

# Grundfos MAGNA

## Amazingly adaptable

Intelligent, speed-controlled circulators for heating and air conditioning systems



# Mighty MAGNA:

Reliable. Adaptable. Powerful.



The prestigious new HQ of the Barmenia insurance company in Germany uses MAGNA pumps to ensure reliable air conditioning - circulation of 12°C water in their system's fan coils.



**RANGE**

## MAGNA highlights

### Permanent-magnet circulators with plenty of edge

Meet the MAGNA - a design pioneered by Grundfos. This circulator pump is built around a permanent-magnet motor and an integrated frequency converter to ensure maximum efficiency. An efficiency so superior that every MAGNA is rated "A" for its energy consumption - one of the first circulators to receive that distinction.

Since its first launch in 2001, the MAGNA range has gone from strength to strength. By popular demand, the range has been expanded in both size and scope. Now, it comprises 28 different models and works equally well in both air conditioning and heating systems.

Best of all, every MAGNA is crowned by the patented AUTOADAPT function that learns from your system and finds the best setting. All the time.

### Try the MAGNA.

It's reliable, adaptable, and powerful on a grand scale.

- Speed-controlled circulators for heating and air conditioning systems
- A-rated for energy efficiency
- Proportional pressure control for maximum energy savings
- Flows from 1 to 39 m<sup>3</sup>/h
- 28 different models available
- AUTOADAPT:
  - perfect balance between comfort and efficiency
  - analyses your heating system and learns from it
  - optimised sizing, installation, and operation

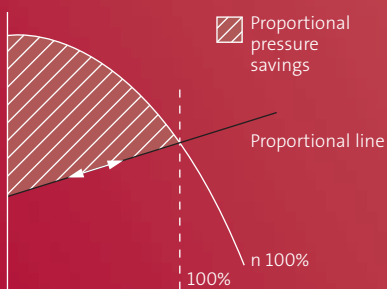


The new Scottish Parliament was specifically designed to be energy-efficient and environmentally conscious, making MAGNA pumps the obvious choice for its heating system.



# Comfort or efficiency?

Adapting means  
getting the balance right



## Proportional-pressure control

Groundbreaking work by Grundfos led to the discovery of proportional-pressure control. In units employing this principle, the differential pressure across the pump is automatically adjusted to match the flow. When the flow falls, so does the pressure required. This results in a correspondingly reduced load on the motor – and reduced energy consumption. And things get even better when you add the *AUTOADAPT* function.

**AUTOADAPT**

### AUTOADAPT: The crowning glory of the MAGNA

The AUTOADAPT feature is unique to Grundfos. It adds real intelligence to the MAGNA, learns what works best for your system – and changes the settings accordingly.

AUTOADAPT helps during all stages of the pump's life. It brings you simple and accurate specification, easy installation, reliable operation, high comfort, and energy savings that go on and on.

### Ideal balance between comfort and efficiency

The AUTOADAPT function regularly adjusts the proportional pressure and automatically sets a more efficient performance curve whenever possible. But it never sacrifices comfort for efficiency: with the MAGNA, the balance is always right.

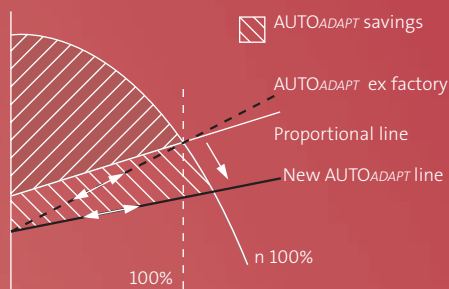
### Benefits for everybody

The AUTOADAPT function has benefits for everyone.

- For **consulting engineers** AUTOADAPT ensures that the MAGNA pumps meet specifications without overperforming. The pumps adjust their setting to suit demand, but are still ready to provide the necessary flow at peak demand situations such as very cold days. AUTOADAPT also reduces system stress, improving overall lifetimes.
- For **installers** AUTOADAPT means that in approximately 80% of all installations, no manual adjustment is needed. It works perfectly the moment you switch it on.
- For **end-users** the adaptability of MAGNA pumps brings consistent comfort – and substantial energy savings year after year. All brought with the impressive reliability you expect from a Grundfos solution.

### AUTOADAPT highlights

- Makes sure the pumps meet your specifications – all the time
- No manual adjustment in approximately 80% of all cases
- Energy savings that go on and on
- The perfect balance between comfort and efficiency



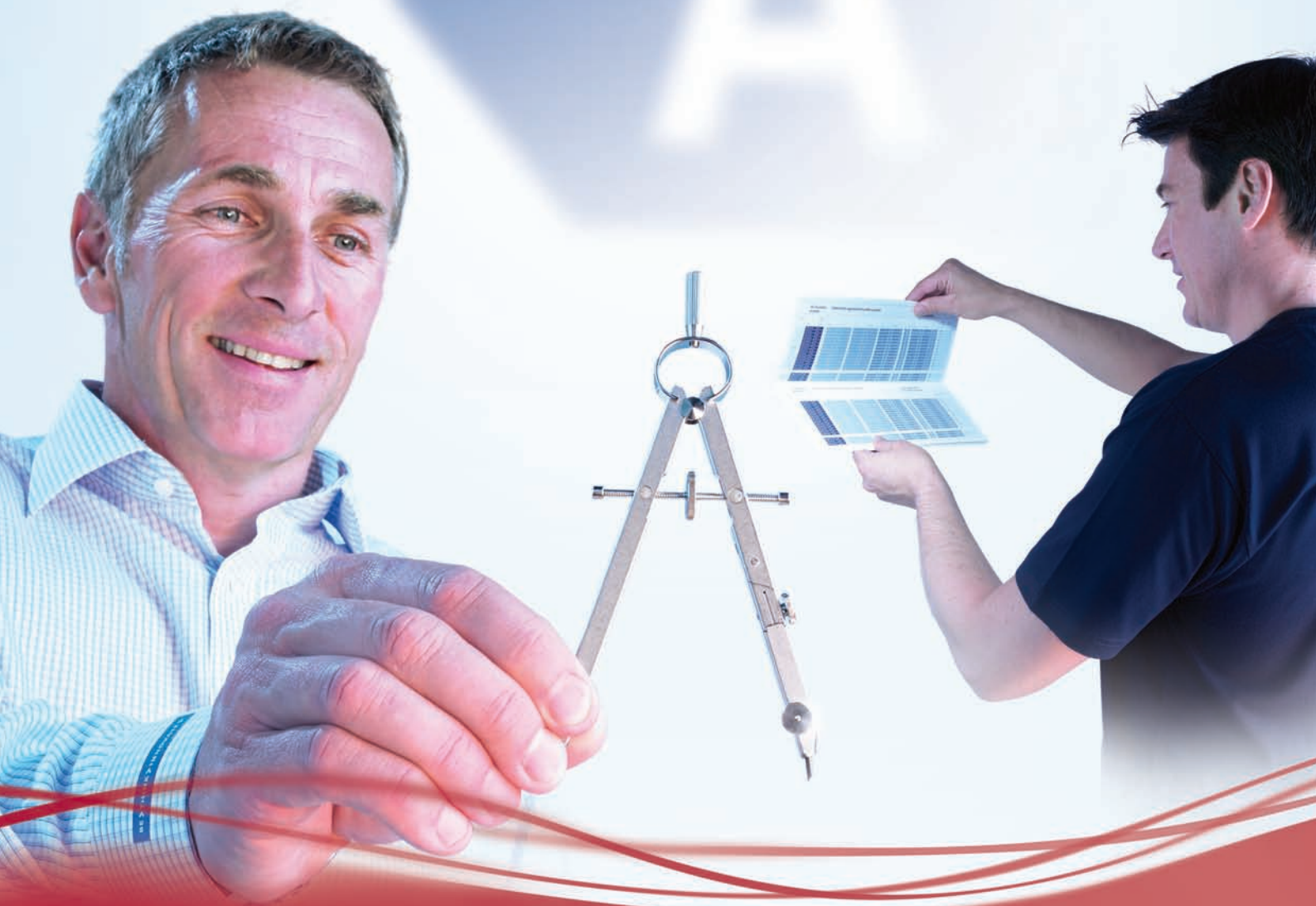
### Proportional-pressure control with AUTOADAPT

At start-up, a MAGNA pump operates with a lower differential pressure than other comparable units (shown by the AUTOADAPT factory setting line).

As the flow increases, the pump pressure follows the line for the AUTOADAPT factory setting until the pump operates on the maximum curve, continuing downwards until it reaches the required flow.

When the flow is subsequently reduced, the AUTOADAPT function ensures that the operating profile does not simply return to the original curve – it sets a new, lower pump speed that results in even greater energy savings!

# Not broken? Replace it anyway!



## Calculate your savings!

Replacing existing pumps can greatly reduce energy consumption. This simple form gives you an idea of how much you could save with new MAGNA pumps.

## An example

4 x 100W pumps from 1994 -> 4 x 105 kWh	=	420 kWh
2 x 900W pumps from 1994 -> 2 x 3880 kWh	=	7760 kWh
2 x 400W pumps from 1999 -> 2 x 945 kWh	=	1890 kWh

Total savings per year with MAGNA pumps	=	10070 kWh
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**REPLACEMENT**

To make your own calculations, visit [www.grundfos.com/MAGNA](http://www.grundfos.com/MAGNA).

### Upgrade to an "A". It pays.

There are over 120 million circulator pumps in operation throughout Europe today. Most of them are inefficient. Replacing those inefficient pumps with new, A-rated alternatives will reduce energy consumption by more than 70%. So even if the pumps are not broken, replacing them makes perfect sense.

### Short payback times

Cutting energy consumption by more than 70% has a real impact on electricity bills. In fact, the payback time of an A-rated MAGNA replacing a D-rated older pump can be as little as 18 months. That's something to bear in mind for future site visits.

### Part of a wider picture

Taking active steps to replace inefficient, yet functional pumps will not come naturally to everyone. But pump replacement is part of a bigger picture: The building becomes more energy-efficient. System stress is reduced. Comfort is heightened. And reliability is enhanced.

And, if we take an even wider view, the energy savings help reduce CO2 emissions, protecting the environment for future generations. In fact, if all 120 million circulators in Europe were replaced, we would save 44 billion kWh. That's the same as the annual residential electricity consumption of all the capitals of the EU put together.

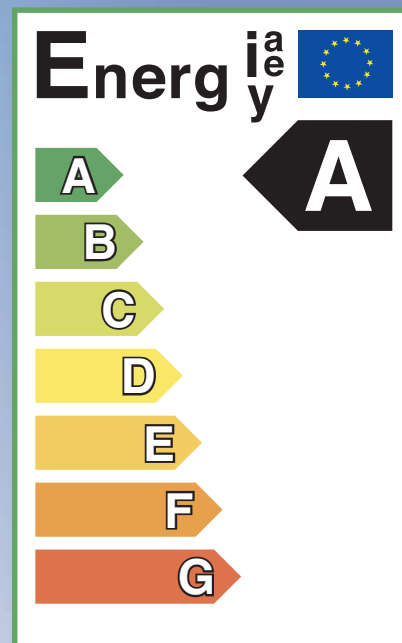
### Instant access to replacement info

When you find yourself at a customer site and realise a pump must be replaced, the Grundfos SMS service will instantly tell you the best replacement option.

Just type in the name of the product you want to replace, txt your message to your local Grundfos number, and you will have your replacement information within seconds.

Simple and easy, 24 hours a day. The number for Grundfos SMS service is ###.

Should you want more details or to carry out a general sizing, our computer-aided selection tools WebCAPS (and WinCAPS) are at your disposal 24 hours a day. And include extensive technical literature and illustrations.



### Fixed-speed pumps, pre-1997

Motor size (W) Max. power consumption	Savings (kWh/year)	No. of pumps	Total saving (kWh/year)
up to 60	75		
61-100	105	<b>4</b>	<b>420</b>
101-250	475		
251-450	1245		
451-800	3215		
801-1,160	3880	<b>2</b>	<b>7760</b>
1161-1550	4395		
			<b>8180</b>

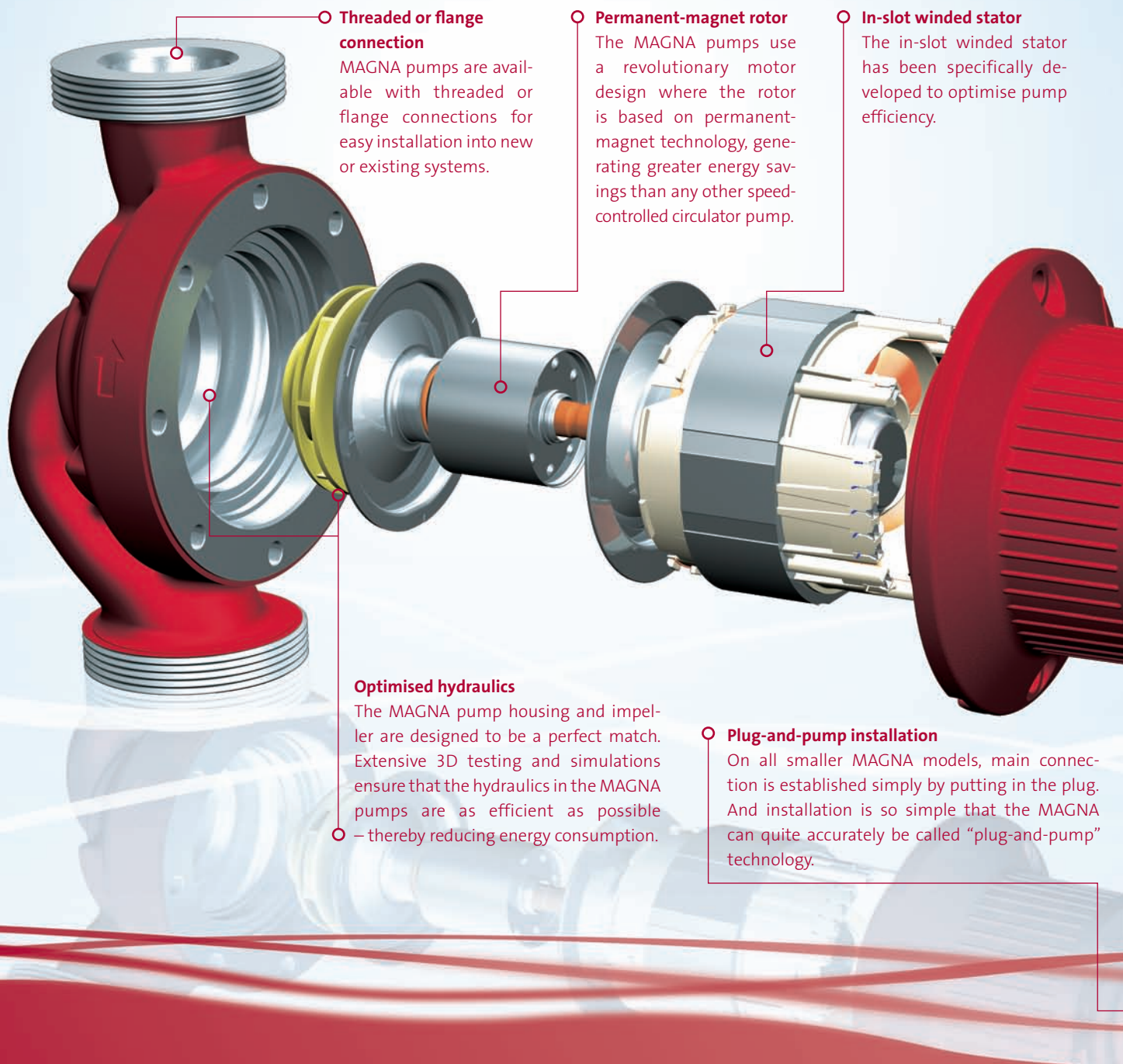
Energy savings obtained by replacing fixed-speed circulator pumps with intelligent speed-controlled pumps

### Fixed-speed pumps, 1997 and later

Motor size (W) Max. power consumption	Savings (kWh/year)	No. of pumps	Total saving (kWh/year)
up to 60	35		
61-100	55		
101-250	295		
251-450	945	<b>2</b>	<b>1890</b>
451-800	2425		
801-1160	2715		
1161-1550	3125		
			<b>1890</b>

Energy savings obtained by replacing fixed-speed circulator pumps with intelligent speed-controlled pumps

# Amazing technology



**Threaded or flange connection**  
MAGNA pumps are available with threaded or flange connections for easy installation into new or existing systems.

**Permanent-magnet rotor**  
The MAGNA pumps use a revolutionary motor design where the rotor is based on permanent-magnet technology, generating greater energy savings than any other speed-controlled circulator pump.

**In-slot wound stator**  
The in-slot wound stator has been specifically developed to optimise pump efficiency.

**Optimised hydraulics**  
The MAGNA pump housing and impeller are designed to be a perfect match. Extensive 3D testing and simulations ensure that the hydraulics in the MAGNA pumps are as efficient as possible – thereby reducing energy consumption.

**Plug-and-pump installation**  
On all smaller MAGNA models, main connection is established simply by putting in the plug. And installation is so simple that the MAGNA can quite accurately be called “plug-and-pump” technology.

## An inside look at the MAGNA range

The MAGNA pumps are the result of a development process dedicated to creating a truly efficient circulator pump. The design has been optimised with a view to reducing energy consumption and making the product as smart as possible. Nothing was left to chance: for example, sophisticated 3D design software and efficient flow simulation equipment

helped our engineers bring you the exceptional performance that is the MAGNA hallmark. For the Grundfos MAGNA, only one quality is good enough: the best.

Some of the features of the Grundfos MAGNA are briefly described here. For more information, contact us.



### ○ User-friendly interface

The MAGNA user interface is simplicity itself. The operating panel restricts itself to showing only the most essential performance parameters, making it easy to read. It clearly indicates the flow rate and the operating level of the pump in relation to maximum capacity. And pump performance can be adjusted manually with a simple press of a button.



### Extensive communication and control options

MAGNA pumps are designed to optimise the system of which they are a part. So naturally they give you the communication and control facilities you need. Bus communication enables integration in any building management system - and lets you benefit from the data collection features of GENIBus and LONWorks.



GENIBus module

LONWorks module

Remote control

Relay modules offer simple communication options, while Grundfos' own R 100 remote control gives easy, hand-held access to diagnostic information and general performance data.

### Insulation shells for air conditioning systems

When used for air conditioning applications, the MAGNA can be fitted with a special designed insulation shells to provide optimal insulation and a minimum of work. Delivered separately, these insulation shells are perfectly moulded to the MAGNA's shape.



# Technical data

Single pumps, cast iron			
	Port to port (mm)	Power flexibility, min – max (Watt)	Product no.
MAGNA 25–60	180	10–90	96 28 10 22
MAGNA 25–100	180	10–190	96 28 10 15
MAGNA 32–60	180	10–90	96 28 10 23
MAGNA 32–100	180	10–190	96 28 10 16
MAGNA 32–100 F	220	10–190	96 28 10 18
MAGNA 32–120 F	220	22–345	96 51 36 25
MAGNA 40–100 F	220*	10–190	96 28 10 19
MAGNA 40–120 F	250	25–445	96 51 36 26
MAGNA 50–60 F	280	34–334	96 51 36 27
MAGNA 50–100 F	240*	10–190	96 28 10 20
MAGNA 50–120 F	280	50–750	96 50 48 72
MAGNA 65–60 F	340	32–435	96 51 36 28
MAGNA 65–120 F	340	50–900	96 50 48 73

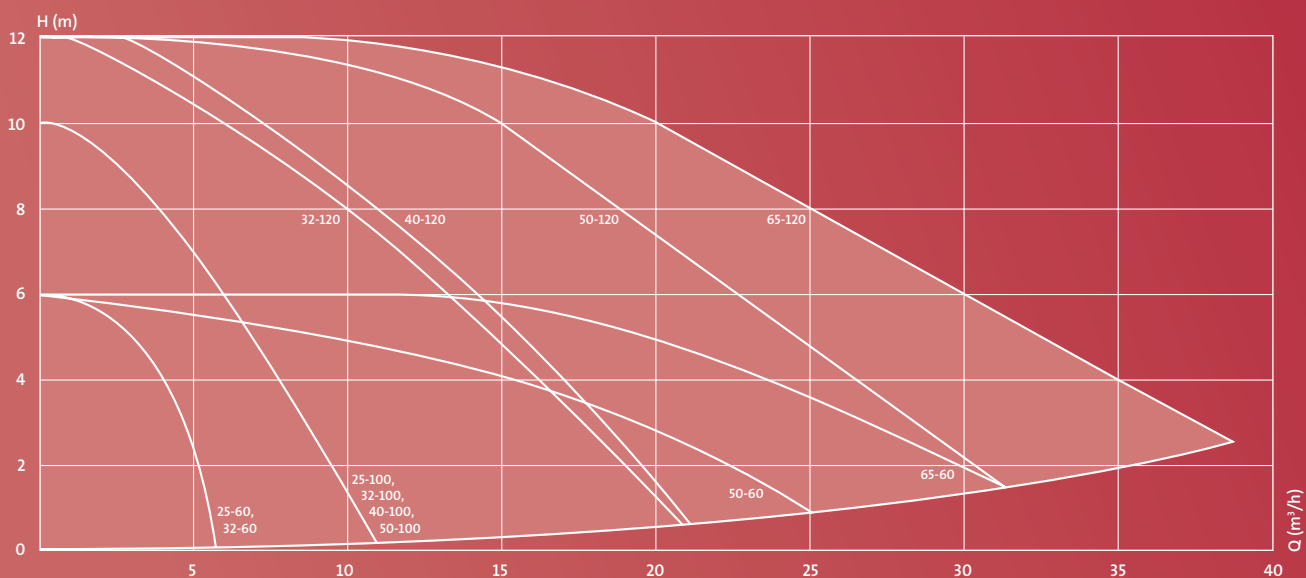
\*Adaptor kit available to match older corresponding pump models.

Single pumps, stainless steel			
	Port to port (mm)	Power flexibility, min – max (Watt)	Product no.
MAGNA 32–60 N	180	10–190	96 70 03 23
MAGNA 32–100 N	180	10–190	96 28 10 17
MAGNA 32–120 FN	220	22–345	96 51 36 43
MAGNA 40–120 FN	250	25–445	96 51 36 44
MAGNA 50–60 FN	280	34–335	96 51 36 45
MAGNA 50–120 FN	280	50–750	96 50 48 76
MAGNA 65–60 FN	340	32–435	96 51 36 46
MAGNA 65–120 FN	340	50–900	96 50 48 77

# Technical data

Twin pumps, cast iron			
	Port to port (mm)	Power flexibility, min – max (Watt)	Product no.
MAGNA-D 40-100 F	220	10-190	96 28 10 21
MAGNA-D 32-120 F	220	22-345	96 51 36 29
MAGNA-D 40-120 F	250	24-445	96 51 36 40
MAGNA-D 50-60 F	280	34-335	96 51 36 41
MAGNA-D 50-120 F	280	50-750	96 50 48 74
MAGNA-D 65-60 F	340	32-435	96 51 36 42
MAGNA-D 65-120 F	340	50-900	96 50 48 75

# Performance curve



# Intelligent circulator pumps

The Grundfos MAGNA circulator pumps are designed for air conditioning and heating systems in buildings on any scale. Innovative and intelligent, the MAGNA is based on a permanent-magnet motor that ensures maximum efficiency.

The intelligence of the MAGNA resides in the unique AUTOADAPT function, which automatically sets the pump to the most efficient performance curve at all times. Combined with a design specifically aimed at optimising energy efficiency, this has earned the MAGNA series a class 'A' rating in the European energy labelling scheme. All this makes the MAGNA a key element in the Grundfos range of innovative pump technology.