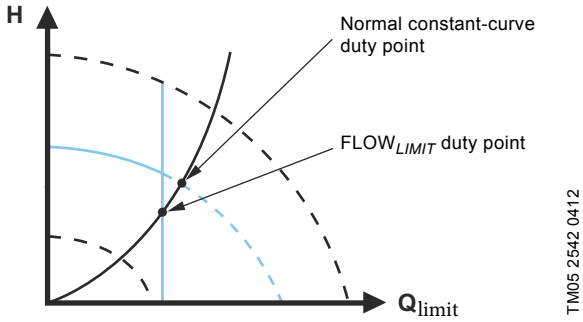


Fig. 30 Constant curve with FLOW$_{LIMIT}$

For additional information about FLOW$_{LIMIT}$, see MAGNA3 with FLOW$_{LIMIT}$ on Grundfos.com

Automatic night setback

Once you have enabled automatic night setback, the pump automatically changes between normal duty and night setback (duty at low demand).

When you have enabled automatic night setback, the pump will run on the minimum curve.

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

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

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

Note: You cannot enable automatic night setback when the pump is in constant-curve mode.

Setting values for control modes

The flow values for $FLOW_{ADAPT}$ and $FLOW_{LIMIT}$ are indicated as percent of Q_{max}, but the value has to be entered in m^3/h in the Settings menu.

Q_{max} is a theoretical value corresponding to H = 0. The actual Q_{max} is depending on the system characteristics.

Pump type	$AUTO_{ADAPT}$ H_{fac}	Q_{max}	$FLOW_{ADAPT}$ / $FLOW_{LIMIT}$	
			$Q_{fac\ limit}$	Q_{max} 90 %
	[m]	[m^3/h]	[m^3/h]	[m^3/h]
MAGNA3 25-40 (N)	2.5	8	3.7	7.2
MAGNA3 25-60 (N)	3.5	10	5.0	9.0
MAGNA3 25-80 (N)	4.5	11	5.5	9.9
MAGNA3 25-100 (N)	5.5	12	6.1	10.8
MAGNA3 25-120 (N)	6.5	13	6.2	11.7
MAGNA3 (D) 32-40 (F) (N)	2.5	9	5.0	8.1
MAGNA3 (D) 32-60 (F) (N)	3.5	11	5.9	9.9
MAGNA3 (D) 32-80 (F) (N)	4.5	12	6.4	10.8
MAGNA3 (D) 32-100 (F) (N)	5.5	13	6.7	11.7
MAGNA3 32-120 (N)	6.5	13	6.2	11.7
MAGNA3 (D) 32-120 F (N)	6.5	23	12.0	20.7
MAGNA3 (D) 40-40 F (N)	2.5	16	7.5	14.4
MAGNA3 (D) 40-60 F (N)	3.5	19	10.5	17.1
MAGNA3 (D) 40-80 F (N)	4.5	22	13.0	19.8
MAGNA3 (D) 40-100 F (N)	5.5	24	15.0	21.6
MAGNA3 (D) 40-120 F (N)	6.5	29	16.0	26.1
MAGNA3 (D) 40-150 F (N)	8.0	32	18.0	28.8
MAGNA3 (D) 40-180 F (N)	9.5	32	15.0	28.8
MAGNA3 (D) 50-40 F (N)	2.5	22	13.0	19.8
MAGNA3 (D) 50-60 F (N)	3.5	29	17.0	26.1
MAGNA3 (D) 50-80 F (N)	4.5	31	17.0	27.9
MAGNA3 (D) 50-100 F (N)	5.5	34	18.0	30.6
MAGNA3 (D) 50-120 F (N)	6.5	39	19.0	35.1
MAGNA3 (D) 50-150 F (N)	8.0	42	20.0	37.8
MAGNA3 (D) 50-180 F (N)	9.5	45	19.0	40.5
MAGNA3 (D) 65-40 F (N)	2.5	33	18.0	29.7
MAGNA3 (D) 65-60 F (N)	3.5	40	24.0	36
MAGNA3 (D) 65-80 F (N)	4.5	45	25.0	40.5
MAGNA3 (D) 65-100 F (N)	5.5	48	26.0	43.2
MAGNA3 (D) 65-120 F (N)	6.5	52	30.0	46.8
MAGNA3 (D) 65-150 F (N)	8.0	61	40.0	54.9
MAGNA3 (D) 80-40 F	2.5	49	32.0	44.1
MAGNA3 (D) 80-60 F	3.5	58	37.0	52.2
MAGNA3 (D) 80-80 F	4.5	66	40.0	59.4
MAGNA3 (D) 80-100 F	5.5	69	47.0	62.1
MAGNA3 (D) 80-120 F	6.5	74	48.0	66.6
MAGNA3 (D) 100-40 F	2.5	55	40.0	49.5
MAGNA3 (D) 100-60 F	3.5	63	43.0	56.7
MAGNA3 (D) 100-80 F	4.5	73	50.0	65.7
MAGNA3 (D) 100-100 F	5.5	79	52.0	71.1
MAGNA3 (D) 100-120 F	6.5	85	57.0	76.5

The duty ranges for proportional-pressure and constant-pressure control appear from the individual data sheet.

Constant curve duty: You can control the pump from minimum to 100 %. The span of control depends on the minimum speed, power and pressure limitation of the pump model.

Flow estimation accuracy

The internal sensor estimates the difference in pressure between the inlet and outlet port of the pump. The measurement is not a direct differential-pressure measurement, but by knowing the hydraulic design of the pump, you can estimate the differential pressure across the pump. The speed and power are also used to give a direct estimation of the current duty point in which the pump is running.

The calculated flow rate has an accuracy specified as ± xx % of Q_{max}. The less flow through the pump, the less accurate the reading will be. See also section *"Heat energy monitor"* on page 28.

Example:

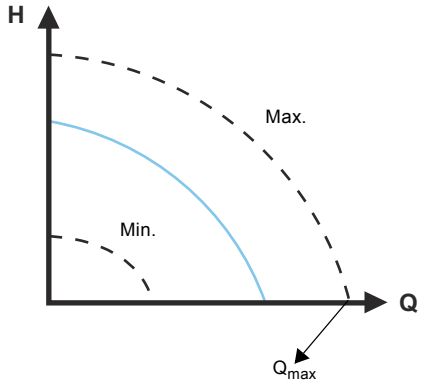


Fig. 31 Q_{max}

1. MAGNA3 65-60 has a Q_{max} of 40 m^3/h. Typical 5 % accuracy means 2 m^3/h inaccuracy of Q_{max}. ± 2 m^3/h.
2. This accuracy is valid for the entire QH area. If the pump indicates 10 m^3/h, the measurement is: 10 ± 2 m^3/h.
3. Flow can be from 8-12 m^3/h.

Note: Use of a water/ethylene glycol mixture will decrease the accuracy.

Pump heads in twin-head pumps

The twin-head pump housing has a flap valve on the outlet side. The flap valve seals off the port of the idle pump housing to prevent the pumped liquid from running back to the inlet side. See fig. 32. Due to the flap valve there is a difference in the hydraulic between the two heads. See fig. 33.

Fig. 32 Twin-head pump housing with flap valve

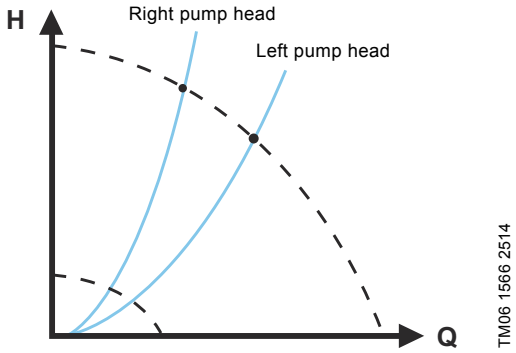


Fig. 33 Hydraulic difference between the two heads

The table below shows the flow accuracy of the complete MAGNA3 range. The calculations are based on a single pump at 5 % or 10 % of Q_{max}, or a twin pump with a right side pump head at 7 % or 12 % of Q_{max}.

Pump type	Q_{max}	Single pumps and left side pump head on twin-head pumps accuracy		Right side pump head on twin-head pumps accuracy	
		5 % typical	10 % worst case	7 % typical	12 % worst case
	[m^3/h]	[m^3/h]	[m^3/h]	[m^3/h]	[m^3/h]
MAGNA3 25-40 (N)	8	0.4	0.8	-	-
MAGNA3 25-60 (N)	10	0.5	1.0	-	-
MAGNA3 25-80 (N)	11	0.55	1.1	-	-
MAGNA3 25-100 (N)	12	0.6	1.2	-	-
MAGNA3 25-120 (N)	13	0.65	1.3	-	-
MAGNA3 (D) 32-40 (F) (N)	9	0.45	0.9	0.63	1.08
MAGNA3 (D) 32-60 (F) (N)	11	0.55	1.1	0.77	1.32
MAGNA3 (D) 32-80 (F) (N)	12	0.6	1.2	0.84	1.44
MAGNA3 (D) 32-100 (F) (N)	13	0.65	1.3	0.91	1.56
MAGNA3 32-120 (N)	13	0.65	1.3	-	-
MAGNA3 (D) 32-120 F (N)	23	1.15	2.3	1.61	2.76
MAGNA3 (D) 40-40 F (N)	16	1.3	1.6	1.12	1.92
MAGNA3 (D) 40-60 F (N)	19	1.45	1.9	1.33	2.28
MAGNA3 (D) 40-80 F (N)	22	1.1	2.2	1.54	2.64
MAGNA3 (D) 40-100 F (N)	24	1.2	2.4	1.68	2.88
MAGNA3 (D) 40-120 F (N)	29	1.45	2.9	2.03	3.48
MAGNA3 (D) 40-150 F (N)	32	1.6	3.2	2.24	3.84
MAGNA3 (D) 40-180 F (N)	32	1.6	3.2	2.24	3.84
MAGNA3 (D) 50-40 F (N)	22	1.1	2.2	1.54	2.64
MAGNA3 (D) 50-60 F (N)	29	1.45	2.9	2.03	3.48
MAGNA3 (D) 50-80 F (N)	31	1.55	3.1	2.17	3.72
MAGNA3 (D) 50-100 F (N)	34	1.7	3.4	2.38	4.08
MAGNA3 (D) 50-120 F (N)	39	1.95	3.9	2.73	4.68
MAGNA3 (D) 50-150 F (N)	42	2.1	4.2	2.94	5.04
MAGNA3 (D) 50-180 F (N)	45	2.25	4.5	3.15	5.40
MAGNA3 (D) 65-40 F (N)	33	1.65	3.3	2.31	3.96
MAGNA3 (D) 65-60 F (N)	40	2.0	4.0	2.80	4.80
MAGNA3 (D) 65-80 F (N)	45	2.25	4.5	3.15	5.40
MAGNA3 (D) 65-100 F (N)	48	4.4	4.8	3.36	5.76
MAGNA3 (D) 65-120 F (N)	52	2.6	5.2	3.64	6.24
MAGNA3 (D) 65-150 F (N)	61	3.05	6.1	4.27	7.32
MAGNA3 (D) 80-40 F	49	2.45	4.9	3.43	5.88
MAGNA3 (D) 80-60 F	58	2.9	5.8	4.06	6.96
MAGNA3 (D) 80-80 F	66	3.3	6.6	4.62	7.92
MAGNA3 (D) 80-100 F	69	3.45	6.9	4.83	8.28
MAGNA3 (D) 80-120 F	74	3.7	7.4	5.18	8.88
MAGNA3 (D) 100-40 F	55	2.75	5.5	3.85	6.60
MAGNA3 (D) 100-60 F	63	3.15	6.3	4.41	7.56
MAGNA3 (D) 100-80 F	73	3.65	7.3	5.11	8.76
MAGNA3 (D) 100-100 F	79	3.95	7.9	5.53	9.48
MAGNA3 (D) 100-120 F	85	4.25	8.5	5.95	10.20

Additional operating modes for multipump setup

Multipump function

The multipump function enables the control of single-head pumps connected in parallel and twin-head pumps without the use of external controllers. The pumps in a multipump system communicate with each other via the wireless GENIair connection.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel. The pumps must be of equal size and type. Each pump requires a non-return valve in series with the pump.

A multipump system is set up via a selected pump, i.e. the master pump (first selected pump). The multipump functions are described in the following sections.

Alternating operation

Only one pump is operating at a time. The change from one pump to the other depends on time or energy. If a pump fails, the other pump will take over automatically.

Backup operation

One pump is operating continuously. The backup pump is operated at intervals to prevent seizing up. If the duty pump stops due to a fault, the backup pump will start automatically.

Cascade operation

Cascade operation ensures that the pump performance is automatically adapted to the consumption by switching pumps on or off. The system thus runs as energy-efficiently as possible with a constant pressure and a limited number of pumps.

The slave pump will start when the master pump is running at maximum or has a fault, and it will stop again when the master pump is running below 50 %.

Cascade operation is available in constant speed and constant pressure. You can with advantage choose a twin-head pump, as the backup pump will start for a short period in peak-load situations. If you have chosen an oversized single-head pump, it may run outside its best efficiency range most of the time.

All pumps in operation will run at equal speed. Pump changeover is automatic and depends on speed, operating hours and faults.

Readings and settings on the pump

Control panel and display

The MAGNA3 pump features a 4" TFT display with intuitive and user-friendly interface. The control panel has self-explanatory push-buttons made of high-quality silicone for precise navigation in the menu structure. The control panel is designed to give the user quick and easy access to pump and performance data on site.

When you start up the pump for the first time, you are presented with a startup guide enabling easy setting of the pump. Additionally, the Assist menu can guide you through the various settings of the pump.

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Fig. 34 Control panel

Button	Function
	Goes to the Home menu.
	Returns to the previous action.
	Navigates between main menus, displays and digits. When the menu is changed, the display will always show the top display of the new menu.
	Navigates between submenus.
	Saves changed values, resets alarms and expands the value field.

Factory setting

The pumps have been factory-set to AUTO$_{ADAPT}$ without automatic night setback.

Startup guide

The startup guide is used for the general settings of the pump. The startup guide runs the first time you connect the pump to the power supply.

Note: If there has been no user action after pump startup, the pump will automatically leave the startup guide after 15 minutes with the language set to English.

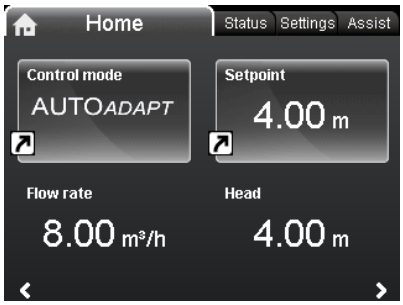
You can run the startup guide again in the Settings menu. If the startup guide is run again, all previous settings will be lost.

Home menu

This menu gives an overview of up to four user-defined parameters or a graphical illustration of a QH performance curve.

This menu offers the following factory settings:

- Shortcut to Control mode settings
- Shortcut to Setpoint settings
- Flow rate (estimated flow rate)
- Head.



Home

Fig. 35 Home menu

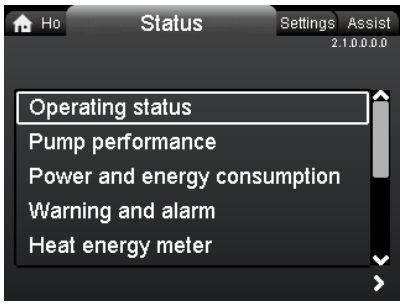
Status menu

This menu shows the status of the pump and system as well as warnings and alarms.

Note: No settings can be made in this menu.

This menu offers the following:

- Operating status
- Pump performance
- Power and energy consumption
- Warning and alarm
- Heat energy meter
- Operating log
- Fitted modules
- Date and time
- Pump identification
- Multi-pump system.



Status

Fig. 36 Status menu

Operating status

Operating status shows the current operating mode and the selected control mode, if any.

Pump performance

Pump performance offers the following:

- QH graph showing current duty point, flow, head, power and liquid temperature.
- "Resulting setpoint" shows the setpoint set on the pump, the external influence and the resulting setpoint.
- Liquid temperature.
- Speed.
- Operating hours.

Warning and alarm

Warning and alarm offers the following:

- Actual warning or alarm, if any.
- Information about when the warning/alarm occurred and disappeared and about corrective actions.
- Warning and alarm logs.

"Heat energy monitor"

"Heat energy monitor" is a monitoring function which makes it possible to track the heat energy distribution and consumption within a system. This prevents excessive energy costs caused by system imbalances.

The calculated flow rate has an accuracy specified as ± xx % of Q_{max}. The lower the flow through the pump is, the less accurate the reading will be. Furthermore, the temperature measurements needed for the calculation also have some inaccuracy depending on the sensor type. Therefore, you cannot use the heat energy value for billing purposes. However, the value is perfect for optimisation purposes in order to prevent excessive energy costs caused by system imbalances. See also section *Flow estimation accuracy* on page 24.

The pump requires a temperature sensor in the flow pipe or return pipe. This temperature sensor is not supplied with the pump.

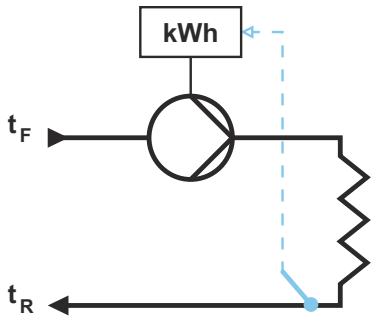


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Fig. 37 MAGNA3 with built-in heat energy monitor

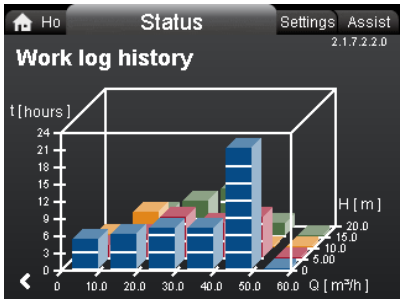
Note: MAGNA3 incorporates a calculator for flow and flow-pipe temperature.

For further details, see section *External Grundfos sensors*, page 132.

Operating log

Operating log offers the following:

- Every duty point and the operating conditions are tracked and stored in the pump.
- The 3D work log and duty curve (over time) provide instant overviews of historical pump performance and operating conditions.
- The perfect tool for pump optimisation, replacement and fault finding.



Operating log

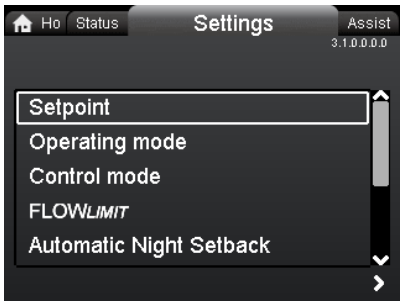
Fig. 38 Example of Operating log

Settings menu

This menu gives access to all setting parameters. You can make a detailed setting of the pump in this menu.

This menu offers the following setting options:

- Setpoint
- Operating mode
- Control mode
- $FLOW_{LIMIT}$
- Automatic Night Setback
- Relay outputs
- Setpoint influence
- Bus communication
- General settings.



Settings

Fig. 39 Settings menu

Assist menu

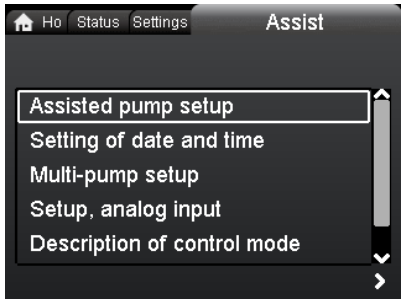
The Assist menu guides the user through the setup of the pump. In each sub-menu, the user is presented with a guide that assists throughout the setup.

This menu offers the following:

- Step-by-step instructions in how to set up the pump.
- A short description of the six control modes and recommended applications.
- Assistance in fault correction.

Submenus:

- Assisted pump setup
- Setting of date and time
- Multi-pump setup
- Setup, analog input
- Description of control mode
- Assisted fault advice.



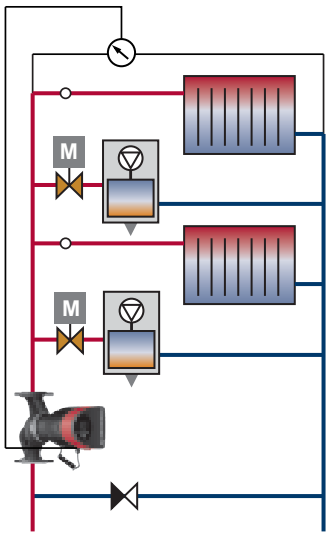
Assist

Fig. 40 Assist menu

Input for external sensor

You can use an external differential-pressure sensor to control the flow in the system to obtain the externally set pressure which results in the following benefits:

- Minimises operating costs.
- Prevents valve noise.
- Ensures comfort (enough pressure).



TM06 3255 5014

Fig. 41 External differential-pressure sensor

You can also install a temperature sensor.

For further details, see section *External Grundfos sensors*, page 132.

Grundfos Eye

Grundfos Eye at the top of the control panel is a pump status indicator light providing information about the pump operating status.

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

- power on/off
- pump warnings
- pump alarms
- remote control.
- pump running/stopped

The function of Grundfos Eye is described in detail in the installation and operating instructions.

With Grundfos GO you can monitor one or more pumps, change settings, collect data and make reports. A user-friendly interface provides you with all the information and help you need, as well as live pump data monitoring, and easy-to-follow tips and guides. See section *Grundfos GO* on page 30.

net.grundfos.com/qr/i/98091805

TM05 3810 1612

Fig. 42 Grundfos Eye

Communication

MAGNA3 enables communication via the following:

- wireless Grundfos GO
- fieldbus communication via CIM modules
- digital inputs
- relay outputs
- analog input.

Grundfos GO

TM05 3825 1712

Fig. 43 Grundfos GO

MAGNA3 is designed for wireless communication with Grundfos GO.

For more details, see section *Grundfos GO*, page 131.

Grundfos GO offers additional settings and status menus for the pump.

You can use Grundfos GO for the following functions:

- Reading of operating data.
- Reading of warning and alarm indications.
- Setting of control mode.
- Setting of setpoint.
- Selection of external setpoint signal.
- Allocation of pump number making it possible to distinguish between pumps that are connected via Grundfos GENIbus.
- Selection of function for digital input.
- Generation of reports (PDF).
- Assist function.
- Multipump setup.
- Displaying relevant documentation.

Wireless GENIair

The pump is designed for multipump connection via the wireless GENIair connection.

The built-in wireless GENIair module enables communication between pumps and with Grundfos GO without the use of add-on modules:

- Multipump function.
  See section *Multipump function*.
- Grundfos GO.
  See section *Grundfos GO*.

CIM modules

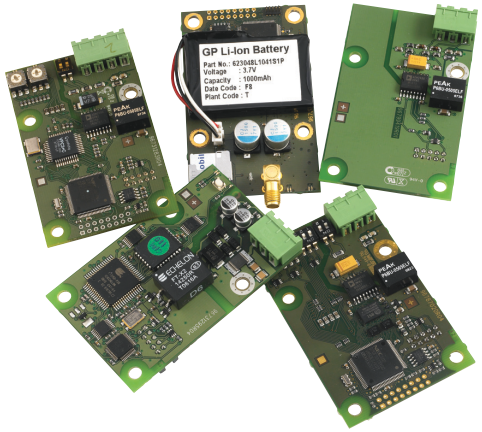


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Fig. 44 Grundfos CIM modules

A CIM module is an add-on Communication Interface Module. The CIM module enables data transmission between the pump and an external system, for example a BMS (Building Management System) or SCADA system.

The CIM module communicates via fieldbus protocols.

See section *Available CIM modules*, page 31.

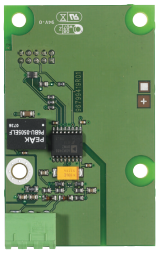
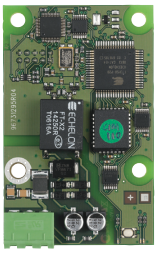
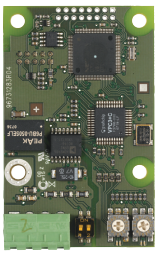
Grundfos Remote Management

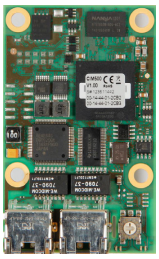
Grundfos Remote Management is an easy-to-install, low-cost solution for wireless monitoring and management of Grundfos products. GRM is based on a centrally hosted database and a web server with wireless data collection via GSM/GPRS modem. The system only requires an internet connection, a web browser, a GRM modem and an antenna as well as a contract with Grundfos allowing you to monitor and manage Grundfos pump systems.

You have wireless access to your account anywhere, anytime when you have an internet connection, for example via a smartphone, tablet PC, laptop or computer. Warnings and alarms can be sent by email or SMS to your mobile phone or computer.

For CIM communication interface module and GSM antennas, see section *Grundfos Remote Management*, page 130.

Available CIM modules

Module	Fieldbus protocol	Description	Functions
CIM 050  TM06 7238 3416	GENIbus	CIM 050 is a Grundfos communication interface module used for communication with a GENIbus network.	CIM 050 has terminals for the GENIbus connection.
CIM 100  TM06 7279 3416	LonWorks	CIM 100 is a Grundfos communication interface module used for communication with a LonWorks network.	CIM 100 has terminals for the LonWorks connection. Two LEDs are used to indicate the actual status of the CIM 100 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate LonWorks communication status.
CIM 150  TM06 7280 3416	PROFIBUS DP	CIM 150 is a Grundfos communication interface module used for communication with a PROFIBUS network.	CIM 150 has terminals for the PROFIBUS DP connection. DIP switches are used to set line termination. Two hexadecimal rotary switches are used to set the PROFIBUS DP address. Two LEDs are used to indicate the actual status of the CIM 150 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate PROFIBUS communication status.
CIM 200  TM06 7281 3416	Modbus RTU	CIM 200 is a Grundfos communication interface module used for communication with a Modbus RTU network.	CIM 200 has terminals for the Modbus connection. DIP switches are used to select parity and stop bits, to select transmission speed and to set line termination. Two hexadecimal rotary switches are used to set the Modbus address. Two LEDs are used to indicate the actual status of the CIM 200 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate Modbus communication status.
CIM 250  TM06 7282 3416	GSM/GPRS	CIM 250 is a Grundfos communication interface module used for GSM/GPRS communication. CIM 250 is used to communicate via a GSM network.	CIM 250 has a SIM-card slot and an SMA connection to the GSM antenna. CIM 250 also has an internal backup battery. Two LEDs are used to indicate the actual status of the CIM 250 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate GSM/GPRS communication status. **Note:** The SIM card is not supplied with CIM 250. The SIM card from the service provider must support data/fax service to use call service from PC Tool or SCADA. The SIM card from the service provider must support GPRS service to use Ethernet service from PC Tool or SCADA.
CIM 270  TM06 7282 3416	Grundfos Remote Management	CIM 270 is a Grundfos GSM/GPRS modem used for communication with a Grundfos Remote Management system. CIM 270 requires a GSM antenna, a SIM card and a contract with Grundfos.	With CIM 270 you have wireless access to your account anywhere, anytime when you have an internet connection, for example via a smartphone, tablet PC, laptop or computer. Warnings and alarms can be sent by e-mail or SMS to your mobile phone or computer. You will get a complete status overview of the entire GRM system. The status overview allows you to plan maintenance and service based on actual operating data.

Module	Fieldbus protocol	Description	Functions
CIM 300  TM06 7281 3416	BACnet MS/TP	CIM 300 is a Grundfos communication interface module used for communication with a BACnet MS/TP network.	CIM 300 has terminals for the BACnet MS/TP connection. DIP switches are used to set transmission speed and line termination and to select the custom Device Object Instance Number. Two hexadecimal rotary switches are used to set the BACnet address. Two LEDs are used to indicate the actual status of the CIM 300 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate BACnet communication status.
CIM 500  TM06 7283 3416	Ethernet	CIM 500 is a Grundfos communication interface module used for data transmission between an industrial Ethernet network and a Grundfos product. CIM 500 supports various industrial Ethernet protocols: • PROFINET • Modbus TCP • BACnet/IP • EtherNet/IP	CIM 500 supports various industrial Ethernet protocols. CIM 500 is configured via the built-in web server, using a standard web browser on a PC. See the specific functional profile on the DVD-ROM supplied with the Grundfos CIM module.

For product numbers, see section *CIM modules*, page 129.

4. Operating conditions

General recommendations

Water in heating systems	Water quality according to local standards such as the German standard VDI 2035
Domestic hot water	Degree of hardness up to 14 °dH
Water containing glycol	Maximum viscosity = 10-50 cSt ~ 50 % water / 50 % ethylene glycol at -10 °C

Liquid temperature

Application	Temperature range
General	-10 to 110 °C
Domestic hot-water systems	Up to 65 °C recommended

Ambient conditions

Ambient conditions	
Ambient temperature during operation	0 to 40 °C
Ambient temperature during storage and transport	-40 to 70 °C
Relative air humidity	Maximum 95 %

Maximum operating pressure

PN 6: 6 bar / 0.6 MPa

PN 10: 10 bar / 1.0 MPa

PN 16: 16 bar / 1.6 MPa.

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.

MAGNA3 DN	Liquid temperature		
	75 °C	95 °C	110 °C
	Inlet pressure [bar] / [MPa]		
25-40/60/80/100/100	0.10 / 0.01	0.35 / 0.035	1.0 / 0.10
32-40/60/80/100/120	0.10 / 0.01	0.35 / 0.035	1.0 / 0.10
32-120 F	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
40-40/60 F	0.10 / 0.01	0.35 / 0.035	1.0 / 0.10
40-80/100 F	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
40-120/150/180 F	0.10 / 0.01	0.40 / 0.04	1.0 / 0.10
50-40/60/80 F	0.10 / 0.01	0.10 / 0.01	0.7 / 0.07
50-100 F	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
50-120 F	0.10 / 0.01	0.40 / 0.04	1.0 / 0.10
50-150/180 F	0.20 / 0.02	0.60 / 0.06	1.2 / 0.12
65-40/60/80/100 F	0.20 / 0.02	0.60 / 0.06	1.2 / 0.12
65-120 F	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
65-150 F	0.40 / 0.04	0.80 / 0.08	1.2 / 0.12
80-40/60/80/100/120 F	0.50 / 0.05	0.90 / 0.09	1.5 / 0.15
100-40/60/80/100/120 F	0.50 / 0.05	0.90 / 0.09	1.5 / 0.15

In the case of cascade twin-head operation, increase the required relative inlet pressure by 0.1 bar / 0.01 MPa compared to the stated values for single-head pumps or twin-head pumps in single-head operation.

Note: The 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 300 metres above sea level. For altitudes above 300 metres, increase the required relative inlet pressure by 0.1 bar / 0.01 MPa per 100 metres altitude. The MAGNA3 pump is only approved for an altitude of 2000 metres.

Pumped liquids

The pump is suitable for thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres 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, for example the German standard VDI 2035.

In domestic hot-water systems, we recommend that you use MAGNA3 pumps only for water with a degree of hardness lower than approx. 14 °dH.

In domestic hot-water systems, we recommend that you keep the liquid temperature below 65 °C to eliminate the risk of lime precipitation.

You can use MAGNA3 pumps for pumping water/glycol mixtures up to 50 %.

Example of a water/ethylene glycol mixture:

Maximum viscosity: 10-50 cSt ~ 50 % water / 50 % ethylene glycol mixture at -10 °C.

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

The pumping of glycol mixtures will affect the maximum 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 minimise the operating time at high temperatures.

You must 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.

Differential-pressure and temperature sensor

MAGNA3 incorporates a Grundfos differential-pressure and temperature sensor. The sensor is located in the pump housing in a channel between the inlet and outlet ports.

Via a cable, the sensor sends an electrical signal for the differential pressure across the pump and for the liquid temperature to the controller in the control box.

If the Grundfos sensor is faulty, it will keep the last known feedback signal. The differential-pressure sensor and temperature sensor offer substantial benefits:

- direct feedback on the pump display
- complete pump control
- measurement of the pump workload for precise and optimum control resulting in higher energy efficiency.

Sensor specifications

Temperature

Temperature range during operation	Accuracy
-10 to +35 °C	± 4 °C
+35 to +90 °C	± 2 °C
+90 to +110 °C	± 4 °C

Electrical data

Pump type	MAGNA3 (D)
Enclosure class	IPX4D (EN 60529).
Insulation class	F.
Supply voltage	1 x 230 V ± 10 %, 50/60 Hz, PE.
Three digital inputs	External potential-free contact. Contact load: 5 V, 10 mA. Screened cable. Loop resistance: Maximum 130 Ω.
Analog input	4-20 mA (load: 150 Ω). 0-10 VDC (load: > 10 kΩ).
Two relay outputs	Internal potential-free changeover contact. Maximum load: 250 V, 2 A, AC1. Minimum load: 5 VDC, 20 mA. Screened cable, depending on signal level.
Bus input	Grundfos Communication Interface Modules (add-on CIM modules) for • GENIbus • LonWorks • PROFIBUS DP • Modbus RTU • GSM/GPRS • Grundfos Remote Management • BACnet MS/TP • Ethernet.
Leakage current	$I_{leakage}$ < 3.5 mA. The leakage currents are measured in accordance with EN 60335-1.
EMC	Standards used: EN 55014-1:2006+A1:2009+A2:2011, EN 55014-2:1997+A1:2001+A2:2008, EN 61000-3-2:2006+A1:2009+A2:2009 and EN 61000-3-3:2013.
Cos φ	Terminal-connected versions have a built-in active PFC (Power Factor Control) which gives a cos φ from 0.98 to 0.99, i.e. very close to 1. Plug-connected versions have no PFC and therefore the power factor is from 0.50 to 0.99.
Consumption when the pump is stopped	4 to 10 W, depending on activity, i.e. reading the display, use of Grundfos GO, interaction with modules, etc. 4 W, when the pump is stopped and there is no activity.

Sound pressure level

Pump type	MAGNA3 (D)
Sound pressure level	≤ 43 dB(A)

5. Construction

MAGNA3 is of the canned-rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricated by the pumped liquid.

The pump is characterised by the following:

- controller integrated in the control box
- control panel on the control box
- control box prepared for optional CIM modules
- built-in differential-pressure and temperature sensor
- cast-iron or stainless-steel pump housing
- twin-head versions
- no external motor protection required
- insulating shells supplied with single-head pumps for heating systems.

Motor and electronic controller

MAGNA3 incorporates a 4-pole synchronous, permanent-magnet motor (PM motor). This motor type is characterised by higher efficiency than a conventional asynchronous squirrel-cage motor.

The pump speed is controlled by an integrated frequency converter.

A differential-pressure and temperature sensor is incorporated in the pump.

Pump connections

Threaded pipe connections according to ISO 228-1.

Flange dimensions to EN 1092-2.

Colour

Colour codes for the pump:

Colour	Code
Red	NCS40-50R
Black	NCS9000

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 200 to 250 °C.

The pump housing of stainless-steel versions is not treated or painted and appears in blank steel. See fig. 45.

Fig. 45 MAGNA3 stainless steel version

Sectional drawings

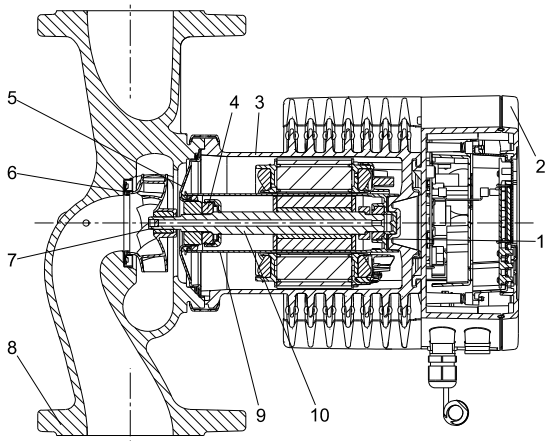


Fig. 46 Terminal-connected version

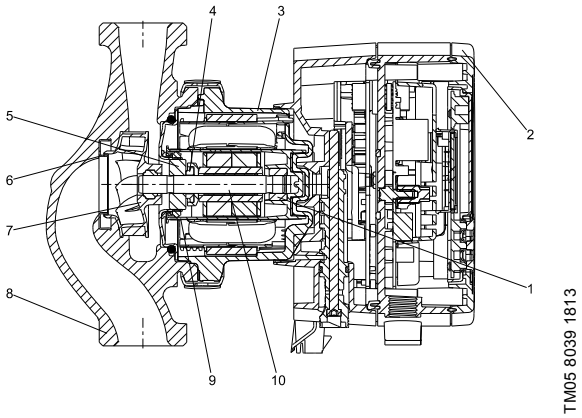


Fig. 47 Plug-connected version

Material specification

See figures 46 and 47.

Pos.	Component	Material	EN
1	Outer bearing ring	Aluminium oxide	
2	Control box	Polycarbonate	
3	Stator housing	Aluminium	
	O-rings	EPDM	
4	Thrust bearing	Aluminium oxide/carbon	
5	Bearing plate	Stainless steel	EN 1.4301
6	Neck ring	Stainless steel	EN 1.4301
7	Impeller	PES	
8	Pump housing	Cast iron/stainless steel	EN 1561 EN-GJL-250/EN 1.4408
9	Rotor can	PPS	
10	Shaft	Ceramic (plug-connected versions)	
10	Shaft	Stainless steel (terminal-connected versions)	EN 1.4404

Sensor drawing

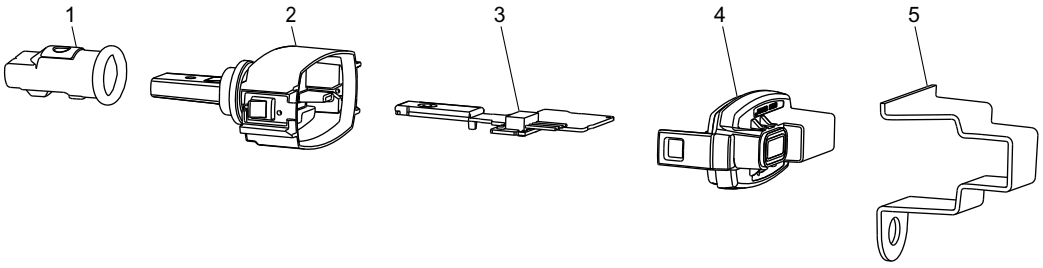


Fig. 48 Sensor

Pos.	Component	Material	EN
1	Sealing cap	EPDM	
2	Housing	PPS	
3	Printed-circuit board	-	
4	Cover snap-on	PA/TPV	
5	Bracket for sensor	Stainless steel	EN 1.4301

6. Installation

Mechanical installation

MAGNA3 is designed for indoor installation.

You must install the pump with horizontal motor shaft.

You can install the pump in horizontal as well as vertical pipes.

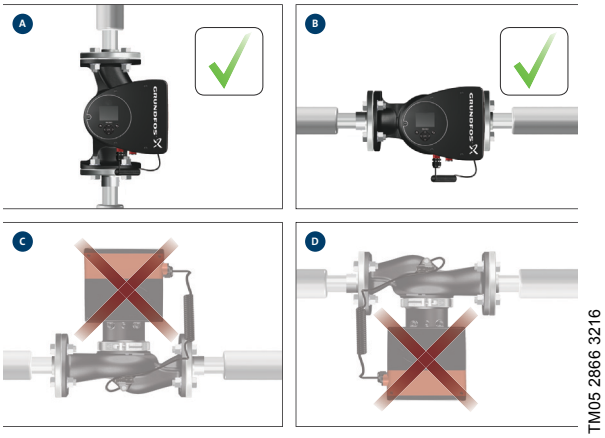


Fig. 49 Installation positions

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. 49.

This is described in the installation and operating instructions.

net.grundfos.com/qr/i/98091805

You must install the pump in such a way that it is not stressed by the pipework.

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

Twin-head pumps are prepared for installation on a mounting bracket or base plate.

To ensure adequate cooling of motor and electronics, observe the following:

- Position the pump in such a way that sufficient cooling is ensured.
- The temperature of the ambient air must not exceed 40 °C.

Insulating shells

The insulating shells supplied with single-head MAGNA3 pumps are for heating systems and must be fitted as part of the installation.

Insulating shells for air-conditioning and cooling systems are available as an accessory.

See section *Insulating kits for air-conditioning and cooling systems*, page 129.

Note: Insulating shells are not available for twin-head pumps.

Electrical installation

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

- The pump must be connected to an external mains switch.
- The pump must always be correctly earthed.
- 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 approx. 5 seconds.

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

The pump has a digital input that which you can use for external control of start/stop without switching the power supply on/off.

Make the pump mains connection as shown in the diagrams on the following pages.

Cables

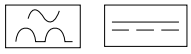
Use screened cables for external on/off switch, digital input, sensor and setpoint signals.

- All cables used must be heat-resistant up to at least 75 °C.
- All cables used must be installed in accordance with EN 60204-1 and EN 50174-2:2000.

Additional protection

If the pump is connected to an electric installation where an earth leakage circuit breaker (ELCB) is used as an additional protection, this circuit breaker must trip when earth fault currents with DC content (pulsating DC) occur.

The earth leakage circuit breaker must be marked with the first or both of the symbols shown below:



Symbol	Description
	High-sensitivity ELCB, type A, according to IEC 60775
	High-sensitivity ELCB, type B, according to IEC 60775

Examples of connections

Connection to power supply, plug-connected versions

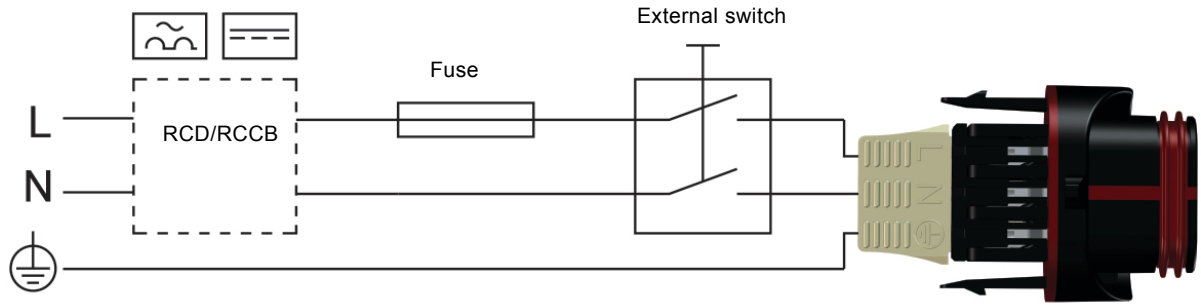


Fig. 50 Example of plug-connected motor with main switch, backup fuse and additional protection

Connection to external controllers

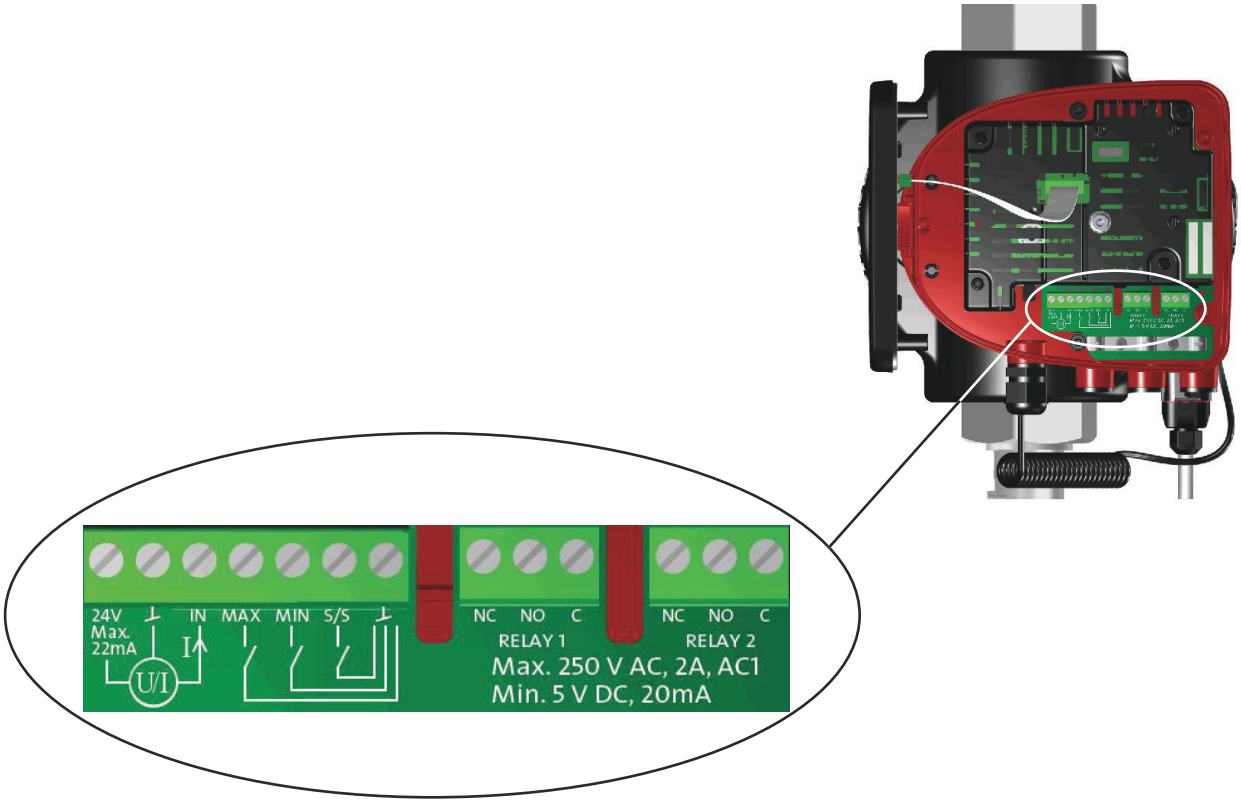


Fig. 51 Example of connections in the control box of plug-connected versions

The connection terminals of plug-connected versions (fig. 51) differ from those of terminal-connected versions (fig. 53), but they have the same function and connection options.

Connection to power supply, terminal-connected versions

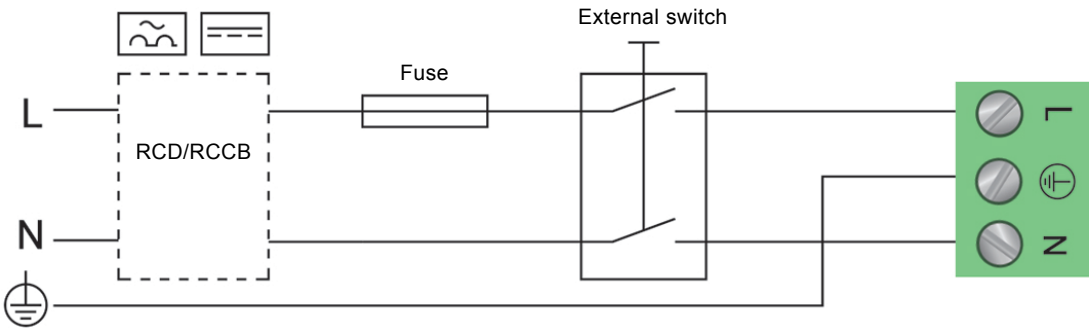


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Fig. 52 Example of terminal-connected motor with main switch, backup fuse and additional protection

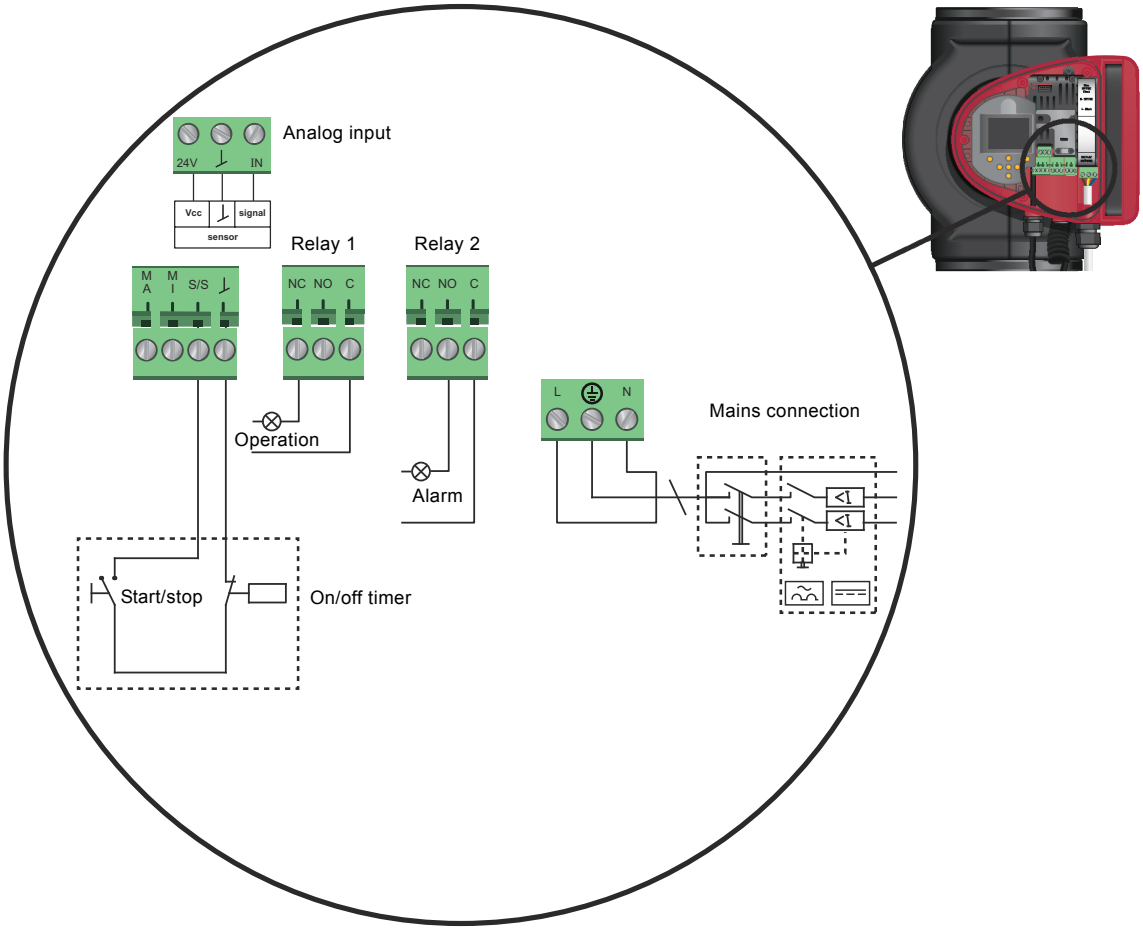

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Fig. 53 Example of connections in the control box of terminal-connected versions

Digital inputs

You can use the digital input for external control of start/stop or forced maximum or minimum curve.

Note: If no external on/off switch is connected, maintain the jumper between terminals Start/Stop (S/S) and frame (⊥). This connection is the factory setting.

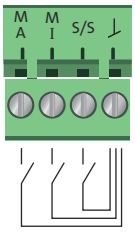

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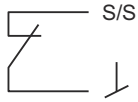
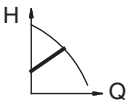
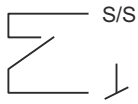
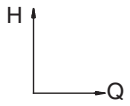
Fig. 54 Digital input in control box

Contact symbol	Function
M A	Maximum curve
M I	Minimum curve
S/S	Start/Stop
⊥	Frame connection

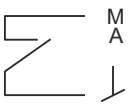
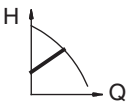
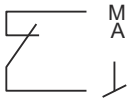
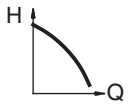
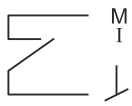
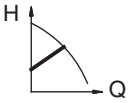
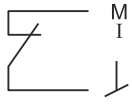
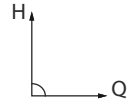
External start/stop

You can start and stop the pump via the digital input.

Start/Stop		
		Normal duty
		Stop

External forced maximum or minimum curve

You can force the pump to operate on the maximum or minimum curve via the digital input.

Maximum curve		
		Normal duty
		Maximum curve
Minimum curve		
		Normal duty
		Minimum curve

Relay outputs

The pump has two signal relays with a potential-free changeover contact for external fault indication.

You can set the function of the signal relay to Alarm, Ready or Operation on the pump control panel or with Grundfos GO.

Factory settings of relays:

Relay	Function
1	Operation signal
2	Alarm signal

Note: You can configure both relays to "ready, alarm or operating".

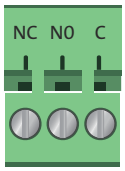


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Fig. 55 Relay output in control box

Contact symbol	Function
NC	Normally closed
NO	Normally open
C	Common

The functions of the signal relays are as shown in the table below:

Signal relay	Alarm signal
	Not activated: • The power supply has been switched off. • The pump has not registered a fault.
	Activated: • The pump has registered a fault.
Signal relay	**Ready signal**
	Not activated: • The pump has registered a fault and is unable to run.
	Activated: • The pump has been set to stop, but is ready to run. • The pump is running.
Signal relay	**Operating signal**
	Not activated: • The pump is not running.
	Activated: • The pump is running.

Analog input for external sensor

You can use the analog input for the connection of an external sensor for measuring temperature or pressure.

You can also use the analog input for an external signal for the control from a BMS system or similar control system.

The electrical signal for the input can be 0-10 VDC or 4-20 mA.

You can change the selection of the electrical signal (0-10 V or 4-20 mA) on the control panel or with Grundfos GO.

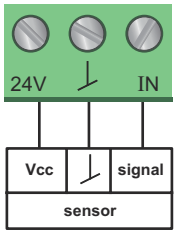

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Fig. 56 Analog input for external sensor or control

In order to optimise the pump performance, you can use external sensors in the following cases:

Function/control mode	Sensor type
Heat energy monitor	Temperature sensor
Constant temperature	
Constant pressure	Differential-pressure transmitter

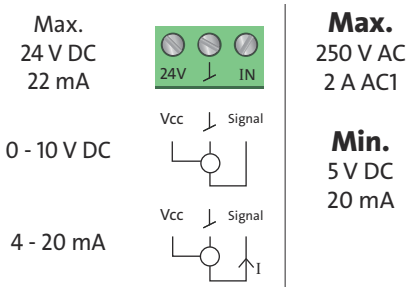

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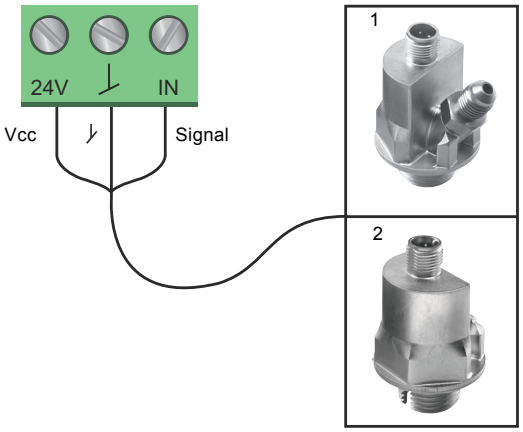
Fig. 57 Wiring, analog input



TM06 7237 3416

Fig. 58 Examples of external sensors

Pos.	Sensor type
1	Differential-pressure transmitter, Grundfos type DPI V.2 1/2" connection and 4-20 mA signal.
2	Relative-pressure transmitter. Combined temperature and pressure sensor, Grundfos type RPI T2. 1/2" connection and 0-10 V signal.

For further details, see section *External Grundfos sensors*, page 132.

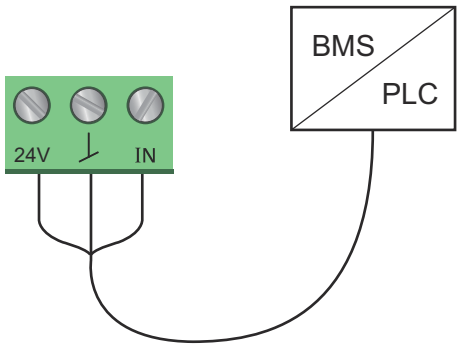


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Fig. 59 Example of external signal for the control via BMS or PLC

7. Curve conditions

Performance curves

The guidelines below apply to the performance curves on pages 45 to 128:

- 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. If a specific minimum performance is required, individual measurements must be made.
- The curves apply to a kinematic viscosity of υ = 0.474 mm^2/s (0.474 cSt).
- Reference supply voltage: 1 x 230 V, 50 Hz.
- EEI obtained according to EN 16297.

Note: Within the MAGNA3 performance range, you can set the constant- and proportional-pressure curves in steps of 0.1 m head on the control panel or with Grundfos GO.

Energy efficiency index (EEI)

MAGNA3 is energy-optimised and complies with the EuP Directive (Commission Regulation (EC) No 641/2009) which has been effective as from 1 January 2013.

For MAGNA3 pumps, the average energy efficiency index (EEI) is 0.18 with values down to 0.17, categorised as best in class.

MAGNA3 with its AUTO$_{ADAPT}$ function is the preferred choice for large heating systems and a true efficiency frontrunner.

Figure 60 shows the energy consumption index for a typical circulator pump compared to the various EEI limits.

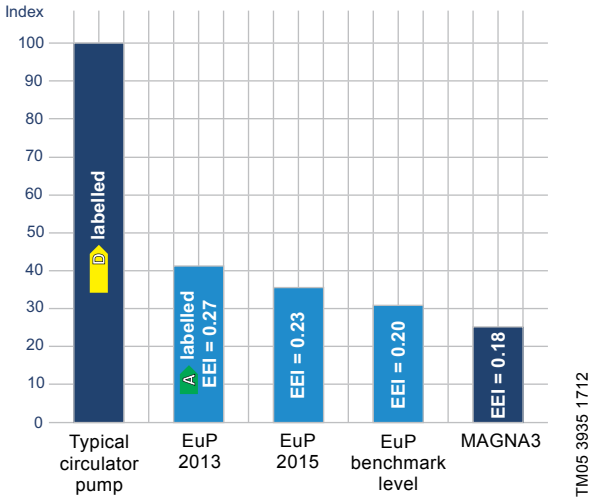


Fig. 60 Energy consumption index

With an energy efficiency index (EEI) well below the EuP benchmark level, you can achieve energy savings of up to 75 % compared to a typical circulator pump and thus a remarkably fast return on investment. For more information about the new energy directive, please visit:

http://energy.Grundfos.com

TM05 2683 0412

Fig. 61 Grundfos blueflux®

The Grundfos blueflux® label is your guarantee that MAGNA3 incorporates the most energy-efficient motor currently available. Grundfos blueflux® motors are designed to cut the power consumption by up to 60 % and thus reduce CO_2 emissions and operating costs.

QR code on pump nameplate

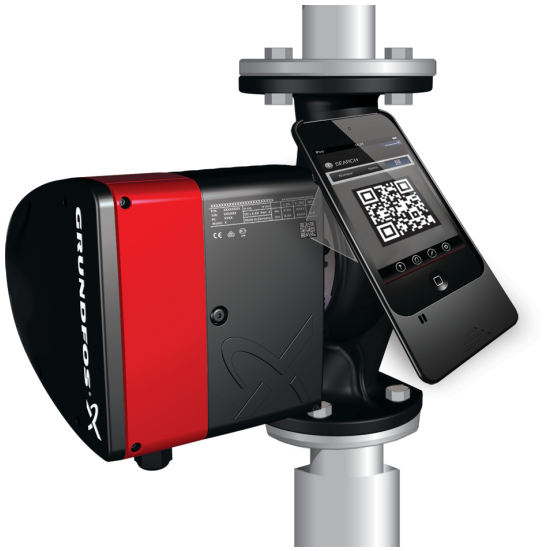


Fig. 62 QR code on pump nameplate

With Grundfos GO or a smartphone, you get the following information about MAGNA3:

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

Markings and approvals

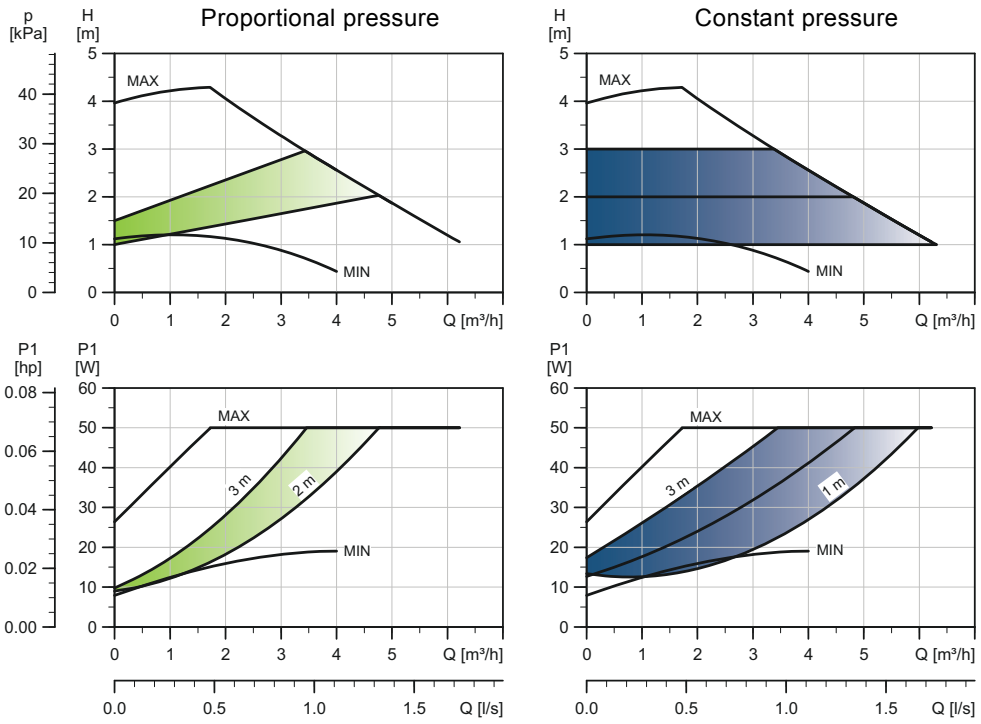
The following marks are available after positive testing of MAGNA3:

Mark	Description
CE	The CE marking is based on the declaration of conformity issued by the manufacturer who certifies that the product meets all the appropriate provisions of the relevant legislation implementing certain European Directives.
VDE GS	Technical working equipment and commodities ready for use, in the sense of ProdSG according to German VDE/EN/IEC standards, other technical specifications as well as possible provisions of law with respect to safety and health requirements.
EAC	Mark of Conformity in the Russia, Kazakhstan and Belarus Customs Union for imports of Machinery and Industrial Equipment
WRAS APPROVED PRODUCT	The product complies with the requirements of the United Kingdom Water Supply (Water Fittings) Regulations/Scottish Water Byelaws. Applies to the stainless-steel version only.
TSE	The Turkish Standards Institute (TSE) certified that this product complies with the relevant directives and standards.
ACS	ACS - Attestation de Conformité Sanitaire. The suitability of this product to come into contact with water destined for human consumption has been evaluated and approved by a laboratory accredited by the French Ministry of Health.

8. Performance curves and technical data

MAGNA3 25-40 (N)

1 x 230 V, 50/60 Hz



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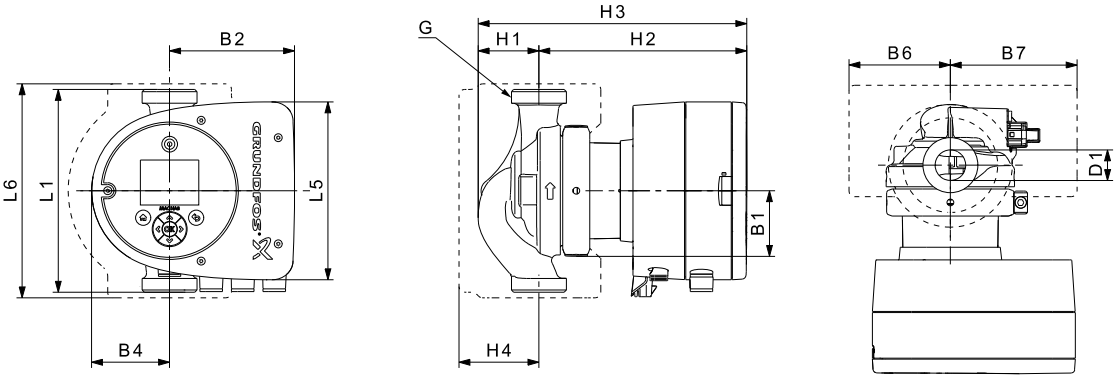
Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	56	0.46

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



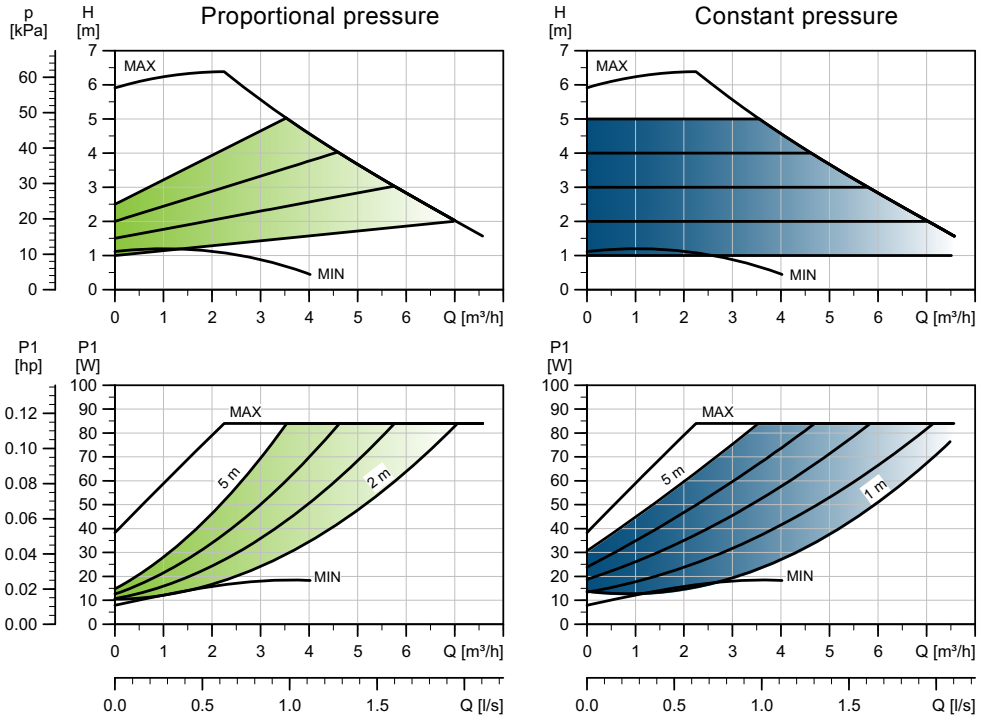
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 25-40 (N)	180	158	190	58	111	69	90	113	54	185	239	71	25	1 1/2

For product numbers, see page 139.

MAGNA3 25-60 (N)

1 x 230 V, 50/60 Hz



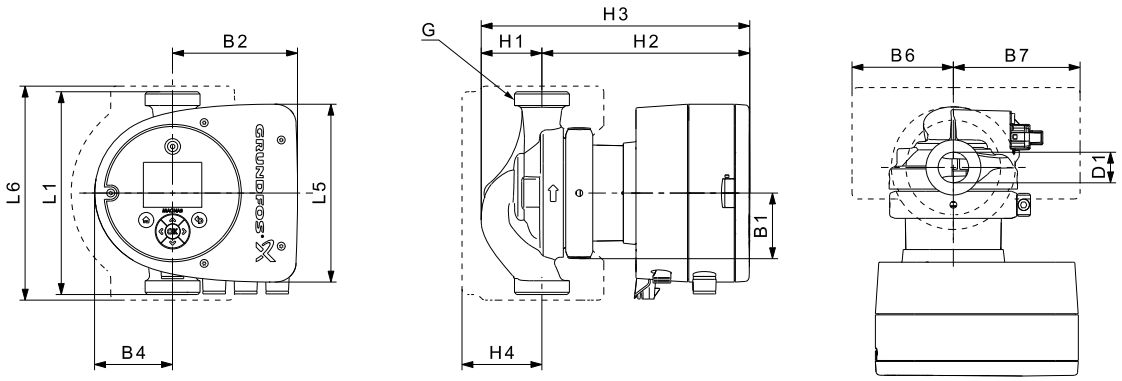
TM05 7666 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	91	0.75

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



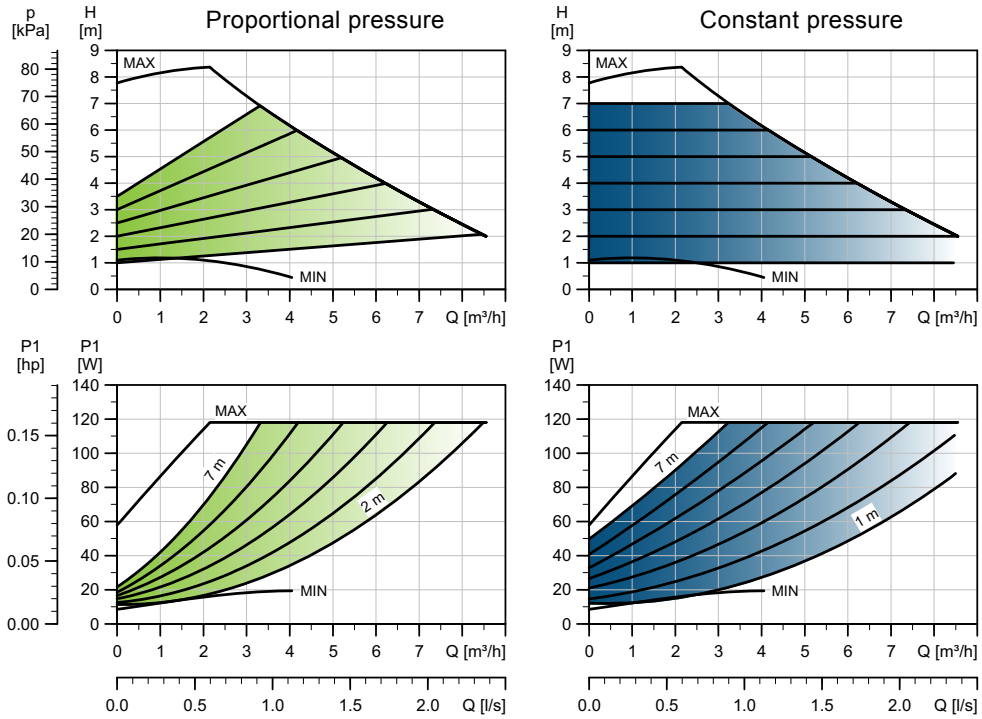
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 25-60 (N)	180	158	190	58	111	69	90	113	54	185	239	71	25	1 1/2

For product numbers, see page 139.

MAGNA3 25-80 (N)

1 x 230 V, 50/60 Hz



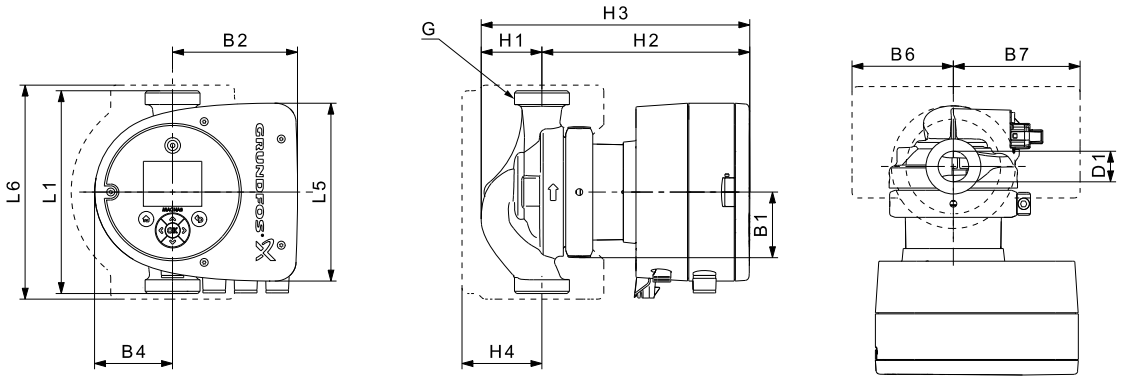
TM05 7667 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	124	1.02

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



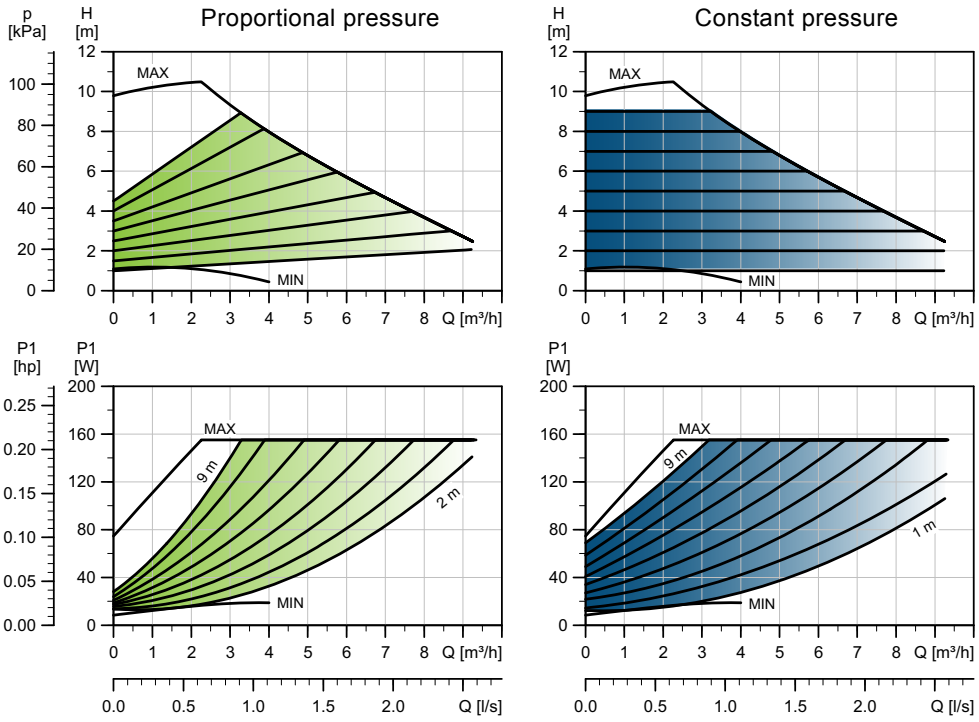
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 25-80 (N)	180	158	190	58	111	69	90	113	54	185	239	71	25	1 1/2

For product numbers, see page 139.

MAGNA3 25-100 (N)

1 x 230 V, 50/60 Hz



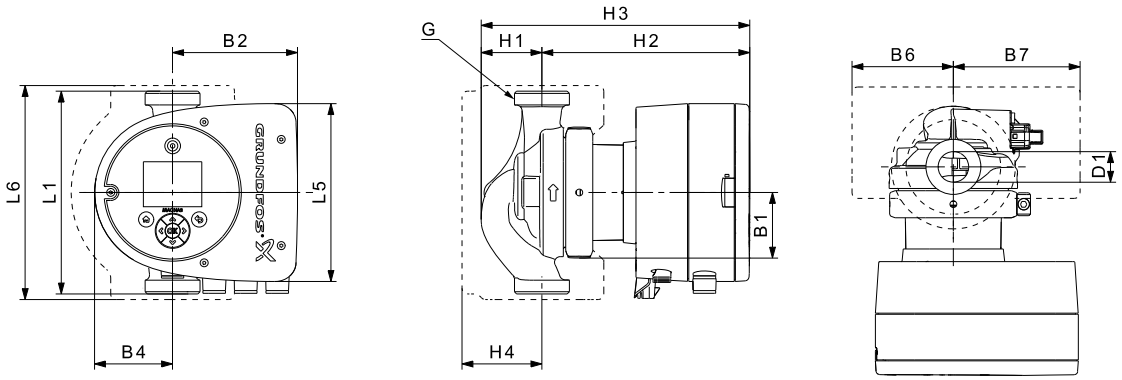
TM05 7668 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	163	1.33

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



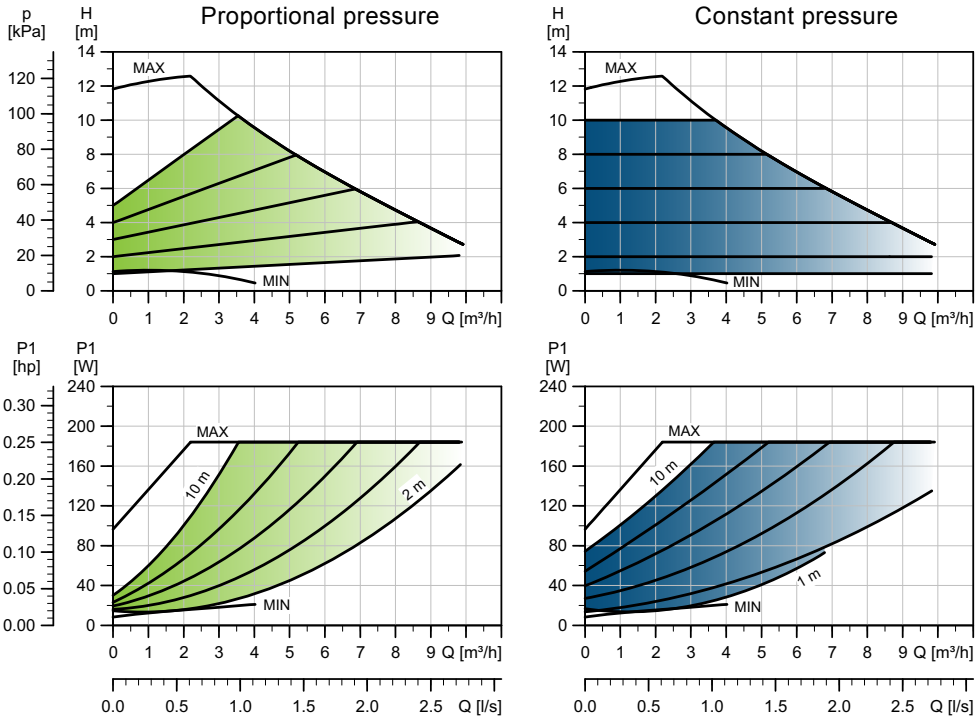
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 25-100 (N)	180	158	190	58	111	69	90	113	54	185	239	71	25	1 1/2

For product numbers, see page 139.

MAGNA3 25-120 (N)

1 x 230 V, 50/60 Hz



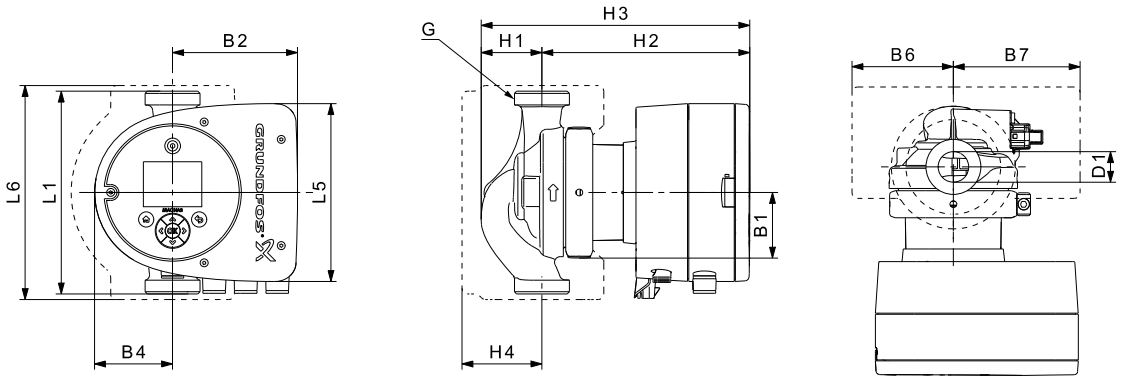
TM05 7669 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	193	1.56

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



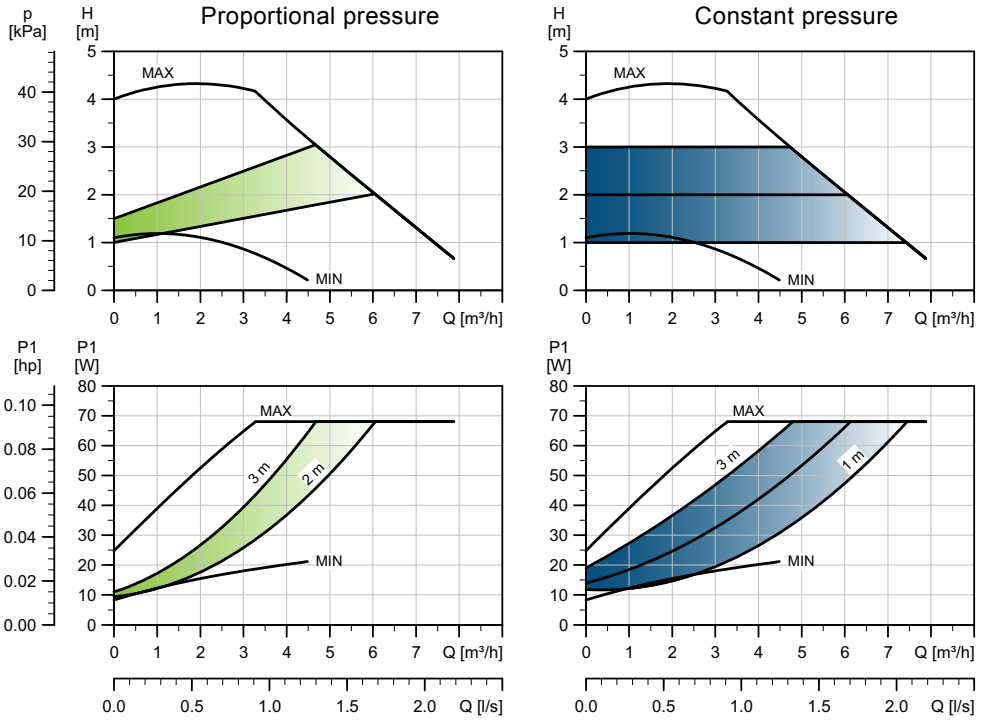
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 25-120 (N)	180	158	190	58	111	69	90	113	54	185	239	71	25	1 1/2

For product numbers, see page 139.

MAGNA3 32-40 (N)

1 x 230 V, 50/60 Hz



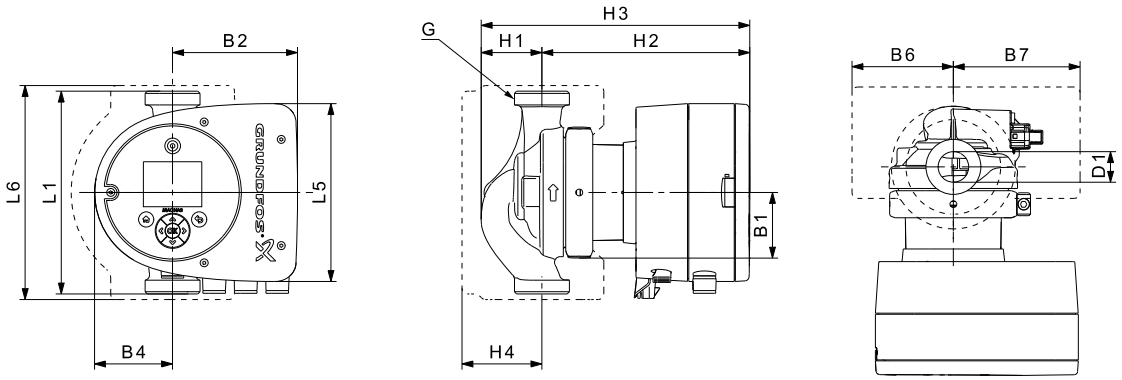
TM05 7670 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	74	0.61

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



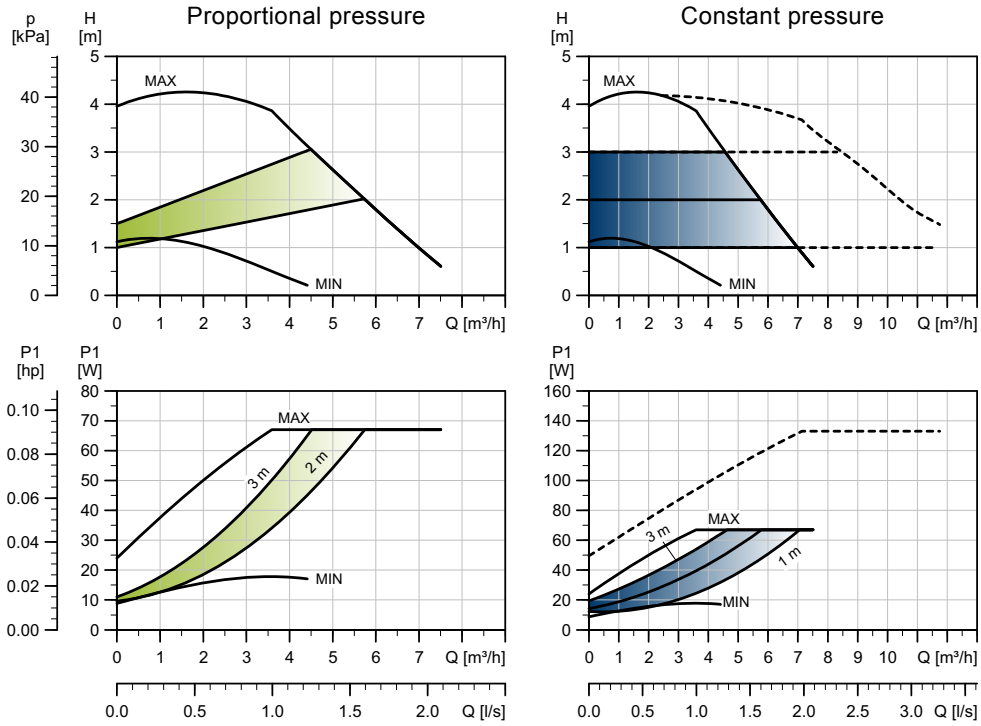
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 32-40 (N)	180	158	190	58	111	69	90	113	54	185	239	71	32	2

For product numbers, see page 139.

MAGNA3 D 32-40

1 x 230 V, 50/60 Hz



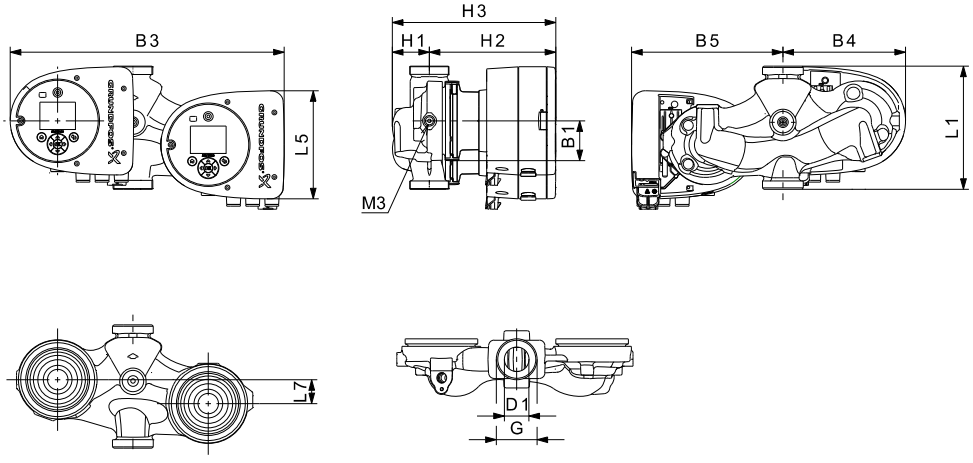
TM05 8325 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	74	0.61

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
13.2	14.0	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.20.



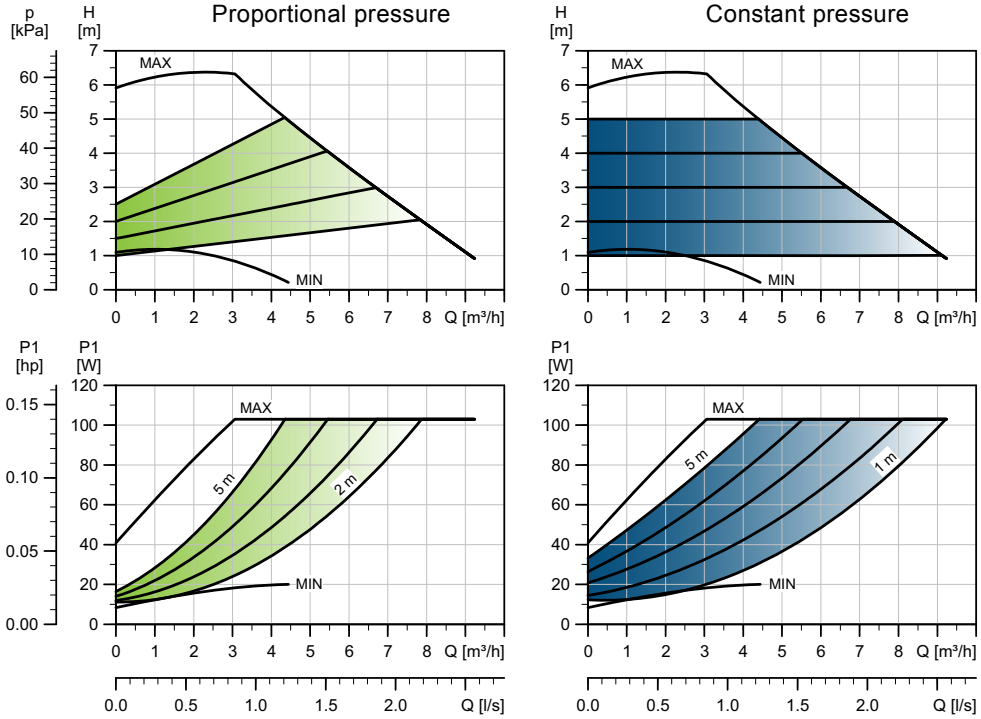
TM05 7939 1613

Pump type	Dimensions [mm]											[inch]	
	L1	L5	L7	B1	B3	B4	B5	H1	H2	H3	D1	G	M3
MAGNA3 D 32-40	180	158	35	58	400	179	221	54	185	239	32	2	1/4

For product numbers, see page 139.

MAGNA3 32-60 (N)

1 x 230 V, 50/60 Hz



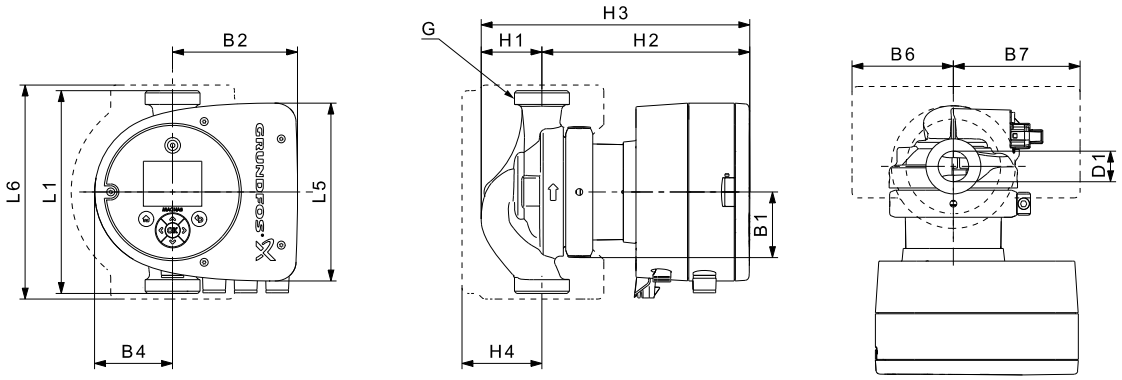
TM05 7671 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	110	0.91

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



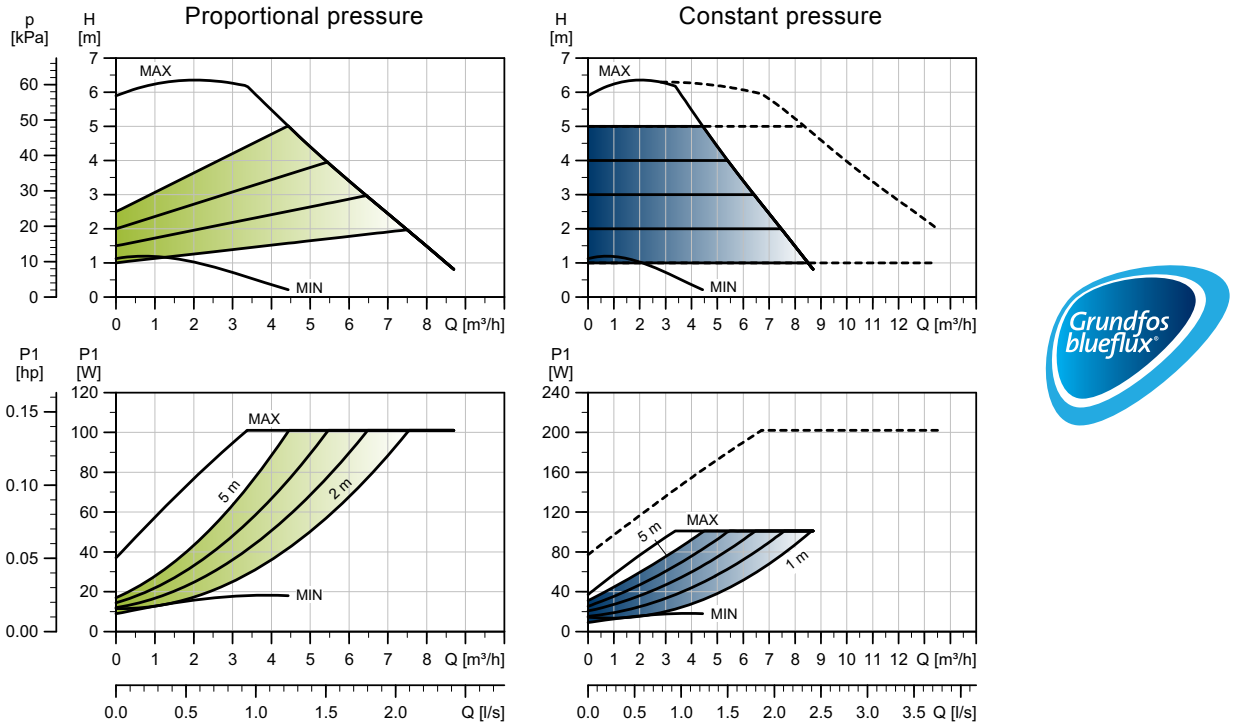
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 32-60 (N)	180	158	190	58	111	69	90	113	54	185	239	71	32	2

For product numbers, see page 139.

MAGNA3 D 32-60

1 x 230 V, 50/60 Hz



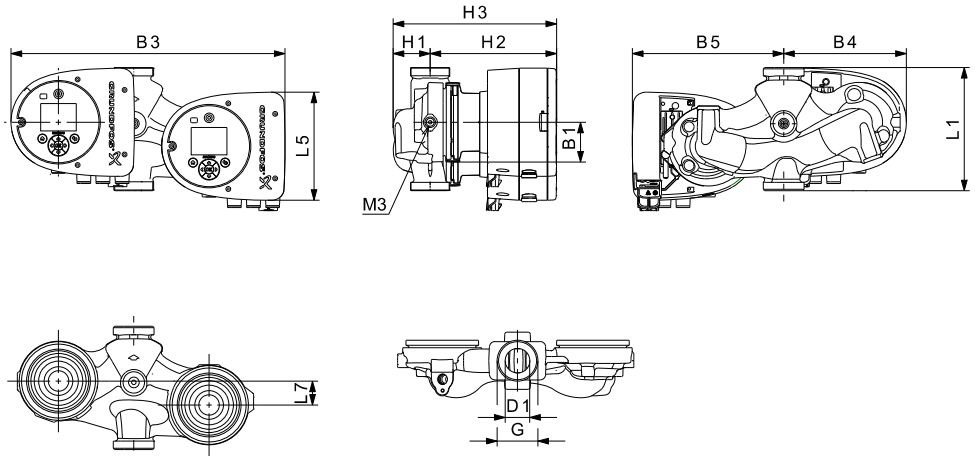
TM05 8326 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	110	0-91

The pump incorporates overload protection.

Connections:	See *Pipe connections*, page 134.
System pressure:	Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature:	-10 to 110 °C (TF 110).
Specific EEI:	0.20.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
13.2	14.0	0.04



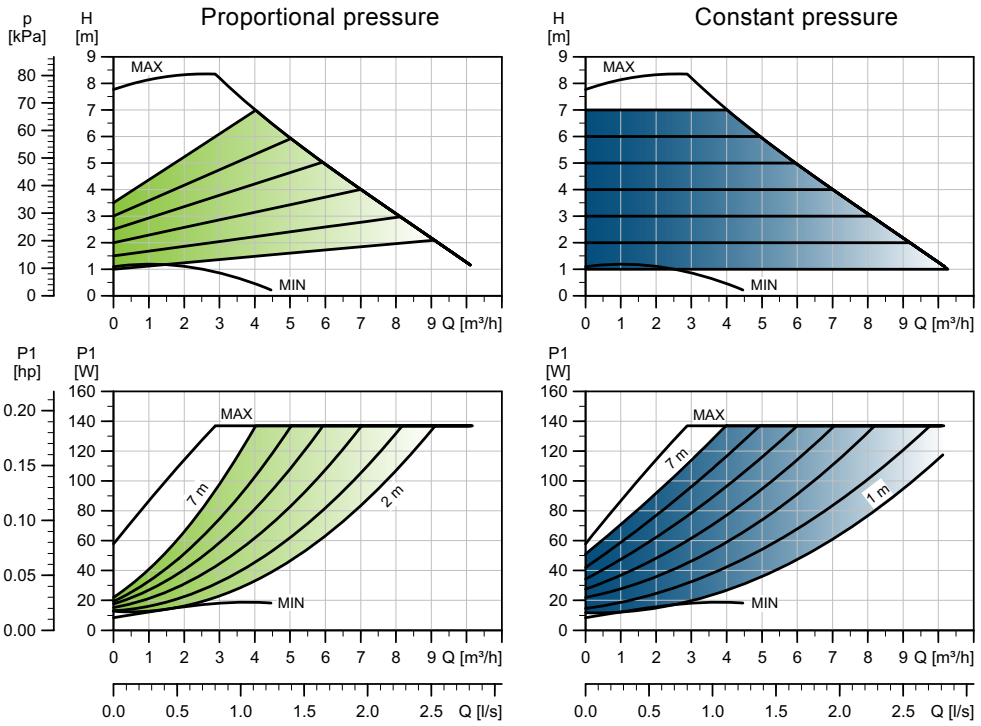
TM05 7939 1613

Pump type	Dimensions [mm]											[inch]	
	L1	L5	L7	B1	B3	B4	B5	H1	H2	H3	D1	G	M3
MAGNA3 D 32-60	180	158	35	58	400	179	221	54	185	239	32	2	1/4

For product numbers, see page 139.

MAGNA3 32-80 (N)

1 x 230 V, 50/60 Hz



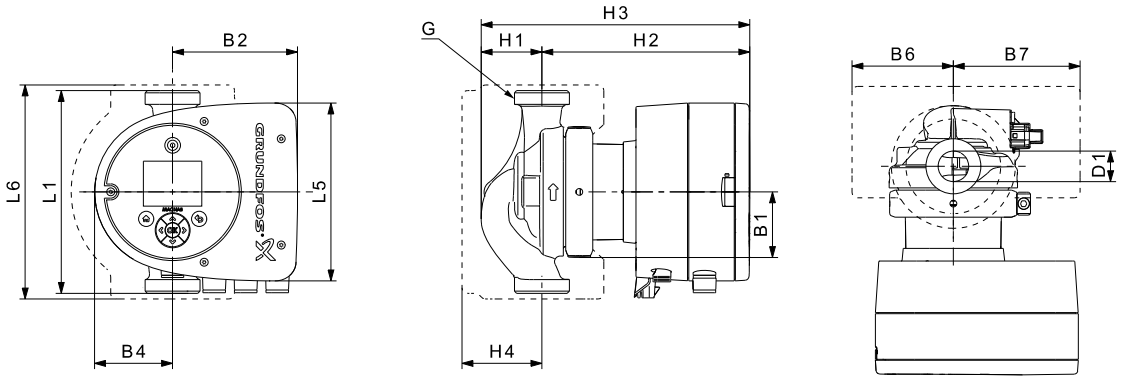
TM05 7672 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	144	1.19

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



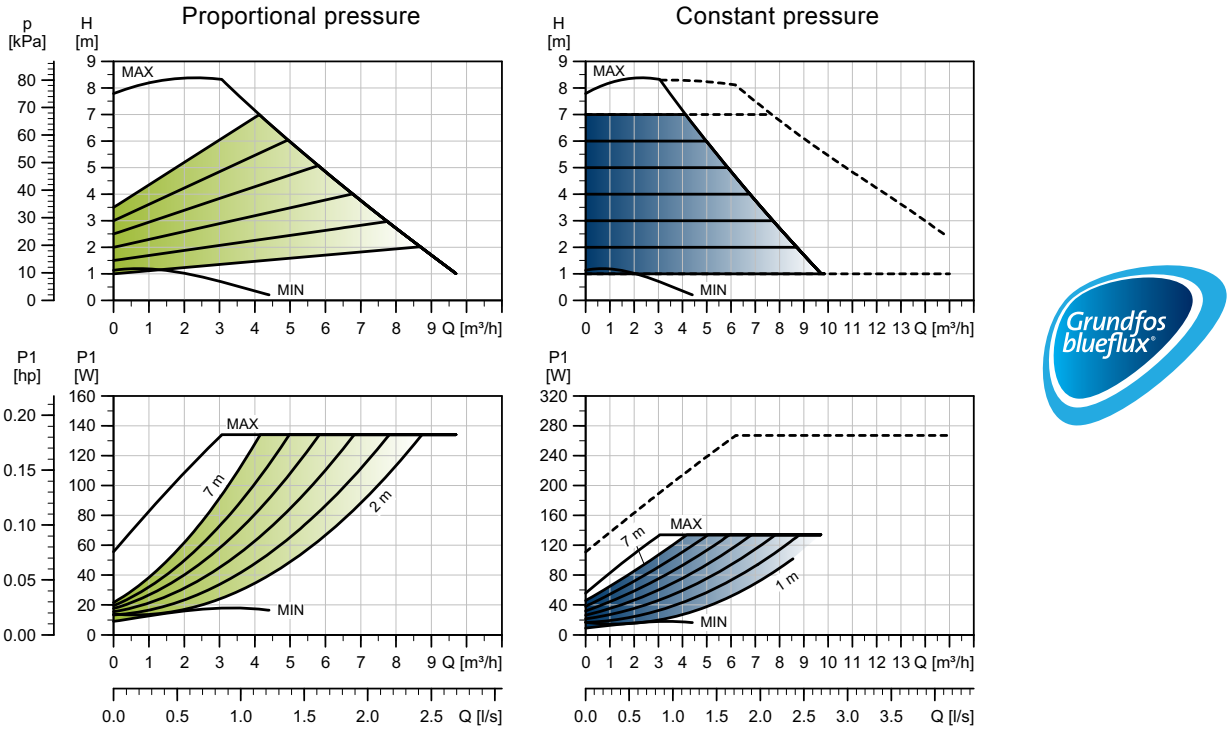
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 32-80 (N)	180	158	190	58	111	69	90	113	54	185	239	71	32	2

For product numbers, see page 139.

MAGNA3 D 32-80

1 x 230 V, 50/60 Hz



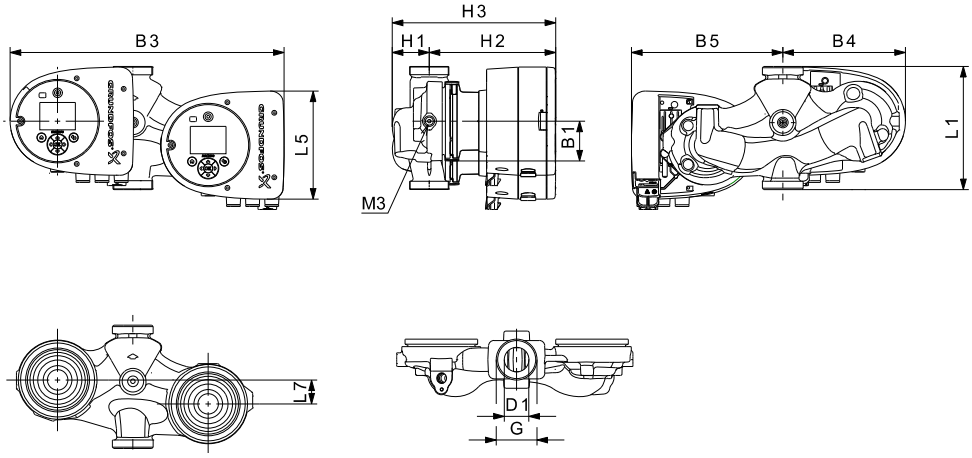
TM05 8327 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	144	1.19

The pump incorporates overload protection.

Connections:	See *Pipe connections*, page 134.
System pressure:	Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature:	-10 to 110 °C (TF 110).
Specific EEI:	0.20.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
13.2	14.0	0.04



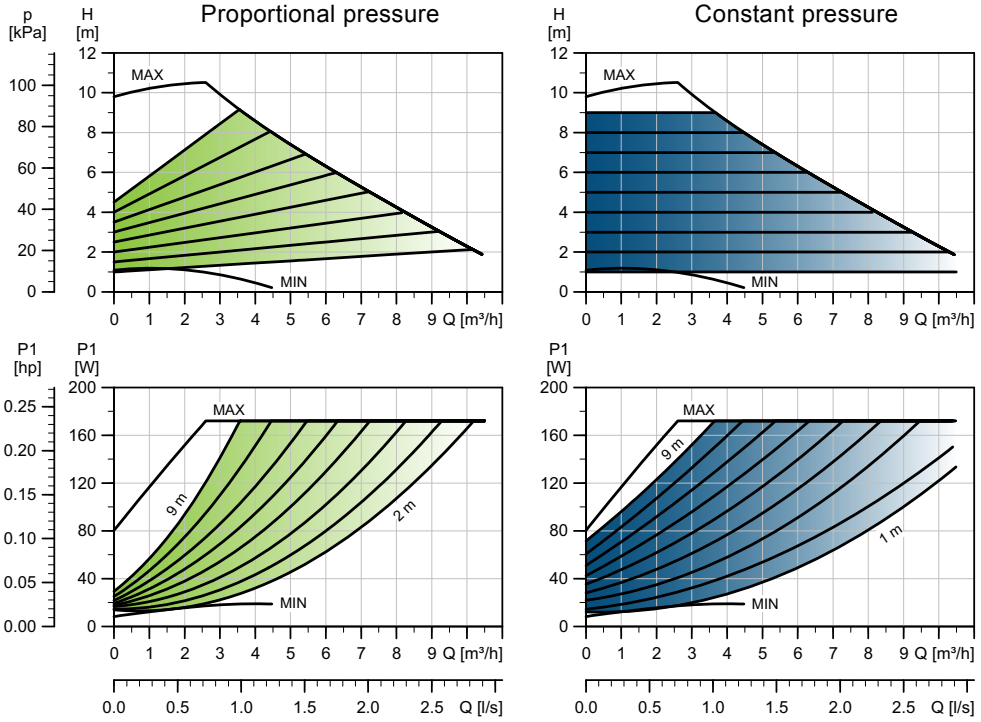
TM05 7939 1613

Pump type	Dimensions [mm]											[inch]	
	L1	L5	L7	B1	B3	B4	B5	H1	H2	H3	D1	G	M3
MAGNA3 D 32-80	180	158	35	58	400	179	221	54	185	239	32	2	1/4

For product numbers, see page 139.

MAGNA3 32-100 (N)

1 x 230 V, 50/60 Hz



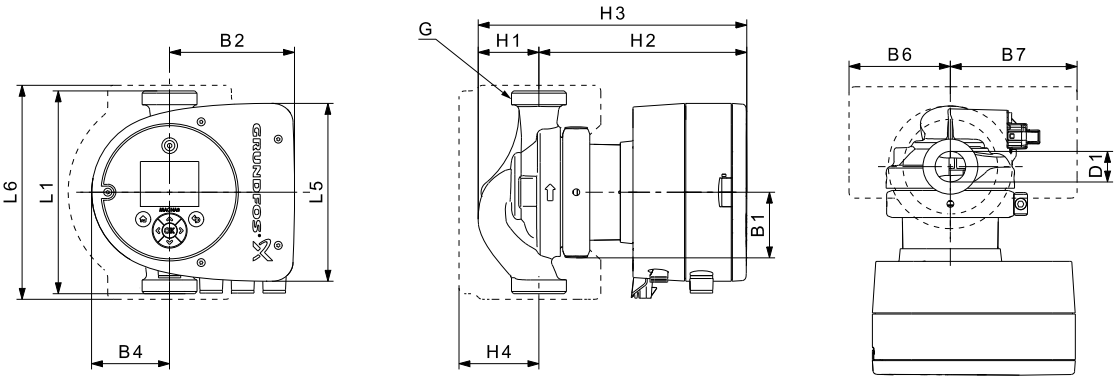
TM05 7673 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	180	1.47

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
4.8	5.3	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



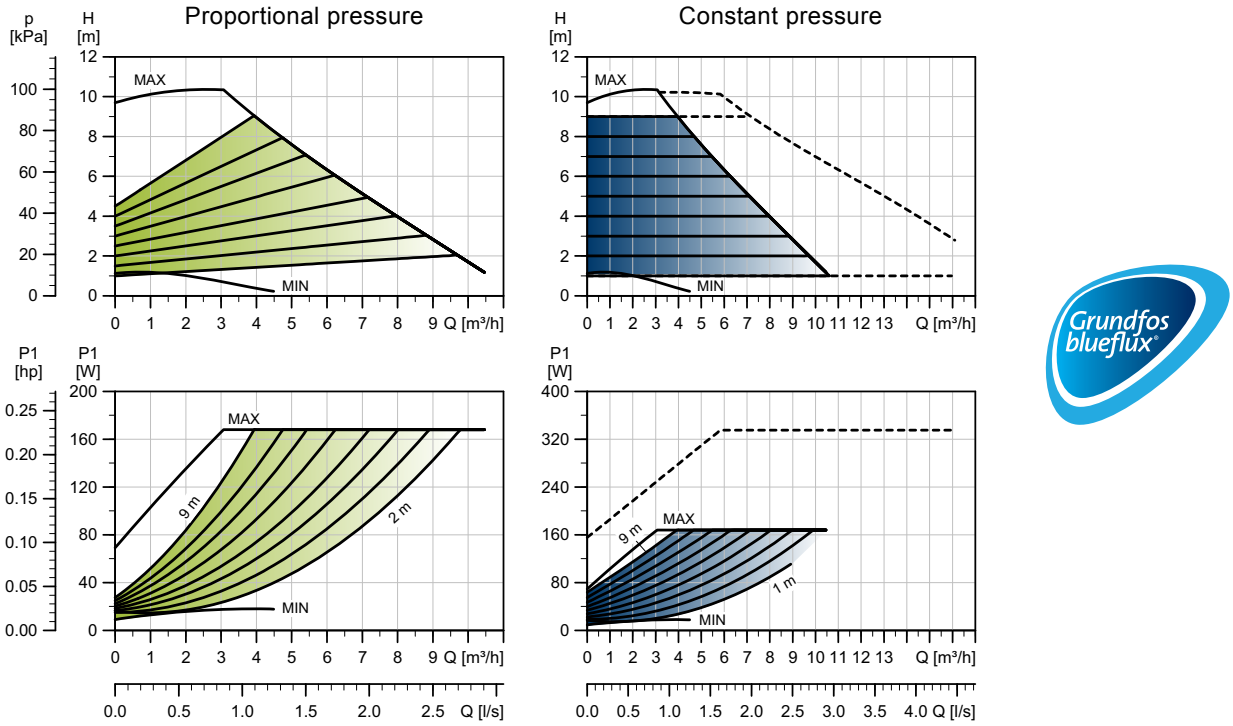
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA 32-100 (N)	180	158	190	58	111	69	90	113	54	185	239	71	32	2

For product numbers, see page 139.

MAGNA3 D 32-100

1 x 230 V, 50/60 Hz



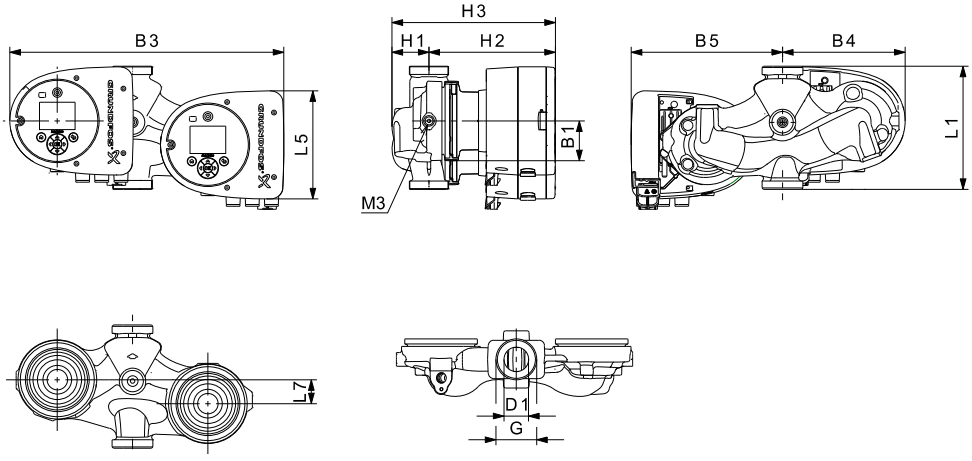
TM05 8328 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	180	1.47

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
13.2	14.0	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.20.



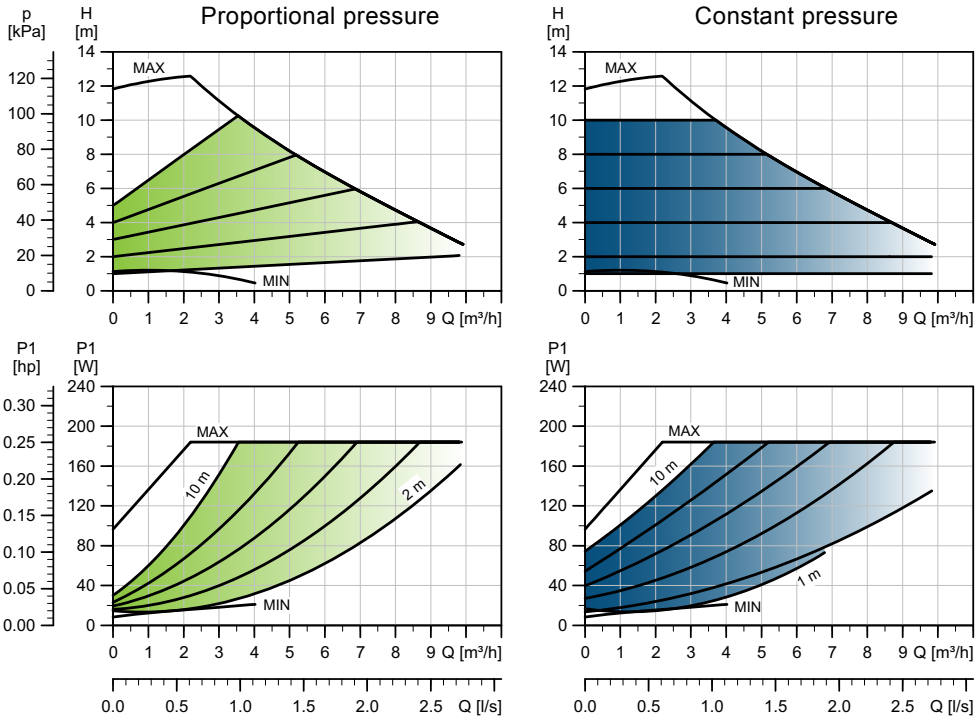
TM05 7939 1613

Pump type	Dimensions [mm]											[inch]	
	L1	L5	L7	B1	B3	B4	B5	H1	H2	H3	D1	G	M3
MAGNA3 D 32-100	180	158	35	58	400	179	221	54	185	239	32	2	1/4

For product numbers, see page 139.

MAGNA3 32-120 (N)

1 x 230 V, 50/60 Hz



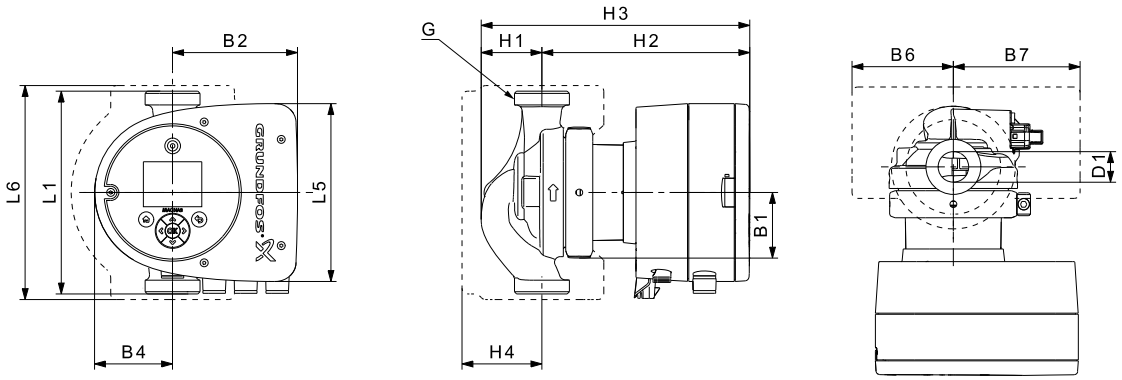
TM05 7669 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	193	1.56

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
5.02	5.99	0.01

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



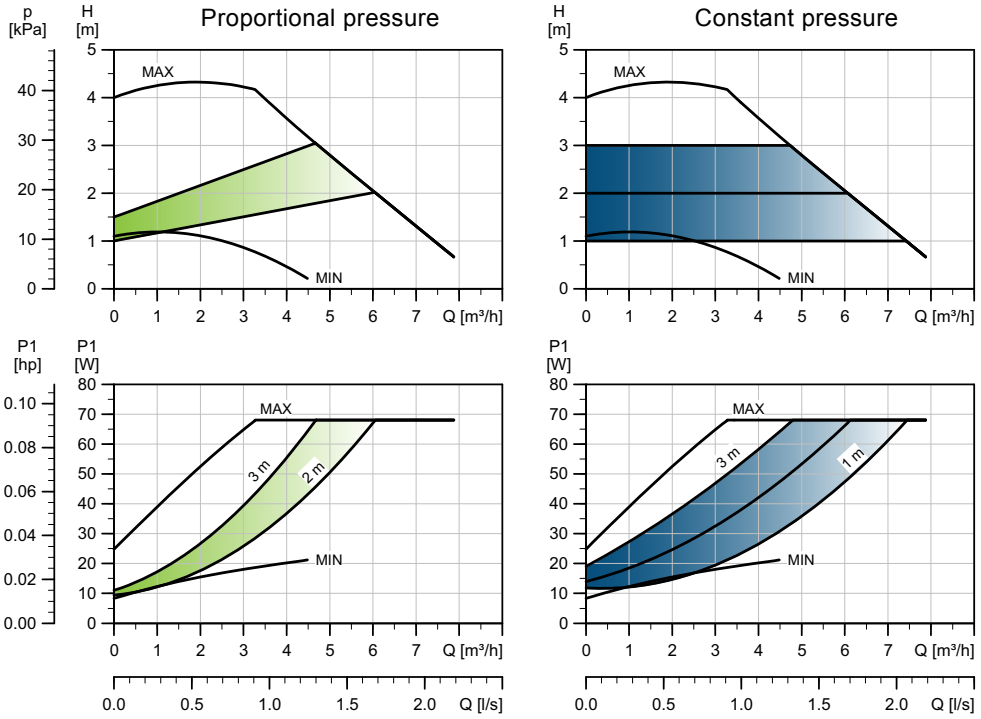
TM05 7938 1713

Pump type	Dimensions [mm]													[inch]
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	G
MAGNA3 32-120 (N)	180	158	190	58	111	69	90	113	54	185	239	71	32	2

For product numbers, see page 139.

MAGNA3 32-40 F (N)

1 x 230 V, 50/60 Hz



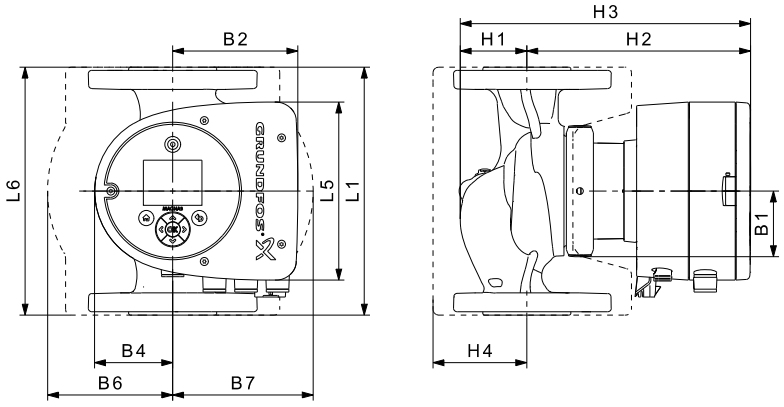
TM05 7670 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	74	0.61

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
7.8	8.3	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



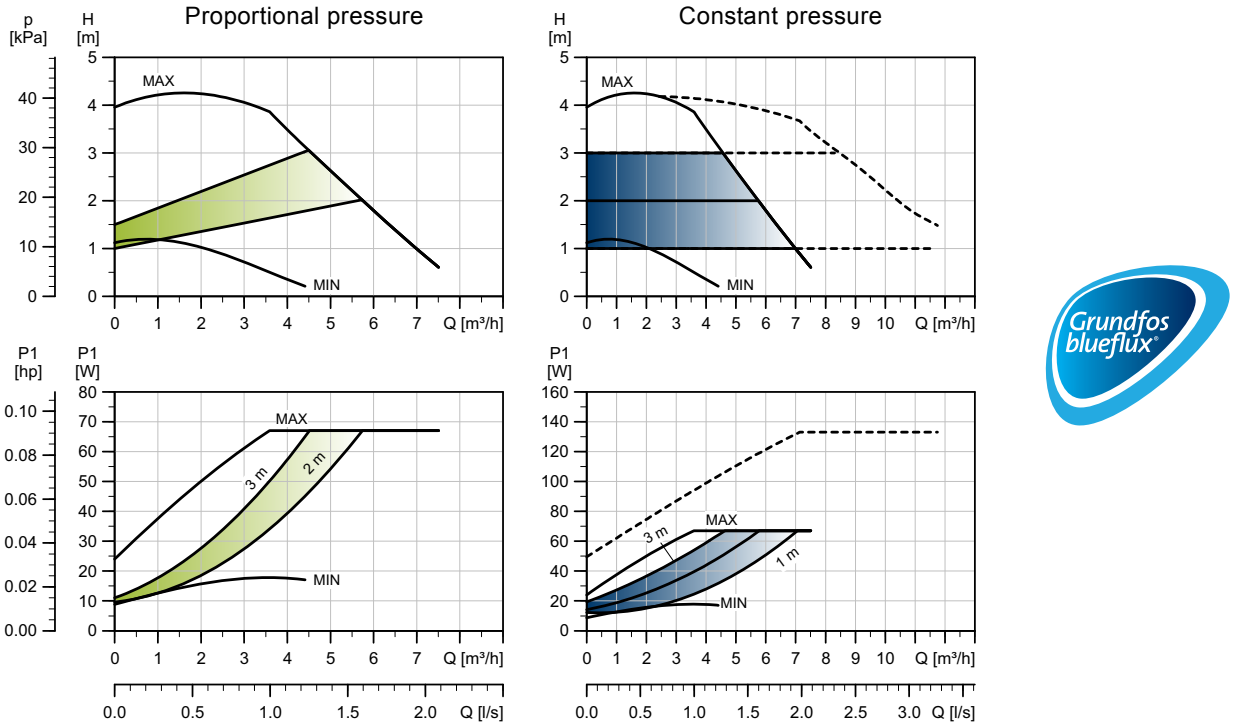
TM05 7985 2413

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-40 F (N)	220	158	220	58	111	69	100	110	65	185	250	82	32	76	90/100	140	14/19

For product numbers, see page 139.

MAGNA3 D 32-40 F

1 x 230 V, 50/60 Hz



TM05 8325 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	74	0.61

The pump incorporates overload protection.

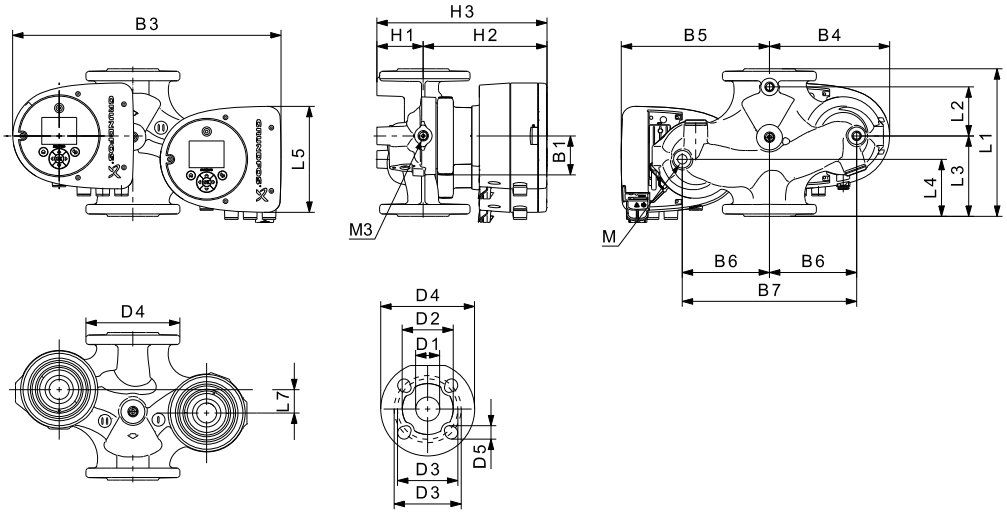
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.6	16.3	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



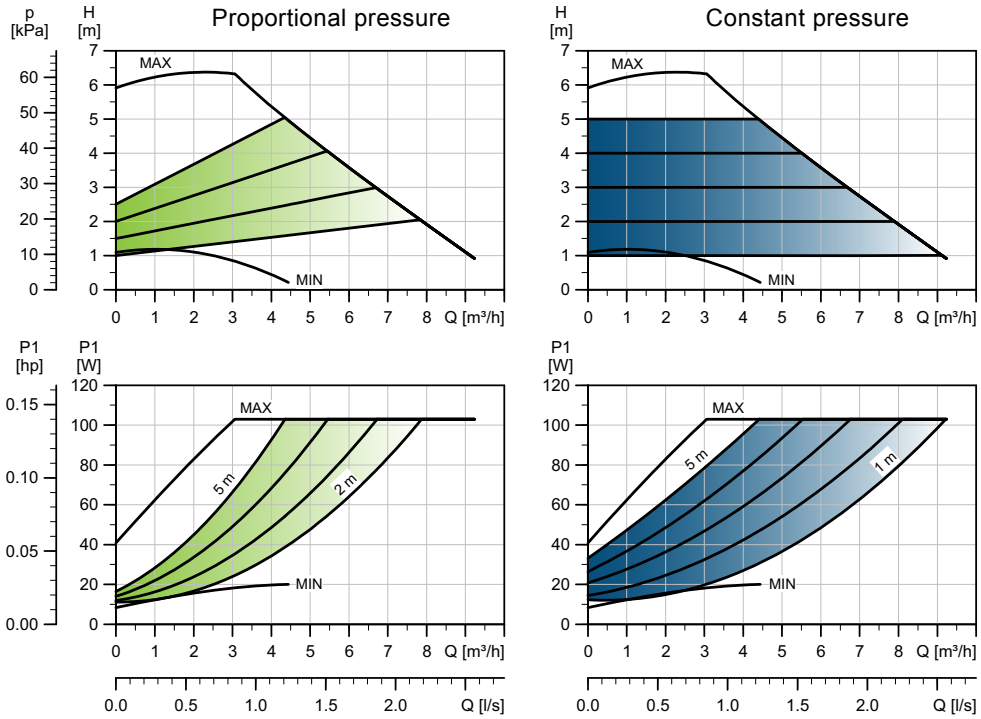
TM05 7986 1713

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-40 F	220	73	120	85	158	35	58	400	179	221	130	260	69	185	254	32	76	90/100	140	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 32-60 F (N)

1 x 230 V, 50/60 Hz



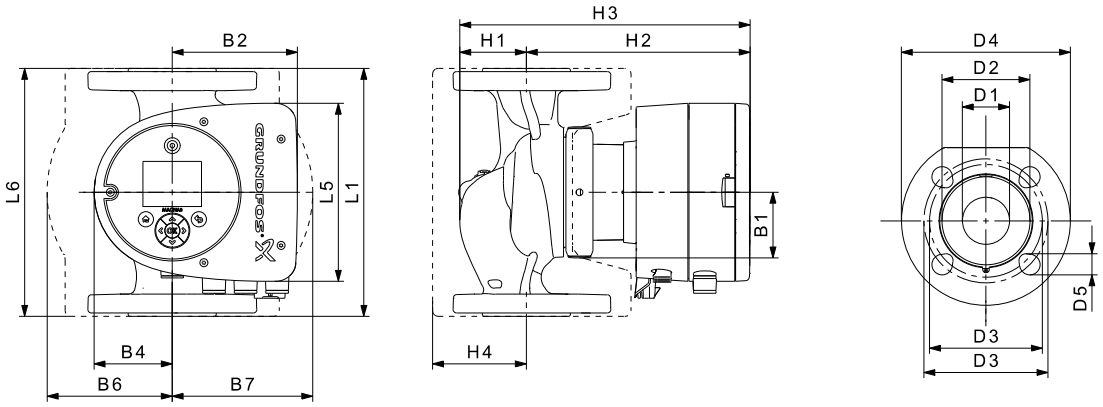
TM05 7671 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	110	0.91

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
7.8	8.3	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



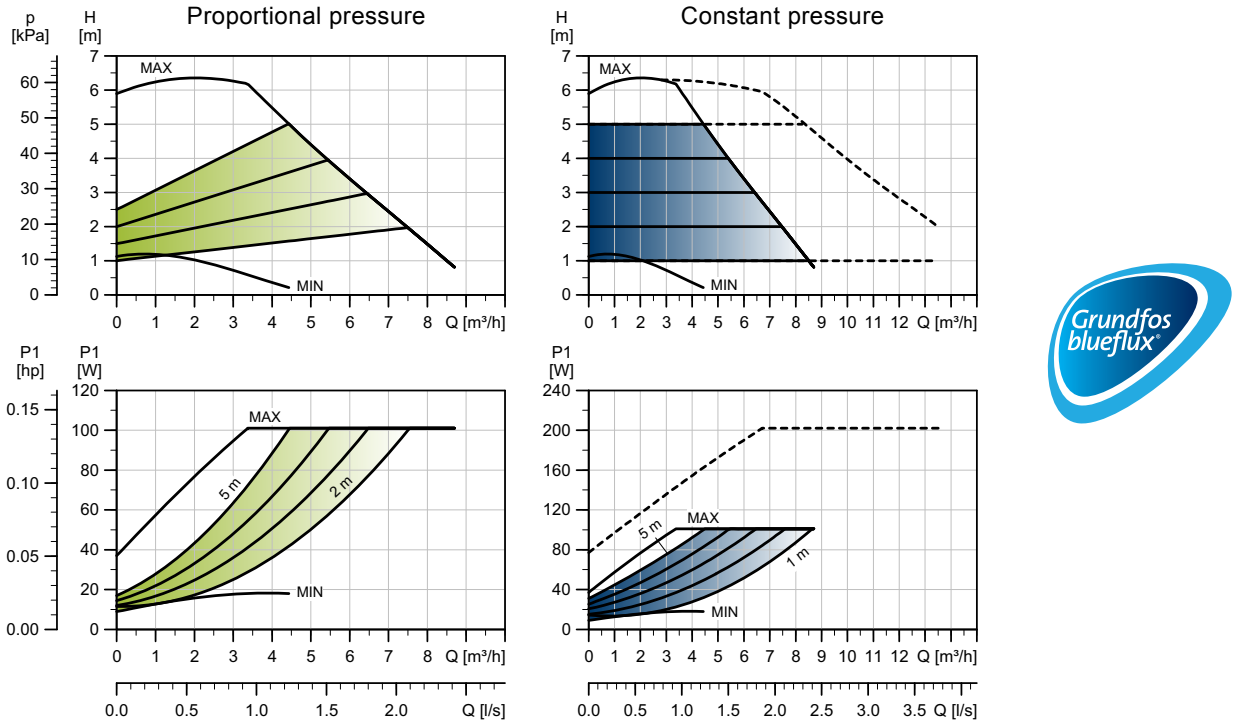
TM05 7985 2413

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-60 F (N)	220	158	220	58	111	69	100	110	65	185	250	82	32	76	90/100	140	14/19

For product numbers, see page 139.

MAGNA3 D 32-60 F

1 x 230 V, 50/60 Hz



TM05 8326 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	110	0.91

The pump incorporates overload protection.

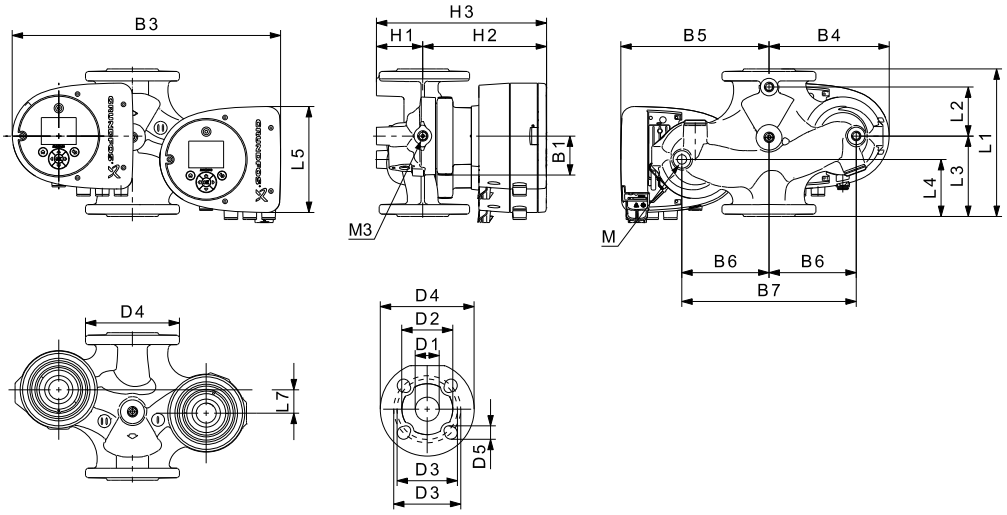
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
15.6	16.3	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



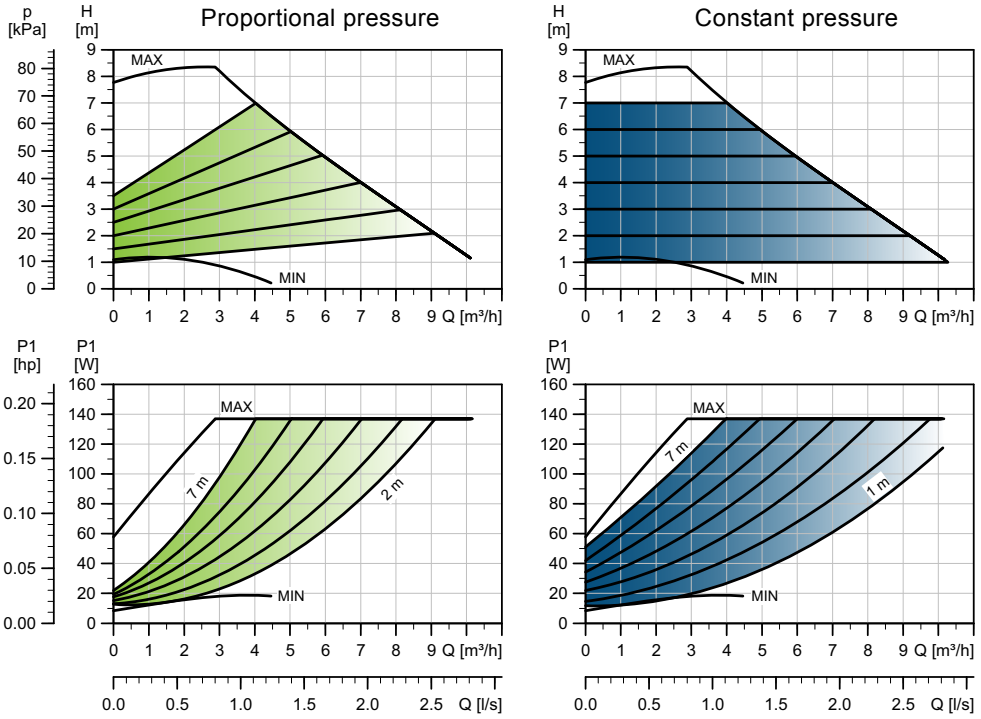
TM05 7986 1713

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-60 F	220	73	120	85	158	35	58	400	179	221	130	260	69	185	254	32	76	90/100	140	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 32-80 F (N)

1 x 230 V, 50/60 Hz



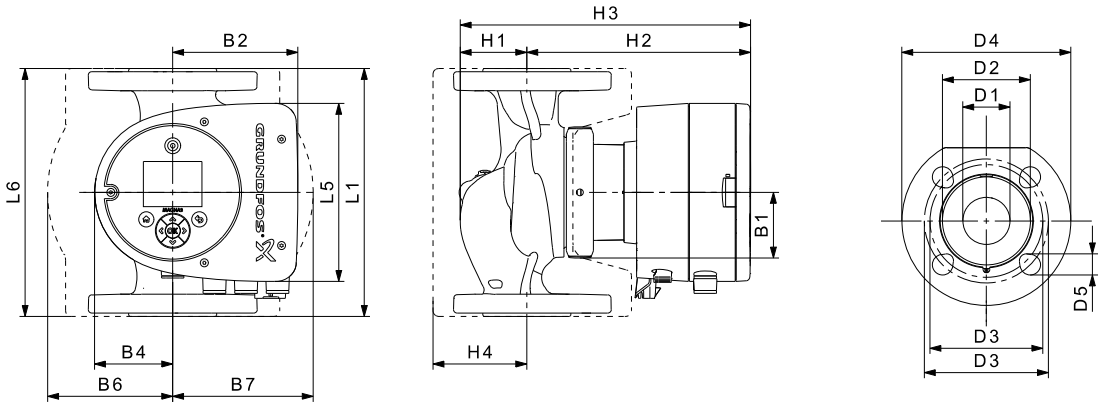
TM05 7672 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	144	1.19

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
7.8	8.3	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



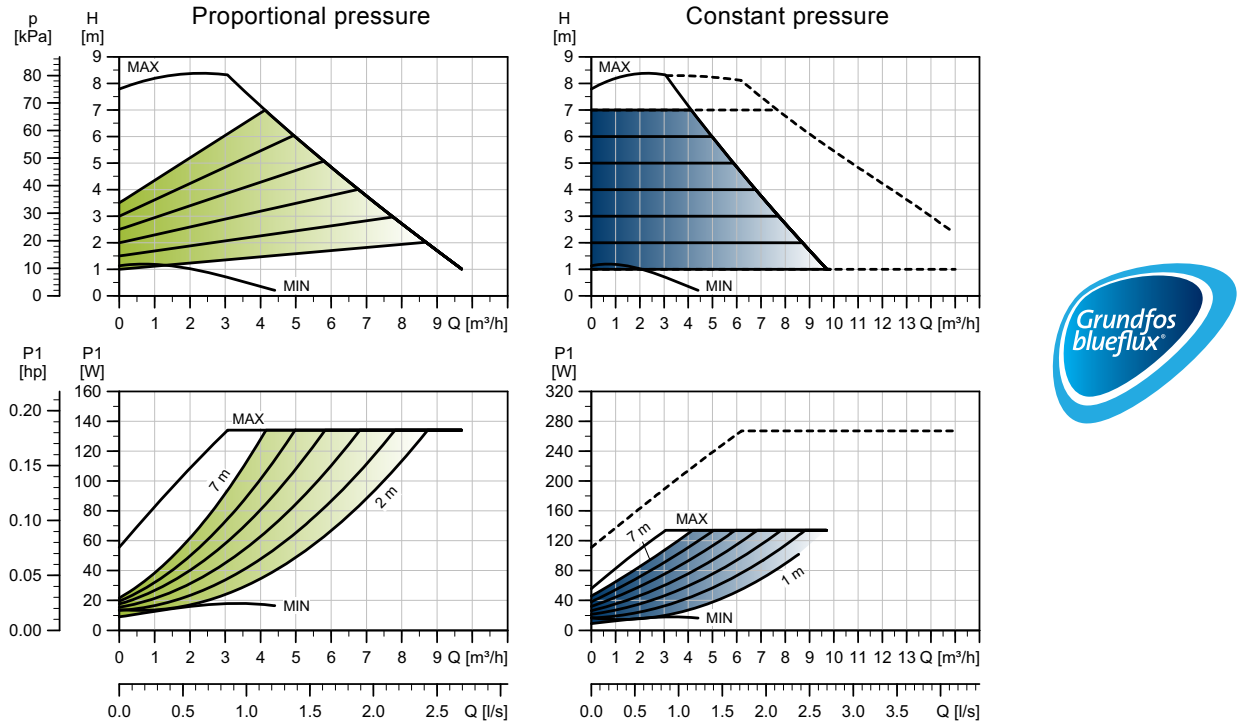
TM05 7985 2413

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-80 F (N)	220	158	220	58	111	69	100	110	65	185	250	82	32	76	90/100	140	14/19

For product numbers, see page 139.

MAGNA3 D 32-80 F

1 x 230 V, 50/60 Hz



TM05 8327 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	144	1.19

The pump incorporates overload protection.

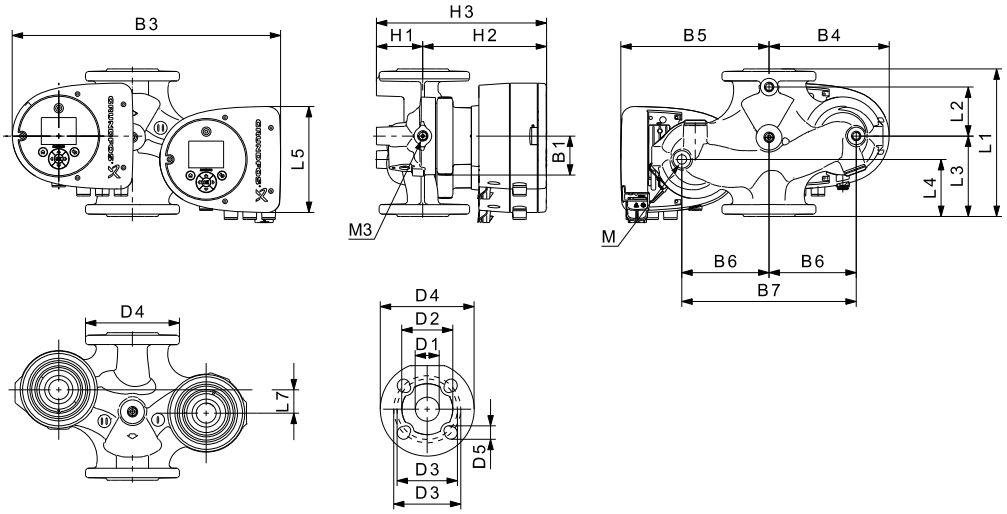
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
15.6	16.3	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



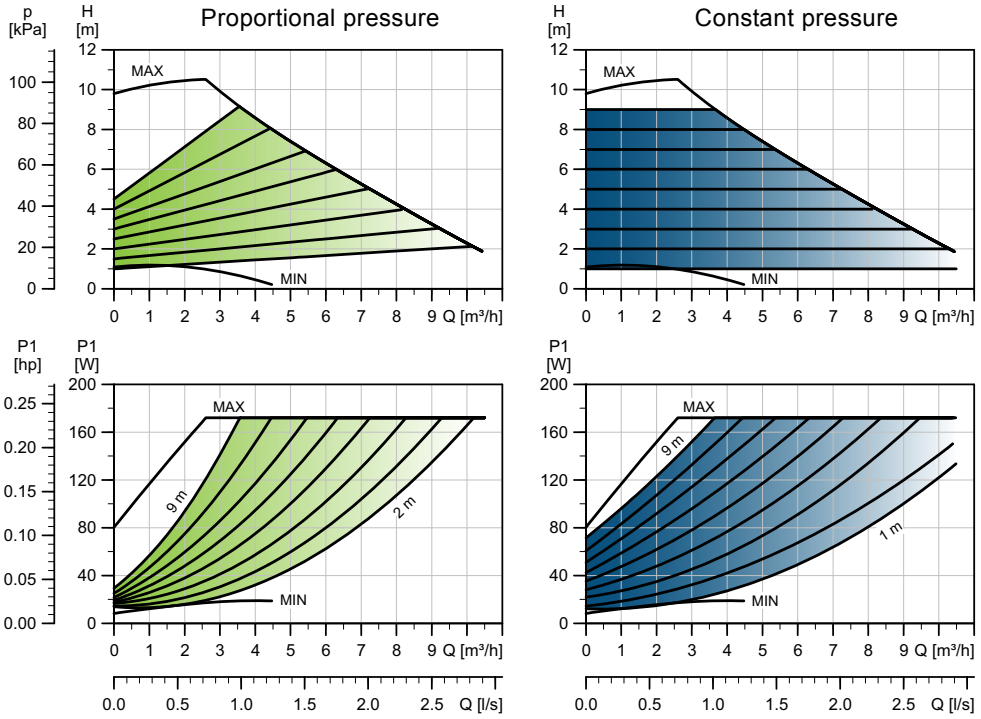
TM05 7986 1713

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-80 F	220	73	120	85	158	35	58	400	179	221	130	260	69	185	254	32	76	90/100	140	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 32-100 F (N)

1 x 230 V, 50/60 Hz



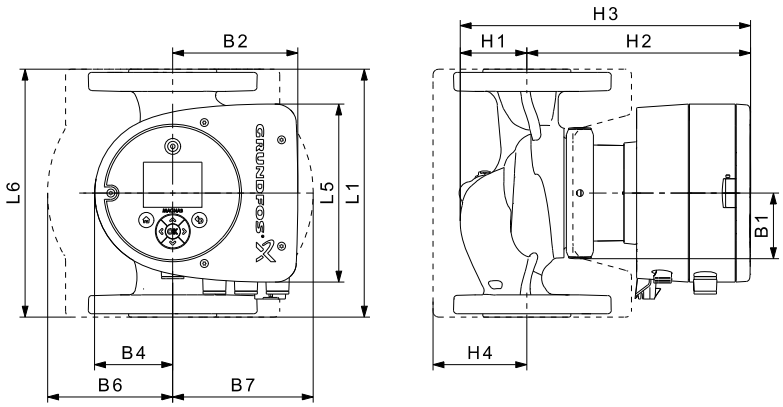
TM05 7673 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	180	1.47

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
7.8	8.3	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



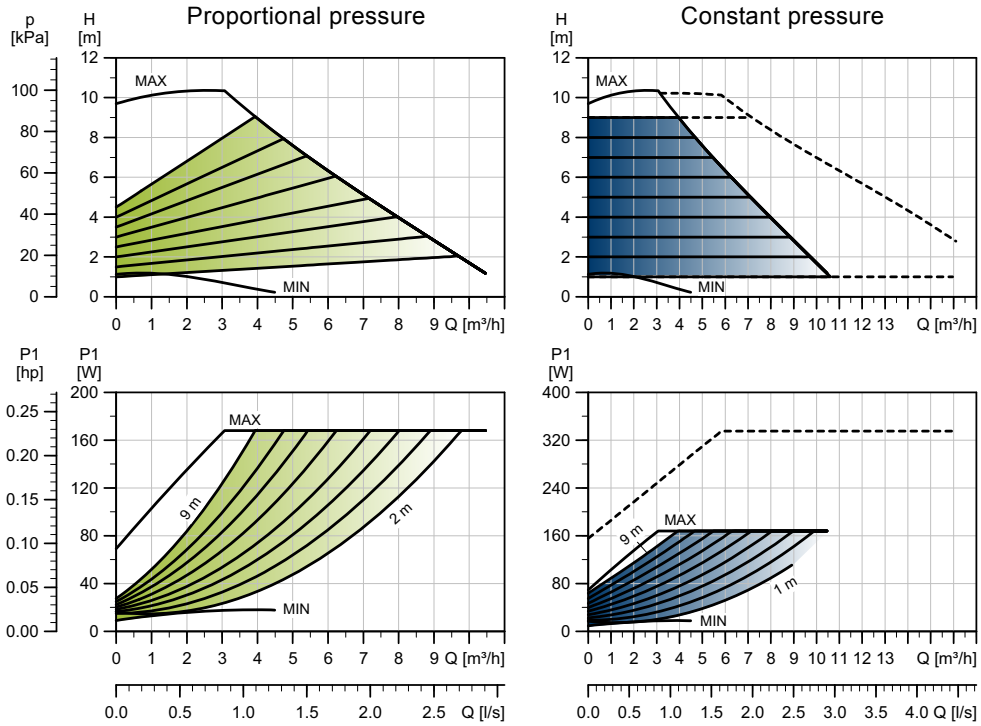
TM05 7985 2413

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-100 F (N)	220	158	220	58	111	69	100	110	65	185	250	82	32	76	90/100	140	14/19

For product numbers, see page 139.

MAGNA3 D 32-100 F

1 x 230 V, 50/60 Hz



TM05 8328 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	9	0.09
Max.	180	1.47

The pump incorporates overload protection.

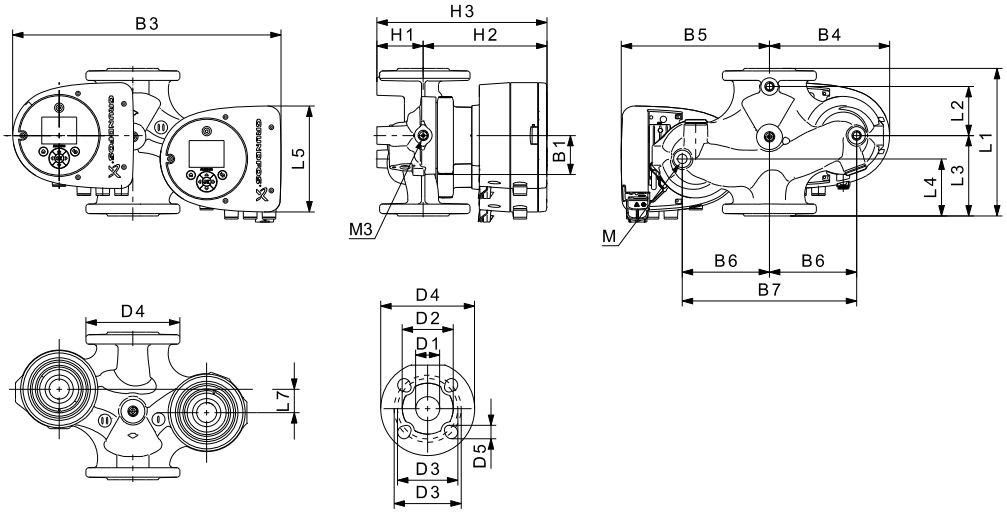
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.6	16.3	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



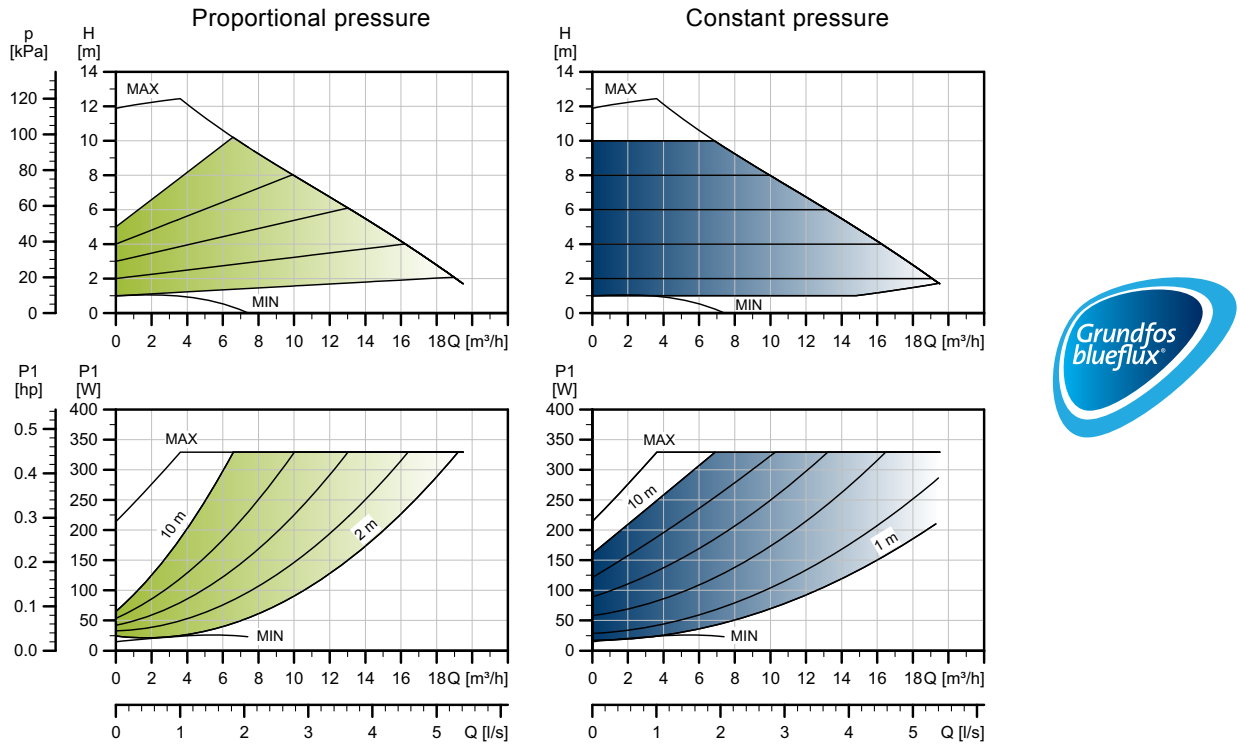
TM05 7986 1713

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-100 F	220	73	120	85	158	35	58	400	179	221	130	260	69	185	254	32	76	90/100	140	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 32-120 F (N)

1 x 230 V, 50/60 Hz



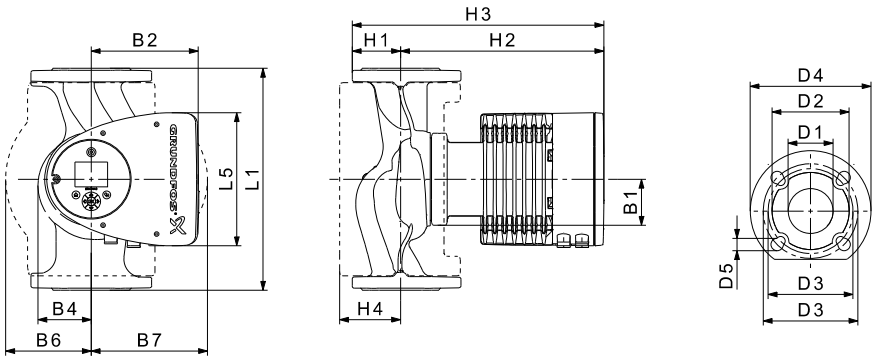
TM05 3733 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	15	0.18
Max.	336	1.50

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15	17.4	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



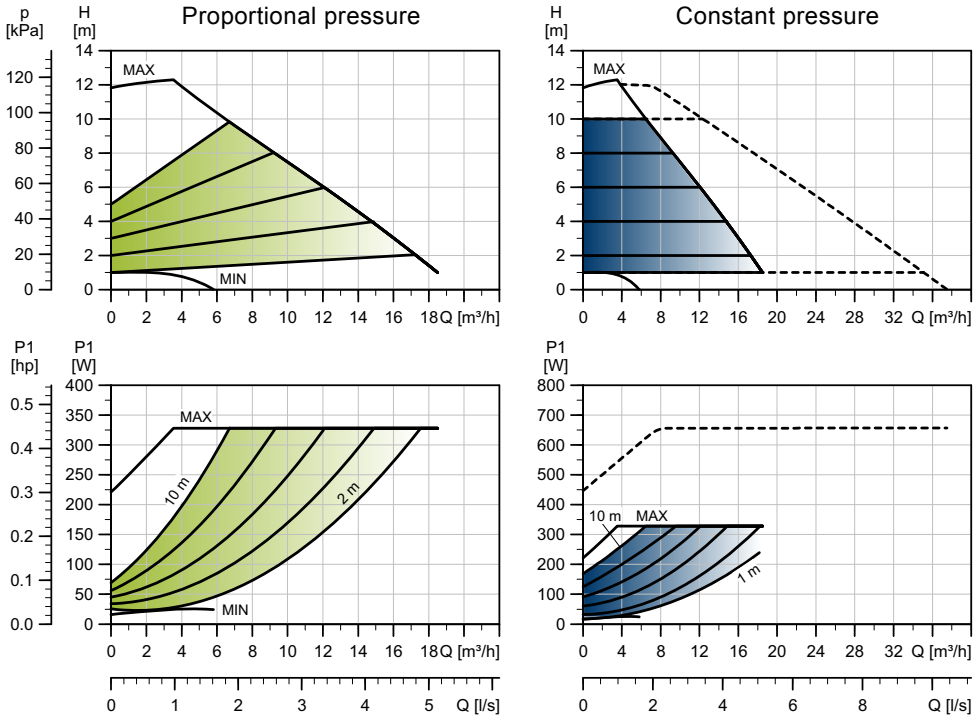
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-120 F (N)	220	204	84	164	73	106	116	65	301	366	86	32	76	90/100	140	14/19

For product numbers, see page 139.

MAGNA3 D 32-120 F

1 x 230 V, 50/60 Hz



TM05 3787 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	335	1.49

The pump incorporates overload protection.

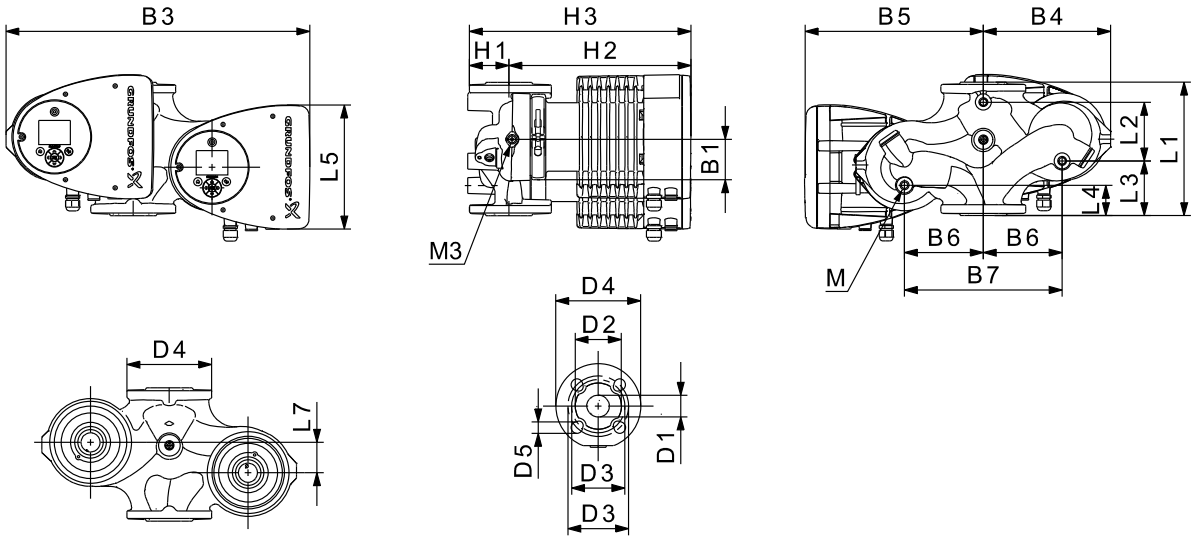
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
30	30.3	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



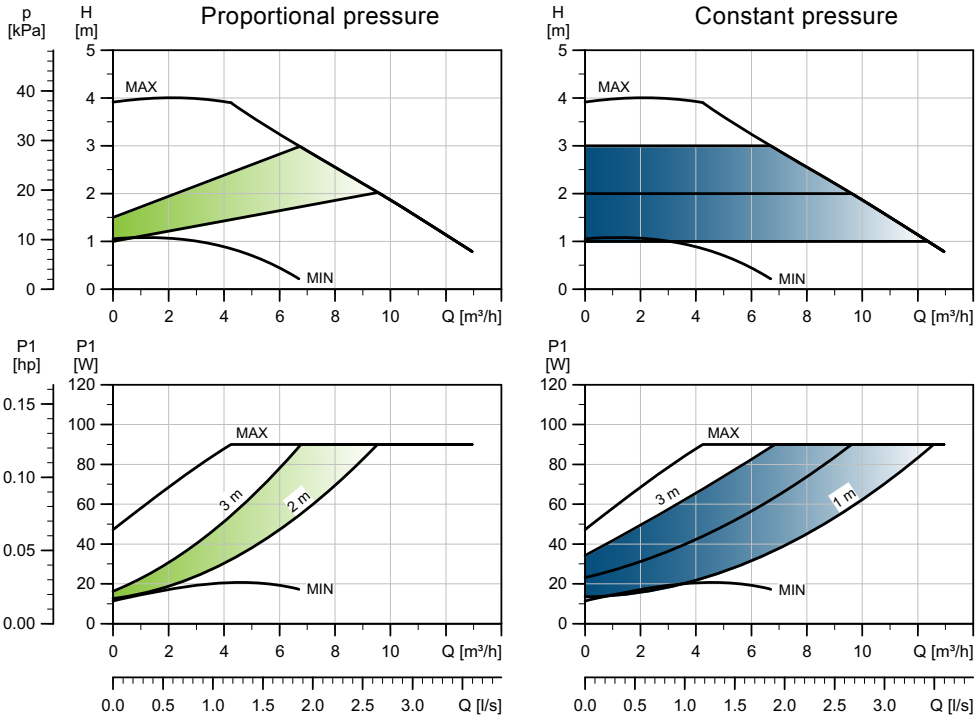
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-120 F	220	97	90	50	204	50	84	502	210	294	130	260	68	300	368	32	76	90/100	140	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 40-40 F (N)

1 x 230 V, 50/60 Hz



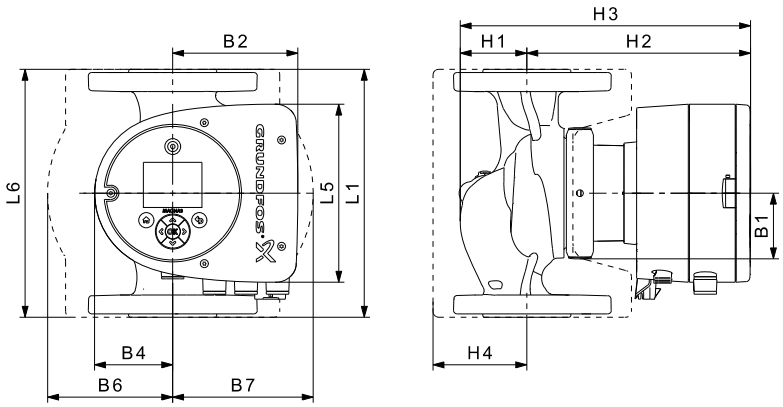
TM05 7674 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	12	0.11
Max.	97	0.80

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
9.8	10.4	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



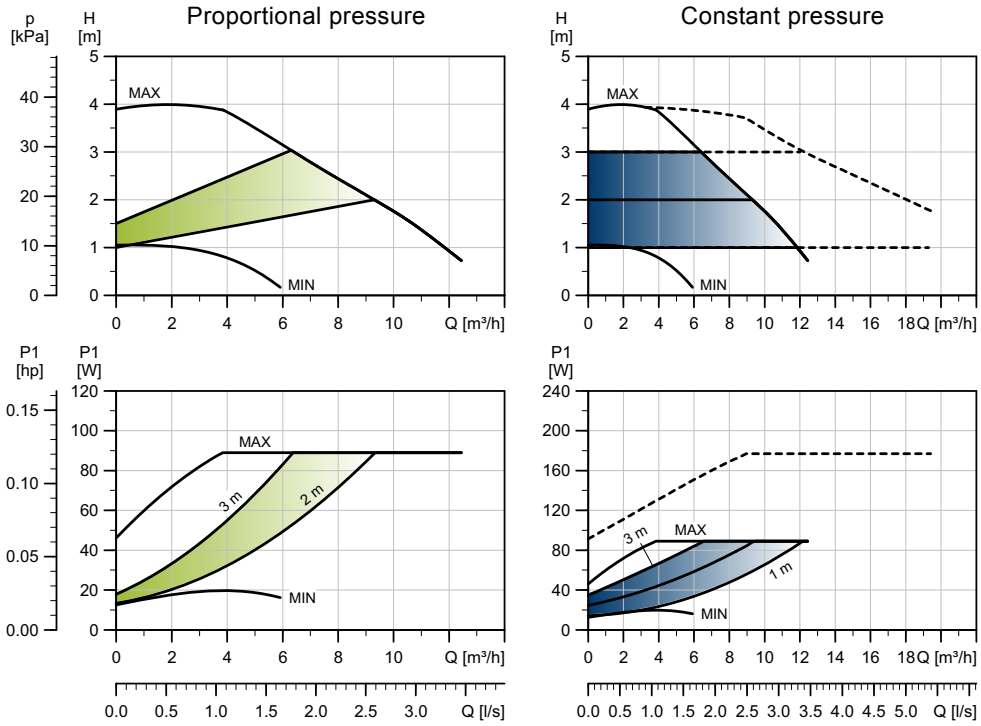
TM05 7985 1713

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-40 F (N)	220	158	220	58	111	69	105	105	65	199	264	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-40 F

1 x 230 V, 50/60 Hz



TM05 8329 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	12	0.11
Max.	97	0.80

The pump incorporates overload protection.

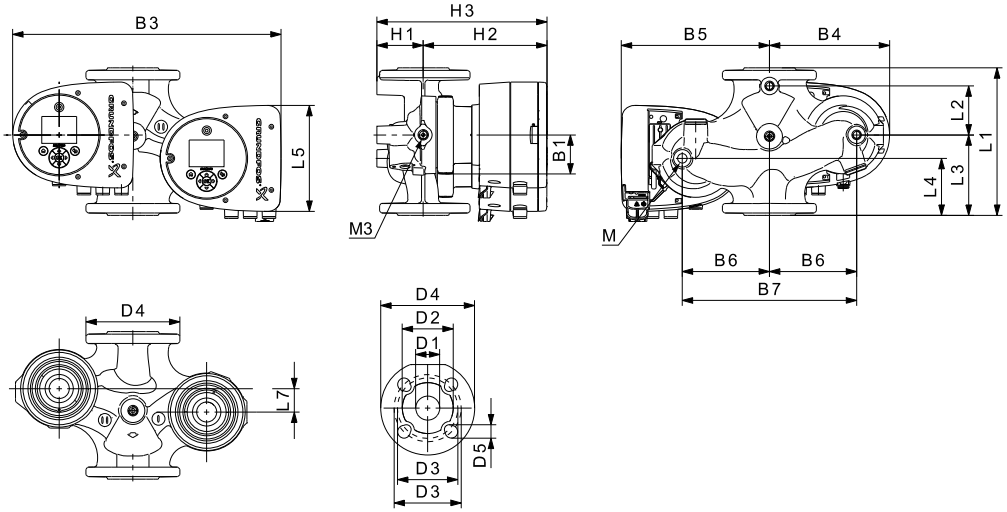
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
19.9	20.6	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



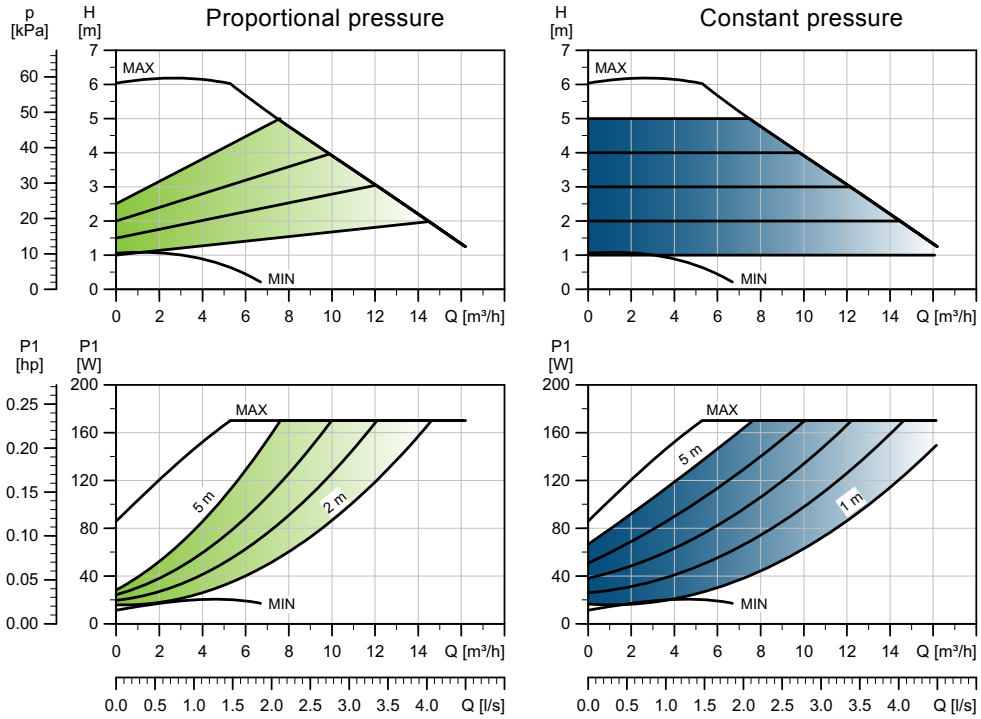
TM05 7986 1713

Pump type	Dimensions [mm]																					Rp
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-40 F	220	53	140	60	158	15	58	452	211	241	130	260	76	199	275	40	84	100/110	150	14/19	12	1/4

For product numbers, see page 139.

MAGNA3 40-60 F (N)

1 x 230 V, 50/60 Hz



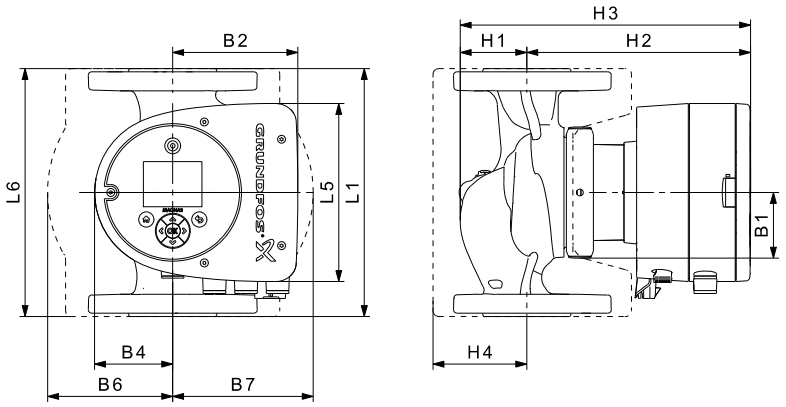
TM05 7675 1513

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	12	0.11
Max.	178	1.47

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
9.9	10.4	0.02

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



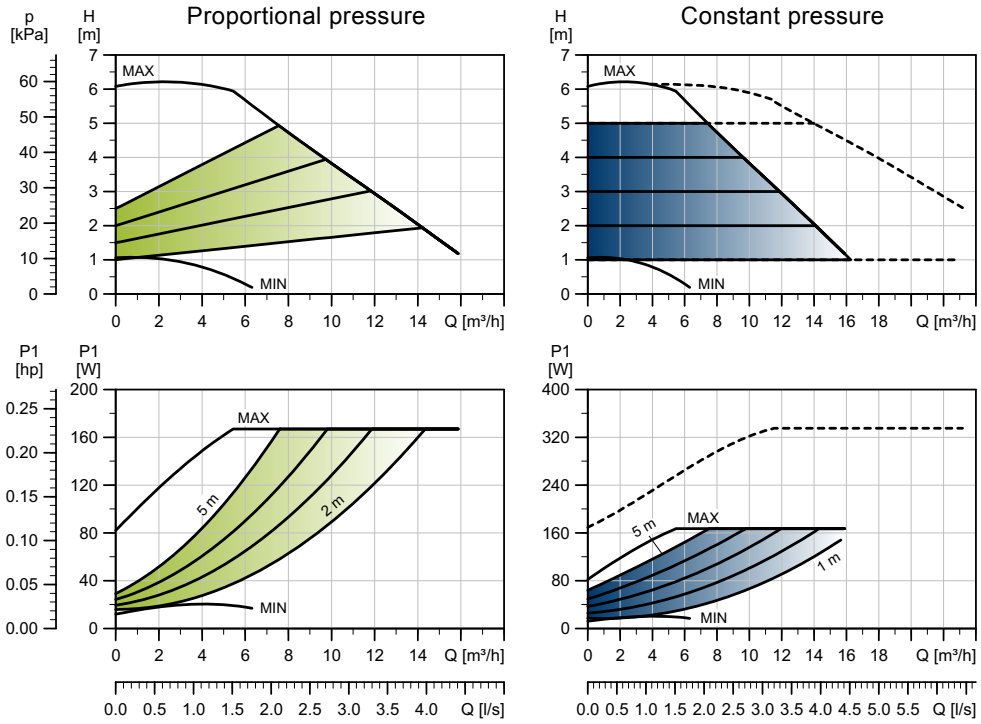
TM05 7985 1713

Pump type	Dimensions [mm]																
	L1	L5	L6	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-60 F (N)	220	158	220	58	111	69	105	105	65	199	264	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-60 F

1 x 230 V, 50/60 Hz



TM05 8330 2313

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	12	0.11
Max.	178	1.47

The pump incorporates overload protection.

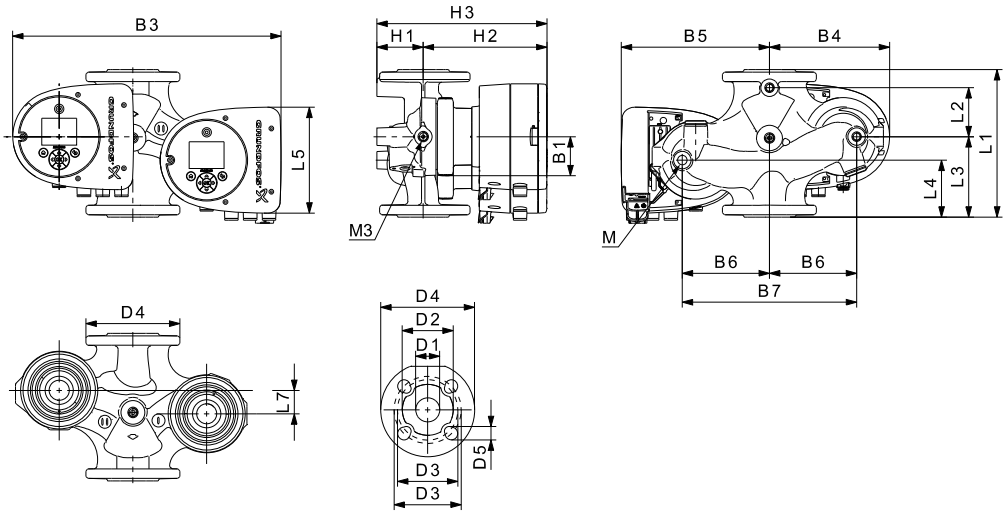
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
19.9	20.6	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



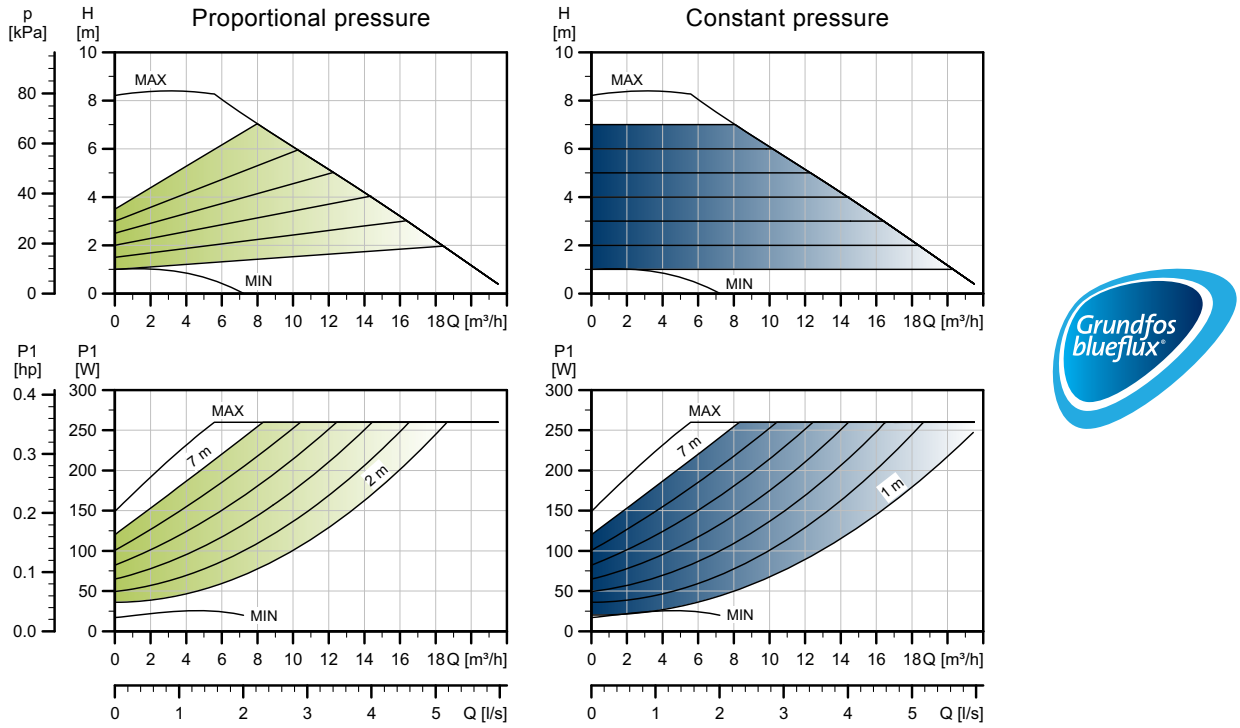
TM05 7986 1713

Pump type	Dimensions [mm]																					Rp
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-60 F	220	53	140	60	158	15	58	452	211	241	130	260	76	199	275	40	84	100/110	150	14/19	12	1/4

For product numbers, see page 139.

MAGNA3 40-80 F (N)

1 x 230 V, 50/60 Hz



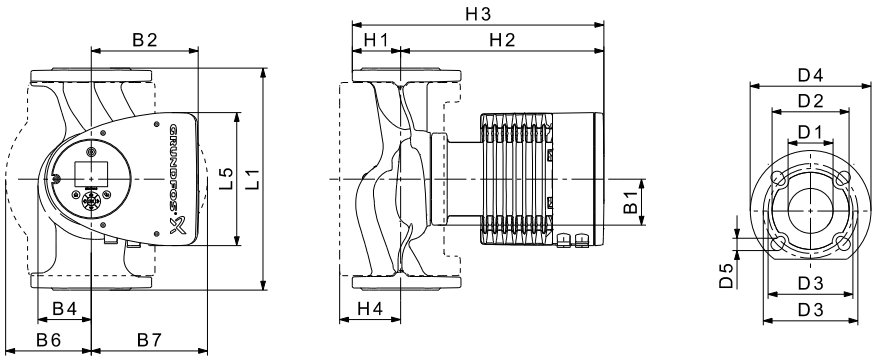
TM05 3734 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	17	0.19
Max.	265	1.20

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.9	18.7	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



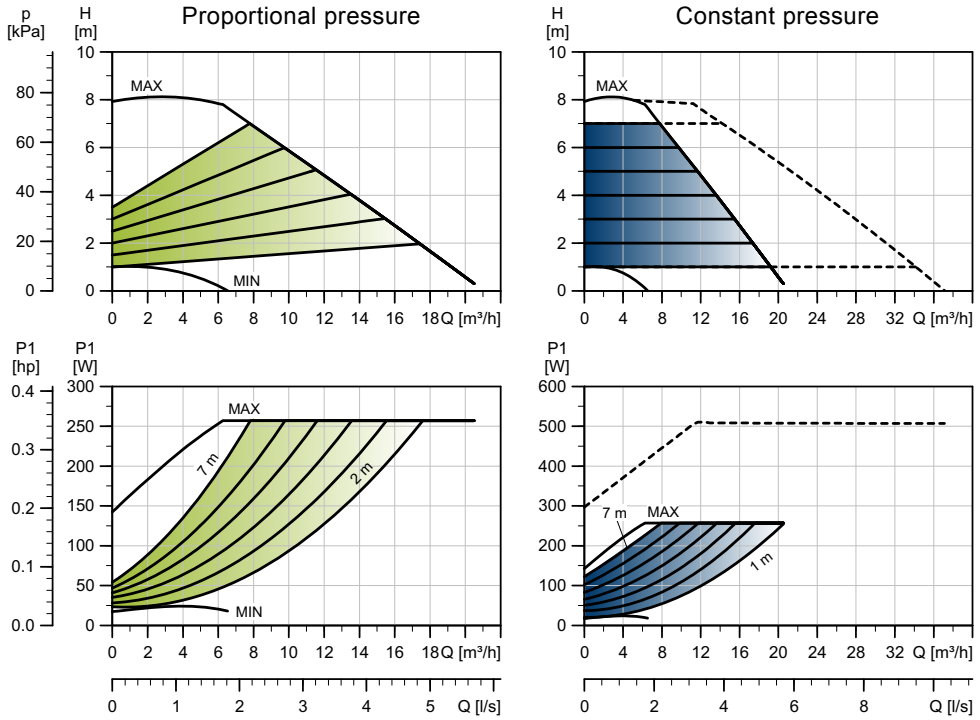
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-80 F (N)	220	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-80 F

1 x 230 V, 50/60 Hz



TM05 3788 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	17	0.19
Max.	269	1.21

The pump incorporates overload protection.

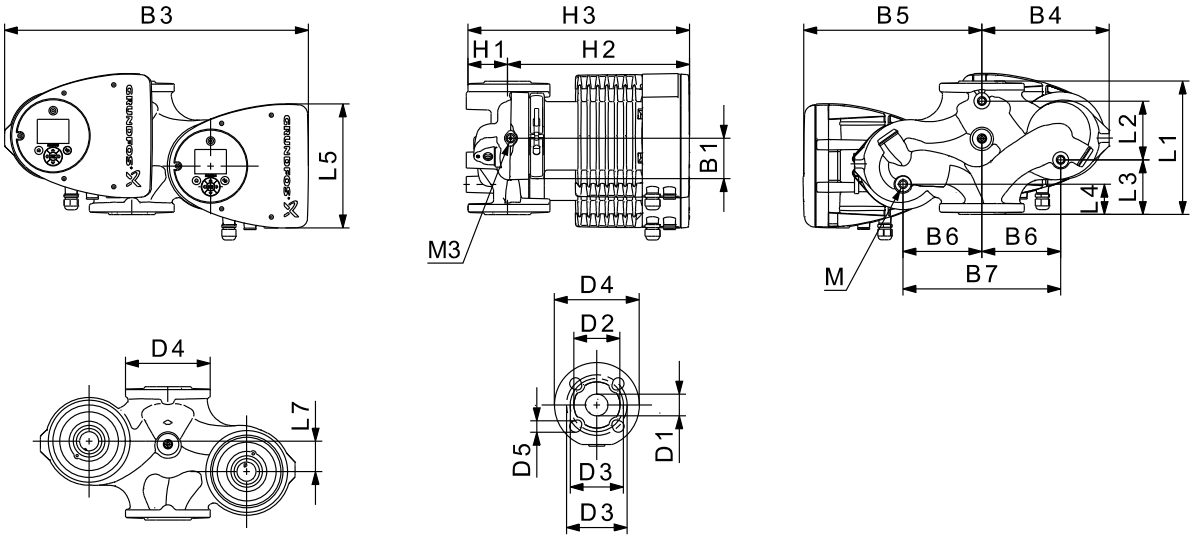
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
32.6	32.8	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



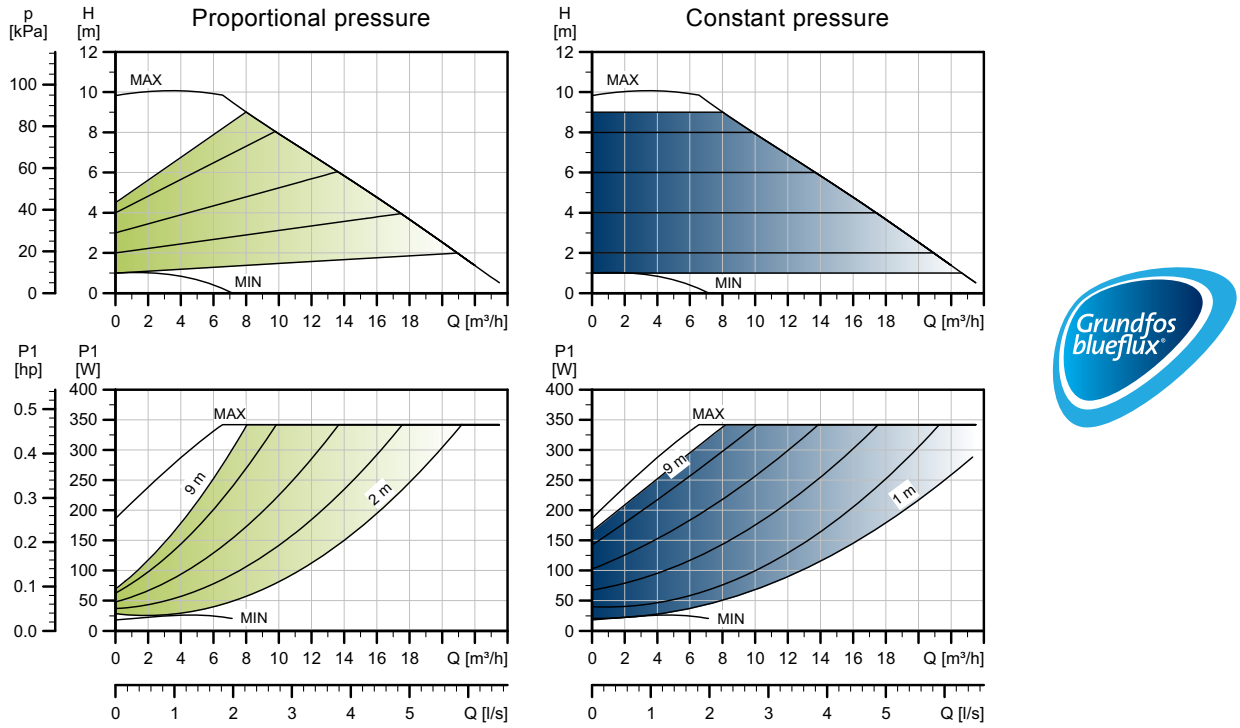
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-80 F	220	53	140	60	204	15	84	502	210	294	130	260	76	303	379	40	84	100/110	150	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 40-100 F (N)

1 x 230 V, 50/60 Hz



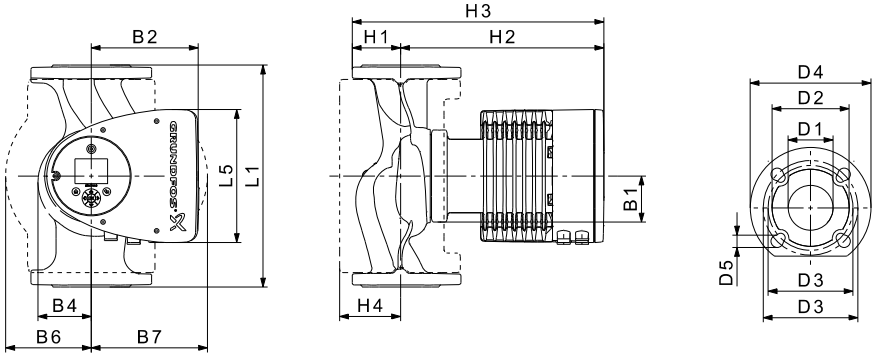
TM05 3735 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	18	0.20
Max.	348	1.56

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.9	18.7	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



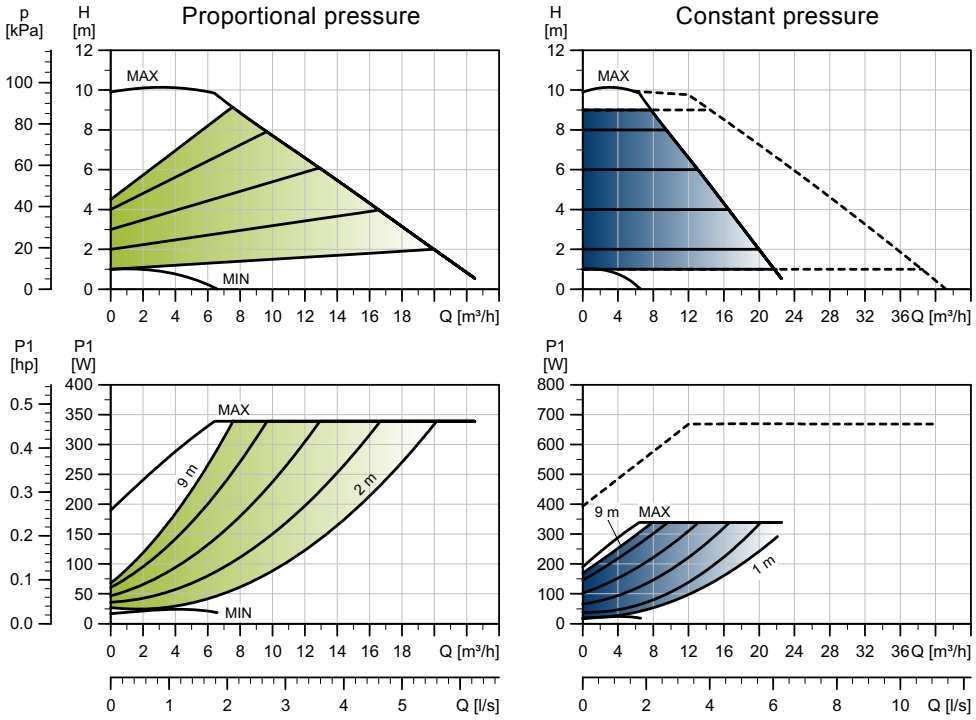
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-100 F (N)	220	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-100 F

1 x 230 V, 50/60 Hz



TM05 3789 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	18	0.19
Max.	361	1.61

The pump incorporates overload protection.

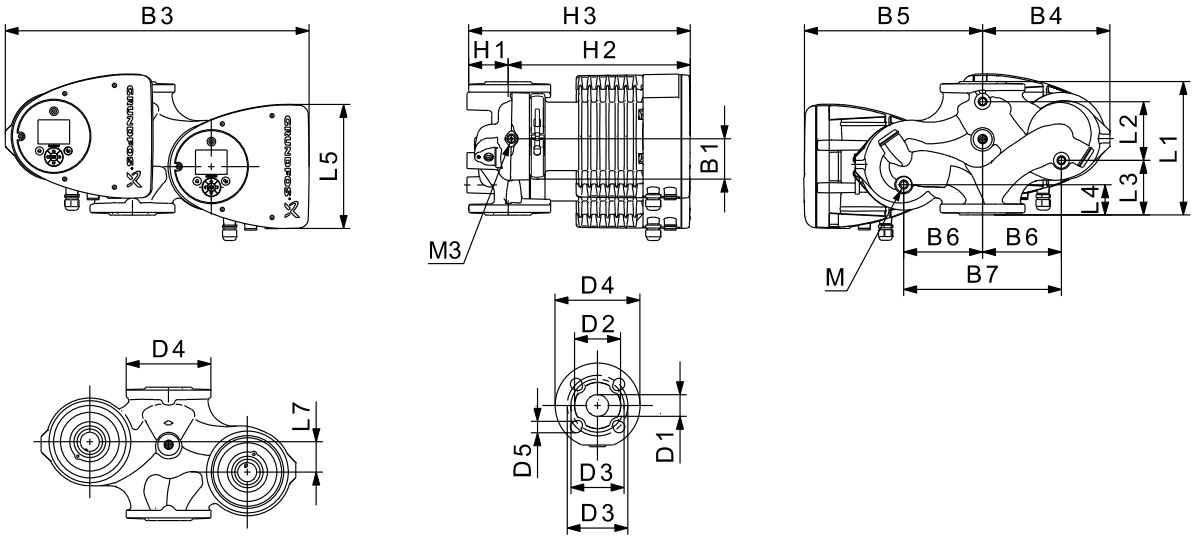
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
32.6	32.8	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



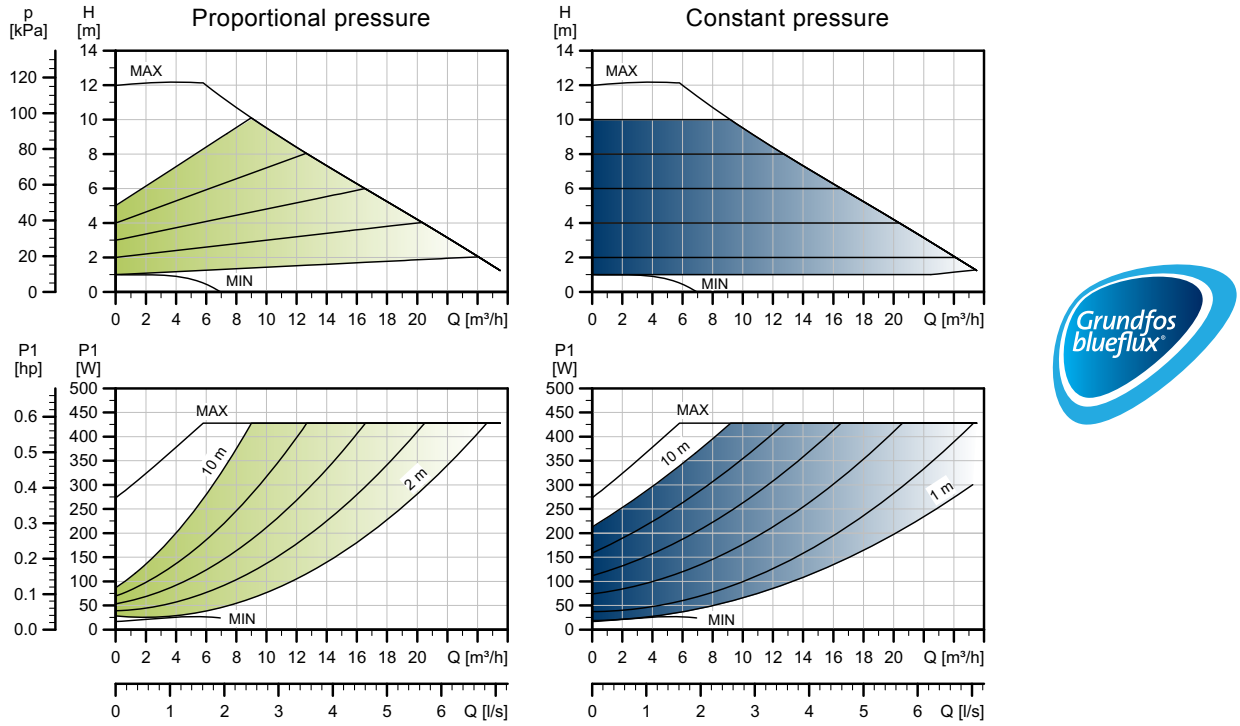
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-100 F	220	53	140	60	204	15	84	502	210	294	130	260	76	303	379	40	84	100/110	150	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 40-120 F (N)

1 x 230 V, 50/60 Hz



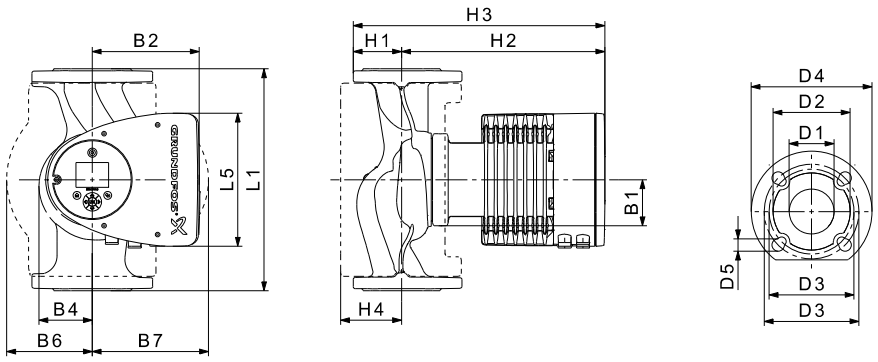
TM05 3736 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	17	0.19
Max.	440	1.95

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.5	18.2	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



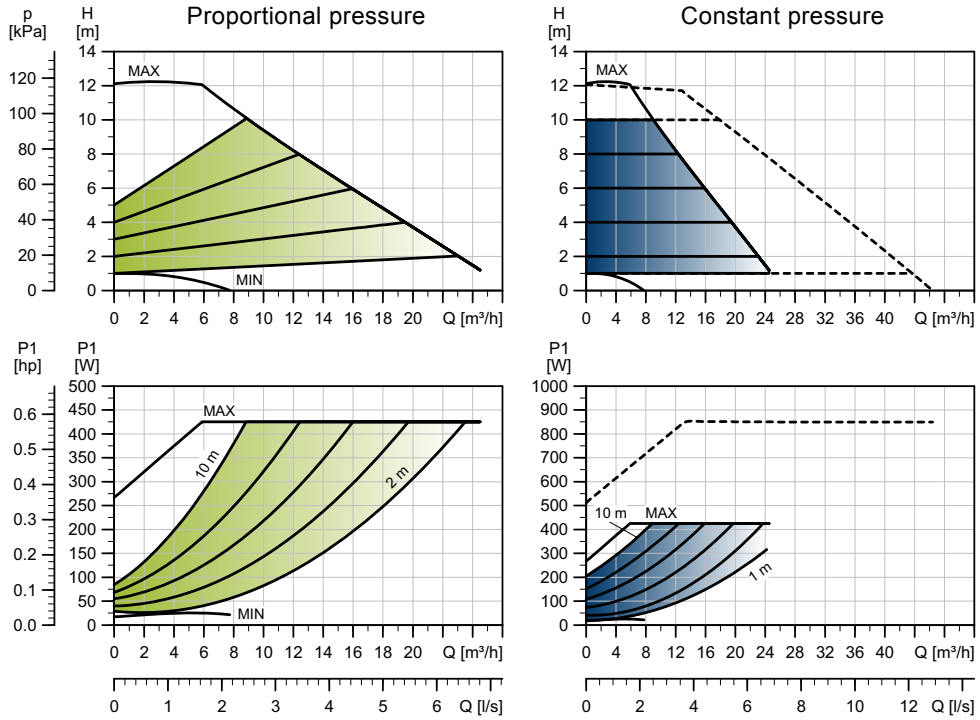
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-120 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-120 F

1 x 230 V, 50/60 Hz



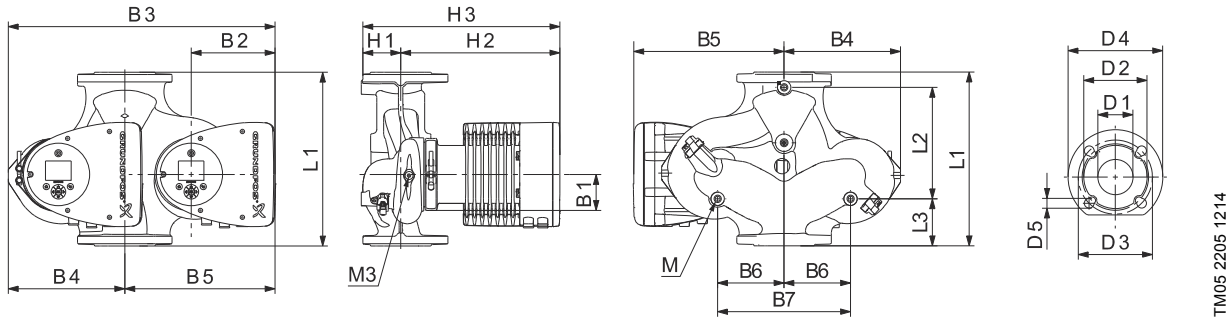
TM05 3790 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	439	1.95

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
31.7	31.9	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.18.



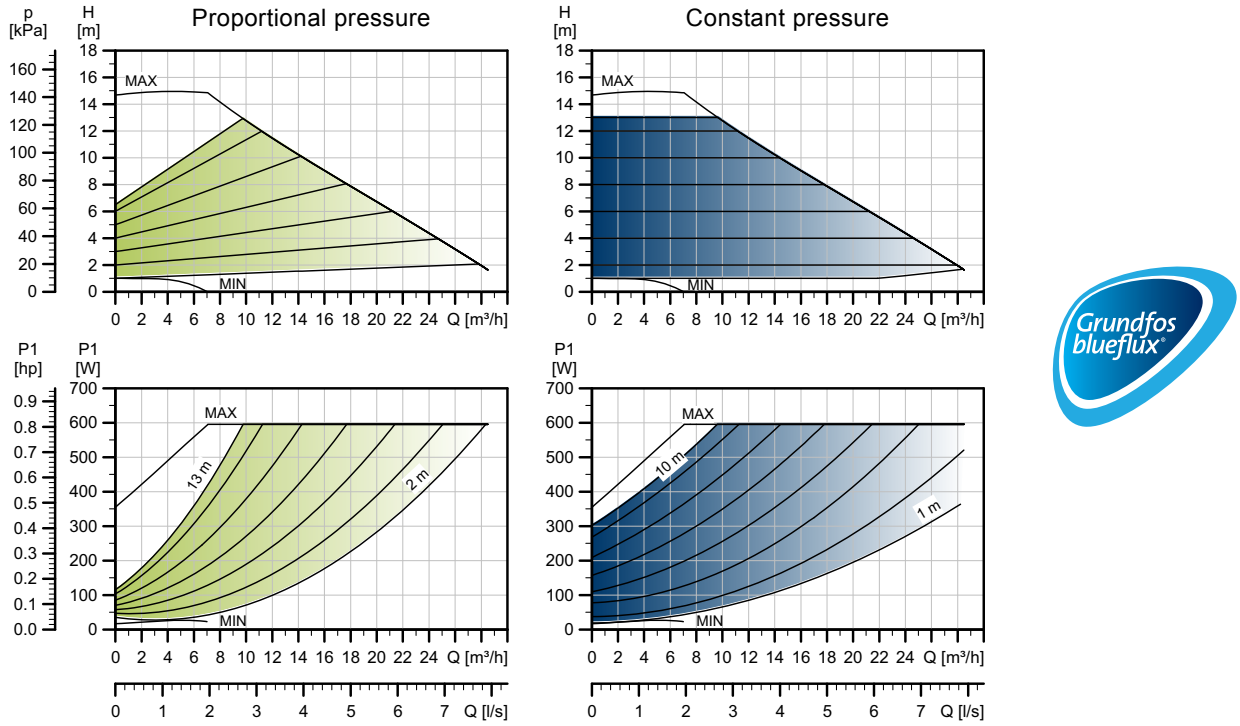
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-120 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 40-150 F (N)

1 x 230 V, 50/60 Hz



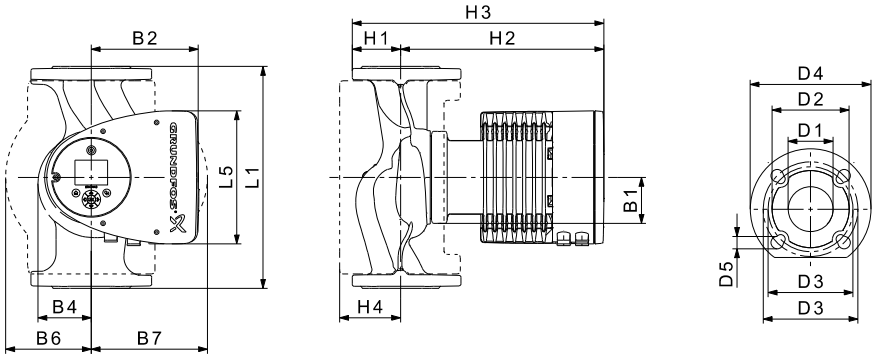
TM05 3737 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	17	0.19
Max.	608	2.69

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.5	18.2	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



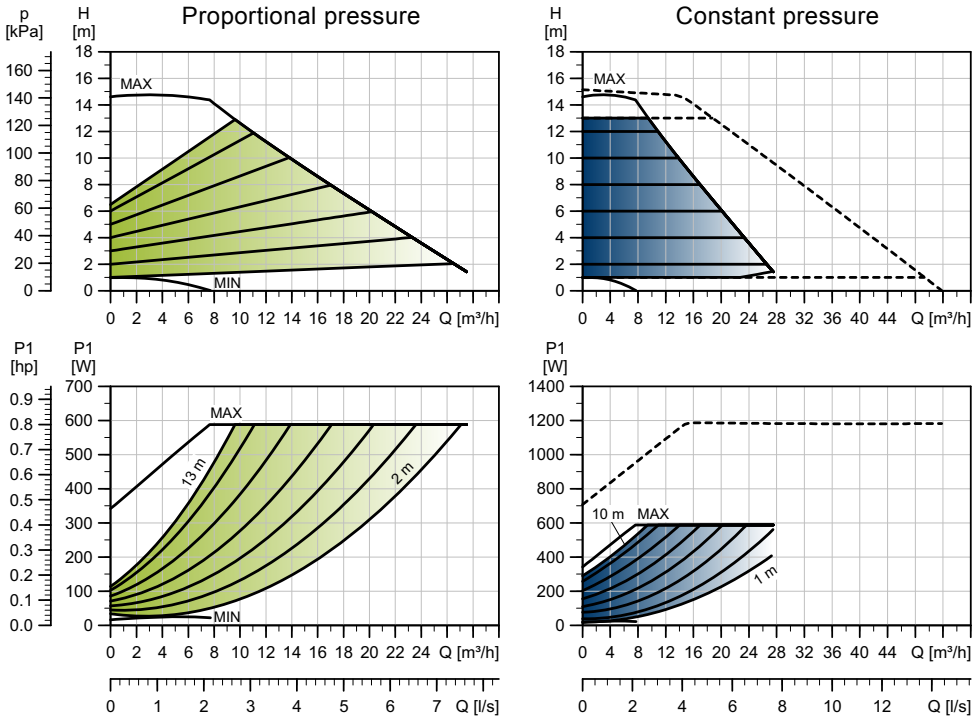
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-150 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-150 F

1 x 230 V, 50/60 Hz



TM05 3791 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	611	2.70

The pump incorporates overload protection.

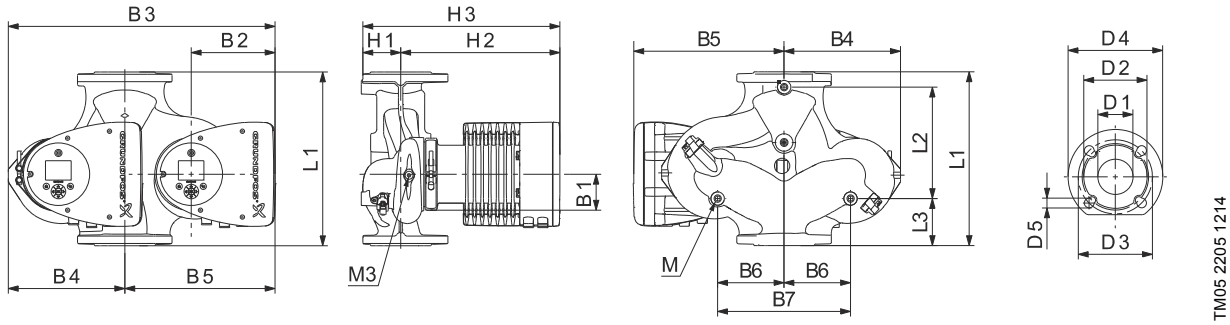
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
31.7	31.9	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



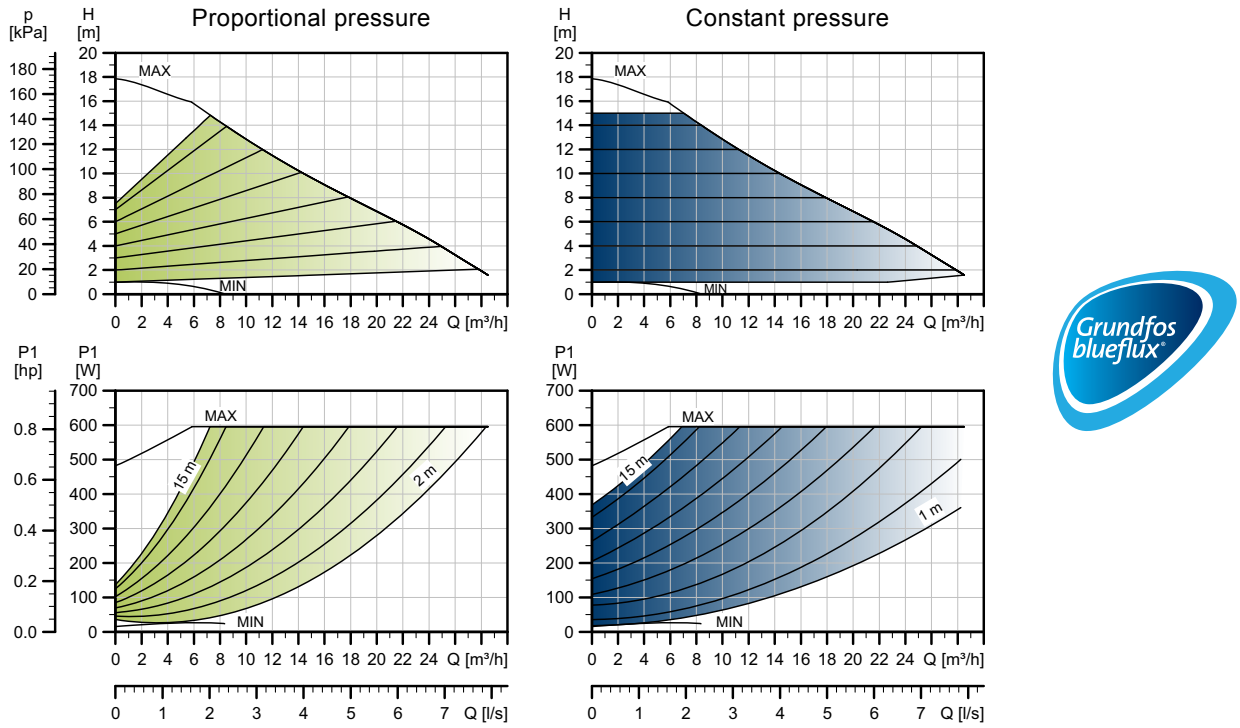
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-150 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 40-180 F (N)

1 x 230 V, 50/60 Hz



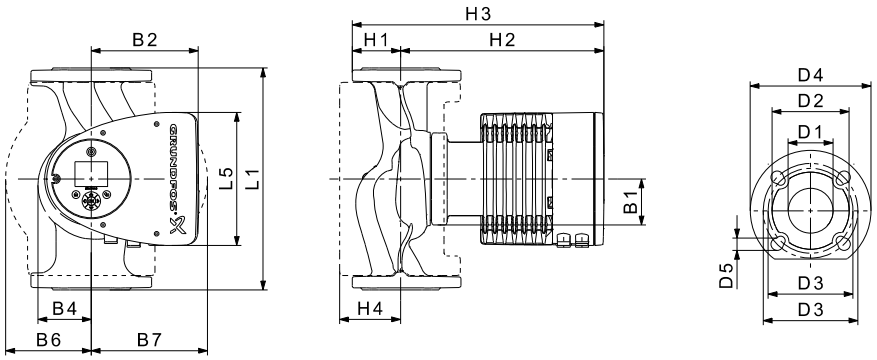
TM05 3738 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	607	2.68

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
15.5	18.7	0.04

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



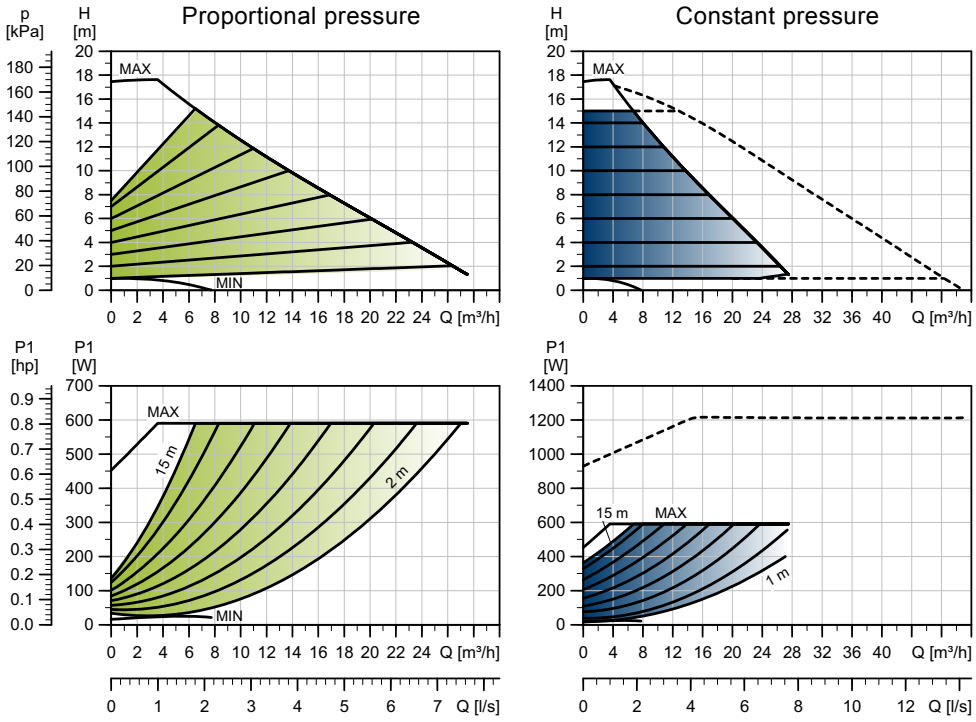
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 40-180 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19

For product numbers, see page 139.

MAGNA3 D 40-180 F

1 x 230 V, 50/60 Hz



TM05 3763 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	613	2.71

The pump incorporates overload protection.

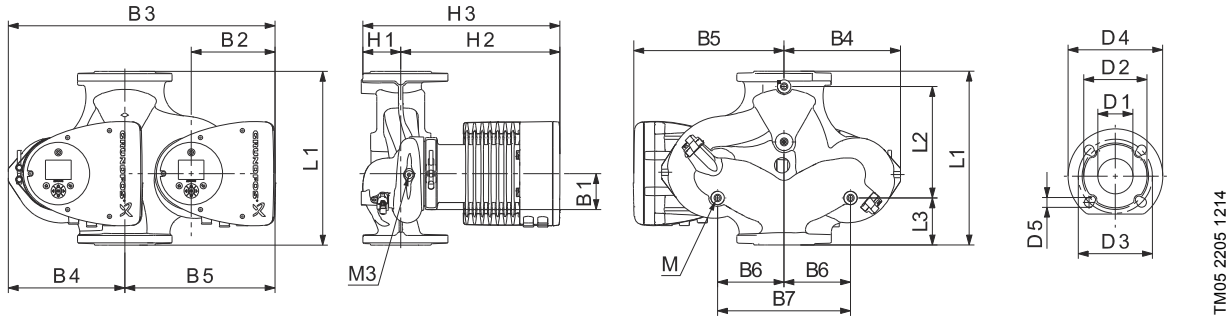
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
31.7	31.9	0.04

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



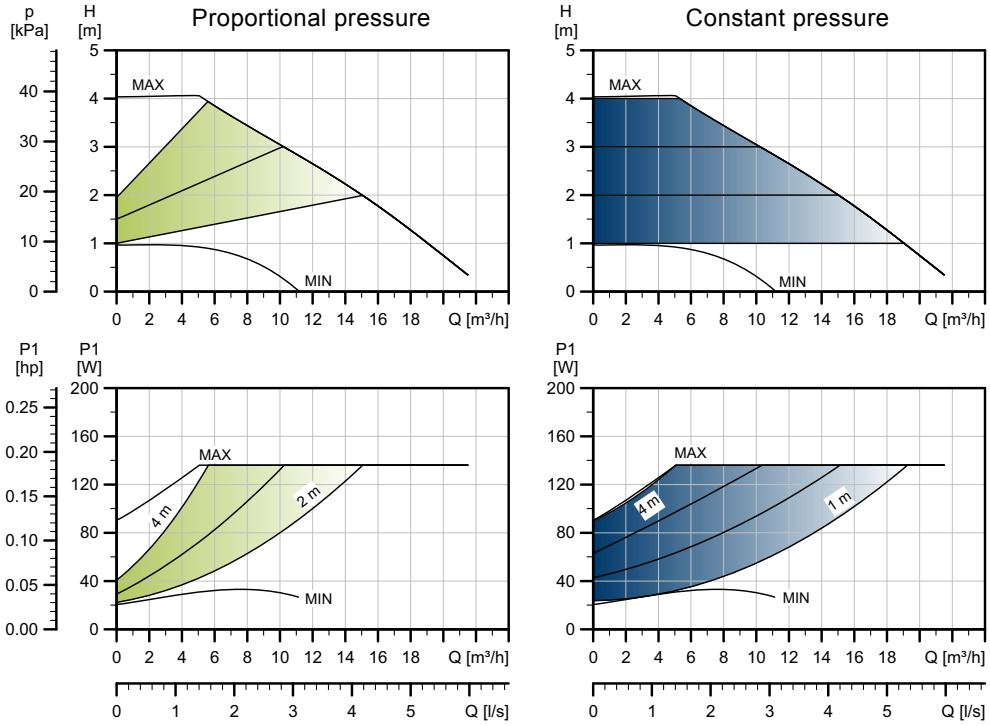
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-180 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-40 F (N)

1 x 230 V, 50/60 Hz



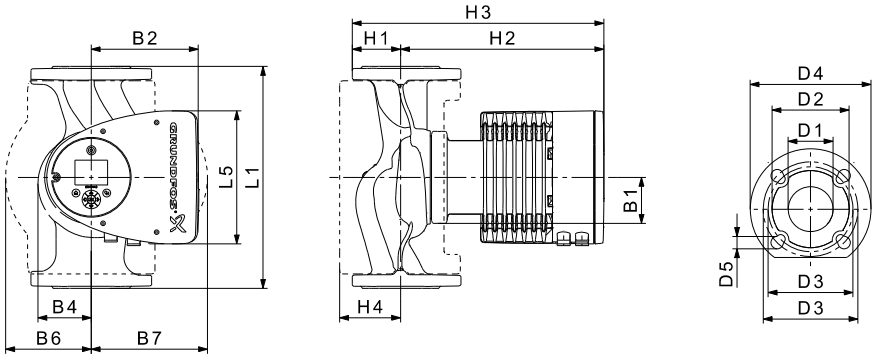
TM05 3739 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.22
Max.	139	0.67

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
17.0	20.4	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.20.



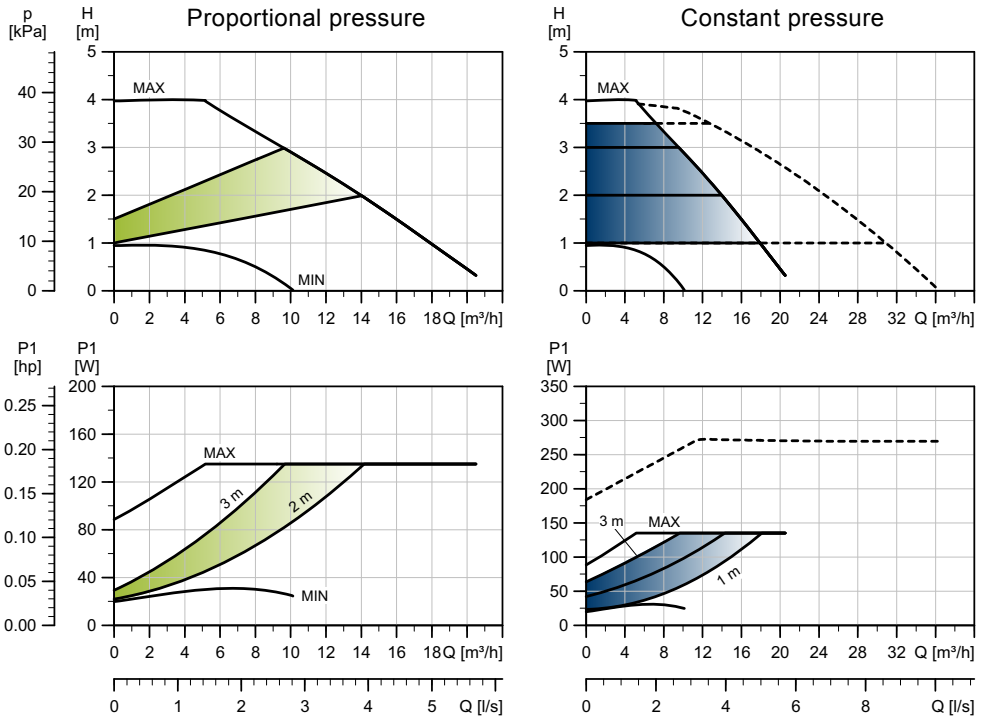
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-40 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-40 F

1 x 230 V, 50/60 Hz



TM05 3764 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.22
Max.	139	0.66

The pump incorporates overload protection.

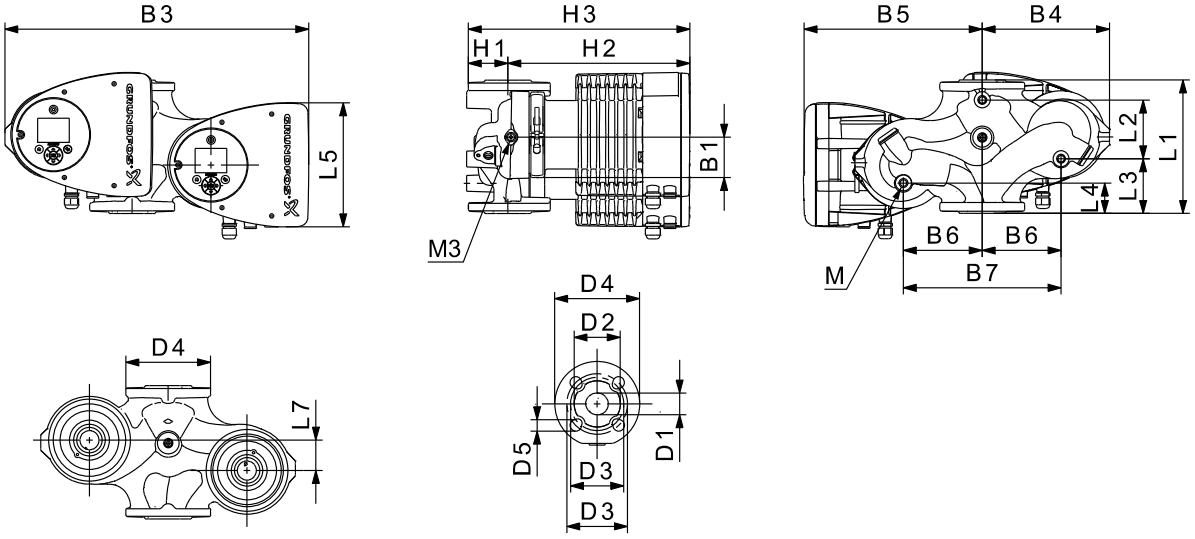
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
33.0	41.8	0.05

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.20.



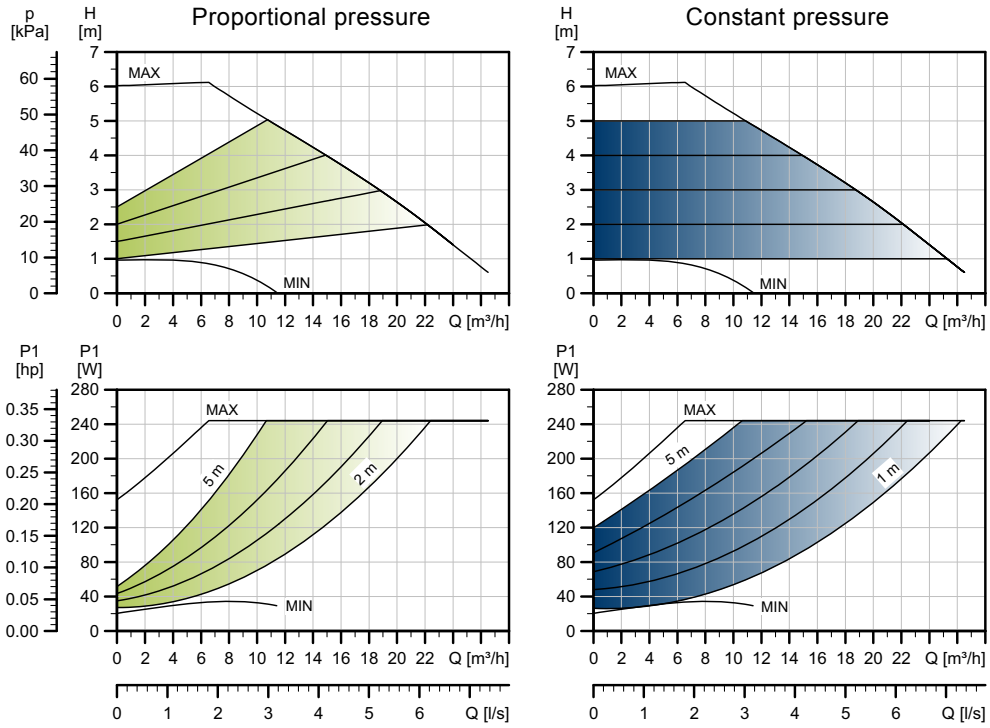
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M1
MAGNA3 D 50-40 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-60 F (N)

1 x 230 V, 50/60 Hz



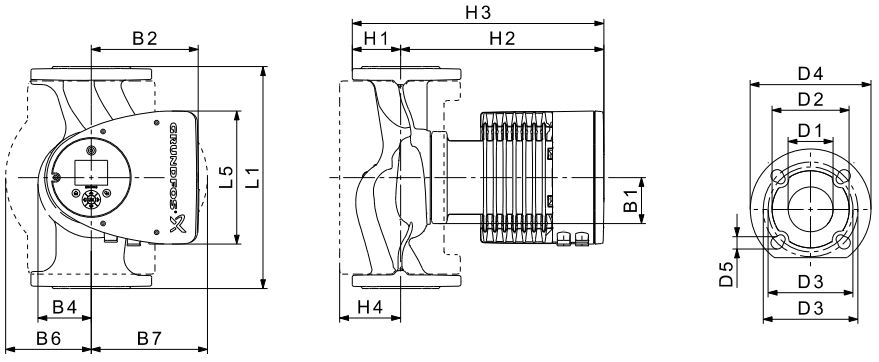
TM05 3740 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.23
Max.	249	1.13

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
17.0	20.4	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.19.



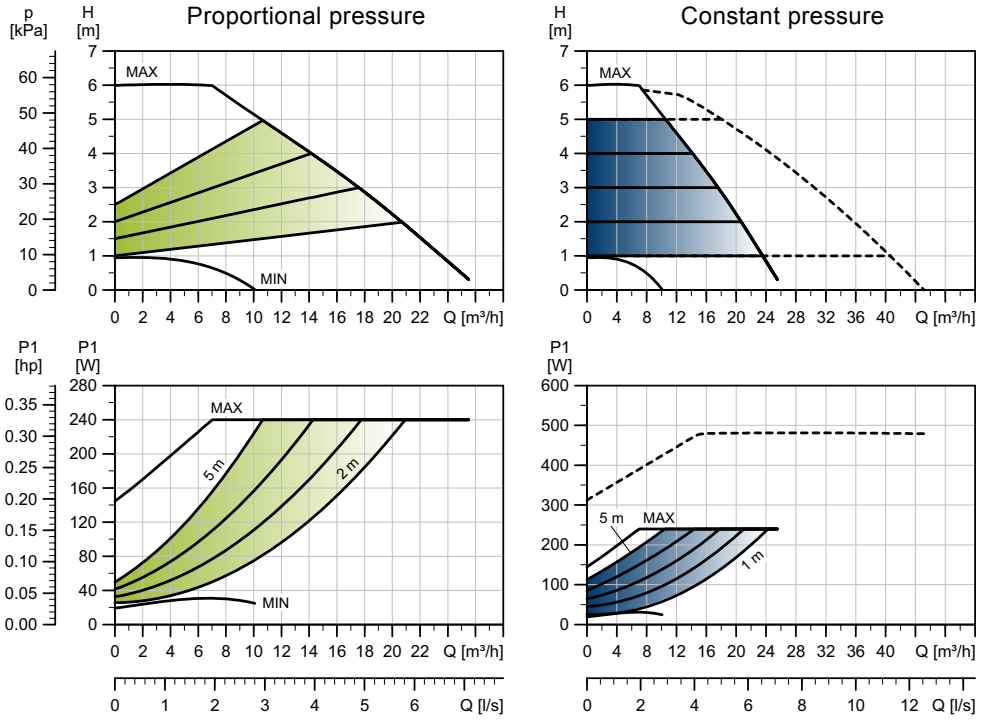
TM05 2204 3612

Pump type	Dimensions [mm]																
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-60 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-60 F

1 x 230 V, 50/60 Hz



TM05 3765 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.21
Max.	244	1.11

The pump incorporates overload protection.

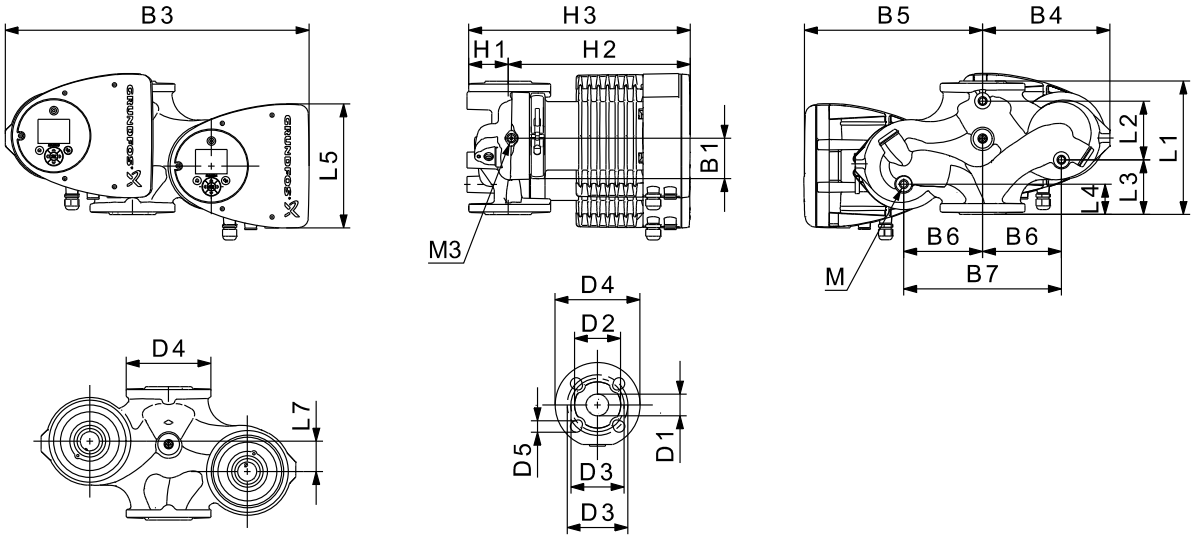
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
33.0	41.8	0.05

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



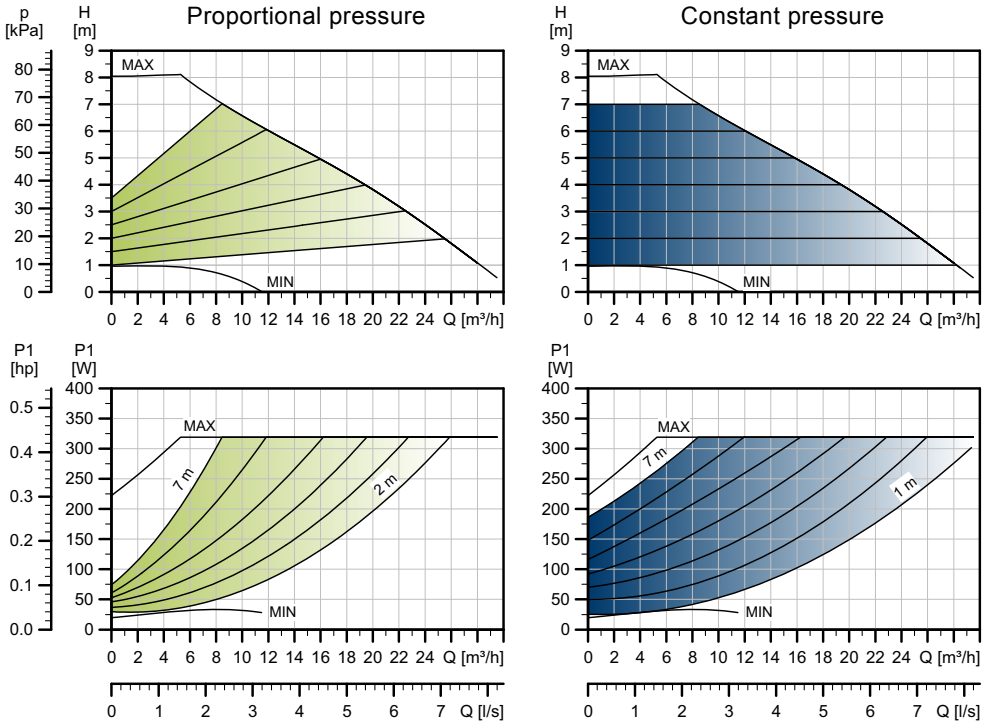
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-60 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-80 F (N)

1 x 230 V, 50/60 Hz



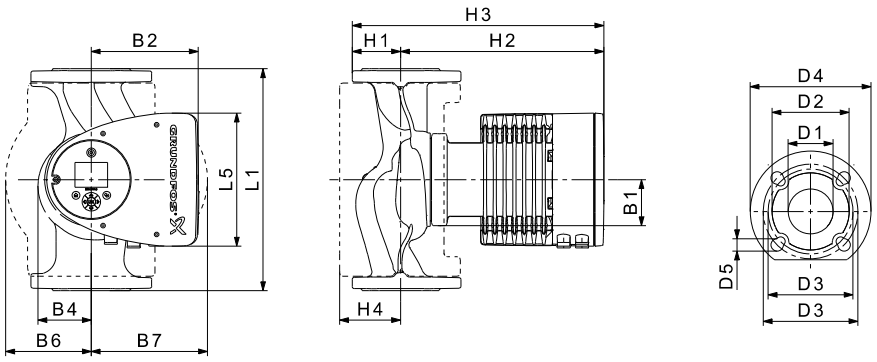
TM05 3741 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.22
Max.	325	1.46

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
17.0	20.4	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



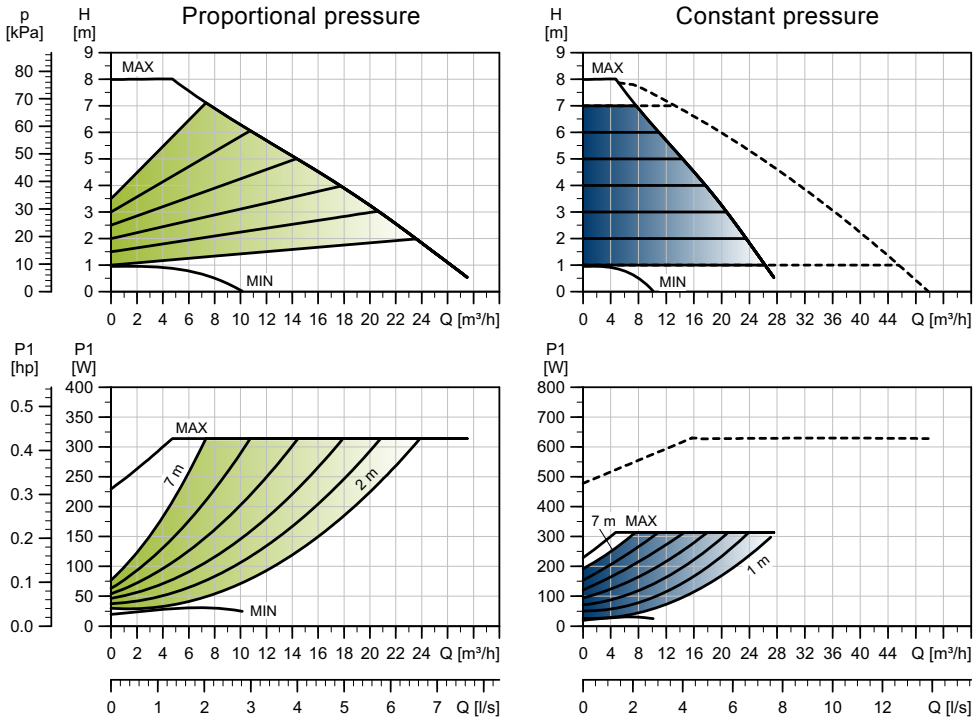
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-80 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-80 F

1 x 230 V, 50/60 Hz



TM05 3766 1812

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.22
Max.	324	1.45

The pump incorporates overload protection.

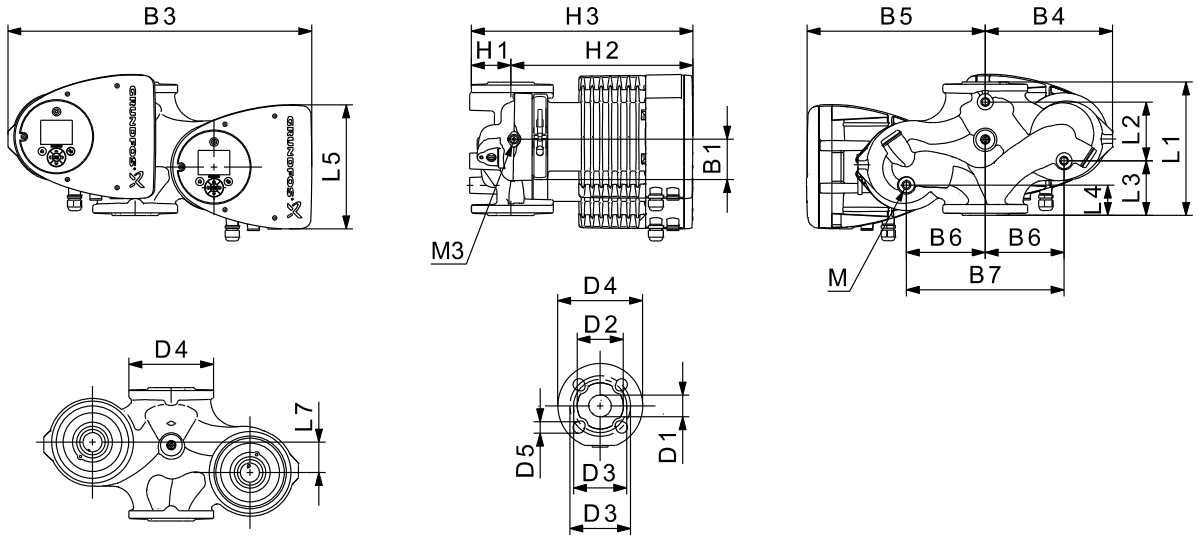
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
33.0	41.8	0.05

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



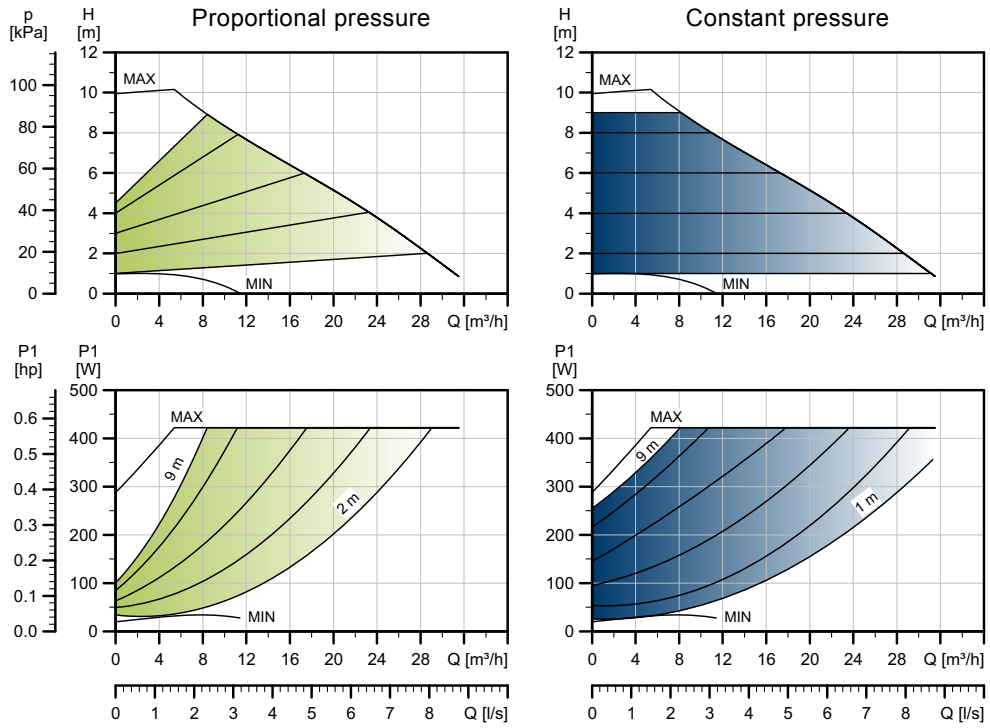
TM05 5294 3612

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-80 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-100 F (N)

1 x 230 V, 50/60 Hz



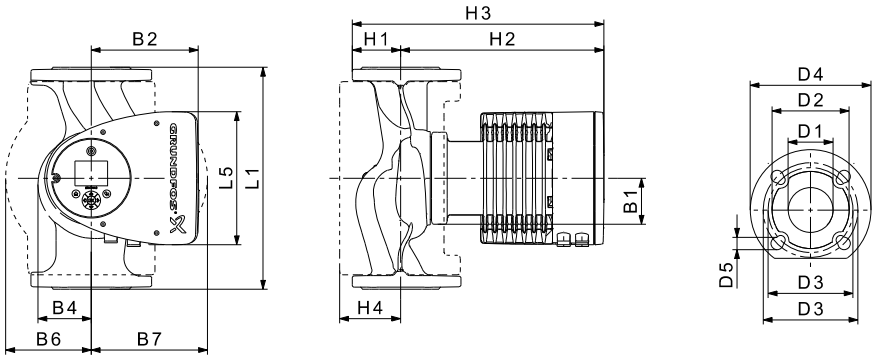
TM05 3742 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.22
Max.	429	1.91

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
17.6	21.1	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



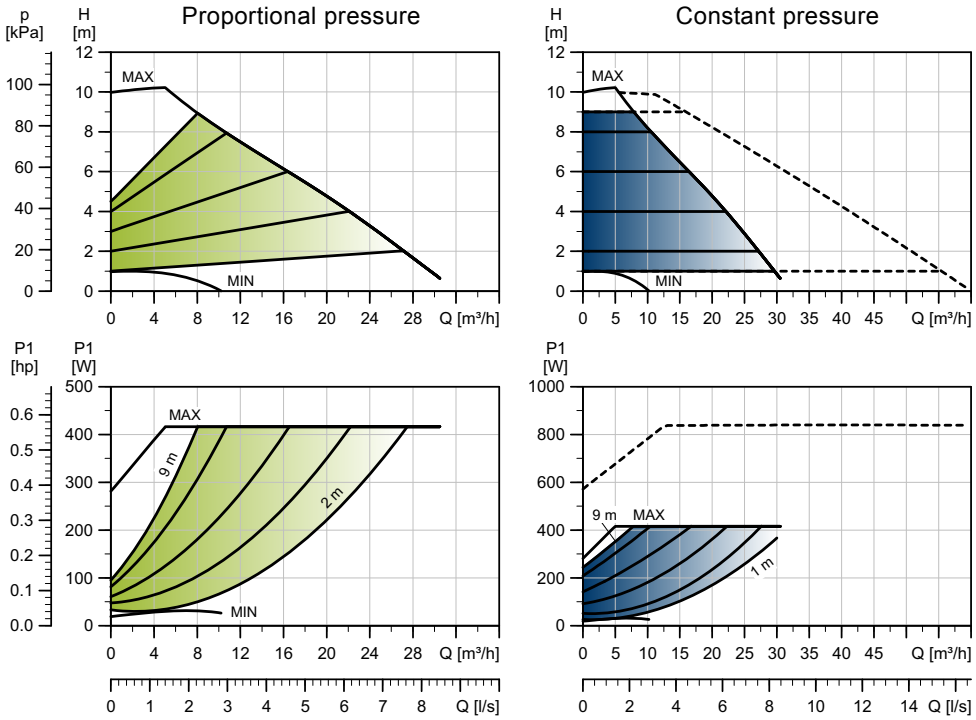
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-100 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-100 F

1 x 230 V, 50/60 Hz



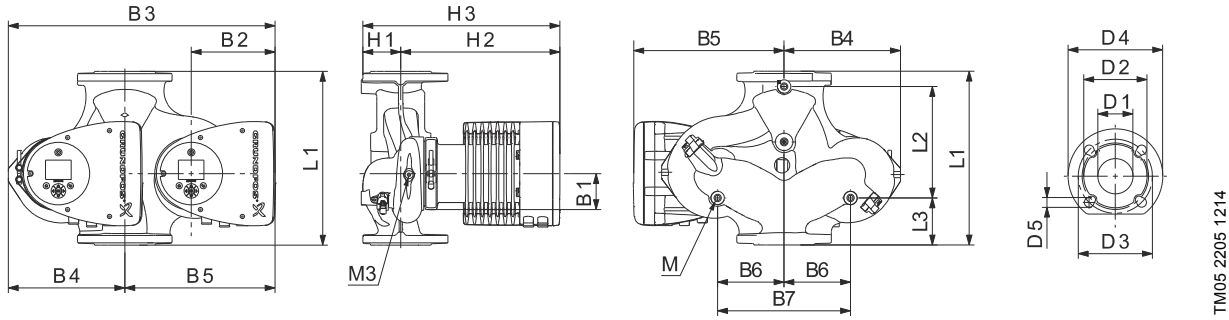
TM05 3767 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.21
Max.	430	1.91

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
33.3	42.1	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.18.



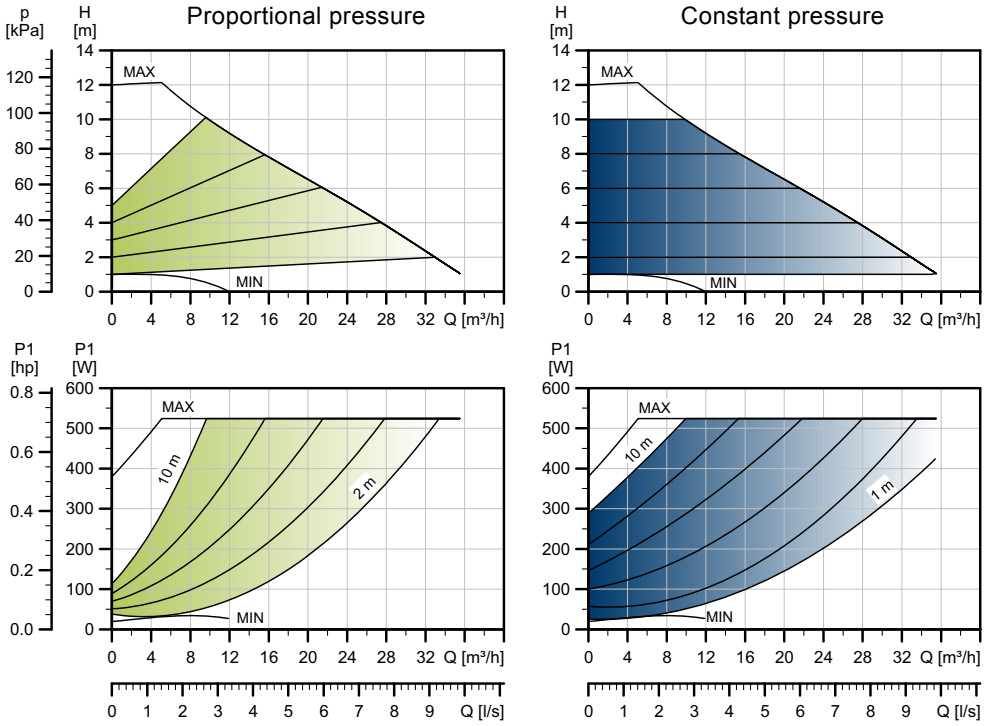
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-100 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-120 F (N)

1 x 230 V, 50/60 Hz



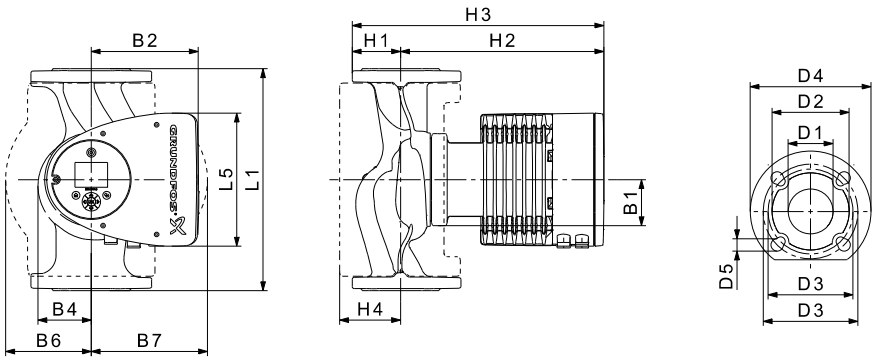
TM05 3743 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.22
Max.	536	2.37

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
17.6	21.1	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



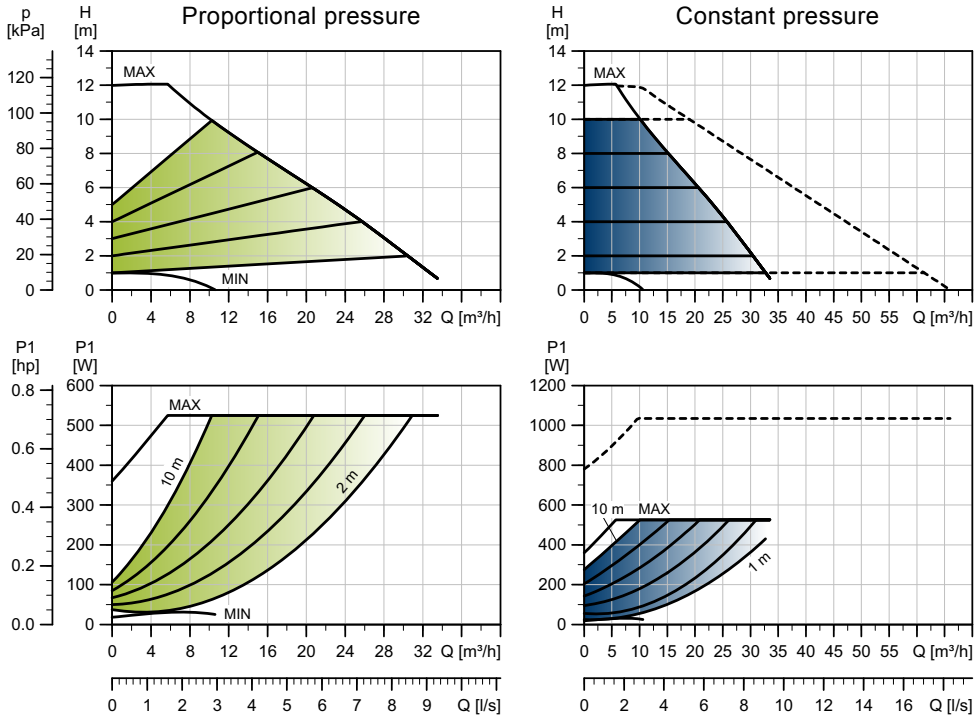
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-120 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-120 F

1 x 230 V, 50/60 Hz



TM05 3768 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	19	0.20
Max.	536	2.37

The pump incorporates overload protection.

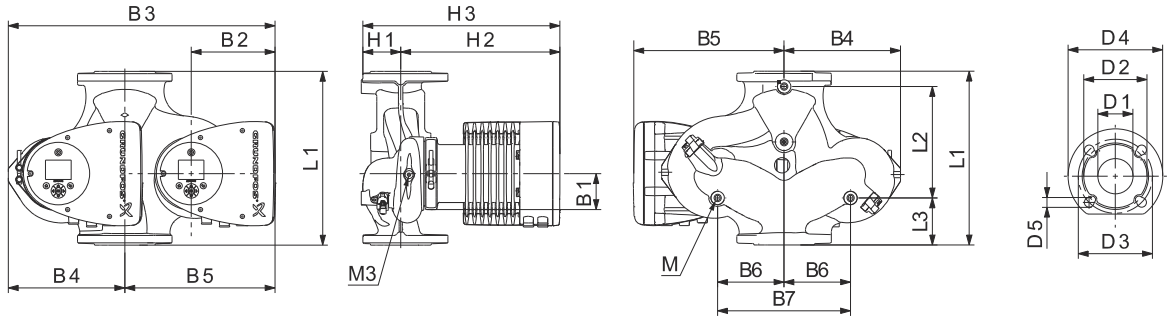
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
33.3	42.1	0.05

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



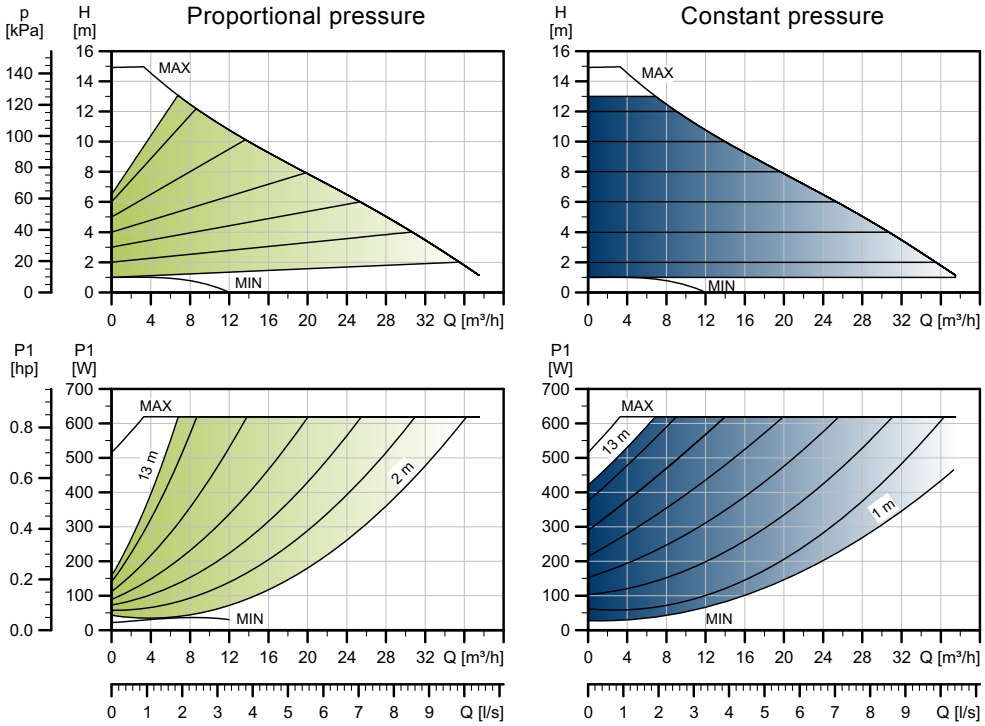
TM05 2205 1214

Pump type	Dimensions [mm]																			
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-120 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-150 F (N)

1 x 230 V, 50/60 Hz



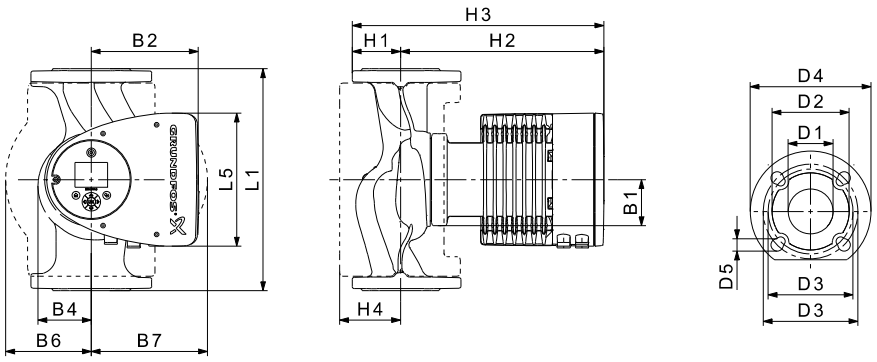
TM05 3744 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	22	0.23
Max.	630	2.78

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
18.3	22.0	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



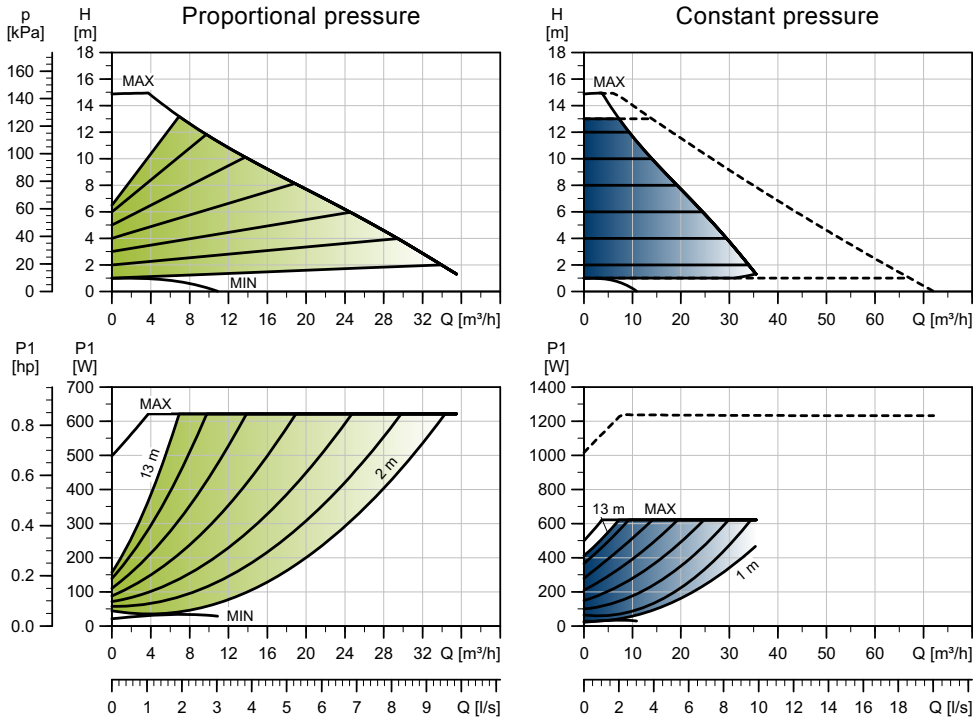
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-150 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-150 F

1 x 230 V, 50/60 Hz



TM05 3769 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	22	0.23
Max.	630	2.78

The pump incorporates overload protection.

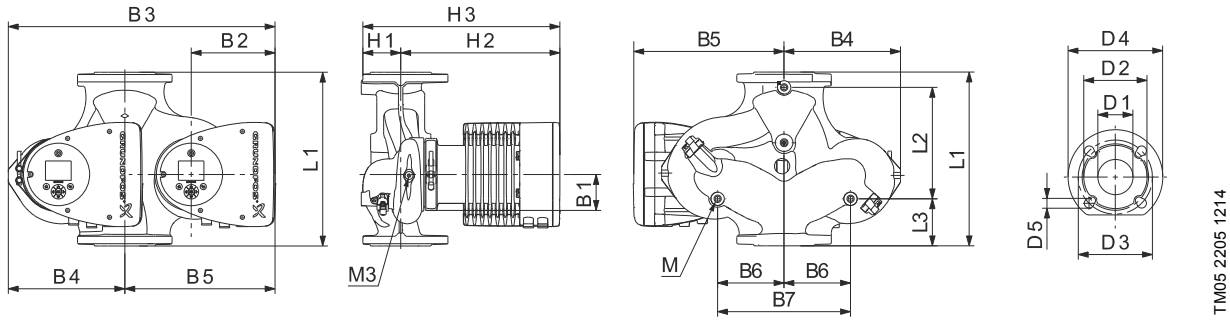
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
34.7	43.9	0.05

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



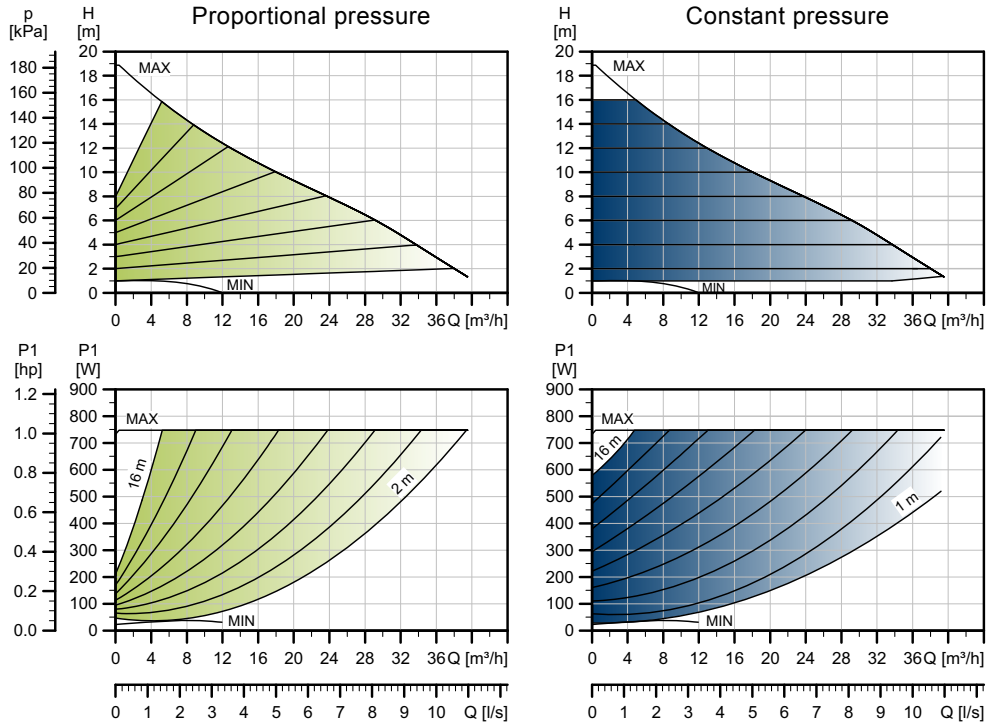
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-150 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 50-180 F (N)

1 x 230 V, 50/60 Hz



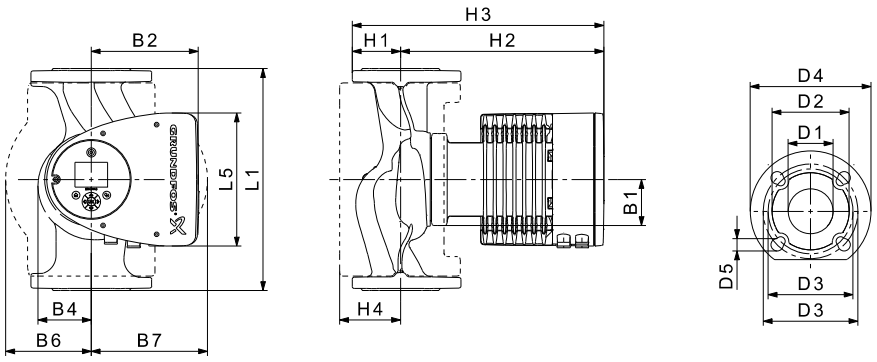
TM05 3745 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	23	0.24
Max.	762	3.35

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
18.3	21.9	0.05

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



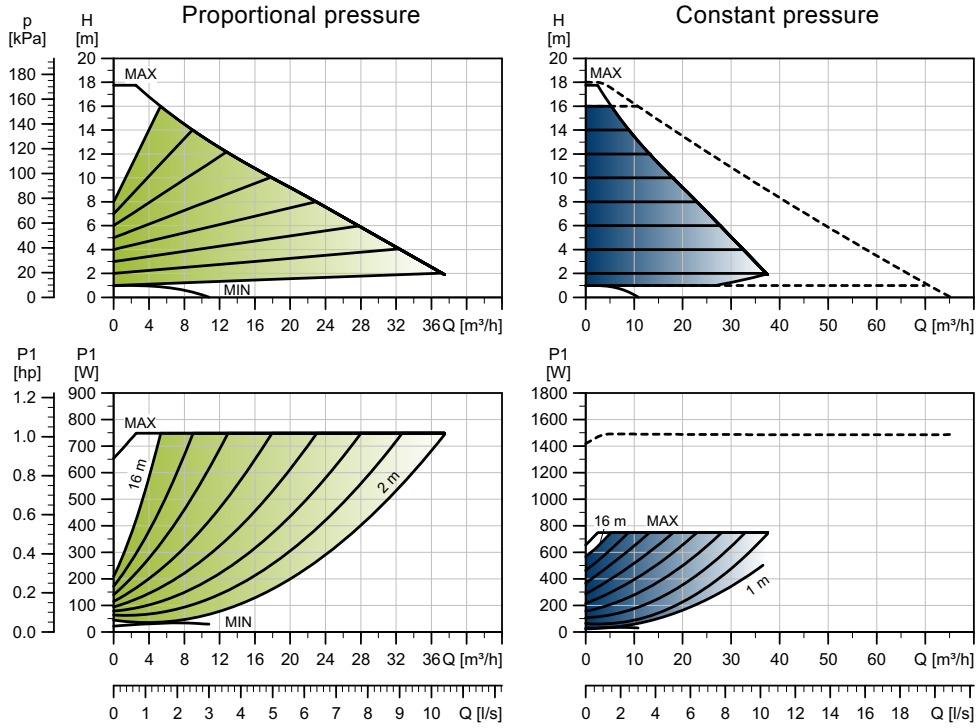
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 50-180 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19

For product numbers, see page 139.

MAGNA3 D 50-180 F

1 x 230 V, 50/60 Hz



TM05 3770 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	23	0.24
Max.	762	3.35

The pump incorporates overload protection.

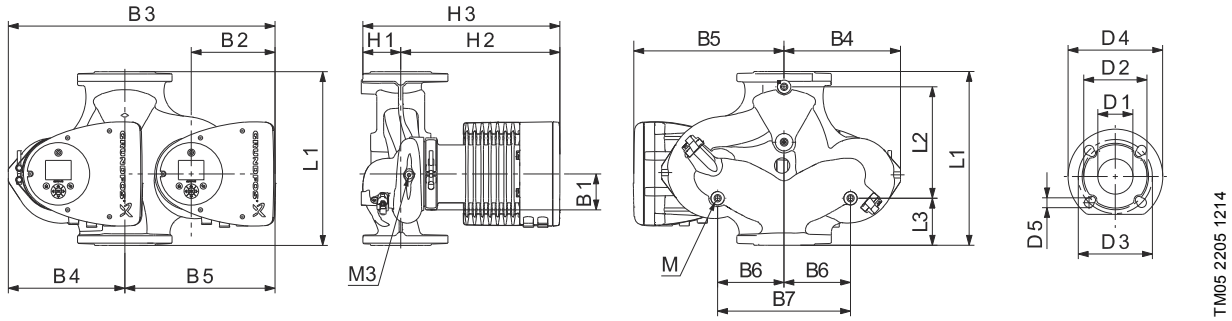
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
34.7	**43.9**	**0.05**

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



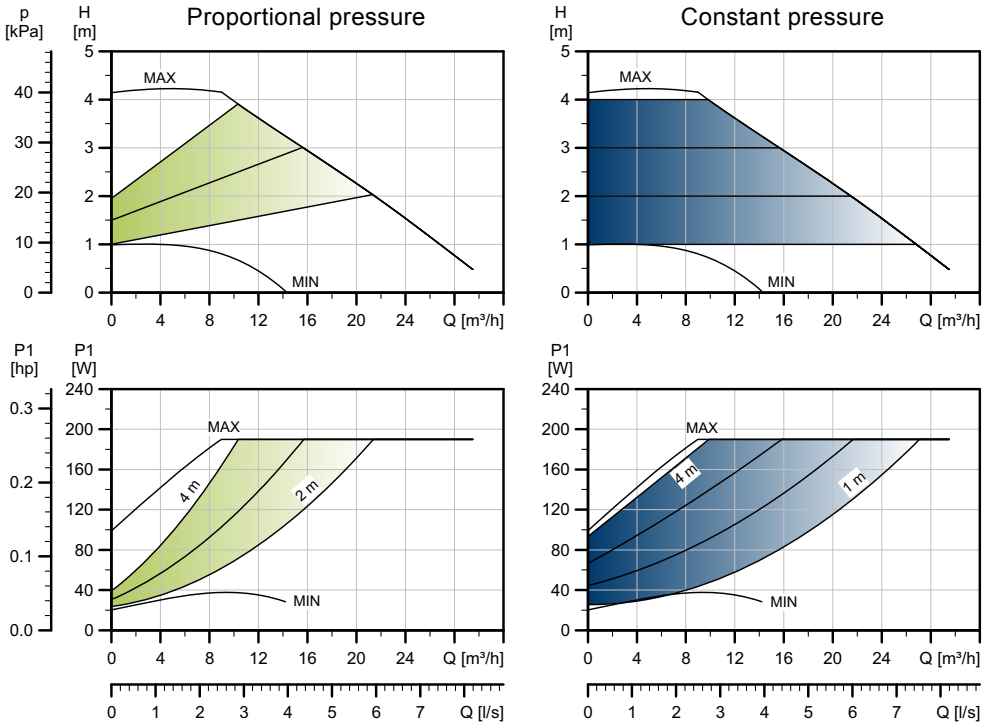
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 50-180 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-40 F (N)

1 x 230 V, 50/60 Hz



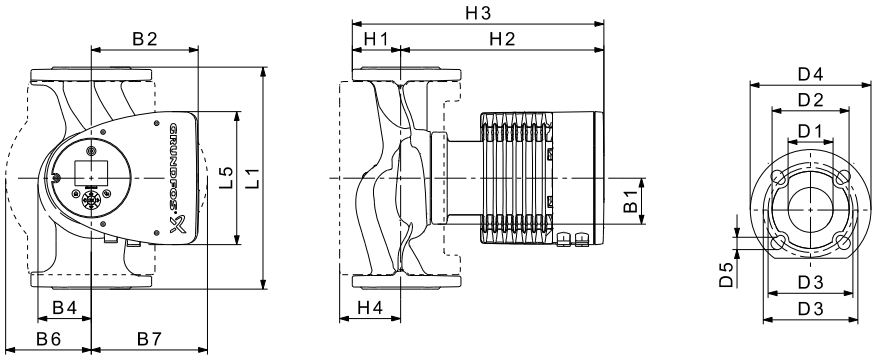
TM05 3746 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.22
Max.	194	0.90

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
20.2	23.8	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



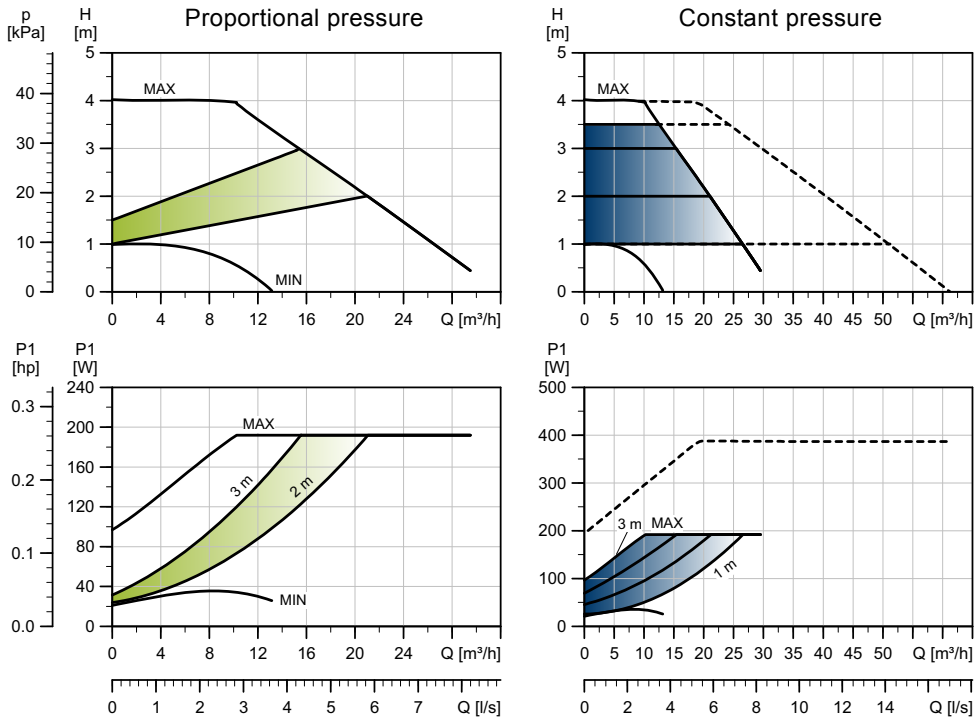
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-40 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-40 F

1 x 230 V, 50/60 Hz



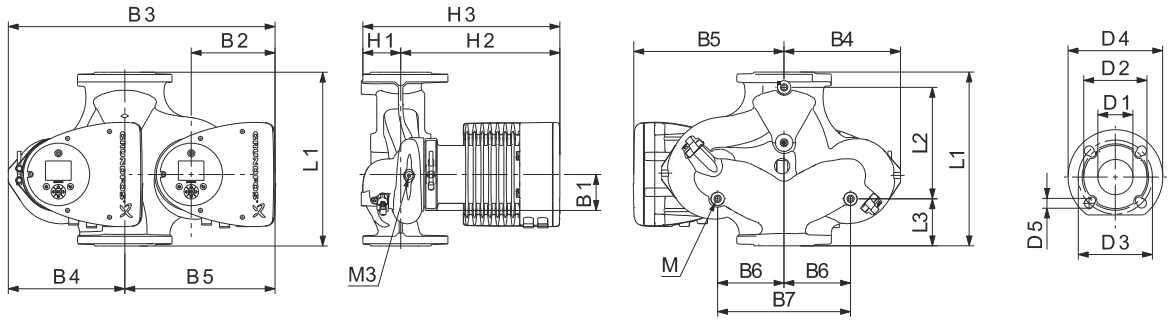
TM05 3771 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.22
Max.	189	0.89

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
36.9	45.8	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.19.



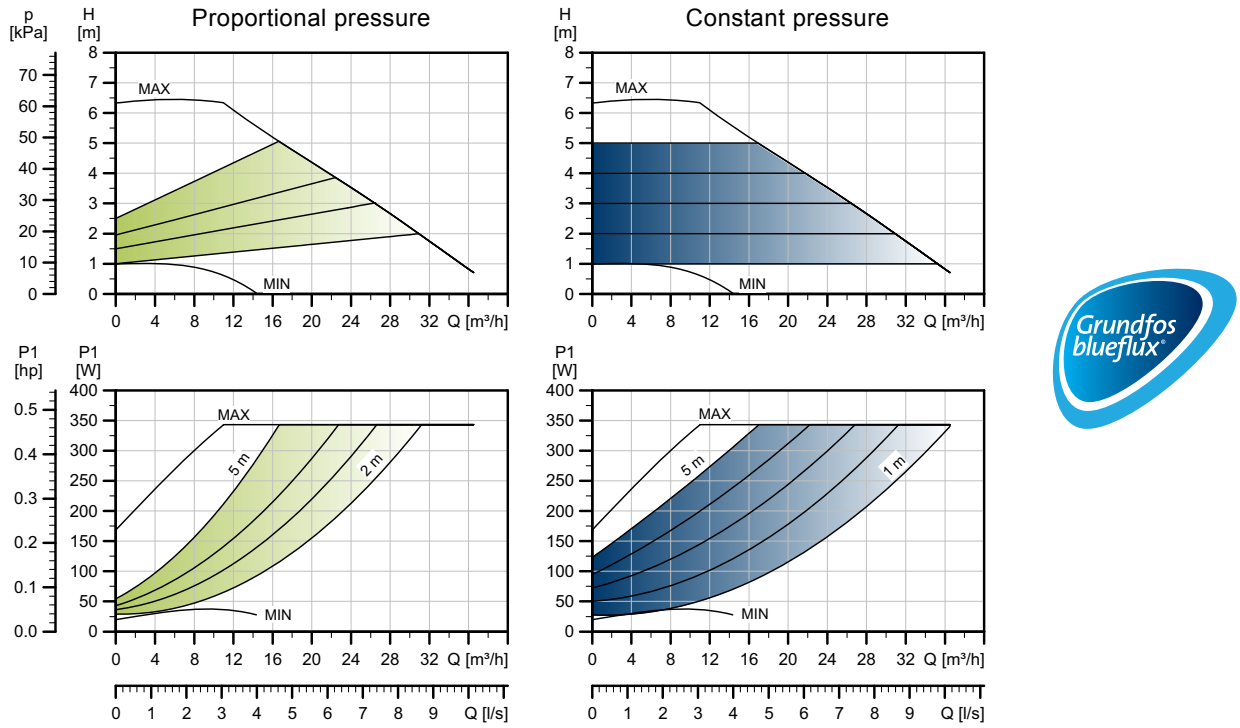
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-40 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-60 F (N)

1 x 230 V, 50/60 Hz



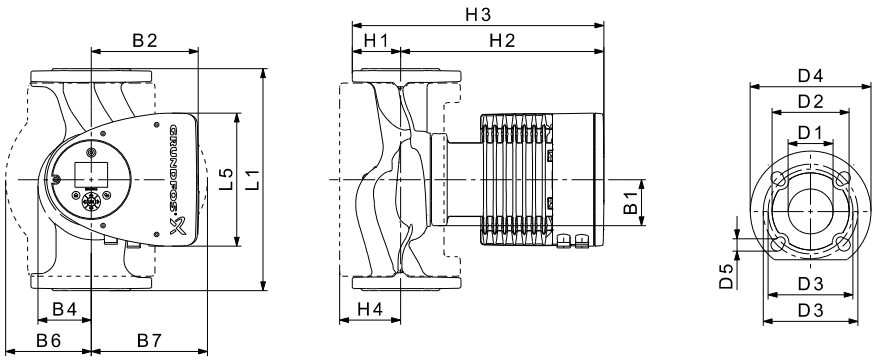
TM05 3747 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	20	0.22
Max.	350	1.57

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
20.2	23.8	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.18.



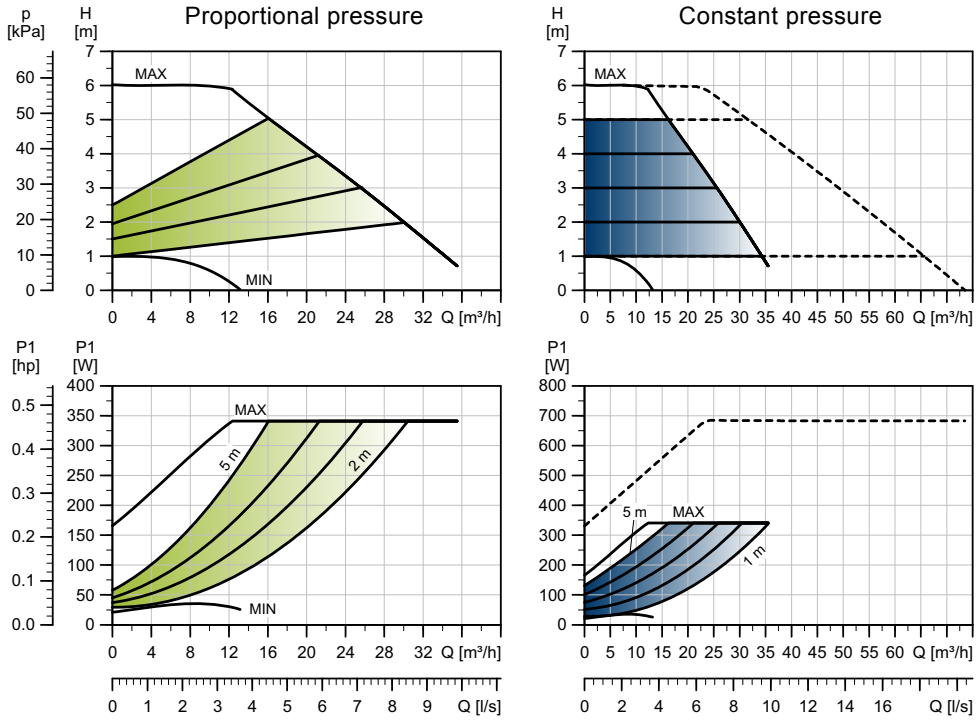
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-60 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-60 F

1 x 230 V, 50/60 Hz



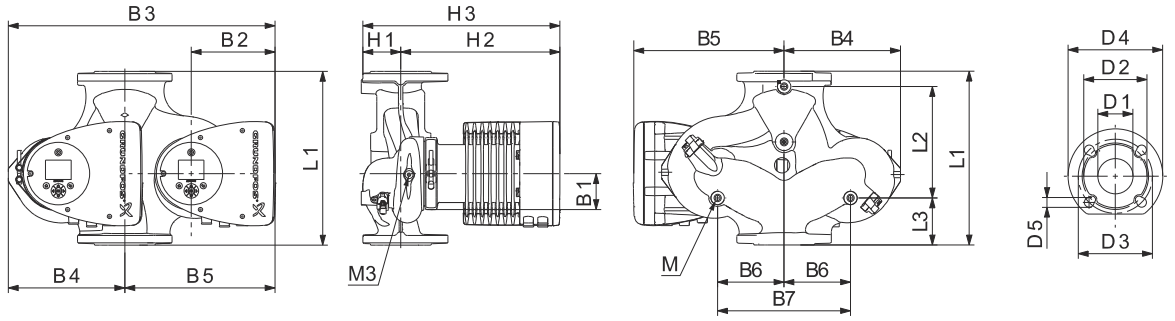
TM05 3772 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.23
Max.	352	1.57

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
36.9	45.8	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.18.



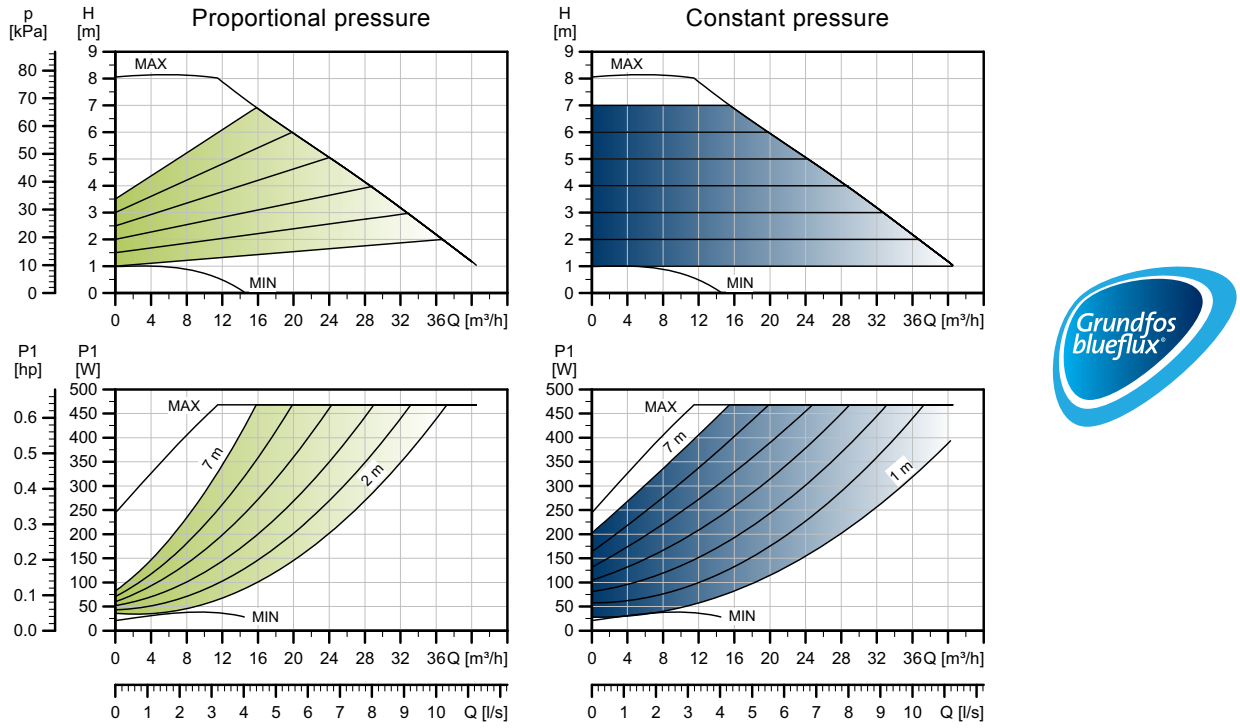
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-60 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-80 F (N)

1 x 230 V, 50/60 Hz



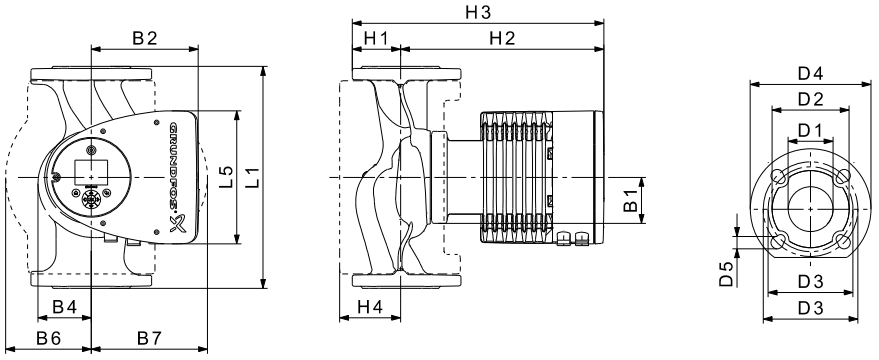
TM05 3748 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	22	0.24
Max.	478	2.12

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
21.0	24.7	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



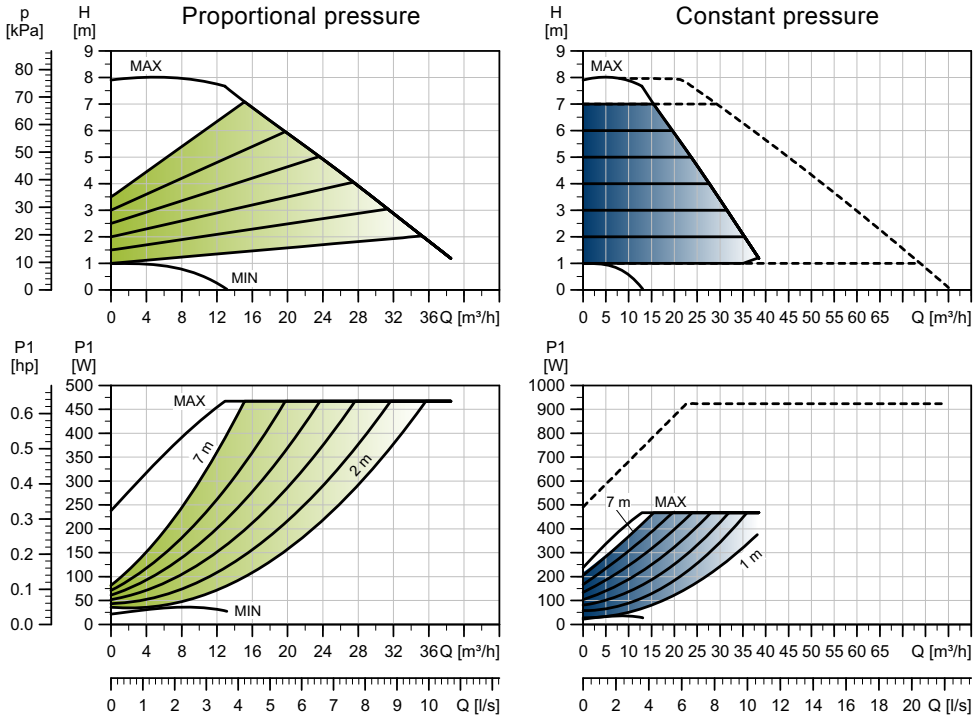
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-80 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-80 F

1 x 230 V, 50/60 Hz



TM05 3773 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	22	0.24
Max.	478	2.12

The pump incorporates overload protection.

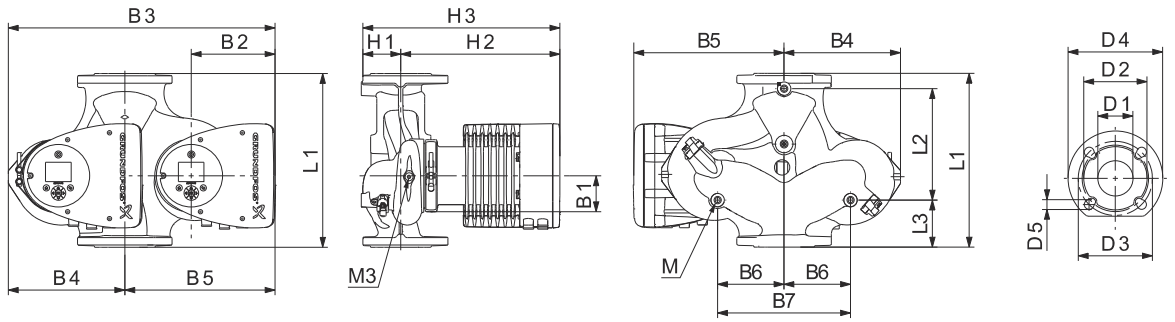
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
38.7	47.6	0.06

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



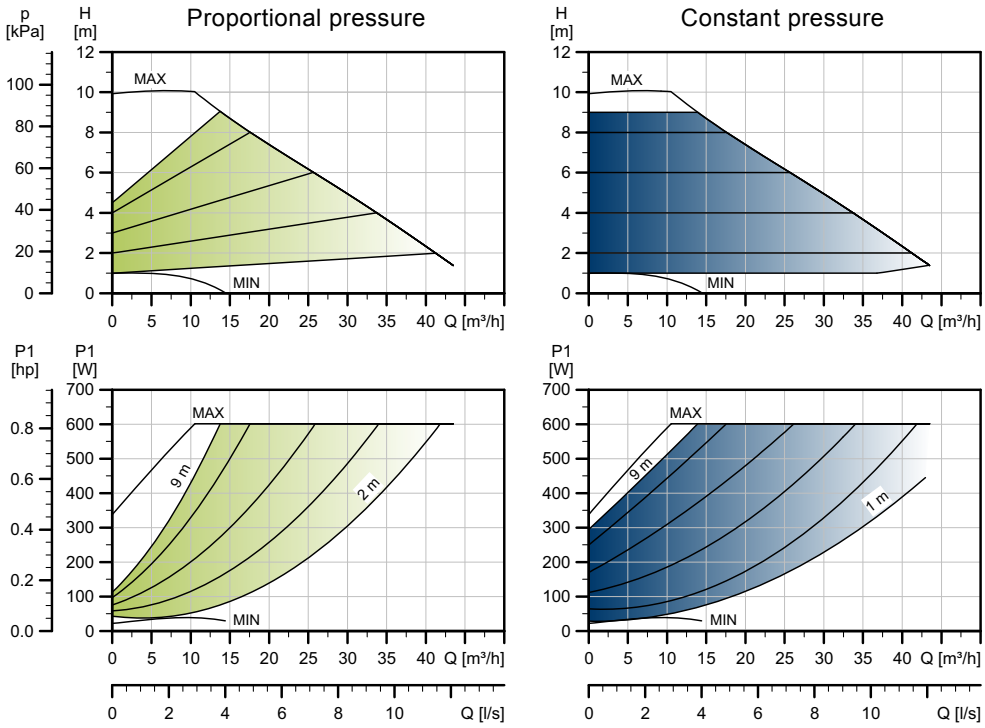
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-80 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-100 F (N)

1 x 230 V, 50/60 Hz



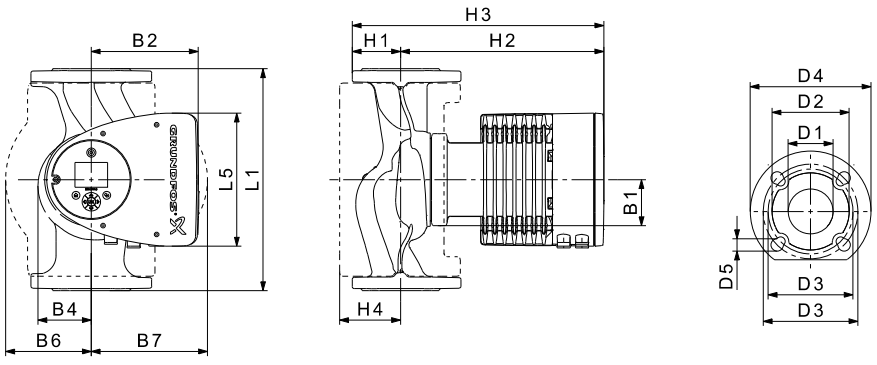
TM05 3749 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	21	0.23
Max.	613	2.70

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
21.0	24.7	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



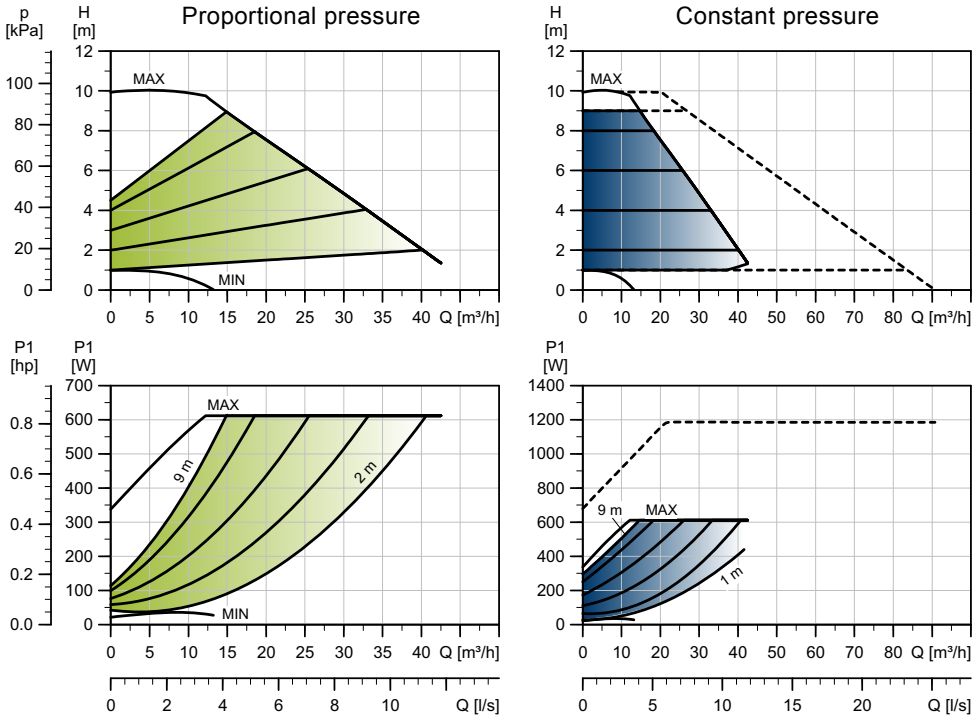
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-100 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-100 F

1 x 230 V, 50/60 Hz



TM05 3774 3612

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	23	0.24
Max.	613	2.97

The pump incorporates overload protection.

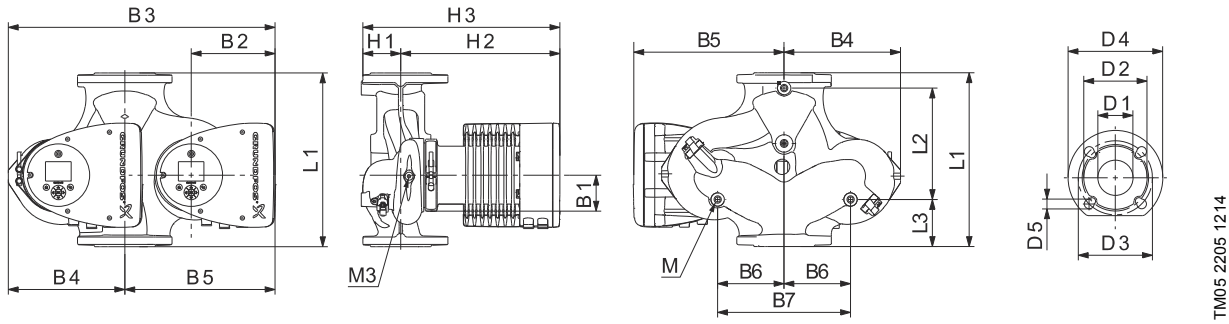
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
38.7	47.6	0.06

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



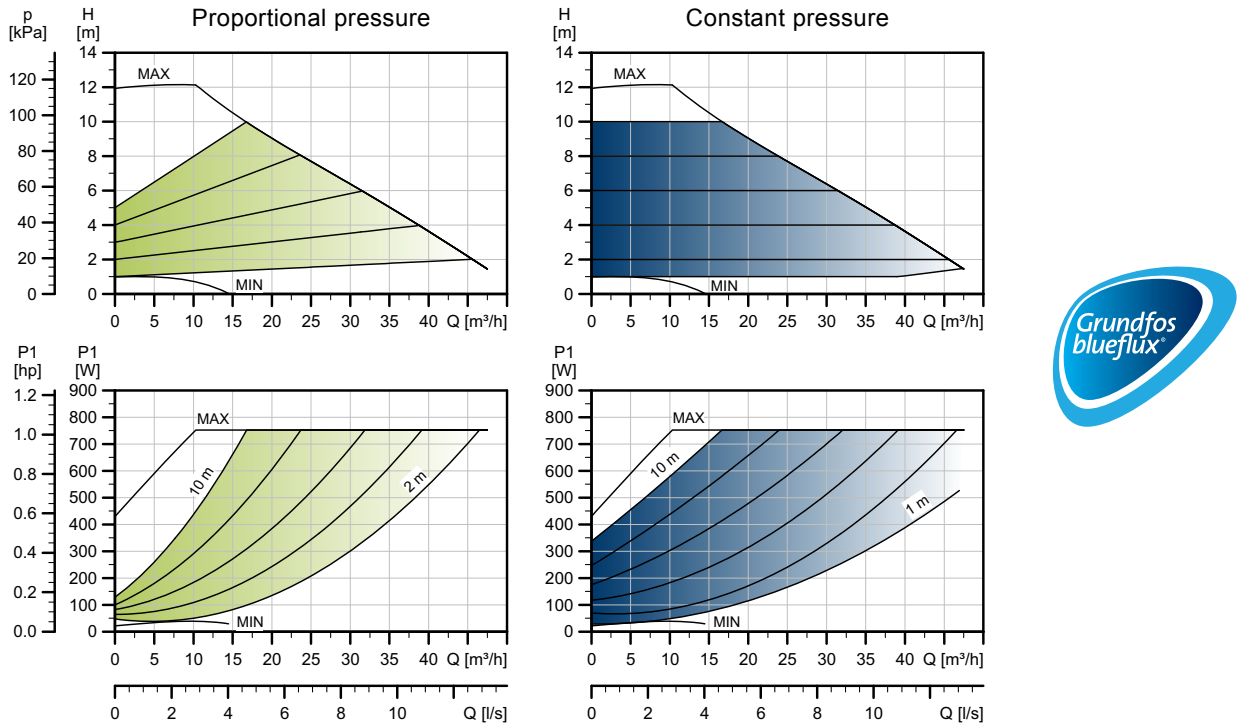
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-100 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-120 F (N)

1 x 230 V, 50/60 Hz



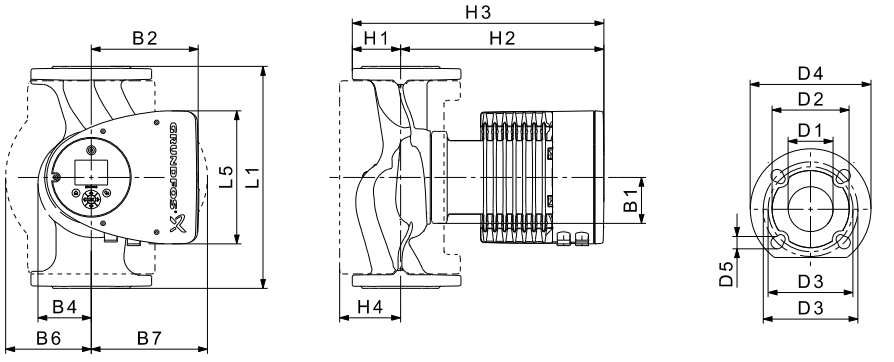
TM05 3750 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	16	0.18
Max.	769	3.38

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
21.0	24.7	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



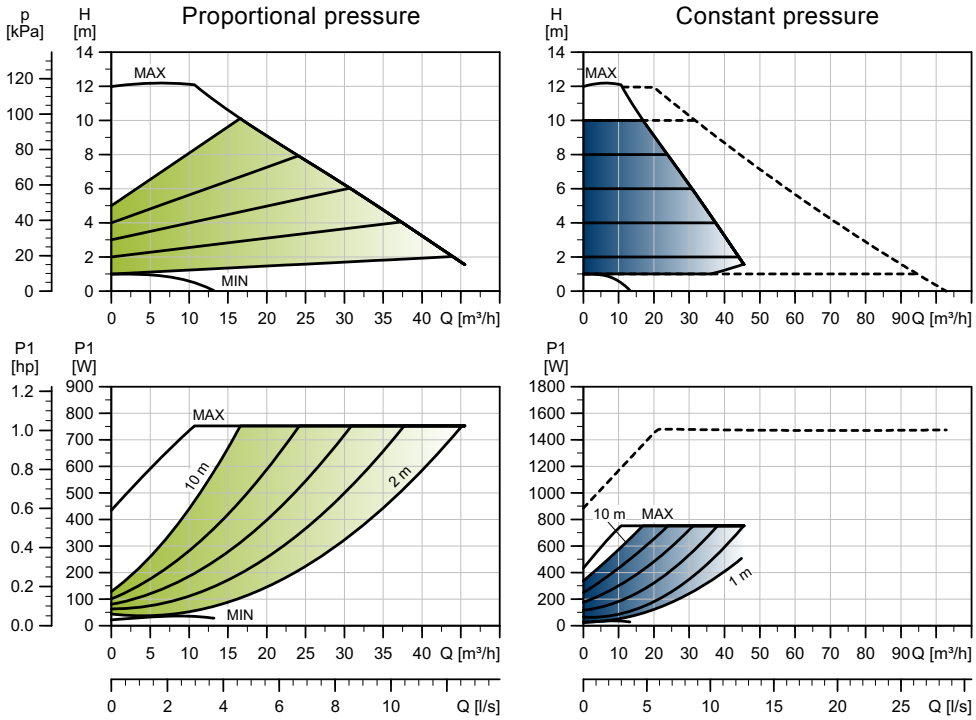
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-120 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-120 F

1 x 230 V, 50/60 Hz



TM05 3775 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	23	0.24
Max.	760	3.36

The pump incorporates overload protection.

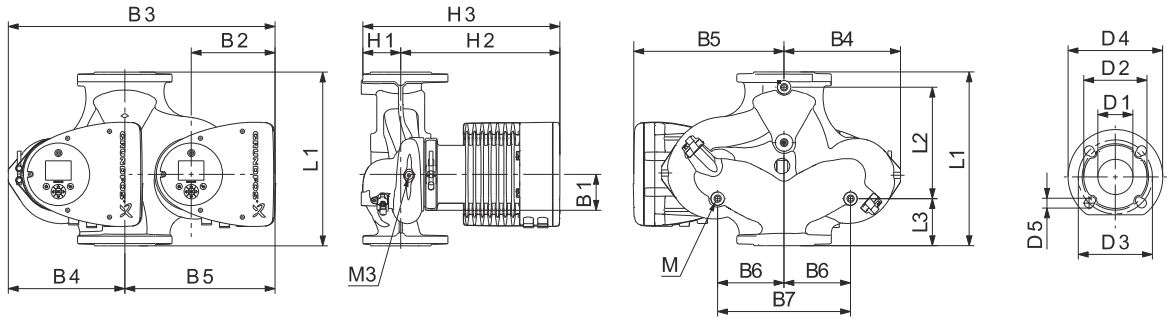
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
38.7	47.6	0.06

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



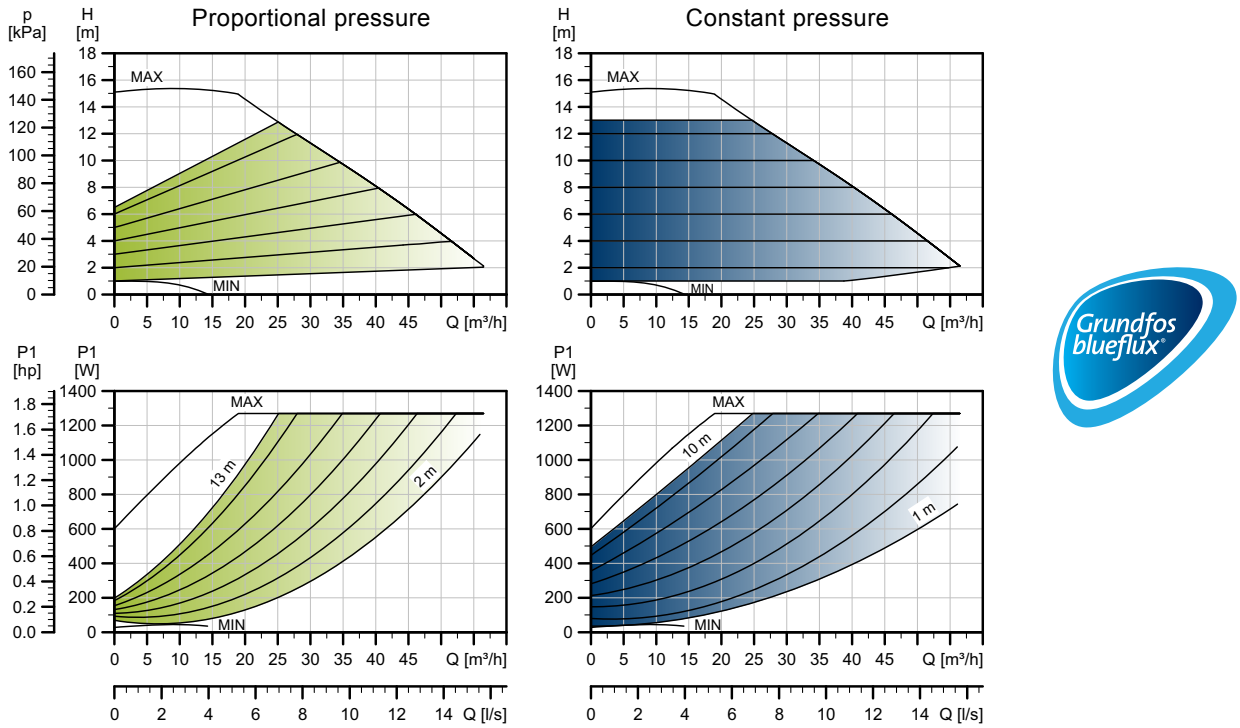
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-120 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 65-150 F (N)

1 x 230 V, 50/60 Hz



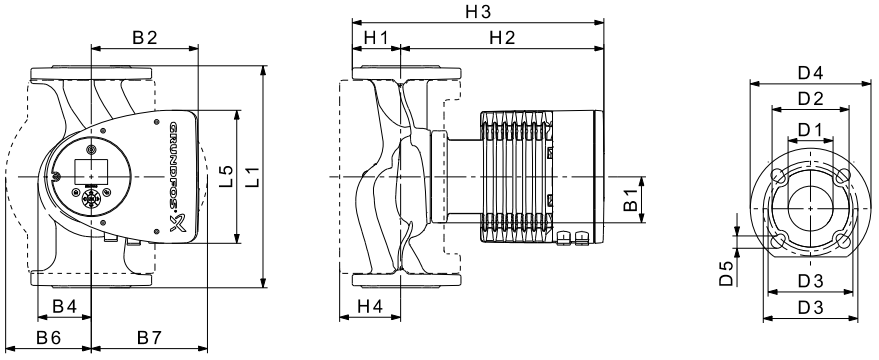
TM05 3751 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	29	0.30
Max.	1301	5.68

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
24.0	27.8	0.06

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Also available with: Stainless-steel pump housing, type N.
Specific EEI: 0.17.



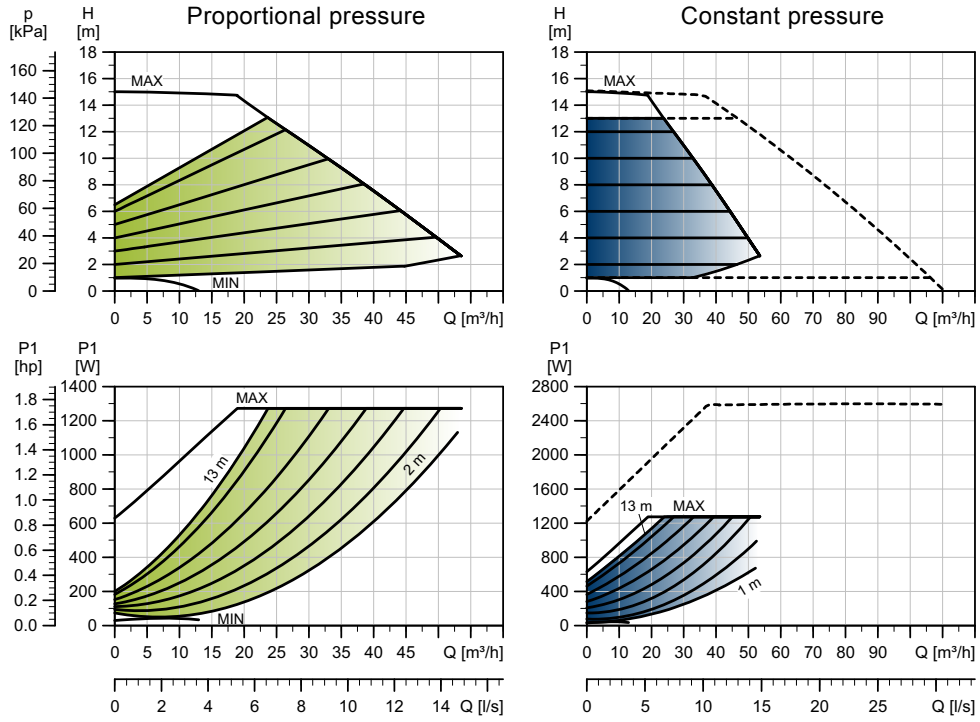
TM05 2204 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 65-150 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

For product numbers, see page 139.

MAGNA3 D 65-150 F

1 x 230 V, 50/60 Hz



TM05 3776 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	29	0.30
Max.	1301	5.68

The pump incorporates overload protection.

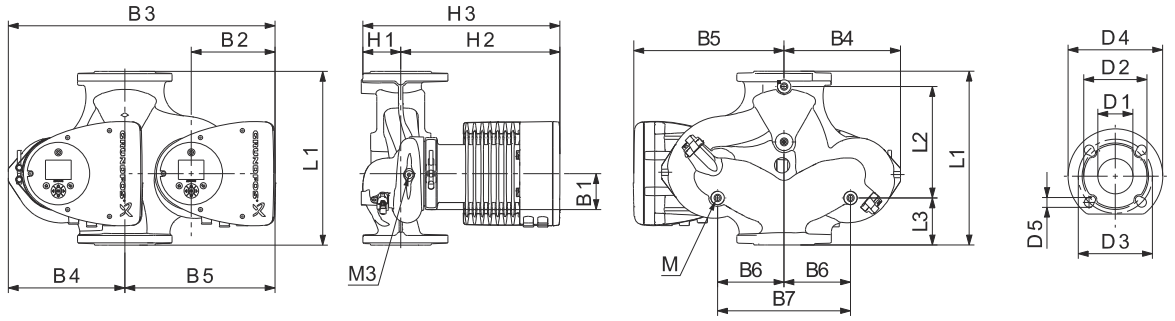
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
44.6	53.7	0.06

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



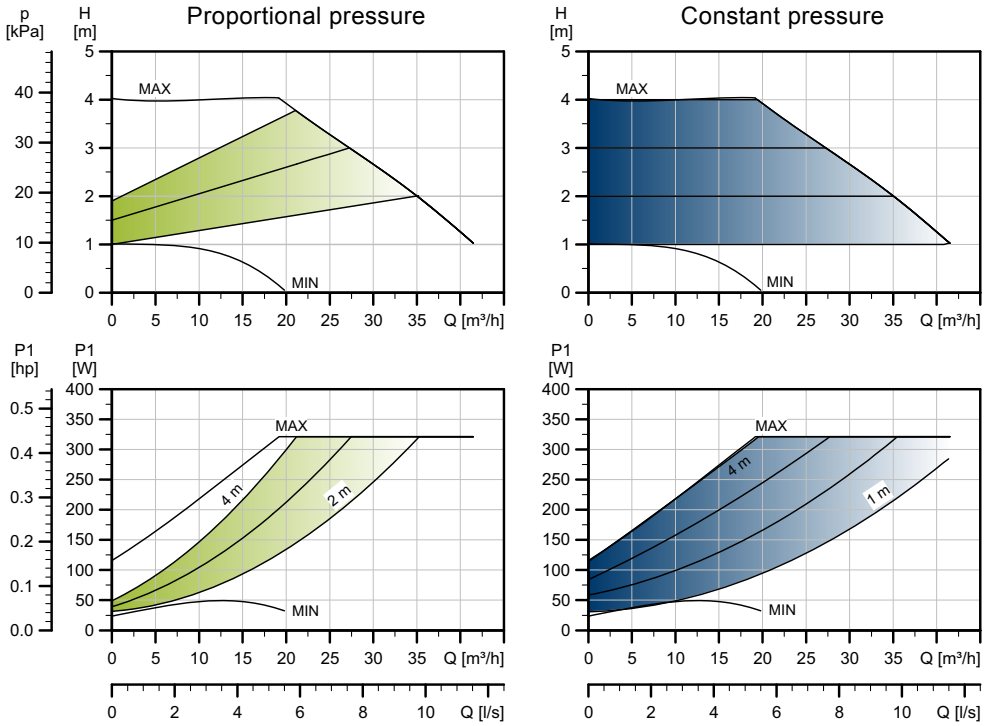
TM05 2205 1214

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 65-150 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 80-40 F

1 x 230 V, 50/60 Hz



TM05 3752 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	24	0.26
Max.	326	1.47

The pump incorporates overload protection.

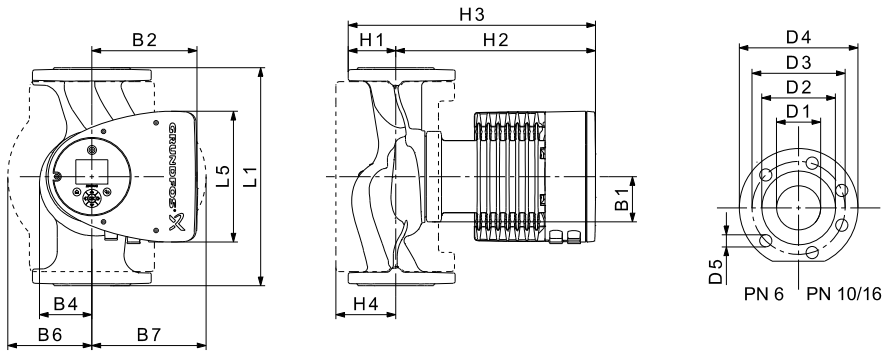
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
25.8	28.8	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



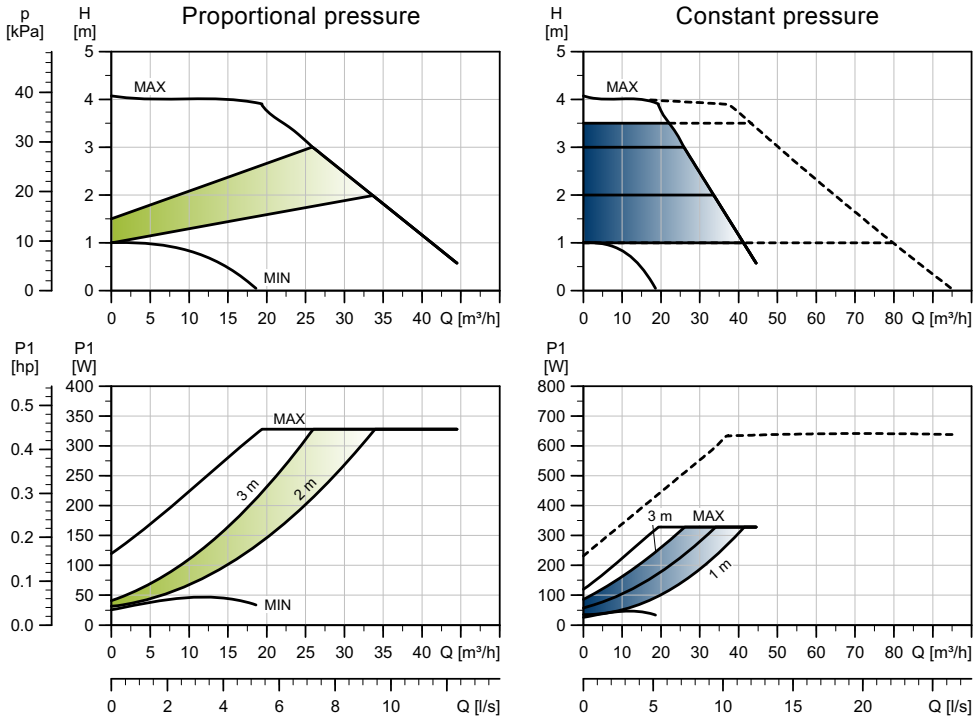
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-40 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19

For product numbers, see page 139.

MAGNA3 D 80-40 F

1 x 230 V, 50/60 Hz



TM05 3777 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	26	0.28
Max.	333	1.50

The pump incorporates overload protection.

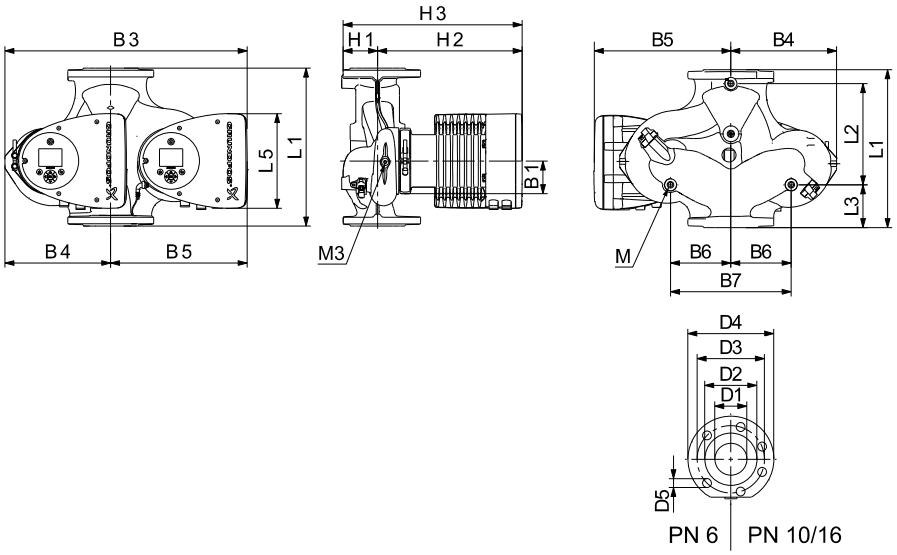
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
45.8	55.8	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



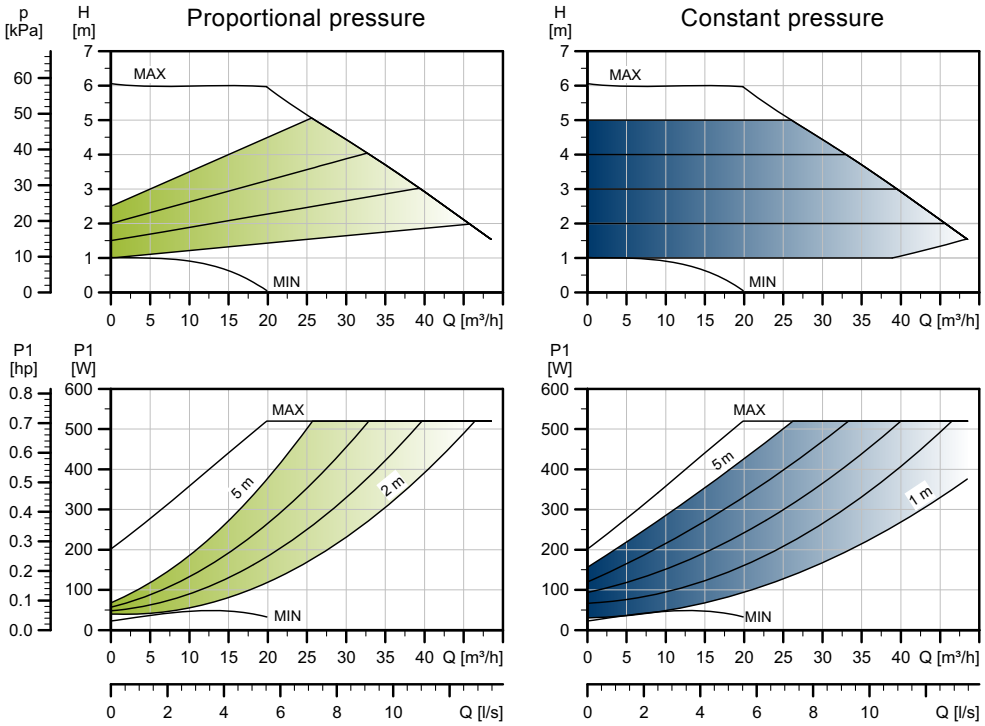
TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-40 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 80-60 F

1 x 230 V, 50/60 Hz



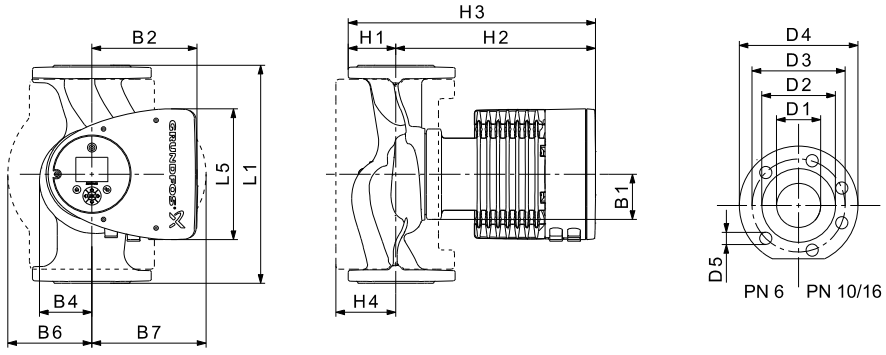
TM05 3753 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	24	0.26
Max.	530	2.35

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
25.8	29.1	0.07

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.17.



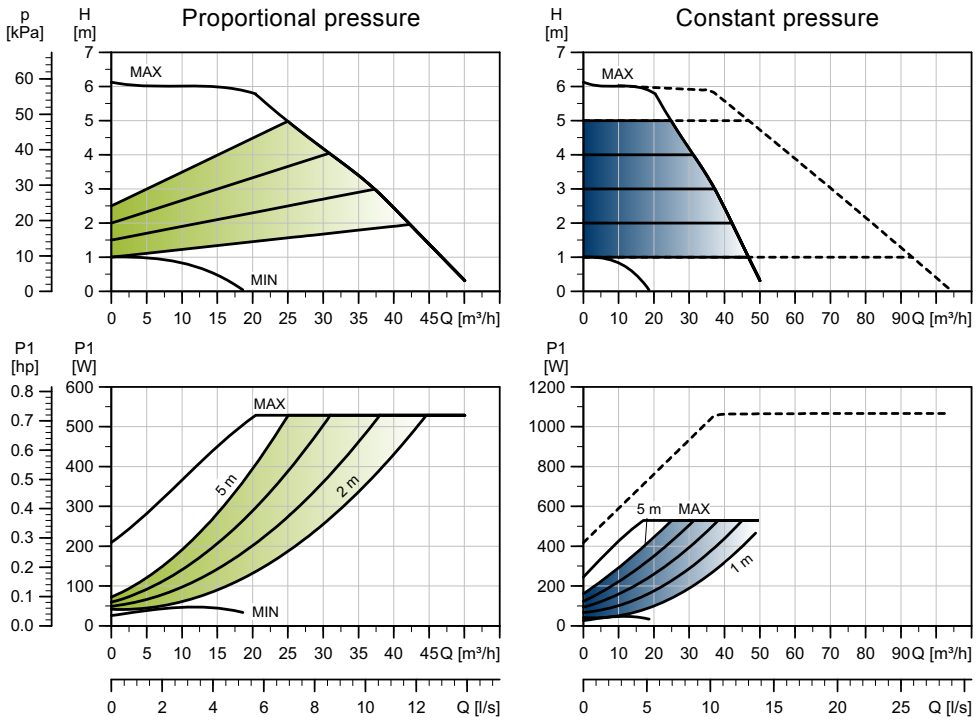
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-60 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19

For product numbers, see page 139.

MAGNA3 D 80-60 F

1 x 230 V, 50/60 Hz



TM05 3778 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	26	0.28
Max.	540	2.39

The pump incorporates overload protection.

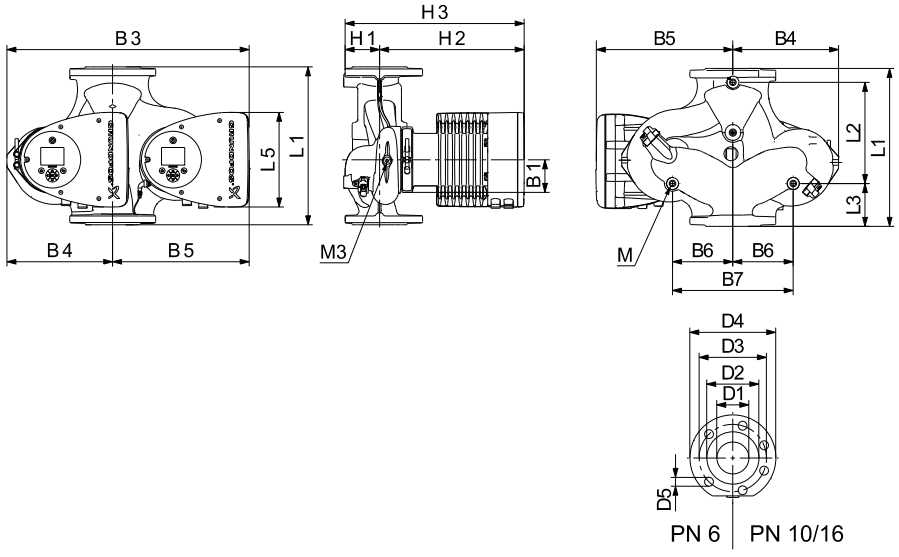
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
45.8	55.8	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



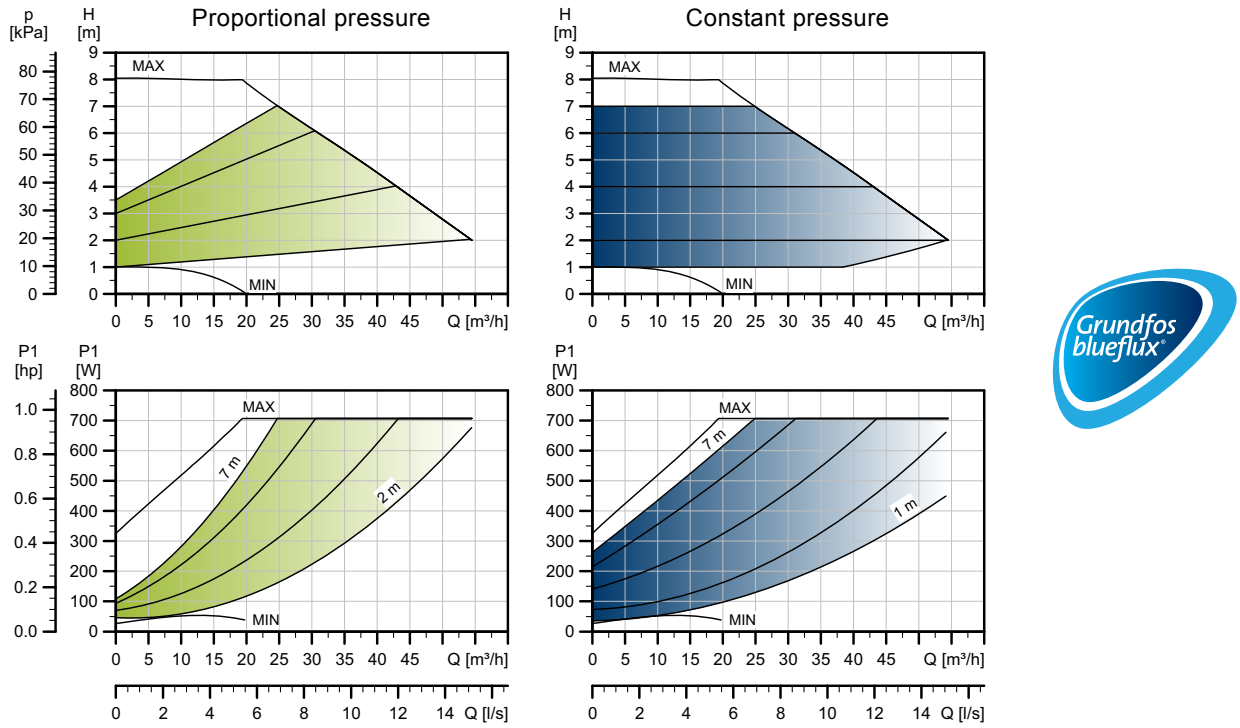
TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-60 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 80-80 F

1 x 230 V, 50/60 Hz



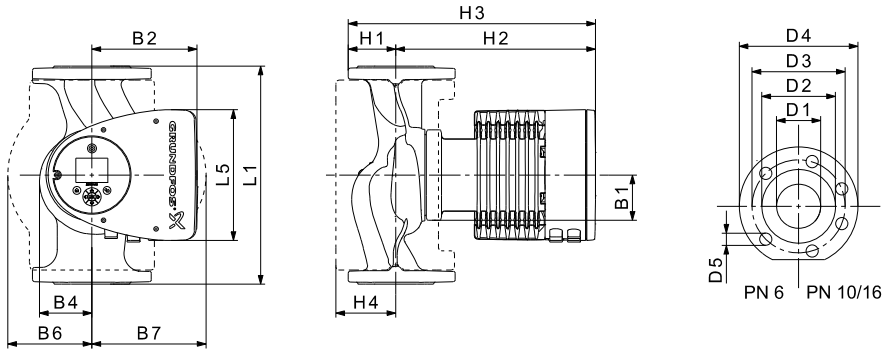
TM05 3754 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	28	0.28
Max.	721	3.17

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
28.0	32.0	0.07

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.17.



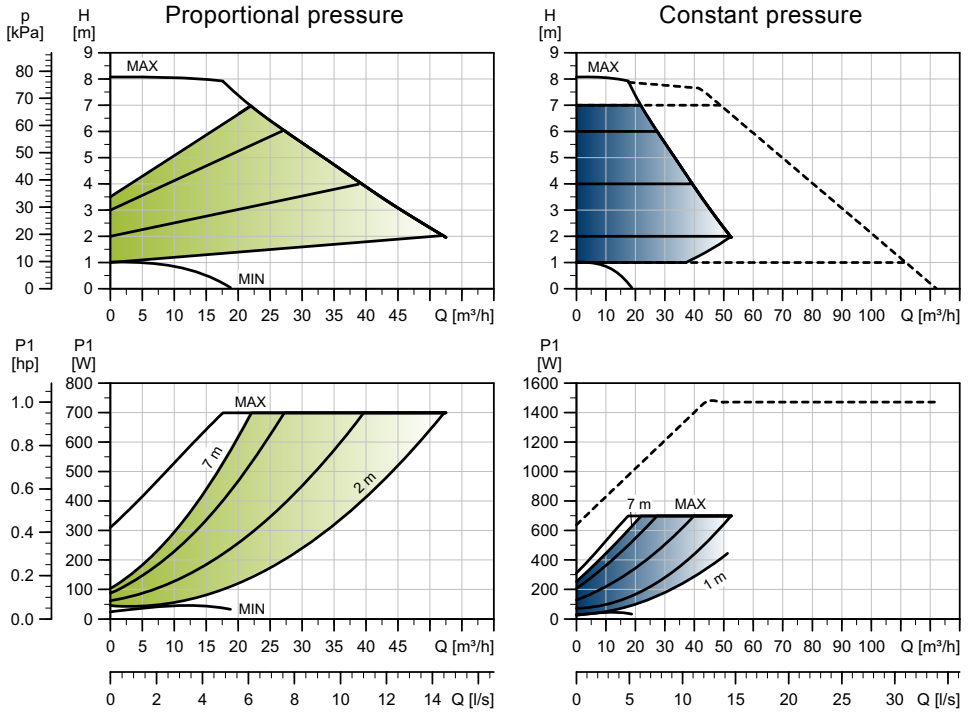
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-80 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19

For product numbers, see page 139.

MAGNA3 D 80-80 F

1 x 230 V, 50/60 Hz



TM05 3779 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	26	0.28
Max.	540	2.39

The pump incorporates overload protection.

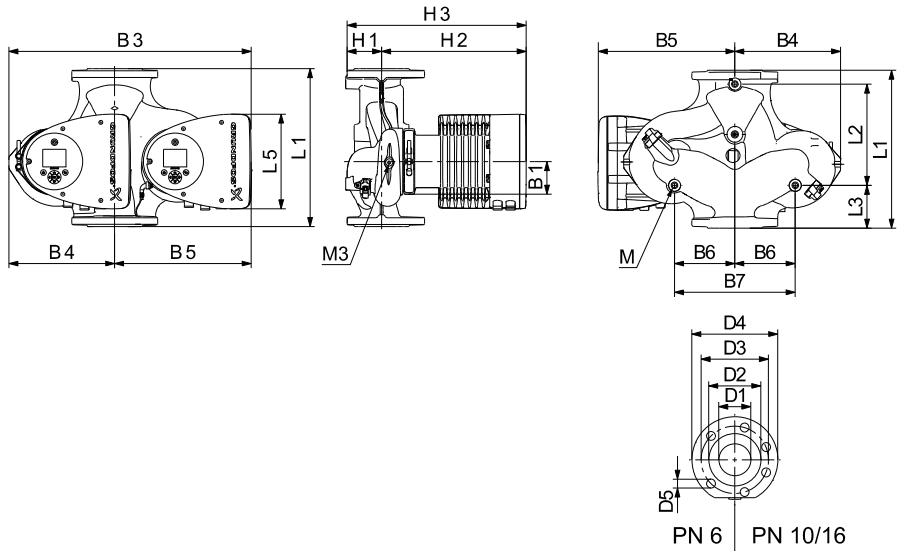
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
45.8	55.8	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



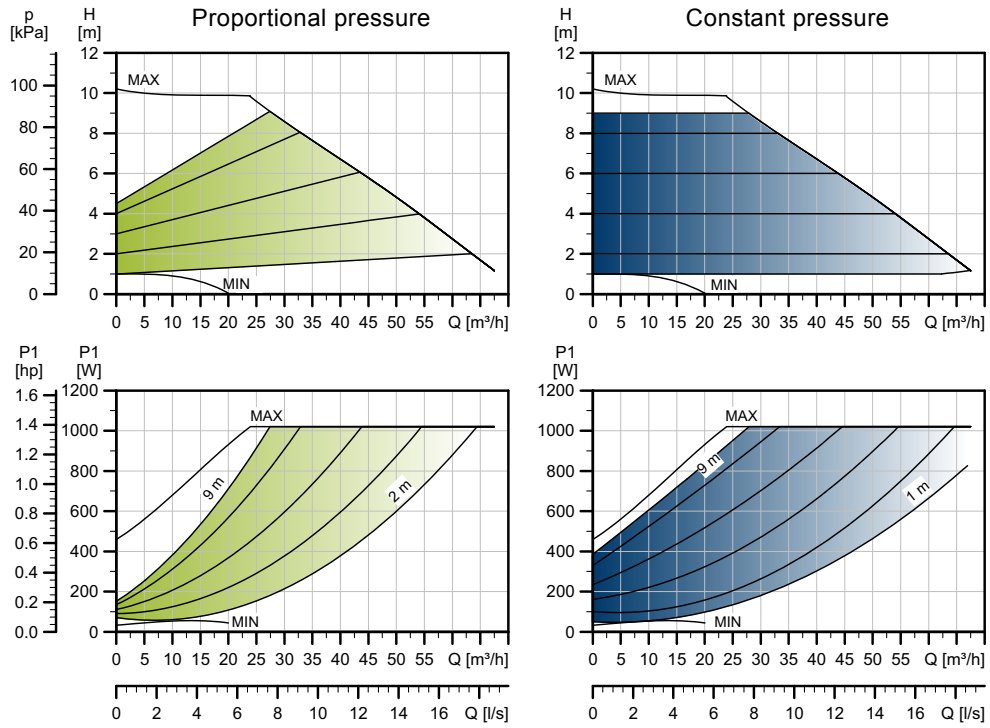
TM05 5366 2213

Pump type	Dimensions [mm]																			
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-80 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 80-100 F

1 x 230 V, 50/60 Hz



TM05 3755 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	31	0.32
Max.	1041	4.60

The pump incorporates overload protection.

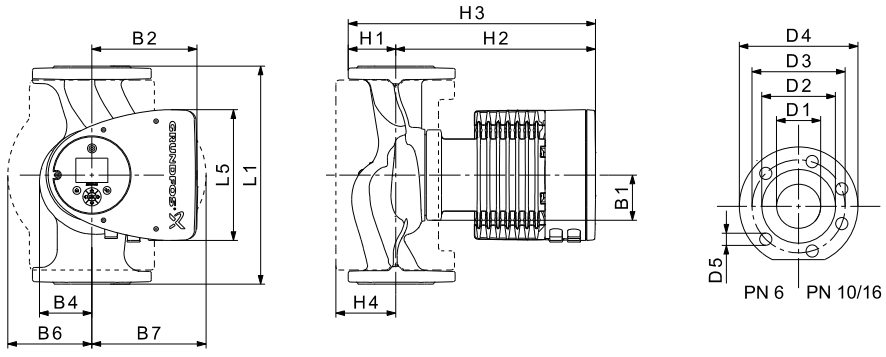
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
28.8	32.6	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



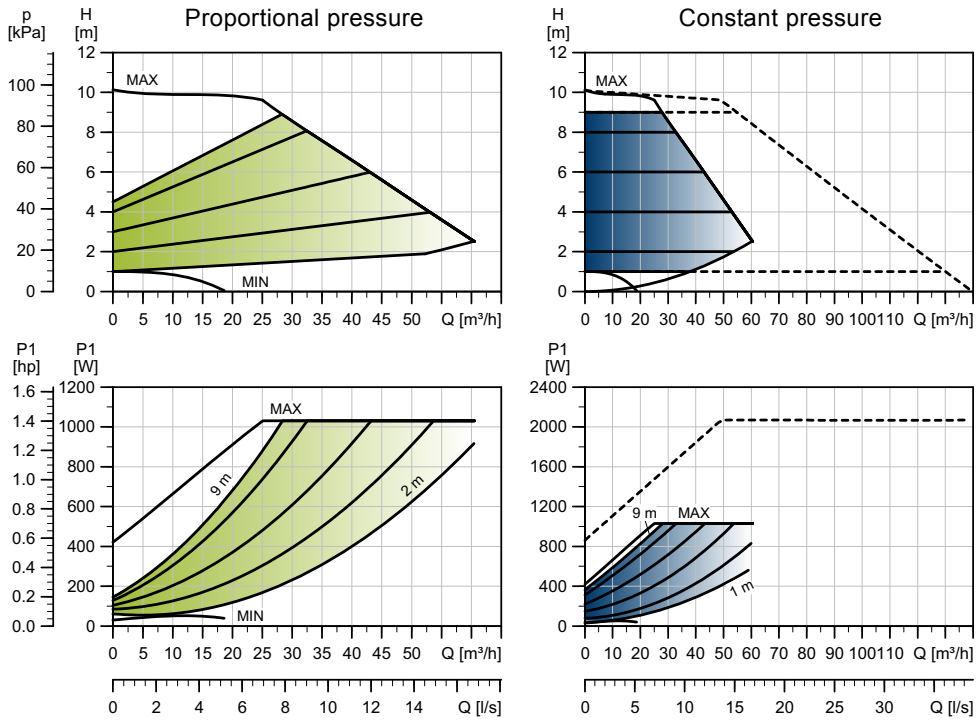
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-100 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19

For product numbers, see page 139.

MAGNA3 D 80-100 F

1 x 230 V, 50/60 Hz



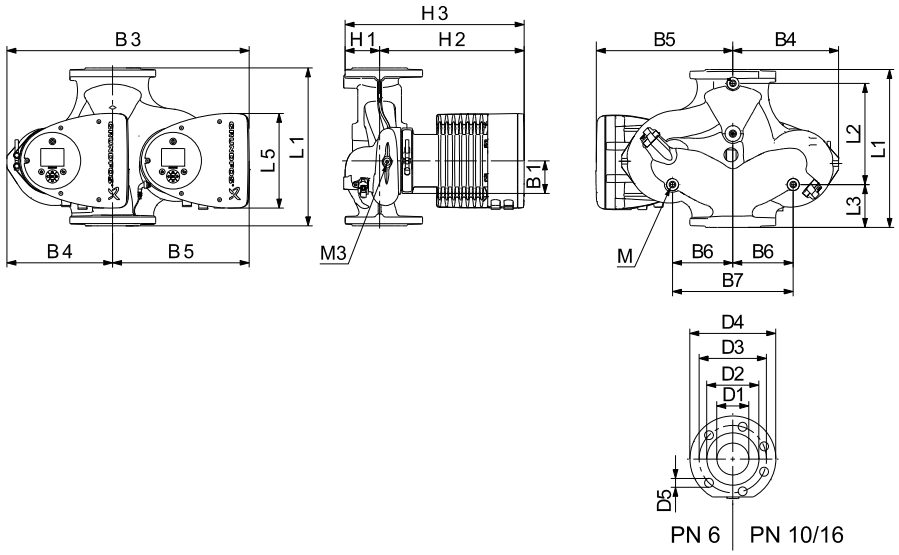
TM05 3780 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	32	0.32
Max.	1052	4.62

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
51.6	63.4	0.07

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.17.



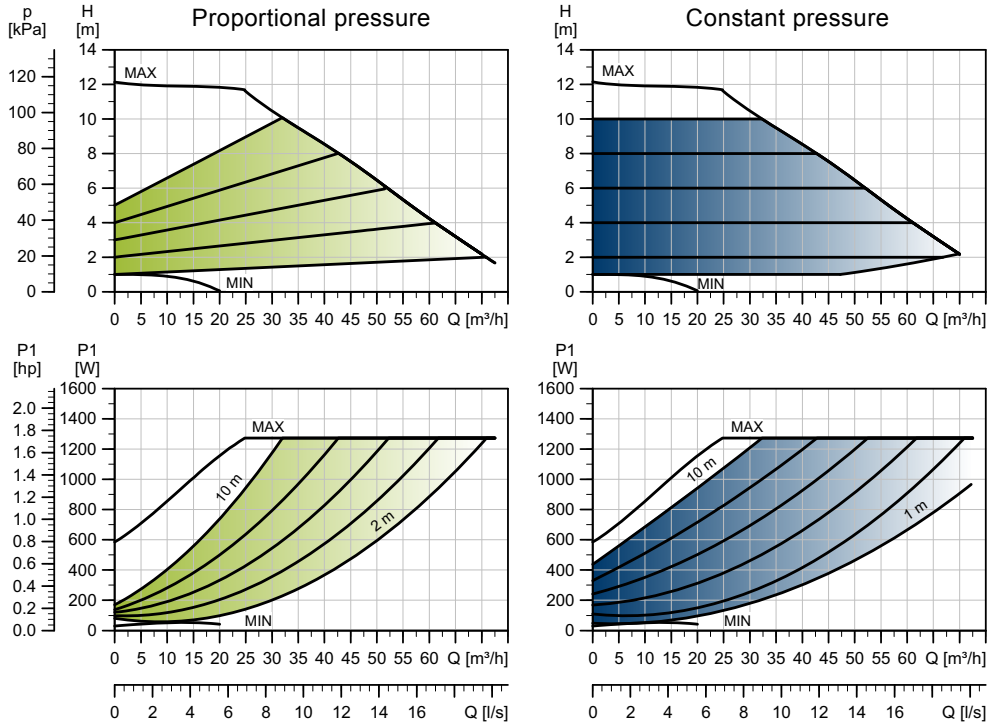
TM05 5366 2213

Pump type	Dimensions [mm]																			
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-100 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 80-120 F

1 x 230 V, 50/60 Hz



TM05 3756 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	31	0.32
Max.	1297	5.72

The pump incorporates overload protection.

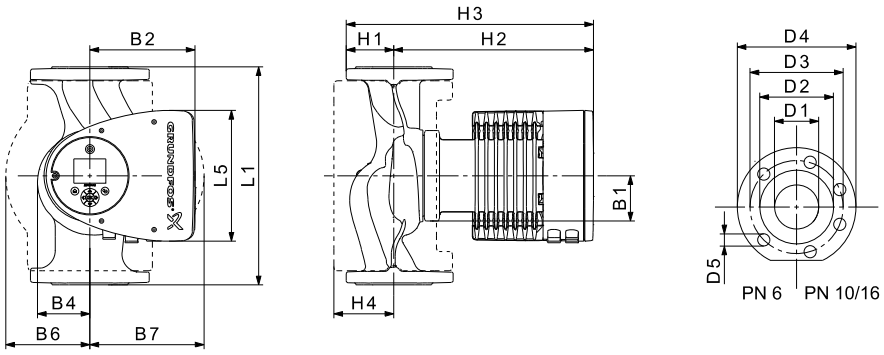
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
28.8	32.6	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



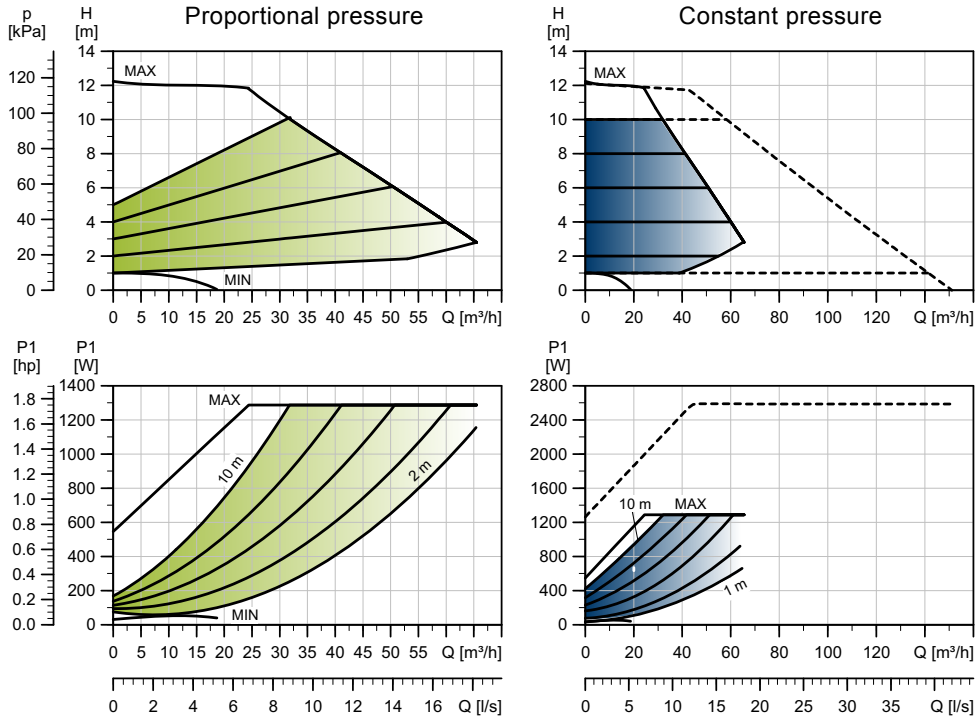
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-120 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19

For product numbers, see page 139.

MAGNA3 D 80-120 F

1 x 230 V, 50/60 Hz



TM05 3781 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	32	0.32
Max.	1313	5.74

The pump incorporates overload protection.

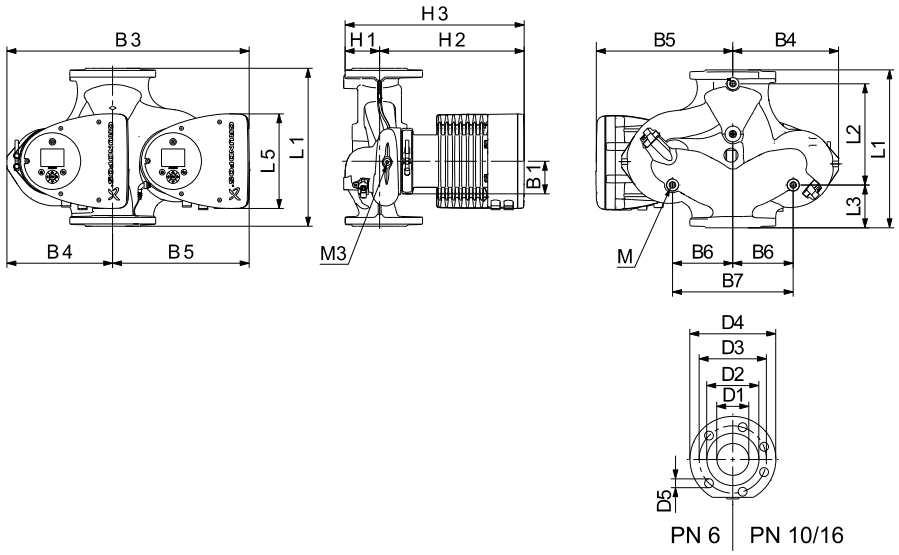
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
51.6	63.1	0.07

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



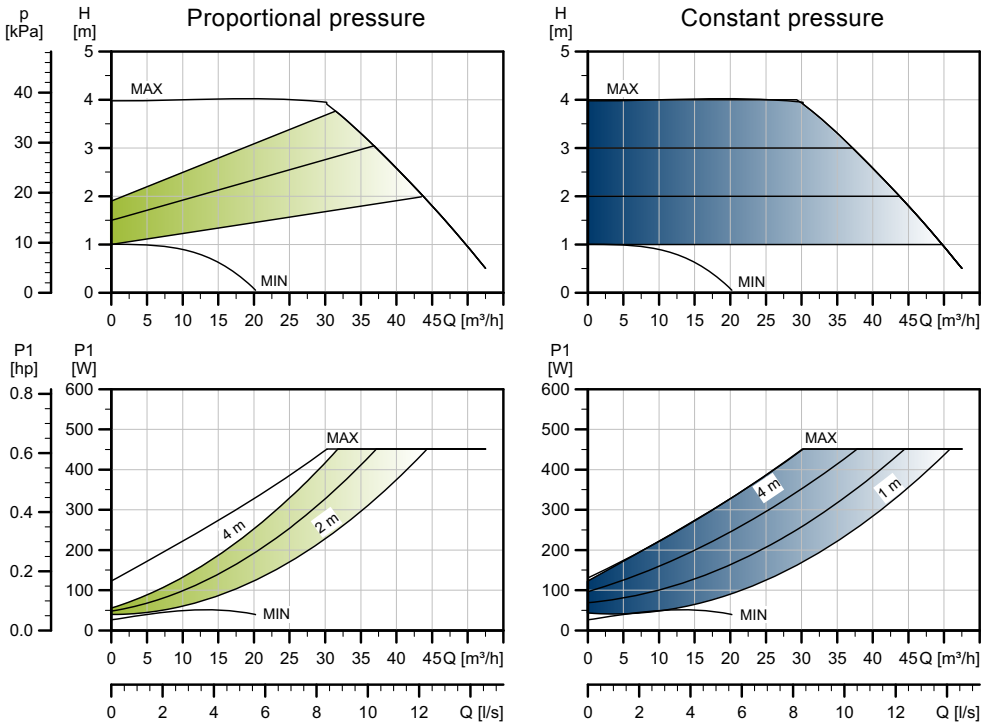
TM05 5366 2213

Pump type	Dimensions [mm]																			
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-120 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 100-40 F

1 x 230 V, 50/60 Hz



TM05 3757 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	28	0.27
Max.	465	2.06

The pump incorporates overload protection.

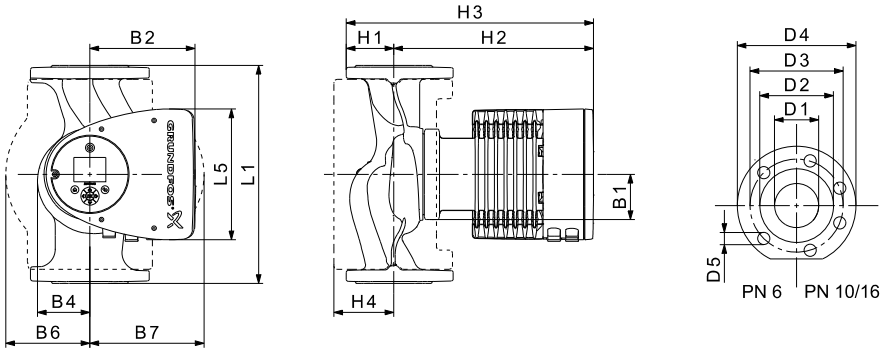
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
32.3	36.4	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



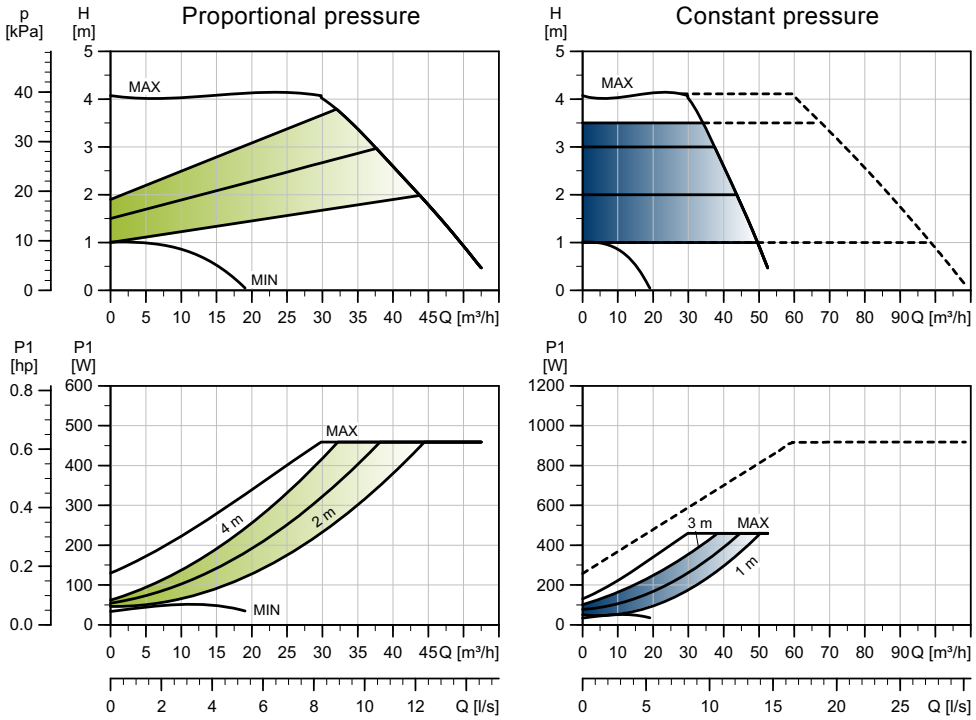
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 100-40 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

For product numbers, see page 139.

MAGNA3 D 100-40 F

1 x 230 V, 50/60 Hz



TM05 3782 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	28	0.27
Max.	465	2.06

The pump incorporates overload protection.

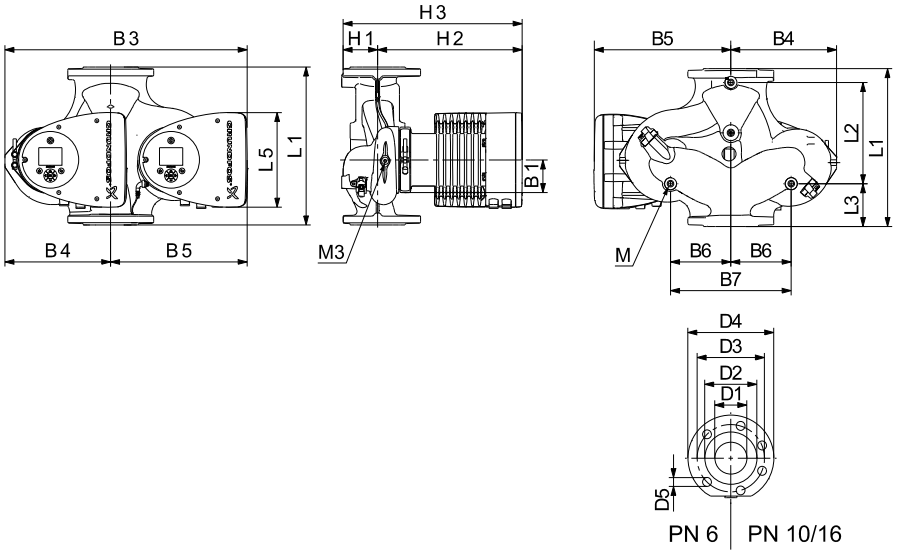
Net weights [kg]	Gross weights [kg]	Ship. vol. [m³]
58.8	71.3	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.19.



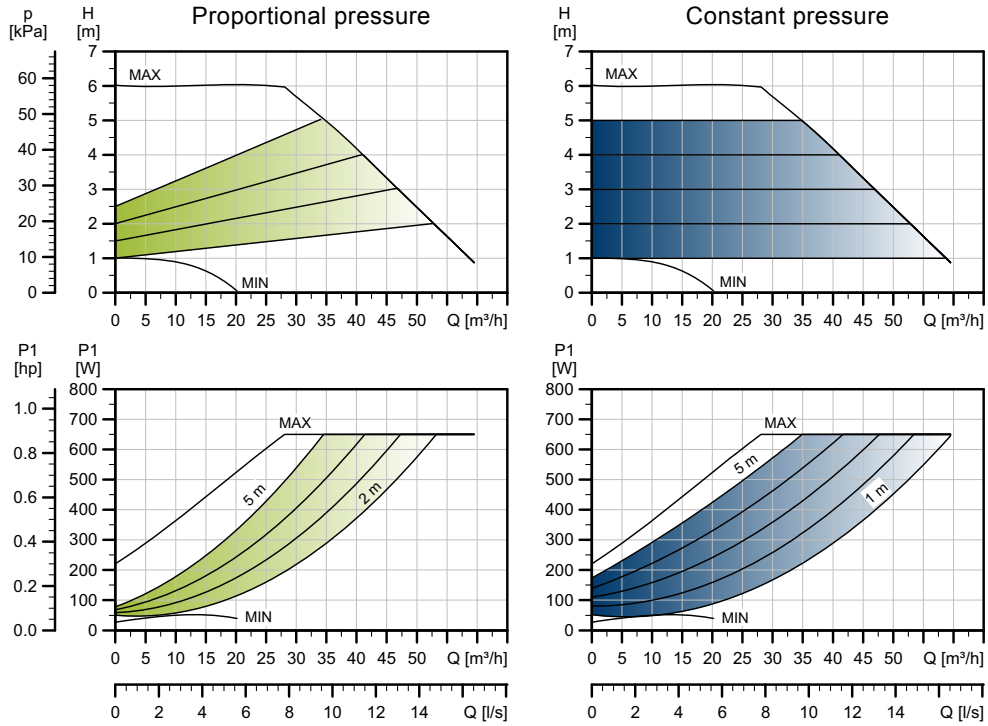
TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 100-40 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 100-60 F

1 x 230 V, 50/60 Hz



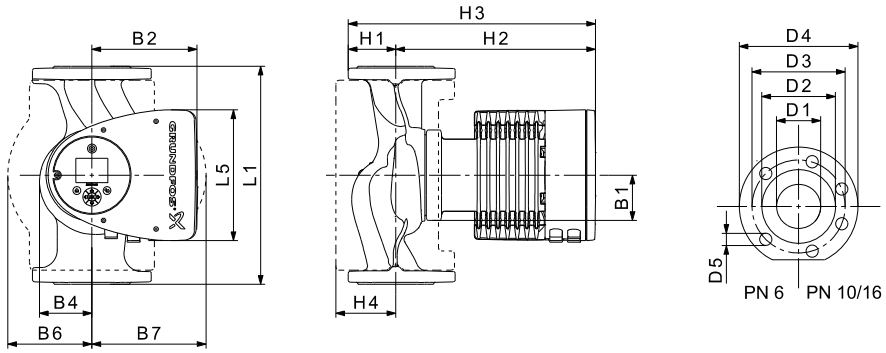
TM05 3758 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	28	0.28
Max.	664	2.94

The pump incorporates overload protection.

Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
32.3	36.4	0.1

Connections: See *Pipe connections*, page 134.
System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).
Liquid temperature: -10 to 110 °C (TF 110).
Specific EEI: 0.17.



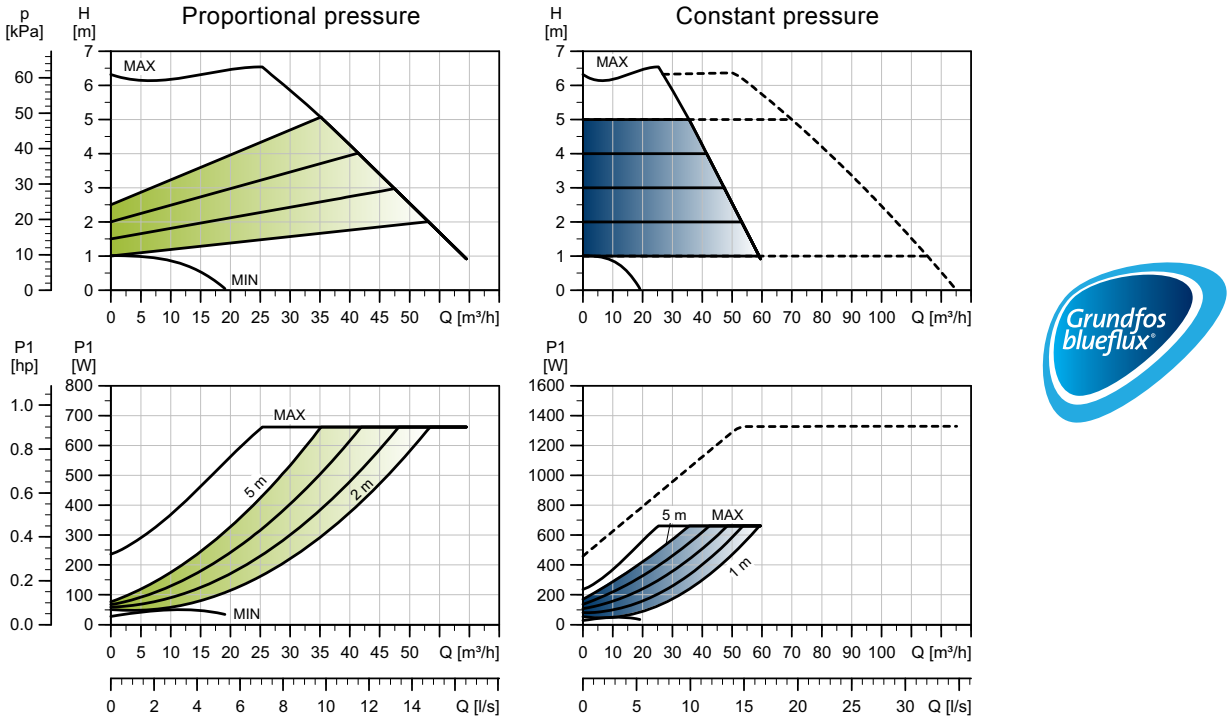
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 100-60 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

For product numbers, see page 139.

MAGNA3 D 100-60 F

1 x 230 V, 50/60 Hz



TM05 3783 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	28	0.27
Max.	664	2.94

The pump incorporates overload protection.

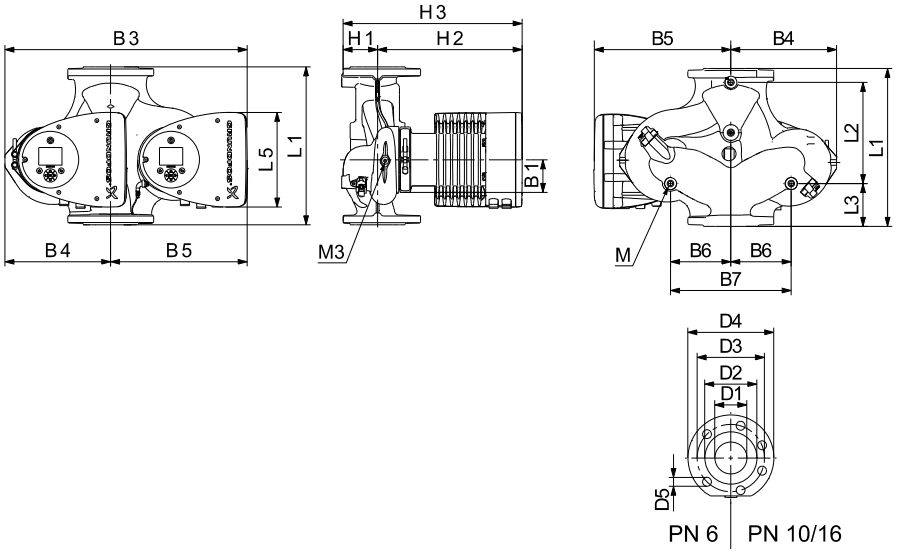
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
58.8	71.3	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.18.



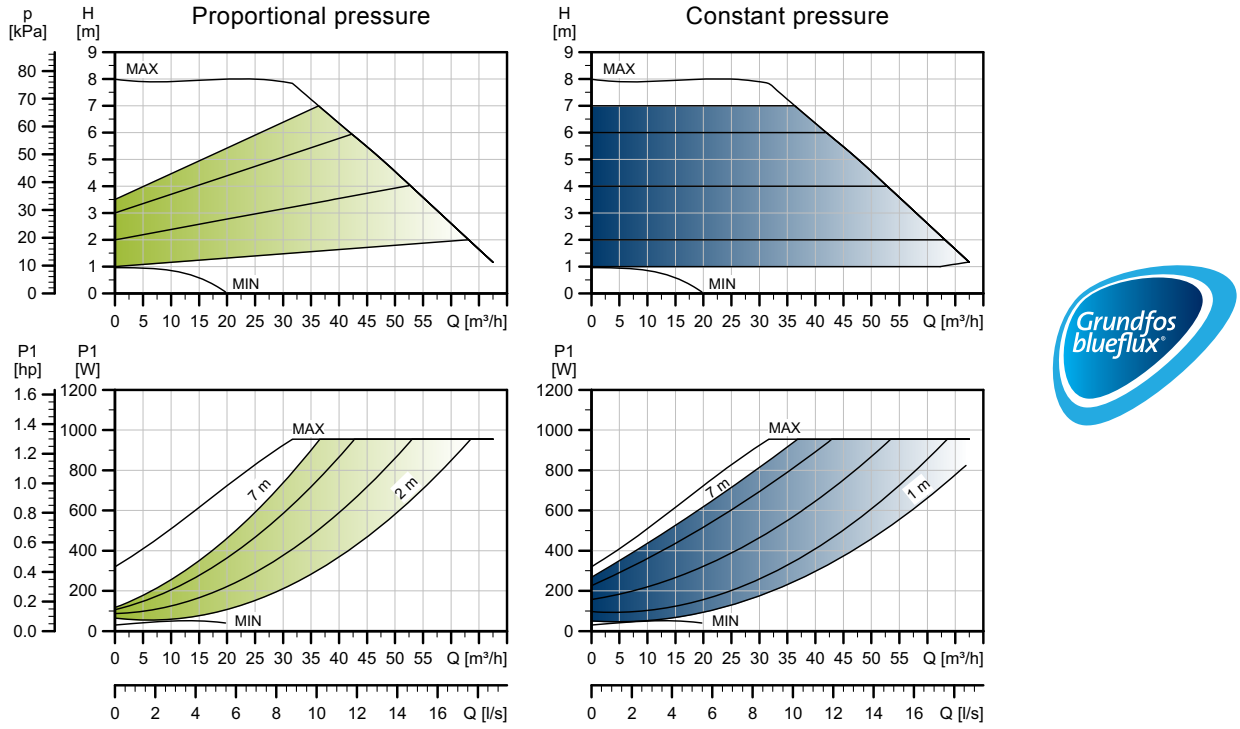
TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 100-60 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 100-80 F

1 x 230 V, 50/60 Hz



TM05 3759 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	31	0.32
Max.	971	4.31

The pump incorporates overload protection.

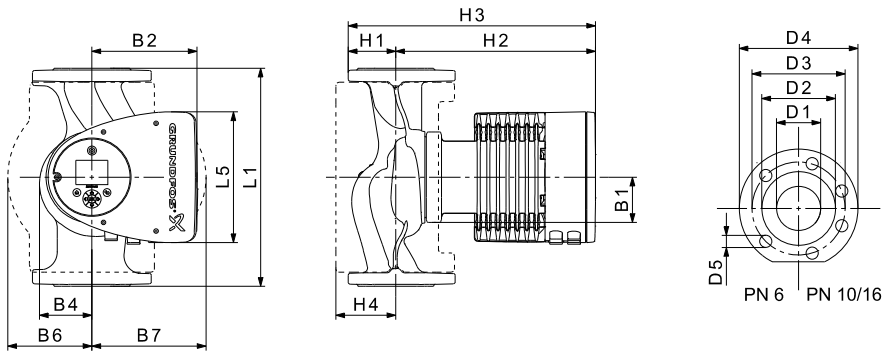
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
33.1	37.3	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



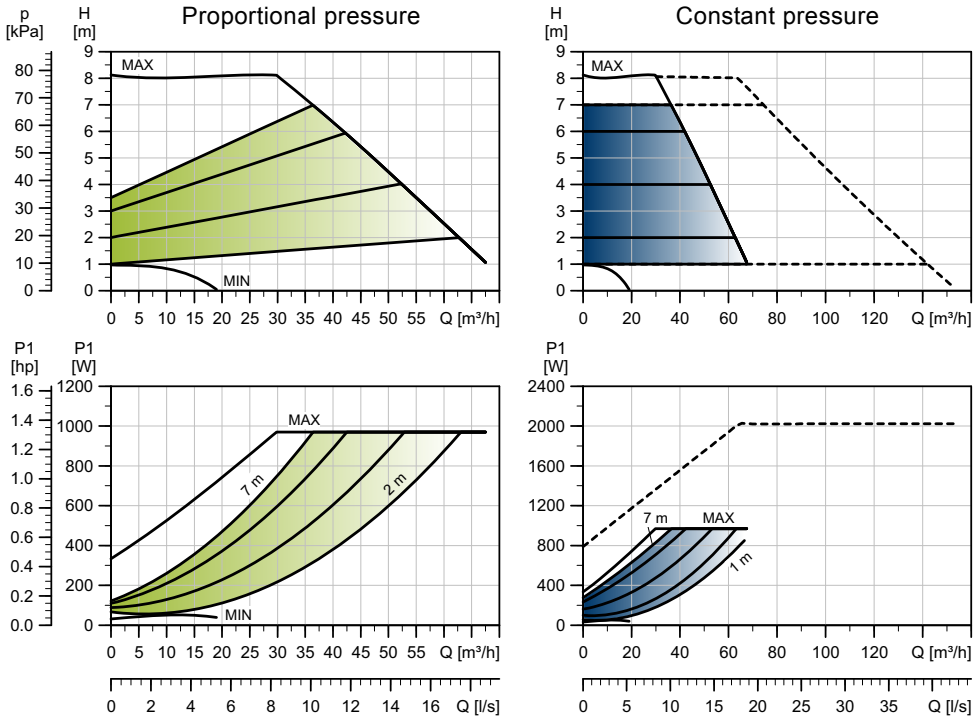
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 100-80 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

For product numbers, see page 139.

MAGNA3 D 100-80 F

1 x 230 V, 50/60 Hz



TM05 3784 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	32	0.33
Max.	988	4.36

The pump incorporates overload protection.

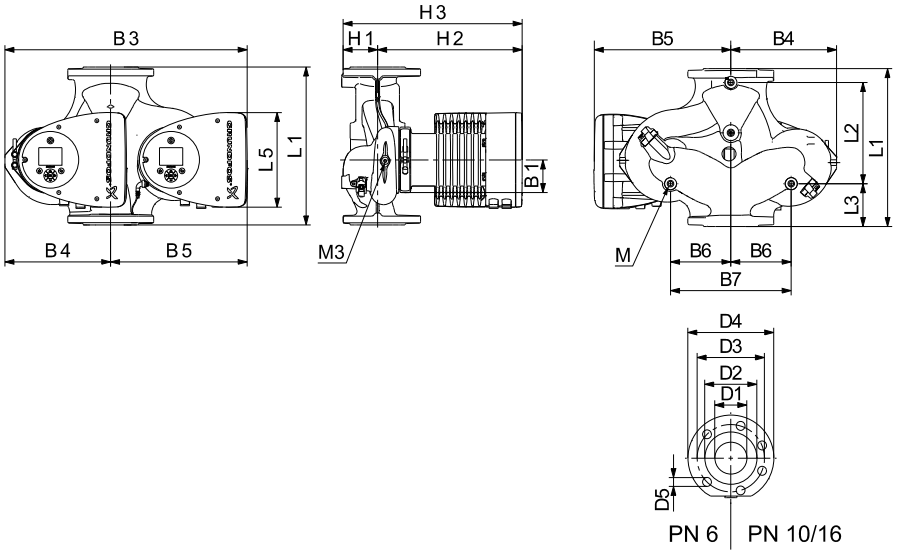
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
60.4	73.2	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



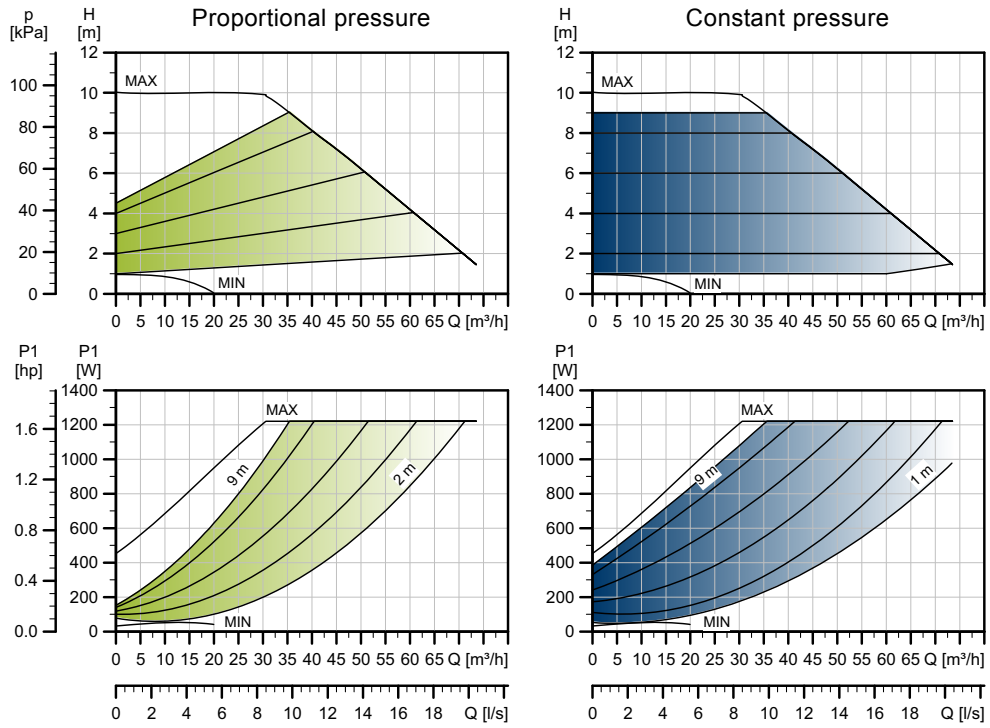
TM05 5366 2213

Pump type	Dimensions [mm]																			
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 100-80 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 100-100 F

1 x 230 V, 50/60 Hz



TM05 3760 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	31	0.32
Max.	1244	5.50

The pump incorporates overload protection.

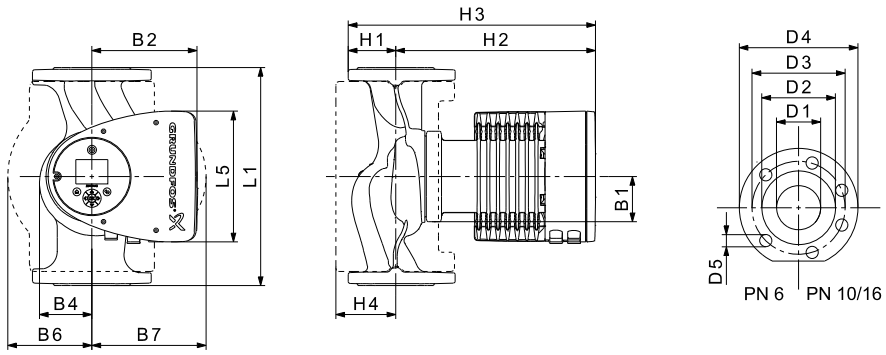
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
33.1	37.0	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar).
Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



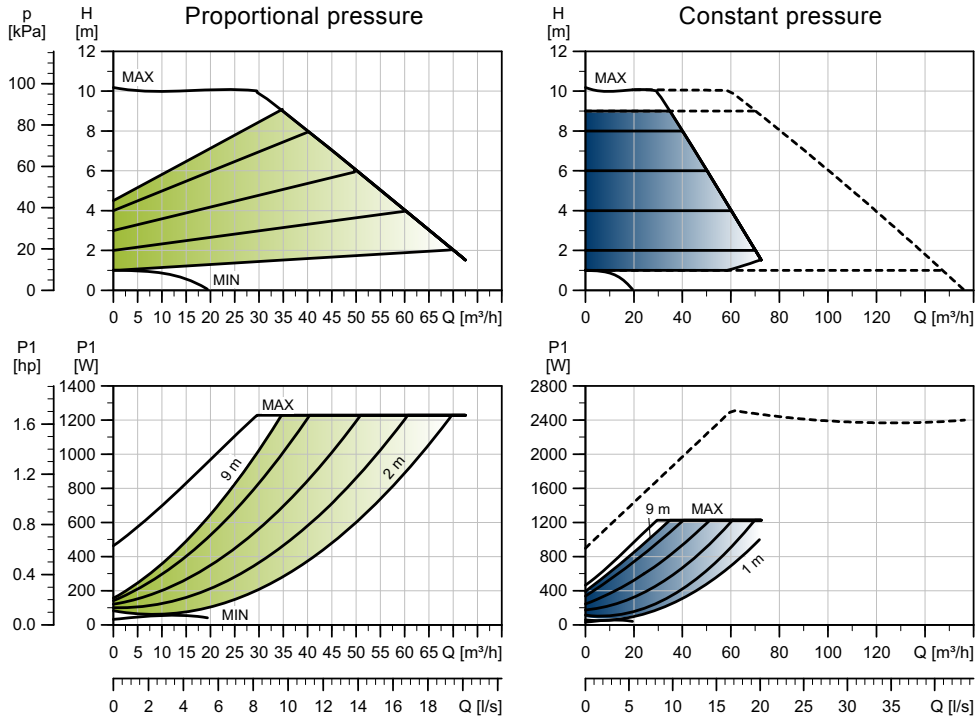
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 100-100 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

For product numbers, see page 139.

MAGNA3 D 100-100 F

1 x 230 V, 50/60 Hz



TM05 3785 1812

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	34	0.34
Max.	1249	5.51

The pump incorporates overload protection.

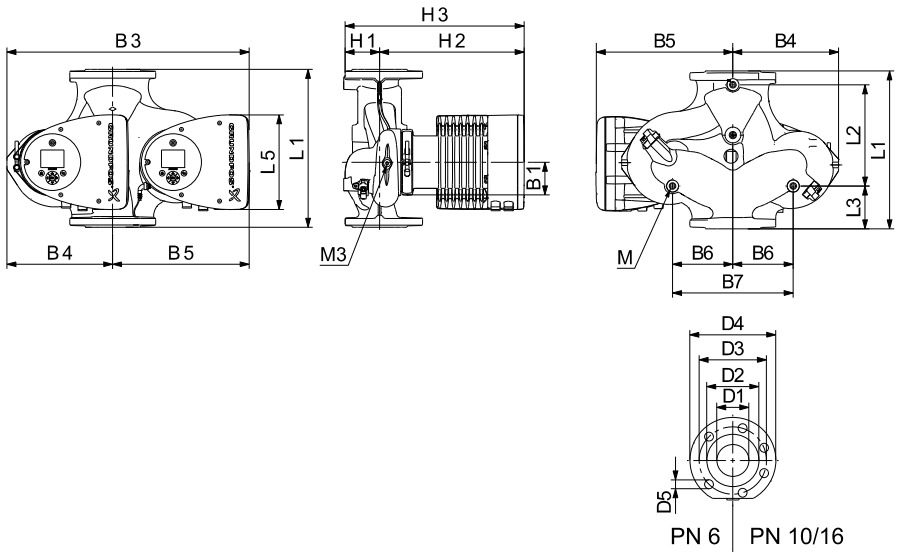
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
60.4	73.2	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



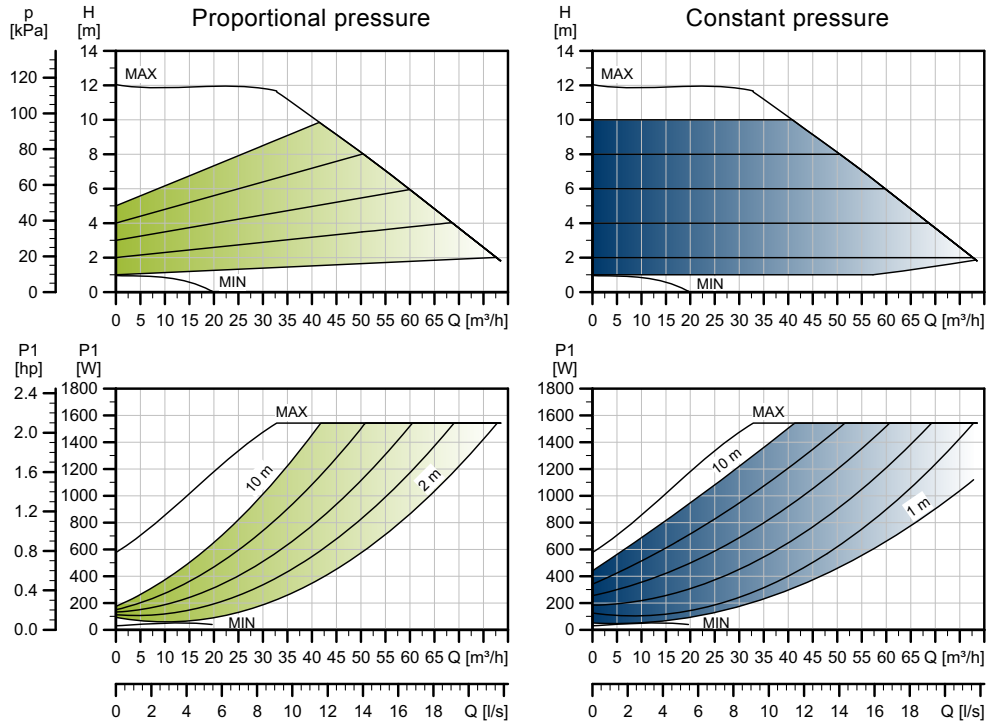
TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 100-100 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

For product numbers, see page 139.

MAGNA3 100-120 F

1 x 230 V, 50/60 Hz



TM05 3761 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	31	0.32
Max.	1576	6.97

The pump incorporates overload protection.

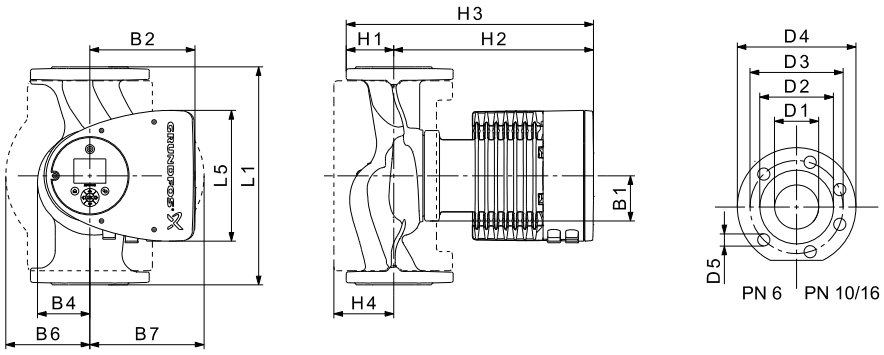
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
33.1	37.0	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



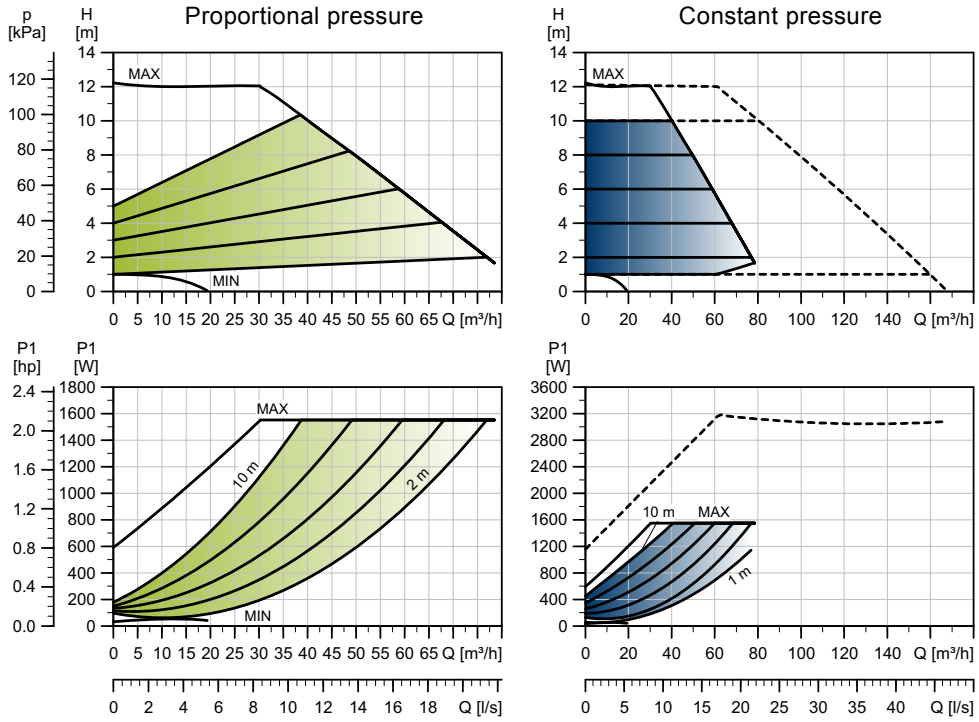
TM05 5291 3612

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 100-120 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

For product numbers, see page 139.

MAGNA3 D 100-120 F

1 x 230 V, 50/60 Hz



TM05 3786 1912

Speed	P1 [W]	$I_{1/1}$ [A]
Min.	35	0.35
Max.	1582	6.98

The pump incorporates overload protection.

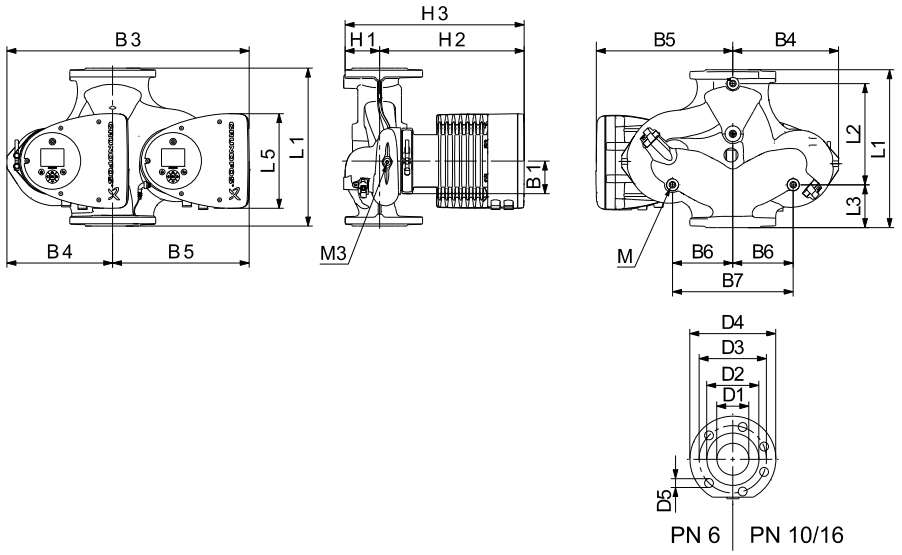
Net weights [kg]	Gross weights [kg]	Ship. vol. [m^3]
60.4	72.8	0.1

Connections: See *Pipe connections*, page 134.

System pressure: Max. 1.0 MPa (10 bar). Also available as max. 1.6 MPa (16 bar).

Liquid temperature: -10 to 110 °C (TF 110).

Specific EEI: 0.17.



TM05 5366 2213

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 100-120 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

For product numbers, see page 139.

9. Accessories

Insulating kits for air-conditioning and cooling systems

Single-head MAGNA3 pumps for air-conditioning and cooling systems can be fitted with insulating shells. A kit consists of two shells made of polyurethane (PUR) and a self-adhesive seal to ensure tight assembly.

Fig. 63 Fitting the insulating shells to a MAGNA3 pump

Note: The dimensions of the insulating shells for air-conditioning and cooling systems differ from those of the insulating shells for heating systems. You can use the insulating shells for both stainless-steel and cast-iron pumps.

Pump type	Product number
MAGNA3 25-40/60/80/100/120 (N)	98354534
MAGNA3 32-40/60/80/100/120 (N)	98354535
MAGNA3 32-40/60/80/100 F (N)	98354536
MAGNA3 32-120 F (N)	98063287
MAGNA3 40-40/60 F (N)	98354537
MAGNA3 40-80/100 F (N)	98063288
MAGNA3 40-120/150/180 F (N)	98145675
MAGNA3 50-40/60/80 F (N)	98063289
MAGNA3 50-100/120/150/180 F (N)	98145676
MAGNA3 65-40/60/80/100/120/150 F (N)	96913593
MAGNA3 80-40/60/80/100/120 F	98134265
MAGNA3 100-40/60/80/100/120 F	96913589

Note: Insulating shells for single-head pumps for heating systems are supplied with the pump. You can order the insulating shells as service kits in Grundfos Product Center.

Specifications

- Specific volume resistance is greater than or equal to 10^{15} Ωcm, DIN 60093
- thermal conductivity at 10 °C 0.036 W/mK and at 40 °C 0.039 W/mK, DIN 52612
- density 33 ± 5 kg/m^3, ISO 845
- working temperature range -40/+90 °C, ISO 2796.

CIM modules

A CIM module is an add-on Communication Interface Module. The CIM module enables data transmission between the pump and an external system, for example a BMS or SCADA system.

The CIM module communicates via fieldbus protocols.

The following CIM modules are available:

Module	Fieldbus protocol	Product number
CIM 050	GENIbus	96824631
CIM 100	LonWorks	96824797
CIM 150	PROFIBUS DP	96824793
CIM 200	Modbus RTU	96824796
CIM 250	GSM/GPRS	96824795
CIM 270	GRM	96898815
CIM 300	BACnet MS/TP	96893770
CIM 500	Ethernet	98301408

For further information about data communication via CIM modules, see the CIM documentation available in Grundfos Product Center.

ALPHA plug accessories

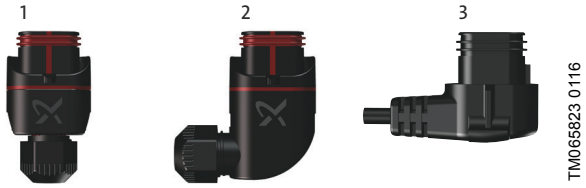


Fig. 64 ALPHA plugs

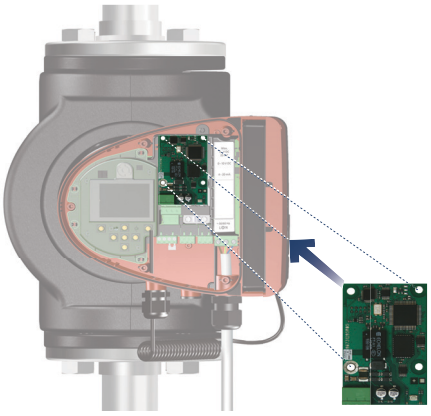
Pos.	Description	Product number
1	ALPHA plug, standard plug connection	98284561
2	ALPHA angle plug, standard angle plug connection	98610291
3	ALPHA plug, 90 ° bend, including 4 m cable	96884669

Location of CIM module

The CIM module is fitted behind the front cover. See fig. 65.

For installation, see the separate installation and operating instructions.

http://GRUNDFOS.COM/MAGNA3-MANUAL

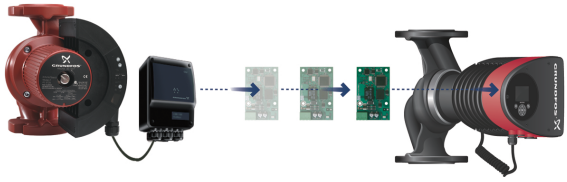


TM05 2914 1112

Fig. 65 Location of CIM module

Reuse of CIM modules

You can reuse a CIM module in a CIU unit used together with Grundfos MAGNA in MAGNA3. You must re-configure the CIM module before you use it in a MAGNA3 pump. Contact your local Grundfos company.



TM05 2911 1312

Fig. 66 Reuse of CIM module

Grundfos Remote Management

Application	Description	Product number
CIM 270	Grundfos Remote Management (requires a contract with Grundfos and a SIM card).	96898815
GSM antenna for roof-mounting	Antenna for use on top of metal cabinets. Vandal-proof. 2-metre cable. Quad band (global use).	97631956
GSM antenna for desk-mounting	Antenna for general-purpose application, for example inside plastic cabinets. To be fixed with the double-adhesive tape supplied. 4-metre cable. Quad band (global use).	97631957

For GRM contract, contact your local Grundfos company.

Grundfos GO

Grundfos GO is used for infrared or radio communication with the pumps.

Various Grundfos GO variants are available. The variants are described in the following.

MI 204

MI 204 is an add-on module with built-in infrared and radio communication. You can use MI 204 in conjunction with an Apple iPhone or iPod with Lightning connector, e.g. fifth generation iPhone or iPod.

MI 204 is also available together with an Apple iPod touch and a cover.

TM05 7704 1513

Fig. 67 MI 204

Supplied with the product

- Grundfos MI 204
- sleeve
- quick guide
- charger cable.

MI 301

MI 301 is a module with built-in infrared and radio communication. Use MI 301 in conjunction with an Android or iOS-based smart devices with a Bluetooth connection. MI 301 has rechargeable Li-ion battery and must be charged separately.

TM05 3890 1712

Fig. 68 MI 301

Supplied with the product

- Grundfos MI 301
- battery charger
- quick guide.

Product numbers

Grundfos GO variant	Product number
Grundfos MI 204	98424092
Grundfos MI 204 including iPod touch	98612711
Grundfos MI 301	98046408

External Grundfos sensors

Combined relative-pressure and temperature transmitter

Sensor	Type	Supplier	Measuring range [bar]	Measuring range [°C]	Transmitter output [VDC]	Power supply [VDC]	Process connection	Product number
Combined pressure and temperature sensor	RPI T2	Grundfos	0-16	-10 - +120	0-10	16.6 - 30	G 1/2	98355521

Note: MAGNA3 has only one analog input.

DPI V.2 transmitter

Combined differential-pressure and temperature transmitter

Scope of delivery

- DPI V.2 transmitter
- open 2 m cable with M12 connection in one end
- capillary tube with fitting
- quick guide.

TM04 7866 2510

Fig. 69 DPI V.2 transmitter

Sensor	Measuring range [bar]	Measuring range [°C]	Transmitter output	Power supply [VDC]	Temperature measurement	O-ring		Process connection	Product number
						EPDM*	FKM*		
Grundfos DPI	0 - 0.6	0-100	4-20 mA	12.5 - 30		•		G 1/2	97747194
			4-20 mA	12.5 - 30			•		97747215
			0-10 VDC	16.5 - 30	•	•			97747202
			0-10 VDC	16.5 - 30	•		•		97747244
Grundfos DPI	0 - 1.0	0-100	4-20 mA	12.5 - 30		•		G 1/2	97747195
			4-20 mA	12.5 - 30			•		97747216
			0-10 VDC	16.5 - 30	•	•			97747203
			0-10 VDC	16.5 - 30	•		•		97747245
Grundfos DPI	0 - 1.6	0-100	4-20 mA	12.5 - 30		•		G 1/2	97747196
			4-20 mA	12.5 - 30			•		97747218
			0-10 VDC	16.5 - 30	•	•			97747204
			0-10 VDC	16.5 - 30	•		•		97747246
Grundfos DPI	0 - 2.5	0-100	4-20 mA	12.5 - 30		•		G 1/2	97747197
			4-20 mA	12.5 - 30			•		97747219
			0-10 VDC	16.5 - 30	•	•			97747205
			0-10 VDC	16.5 - 30	•		•		97747247

* Note:
EPDM: approved for potable water.
FKM: for use in oily media.

Cable for sensors

Description	Length [m]	Product number
Screened cable	2.0	98374260
	5.0	98374271

Blanking flange

A blanking flange is used to blank off the opening when one of the pump heads of a twin-head pump is removed for service to enable uninterrupted operation of the other pump.

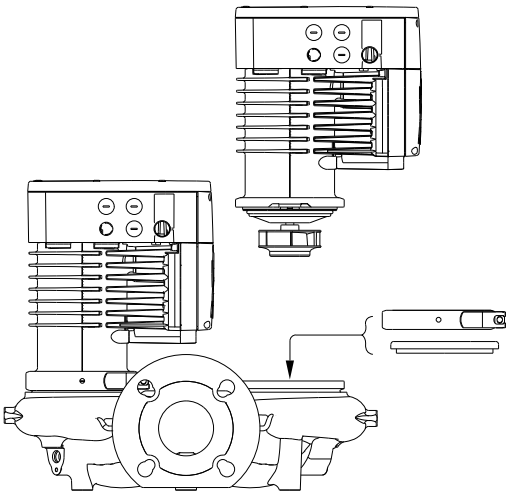
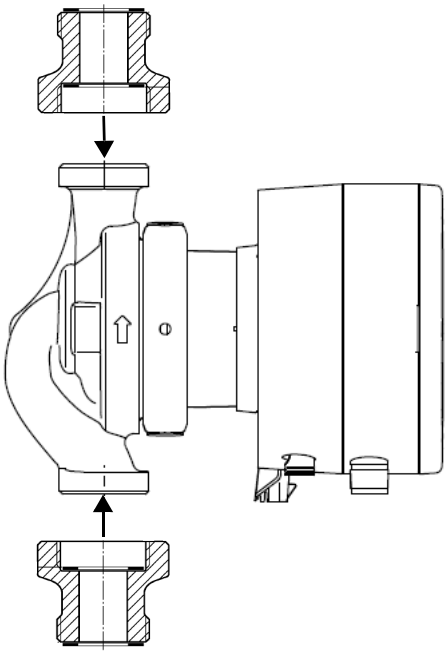


Fig. 70 Position of blanking flange

Pump type	Product number
MAGNA3 32-40/60/80/100 (F) MAGNA3 40-40/60 F	98159373
MAGNA3 32-120 F MAGNA3 40-/80/100/120/150/180 F MAGNA3 50-40/60/80/100/120/150/180 F MAGNA3 65-40/60/80/100/120/150 F MAGNA3 80-40/60/80/100/120 F MAGNA3 100-40/60/80/100/120 F	98159372

Pipe connections

Thread-thread adapters



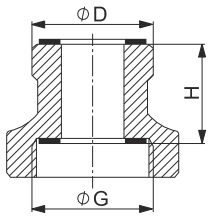


Figure 1

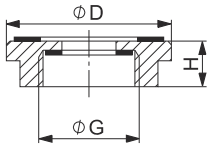
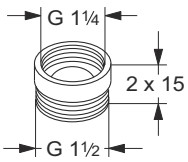


Figure 2

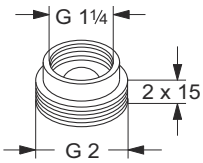
Fig. 71 Example of thread-thread adapters

New pump Connection G	Union nut Connection D	Adapter length H [mm]	Adapter type	Figure	Material	Product number PN 10
G 1 1/4	G 1 1/4	1 x 40	A 24 G	1	Brass (Ms)	96436559
	G 1 1/4	2 x 15	A 1	1	Bronze (Rg)	535040
	G 2	2 x 15	A 2	1	Bronze (Rg)	535041
	G 2	2 x 25	A 3	1	Bronze (Rg)	535042
G 1 1/2	G 1 1/2	1 x 70	A 4	1	Cast iron (GG)	535043
	G 1 1/2	1 x 25	A 5	1	Cast iron (GG)	535044
	G 2	2 x 0	A 6	2	Brass (Ms)	535045
	G 2	2 x 5	A 7	2	Bronze (Rg)	535046
	G 2	2 x 35	A 8	1	Cast iron (GG)	535047
	G 2 1/4	2 x 5	A 21	2	Brass (Ms)	535114
G 2	G 2	1 x 20	A 9	1	Bronze (Rg)	535048
	G 2	1 x 26	A 10	1	Cast iron (GG)	535049
	G 2	1 x 70	A 11	1	Cast iron (GG)	535050

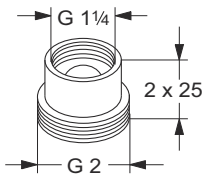
A 1



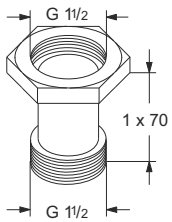
A 2



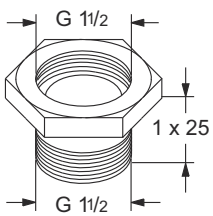
A 3



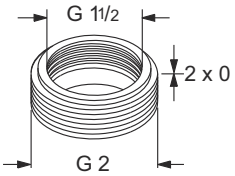
A 4



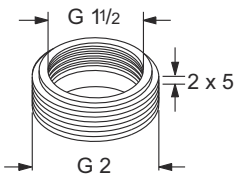
A 5



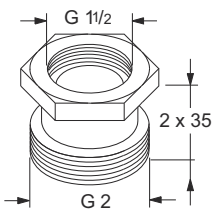
A 6

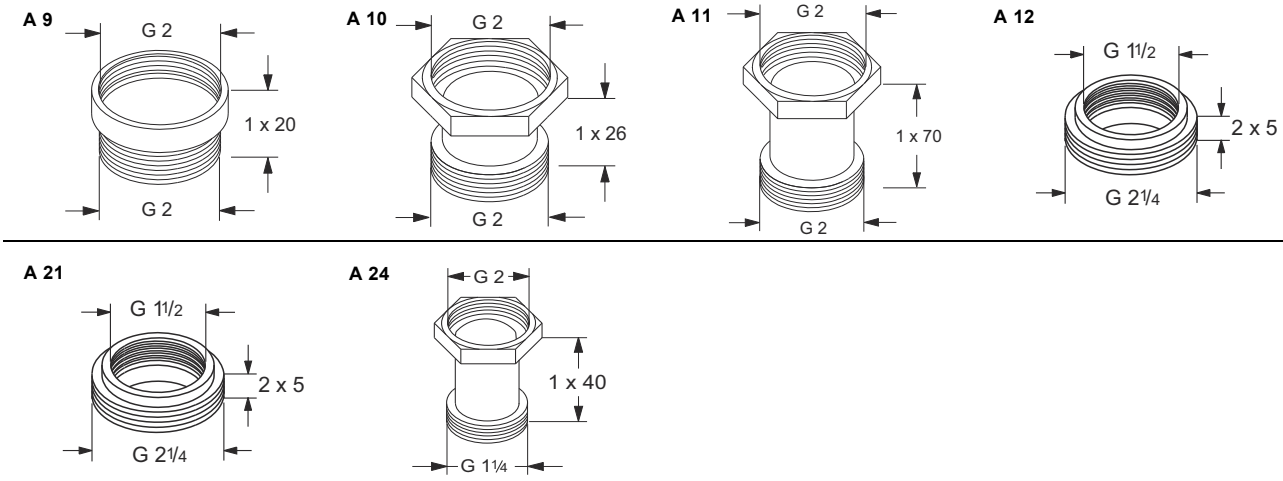


A 7



A 8





Thread types

G-threads have a cylindrical form in accordance with the EN-ISO 228-1 standard.

R-threads have a conical form in accordance with the ISO 7-1 standard.

In the case of a thread of size 1 1/2", for example, the threads are specified as G1 1/2 or R1 1/2. Male G-threads (cylindrical) can only be screwed into female G-threads. Male R-threads (conical) can be screwed into female G or R-threads. See fig. 72.

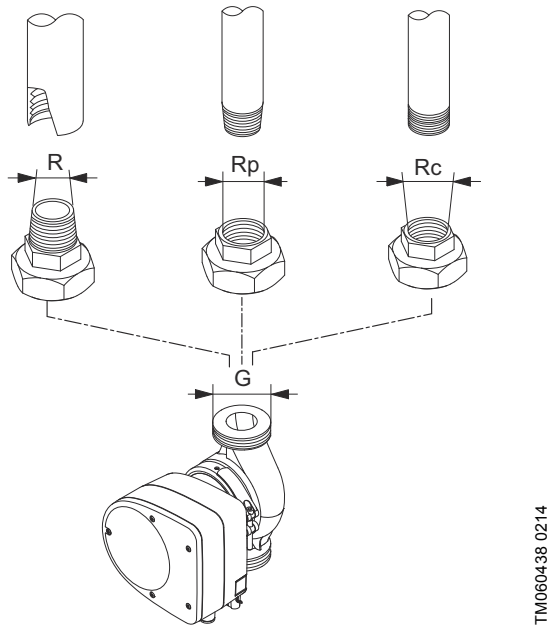
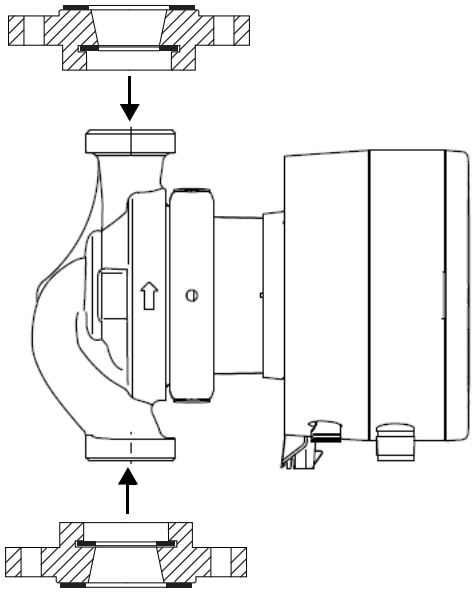


Fig. 72 G-thread and R-thread

Thread-flange adapters



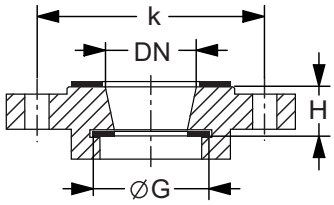


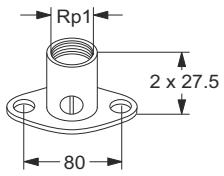
Figure 3

Fig. 73 Example of thread-flange adapters

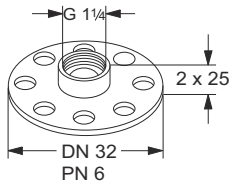
New pump Connection G	Flange Connection DN	Adapter length H [mm]	k [mm]	Adapter type	Figure	Material	Product number PN 6	Product number PN 10
G 1 1/4	DN 32	2 x 25	90	A 13	3	Bronze (Rg)	535052	
G 1 1/2	DN 32*	2 x 0	90	A 16	3	Cast iron (GG)	535055	
	DN 32	2 x 20	90	A 14	3	Cast iron (GG)	535053	
	DN 40	2 x 20	100	A 17	3	Cast iron (GG)	535056	
	DN 50	1 x 20	110	A 19	3	Cast iron (GG)	535058	
G 2	DN 32*	1 x 10	90	A 22	3	Cast iron (GG)	535115	
	DN 32	2 x 20	90	A 15	3	Cast iron (GG)	535054	
	DN 40	2 x 20	100	A 18	3	Cast iron (GG)	98614387	
	DN 50	2 x 20	110	A 20	3	Cast iron (GG)	98614411	
Oval flange	Rp 1	1 x 27.5	80	A 12	3	Brass (Ms)		535051

* Grundfos square flange

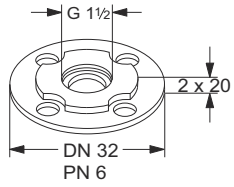
A 12



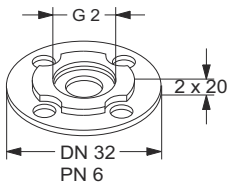
A 13



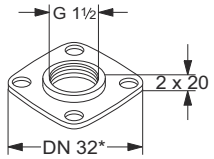
A 14



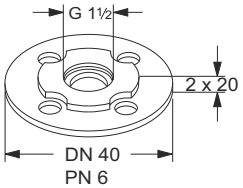
A 15



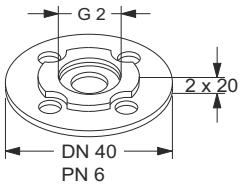
A 16



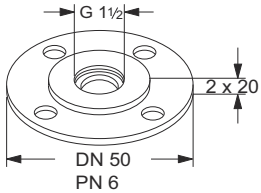
A 17



A 18



A 19



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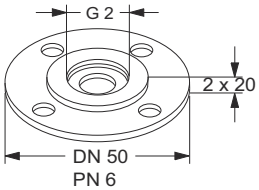
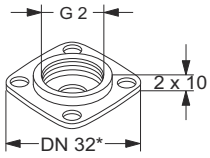
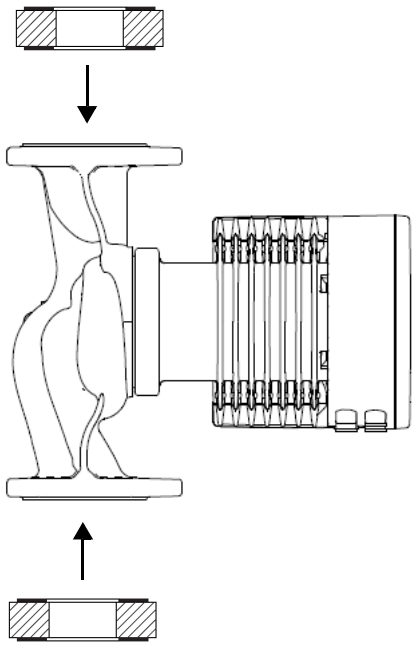


A 22



Flange-flange adapters



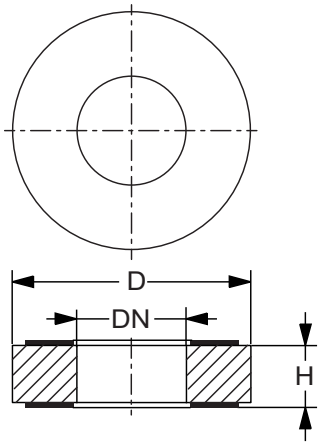


Figure 4

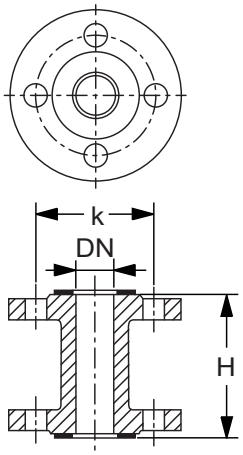
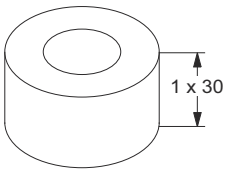


Figure 5

Fig. 74 Example of flange-flange adapters

New pump Connection DN	Adapter length H [mm]	k [mm] PN 6	k [mm] PN 10	D [mm] PN 6	D [mm] PN 10	Adapter type	Figure	Material	Product number PN 6	Product number PN 10
DN 40	1 x 70	100	110			A 40-70	5	Cast iron (GG)	539921	539721
	1 x 30			82	88	A 40-30	4	Steel (St)	96281076	96608515
DN 50	1 x 10			90	102	A 50-10	4	Cast iron (GG)	549921	549821
	1 x 20			90	102	A 50-20	4	Cast iron (GG)	549922	549822
	1 x 40			90	102	A 50-40	4	Steel (St)	96281077	96608516
	1 x 50			90	102	A 50-50	4	Cast iron (GG)	549923	549823
	1 x 60	110	125			A 50-60	5	Cast iron (GG)	549924	549824
DN 65	1 x 10			110	122	A 65-10	4	Cast iron (GG)	559921	559821
	1 x 25			110	122	A 65-25	4	Cast iron (GG)	559922	559822
	1 x 160	130	145			A 65-160	5	Steel (St)	559923	559823
DN 80	1 x 10			127	138	A 80-10	4	Cast iron (GG)	569921	569821
	1 x 15			127	138	A 80-15	4	Cast iron (GG)	569922	569822
	1 x 20			127	138	A 80-20	4	Cast iron (GG)	569923	569823
	1 x 25			127	138	A 80-25	4	Cast iron (GG)	569924	569824
	1 x 40			127	138	A 80-40	4	Cast iron (GG)	569925	569825
	1 x 50			127	138	A 80-50	4	Cast iron (GG)	569926	569826
	1 x 140	150	165			A 80-140	5	Steel (St)	569927	569827
DN 100	2 x 23				106	A 100-50	4	Steel (St)		96555529

A 40-30



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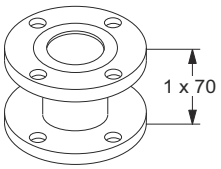

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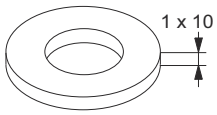

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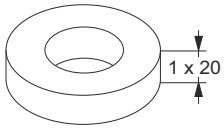

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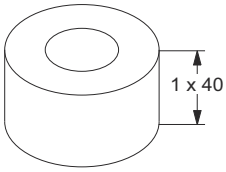

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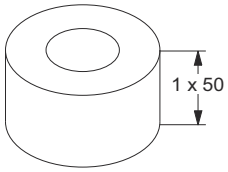

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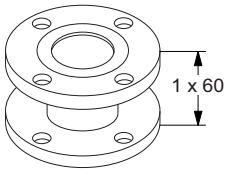
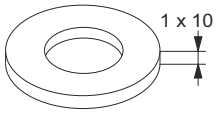
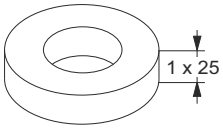


A 65-10



A 65-25



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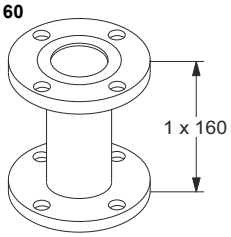

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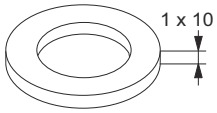

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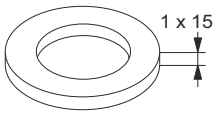

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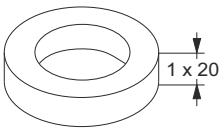

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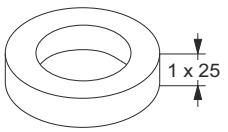
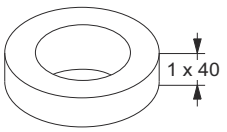


A 80-40



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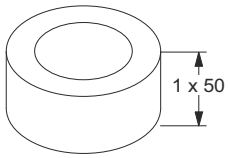

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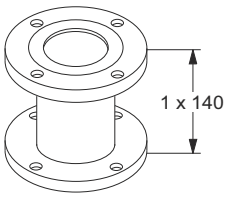
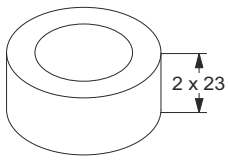


A 100-50



10. Product numbers

Single-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection				Data sheet Page
		Cast iron			Stainless steel	
			PN 10	PN 16	PN 10	
MAGNA3 25-40 (N)	180		97924244	97924249	97924336	45
MAGNA3 25-60 (N)	180		97924245	97924250	97924337	46
MAGNA3 25-80 (N)	180		97924246	97924251	97924338	47
MAGNA3 25-100 (N)	180		97924247	97924252	97924339	48
MAGNA3 25-120 (N)	180		97924248	97924253	97924340	49
MAGNA3 32-40 (N)	180		97924254	97924260	97924341	50
MAGNA3 32-60 (N)	180		97924255	97924261	97924342	52
MAGNA3 32-80 (N)	180		97924256	97924262	97924343	54
MAGNA3 32-100 (N)	180		97924257	97924263	97924344	56
MAGNA3 32-120 (N)	180		98609707	98609709	98609711	58

Pump type	Port-to-port length [mm]	Flange connection					Data sheet Page
		Cast iron				Stainless steel	
		PN 6	PN 10	PN 6/10	PN 16	PN 6/10	
MAGNA3 32-40 F (N)	220			98333834	98333832	98333836	59
MAGNA3 32-60 F (N)	220			98333854	98333852	98333856	61
MAGNA3 32-80 F (N)	220			98333874	98333872	98333876	63
MAGNA3 32-100 F (N)	220			97924258	97924264	97924345	65
MAGNA3 32-120 F (N)	220			97924259	97924265	97924346	67
MAGNA3 40-40 F (N)	220			97924266	97924273	97924347	69
MAGNA3 40-60 F (N)	220			97924267	97924274	97924348	71
MAGNA3 40-80 F (N)	220			97924268	97924275	97924349	73
MAGNA3 40-100 F (N)	220			97924269	97924276	97924350	75
MAGNA3 40-120 F (N)	250			97924270	97924277	97924351	77
MAGNA3 40-150 F (N)	250			97924271	97924278	97924352	79
MAGNA3 40-180 F (N)	250			97924272	97924279	97924353	81
MAGNA3 50-40 F (N)	240			97924280	97924287	97924354	83
MAGNA3 50-60 F (N)	240			97924281	97924288	97924355	85
MAGNA3 50-80 F (N)	240			97924282	97924289	97924356	87
MAGNA3 50-100 F (N)	280			97924283	97924290	97924357	89
MAGNA3 50-120 F (N)	280			97924284	97924291	97924358	91
MAGNA3 50-150 F (N)	280			97924285	97924292	97924359	93
MAGNA3 50-180 F (N)	280			97924286	97924293	97924360	95
MAGNA3 65-40 F (N)	340			97924294	97924300	97924361	97
MAGNA3 65-60 F (N)	340			97924295	97924301	97924362	99
MAGNA3 65-80 F (N)	340			97924296	97924302	97924363	101
MAGNA3 65-100 F (N)	340			97924297	97924303	97924364	103
MAGNA3 65-120 F (N)	340			97924298	97924304	97924365	105
MAGNA3 65-150 F (N)	340			97924299	97924305	97924366	107
MAGNA3 80-40 F	360	97924306	97924316		97924326		109
MAGNA3 80-60 F	360	97924307	97924317		97924327		111
MAGNA3 80-80 F	360	97924308	97924318		97924328		113
MAGNA3 80-100 F	360	97924309	97924319		97924329		115
MAGNA3 80-120 F	360	97924310	97924320		97924330		117
MAGNA3 100-40 F	450	97924311	97924321		97924331		119
MAGNA3 100-60 F	450	97924312	97924322		97924332		121
MAGNA3 100-80 F	450	97924313	97924323		97924333		123
MAGNA3 100-100 F	450	97924314	97924324		97924334		125
MAGNA3 100-120 F	450	97924315	97924325		97924335		127

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

Twin-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection		Data sheet Page
		Cast iron		
		PN 10	PN 16	
MAGNA3 D 32-40	180	97924449	97924455	51
MAGNA3 D 32-60	180	97924450	97924456	53
MAGNA3 D 32-80	180	97924451	97924457	55
MAGNA3 D 32-100	180	97924452	97924458	57

Pump type	Port-to-port length [mm]	Flange connection				Data sheet Page
		Cast iron				
		PN 6	PN 10	PN 6/10	PN 16	
MAGNA3 D 32-40 F	220			98333840	98333838	60
MAGNA3 D 32-60 F	220			98333860	98333858	62
MAGNA3 D 32-80 F	220			98333880	98333878	64
MAGNA3 D 32-100 F	220			97924453	97924459	66
MAGNA3 D 32-120 F	220			97924454	97924460	68
MAGNA3 D 40-40 F	220			97924461	97924468	70
MAGNA3 D 40-60 F	220			97924462	97924469	72
MAGNA3 D 40-80 F	220			97924463	97924470	74
MAGNA3 D 40-100 F	220			97924464	97924471	76
MAGNA3 D 40-120 F	250			97924465	97924472	78
MAGNA3 D 40-150 F	250			97924466	97924473	80
MAGNA3 D 40-180 F	250			97924467	97924474	82
MAGNA3 D 50-40 F	240			97924475	97924482	84
MAGNA3 D 50-60 F	240			97924476	97924483	86
MAGNA3 D 50-80 F	240			97924477	97924484	88
MAGNA3 D 50-100 F	280			97924478	97924485	90
MAGNA3 D 50-120 F	280			97924479	97924486	92
MAGNA3 D 50-150 F	280			97924480	97924487	94
MAGNA3 D 50-180 F	280			97924481	97924488	96
MAGNA3 D 65-40 F	340			97924489	97924495	98
MAGNA3 D 65-60 F	340			97924490	97924496	100
MAGNA3 D 65-80 F	340			97924491	97924497	102
MAGNA3 D 65-100 F	340			97924492	97924498	104
MAGNA3 D 65-120 F	340			97924493	97924499	106
MAGNA3 D 65-150 F	340			97924494	97924500	108
MAGNA3 D 80-40 F	360	97924501	97924511		97924521	110
MAGNA3 D 80-60 F	360	97924502	97924512		97924522	112
MAGNA3 D 80-80 F	360	97924503	97924513		97924523	114
MAGNA3 D 80-100 F	360	97924504	97924514		97924524	116
MAGNA3 D 80-120 F	360	97924505	97924515		97924525	118
MAGNA3 D 100-40 F	450	97924506	97924516		97924526	120
MAGNA3 D 100-60 F	450	97924507	97924517		97924527	122
MAGNA3 D 100-80 F	450	97924508	97924518		97924528	124
MAGNA3 D 100-100 F	450	97924509	97924519		97924529	126
MAGNA3 D 100-120 F	450	97924510	97924520		97924530	128

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

11. MAGNA3 for the German market

Single-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection			Data sheet Page
		Cast iron		Stainless steel	
		PN 10	PN 16	PN 10	
MAGNA3 25-40 (N)	180	97924623	97924628	97924716	45
MAGNA3 25-60 (N)	180	97924624	97924629	97924717	46
MAGNA3 25-80 (N)	180	97924625	97924630	97924718	47
MAGNA3 25-100 (N)	180	97924626	97924631	97924719	48
MAGNA3 25-120 (N)	180	97924627	97924632	97924720	49
MAGNA3 32-40 (N)	180	97924633	97924639	97924721	50
MAGNA3 32-60 (N)	180	97924634	97924640	97924722	52
MAGNA3 32-80 (N)	180	97924635	97924641	97924723	54
MAGNA3 32-100 (N)	180	97924636	97924642	97924724	56
MAGNA3 32-120 (N)	180	98609708	98609710	98609712	58

Pump type	Port-to-port length [mm]	Flange connection					Data sheet Page
		Cast iron				Stainless steel	
		PN 6	PN 10	PN 6/10	PN 16	PN 6/10	
MAGNA3 32-40 F (N)	220			98333835	98333833	98333837	59
MAGNA3 32-60 F (N)	220			98333855	98333853	98333857	61
MAGNA3 32-80 F (N)	220			98333875	98333873	98333877	63
MAGNA3 32-100 F (N)	220			97924637	97924643	97924725	65
MAGNA3 32-120 F (N)	220			97924638	97924644	97924726	67
MAGNA3 40-40 F (N)	220			97924645	97924652	97924727	69
MAGNA3 40-60 F (N)	220			97924646	97924653	97924728	71
MAGNA3 40-80 F (N)	220			97924647	97924654	97924729	73
MAGNA3 40-100 F (N)	220			97924648	97924655	97924730	75
MAGNA3 40-120 F (N)	250			97924649	97924656	97924731	77
MAGNA3 40-150 F (N)	250			97924650	97924657	97924732	79
MAGNA3 40-180 F (N)	250			97924651	97924658	97924733	81
MAGNA3 50-40 F (N)	240			97924659	97924666	97924734	83
MAGNA3 50-60 F (N)	240			97924660	97924668	97924735	85
MAGNA3 50-80 F (N)	240			97924661	97924669	97924736	87
MAGNA3 50-100 F (N)	280			97924662	97924670	97924737	89
MAGNA3 50-120 F (N)	280			97924663	97924671	97924738	91
MAGNA3 50-150 F (N)	280			97924664	97924672	97924739	93
MAGNA3 50-180 F (N)	280			97924665	97924673	97924740	95
MAGNA3 65-40 F (N)	340			97924674	97924680	97924741	97
MAGNA3 65-60 F (N)	340			97924675	97924681	97924742	99
MAGNA3 65-80 F (N)	340			97924676	97924682	97924743	101
MAGNA3 65-100 F (N)	340			97924677	97924683	97924744	103
MAGNA3 65-120 F (N)	340			97924678	97924684	97924745	105
MAGNA3 65-150 F (N)	340			97924679	97924685	97924746	107
MAGNA3 80-40 F	360	97924686	97924696		97924706		109
MAGNA3 80-60 F	360	97924687	97924697		97924707		111
MAGNA3 80-80 F	360	97924688	97924698		97924708		113
MAGNA3 80-100 F	360	97924689	97924699		97924709		115
MAGNA3 80-120 F	360	97924690	97924700		97924710		117
MAGNA3 100-40 F	450	97924691	97924701		97924711		119
MAGNA3 100-60 F	450	97924692	97924702		97924712		121
MAGNA3 100-80 F	450	97924693	97924703		97924713		123
MAGNA3 100-100 F	450	97924694	97924704		97924714		125
MAGNA3 100-120 F	450	97924695	97924705		97924715		127

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

Twin-head pumps

Pump type	Port-to-port length [mm]	Threaded pipe connection		Data sheet Page
		Cast iron		
		PN 10	PN 16	
MAGNA3 D 32-40	180	97924829	97924835	51
MAGNA3 D 32-60	180	97924830	97924836	53
MAGNA3 D 32-80	180	97924831	97924837	55
MAGNA3 D 32-100	180	97924832	97924838	57

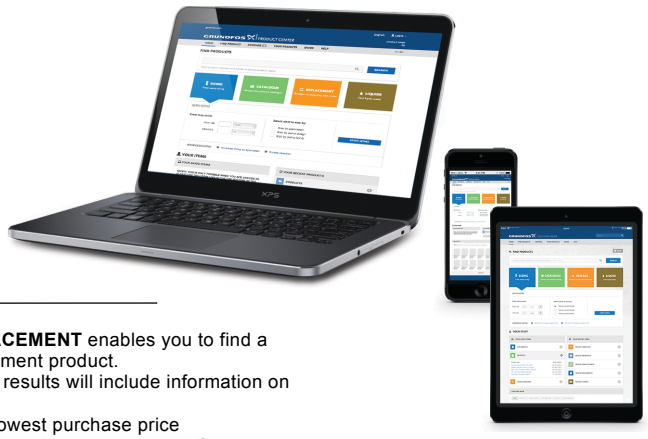
Pump type	Port-to-port length [mm]	Flange connection				Data sheet Page
		Cast iron				
		PN 6	PN 10	PN 6/10	PN 16	
MAGNA3 D 32-40 F	220			98333841	98333839	60
MAGNA3 D 32-60 F	220			98333861	98333859	62
MAGNA3 D 32-80 F	220			98333881	98333879	64
MAGNA3 D 32-100 F	220			97924833	97924839	66
MAGNA3 D 32-120 F	220			97924834	97924840	68
MAGNA3 D 40-40 F	220			97924841	97924848	70
MAGNA3 D 40-60 F	220			97924842	97924849	72
MAGNA3 D 40-80 F	220			97924843	97924850	74
MAGNA3 D 40-100 F	220			97924844	97924851	76
MAGNA3 D 40-120 F	250			97924845	97924852	78
MAGNA3 D 40-150 F	250			97924846	97924853	80
MAGNA3 D 40-180 F	250			97924847	97924854	82
MAGNA3 D 50-40 F	240			97924855	97924862	84
MAGNA3 D 50-60 F	240			97924856	97924863	86
MAGNA3 D 50-80 F	240			97924857	97924864	88
MAGNA3 D 50-100 F	280			97924858	97924865	90
MAGNA3 D 50-120 F	280			97924859	97924866	92
MAGNA3 D 50-150 F	280			97924860	97924867	94
MAGNA3 D 50-180 F	280			97924861	97924868	96
MAGNA3 D 65-40 F	340			97924869	97924875	98
MAGNA3 D 65-60 F	340			97924870	97924876	100
MAGNA3 D 65-80 F	340			97924871	97924877	102
MAGNA3 D 65-100 F	340			97924872	97924878	104
MAGNA3 D 65-120 F	340			97924873	97924879	106
MAGNA3 D 65-150 F	340			97924874	97924880	108
MAGNA3 D 80-40 F	360	97924881	97924891		97924901	110
MAGNA3 D 80-60 F	360	97924882	97924892		97924902	112
MAGNA3 D 80-80 F	360	97924883	97924893		97924903	114
MAGNA3 D 80-100 F	360	97924884	97924894		97924904	116
MAGNA3 D 80-120 F	360	97924885	97924895		97924905	118
MAGNA3 D 100-40 F	450	97924886	97924896		97924906	120
MAGNA3 D 100-60 F	450	97924887	97924897		97924907	122
MAGNA3 D 100-80 F	450	97924888	97924898		97924908	124
MAGNA3 D 100-100 F	450	97924889	97924899		97924909	126
MAGNA3 D 100-120 F	450	97924890	97924900		97924910	128

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

12. Grundfos Product Center

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

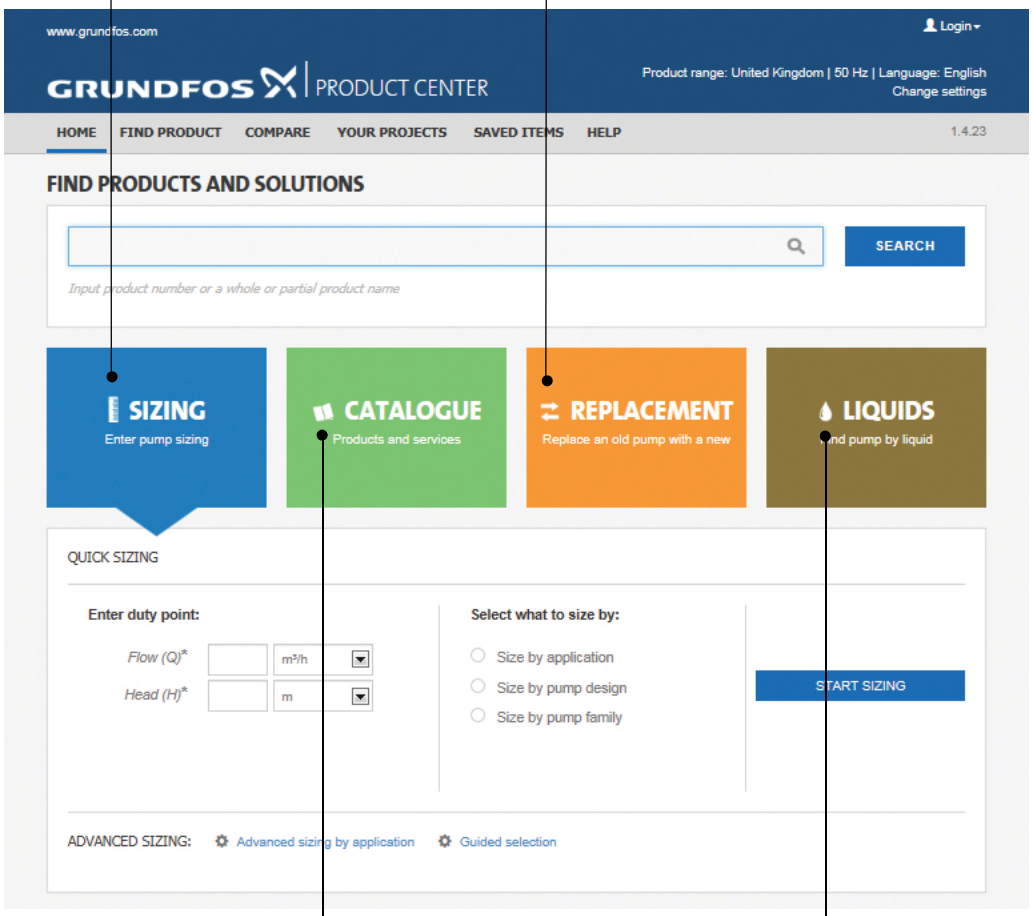
http://product-selection.grundfos.com



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 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.

Subject to alterations.

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