

# MAGNA3

## MORE THAN A PUMP

Full range of intelligent, high-efficiency circulators for heating, cooling, ground source heat pump systems and domestic hot water applications



# MORE THAN A PUMP

IF YOU ARE LOOKING FOR THE BEST EFFICIENCY ON THE MARKET COMBINED WITH HIGH INTELLIGENCE AND TRULY FULL RANGE, LOOK NO FURTHER. THE MAGNA3 IS HERE

## Reliable innovation

The MAGNA3 is a circulator pump based on the tried and tested MAGNA technology and our industry-leading experience with electronic pumps. The permanent magnet motor, AUTOADAPT function and integrated frequency converter is still part of the MAGNA package, but we've added some additional, ground-breaking new technologies. The result is a cutting-edge piece of intelligent technology that retains the unrivalled Grundfos reliability.

## FULL RANGE

– perfect fit and low life cycle costs

## BEST EFFICIENCY IN THE MARKET

– minimize energy costs

## HIGH INTELLIGENCE

– reduce investment costs and gain complete control of your system

## PROVEN RELIABILITY

– based on 40 years of experience and 1 million test hours

## EASY INSTALLATION

– save time and effort

# THE HIGHEST STANDARDS, THE GREATEST RESULTS

## Ready for range?

MAGNA3 is a truly full-range pump with more than 150 different single and twin circulators in cast iron or stainless steel. We have also increased the maximum twin to 18 m and the flow to 70 m<sup>3</sup>/h. Get ready to specify a perfectly sized circulator pump for any HVAC application.

## The smart pump

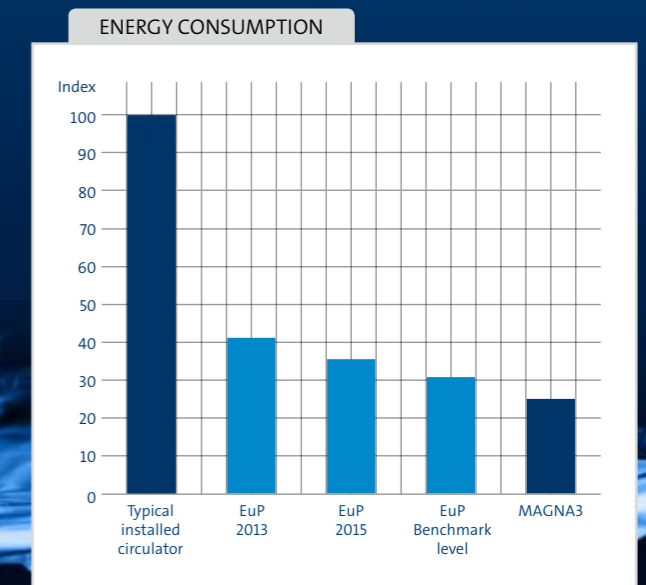
MAGNA3 gives you new opportunities with more intelligent control modes, optimized building management communication and a built-in heat energy meter. It also allows you to save pump throttling valves in the system. It is fair to say that we have raised the bar for intelligent pumping.

## Efficiently the best

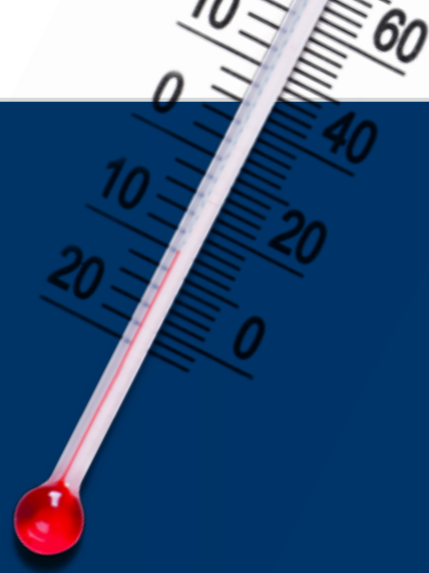
The short version is this: MAGNA3 is the most efficient circulator available on the market today. The longer version is this: With an Energy Efficiency Index (EEI) well below the EuP benchmark level you can achieve energy savings of up to 75% compared to a typical installed circulator and thereby a remarkably fast return on investment. And of course it more than meets the standards for EuP legislation (learn more at [www.europump.org](http://www.europump.org)).

## Reliable from A to Z

At Grundfos we do not take testing lightly. With 40 years of experience with electronically controlled pumps and 1 million test hours for the MAGNA3 in extreme conditions, including alternating pressure tests, high humidity tests as well as high and low-temperature tests, we are confident that this pump will serve you day in and day out for many years to come.



# FULL-RANGE EFFICIENCY



## Full range means perfect fit

The extended MAGNA3 range with maximum heads of 18 m and maximum flows of 70 m<sup>3</sup>/h features more than 150 single and twin pumps in cast iron or stainless steel. This means that it is much easier to right-size the MAGNA3 for any duty point and cut both purchase and energy costs in the process.

## MAGNA is always improving

Grundfos continues to set the pace for circulator pumps and is the obvious choice if you are looking for the most energy-efficient solution and fastest return on investment.

To achieve the groundbreaking MAGNA3 energy efficiency, we have further optimized pump hydraulics and incorporated our patented differential pressure sensor, while switching to a composite rotor can and a compact stator that minimizes losses in the motor.

The result is a highly efficient and future-proof circulator with an EEI value that makes even the strict 2015 EuP requirements look old-fashioned.

## The all-purpose circulator

Like its predecessor, MAGNA3 is the ideal pump for heating and cooling applications as well as domestic hot water circulation systems. It is designed to handle liquids down to -10°C, which makes it suitable for both tough industrial tasks and ground source heat pump systems (GSHP). Furthermore, the liquid temperature (-10°C to +110°C) is now independent of the ambient temperature (0°C to +40°C). So whether your project requires heating or cooling – MAGNA3 is the pump for you.

## Refurbish and save money

Did you know that a pump system refurbishment can result in energy savings of up to 80%? Grundfos offers several approaches to energy refurbishment, depending on the condition of your current pump system. For more information, please contact your local Grundfos representative.

## Grundfos Blueflux® is your guarantee

The Grundfos Blueflux® label is your guarantee that the MAGNA3 is equipped with the most energy-efficient motor currently available. Grundfos Blueflux® motors are designed to cut electricity consumption by up to 60% and thus lower CO<sub>2</sub> emissions and operating costs.



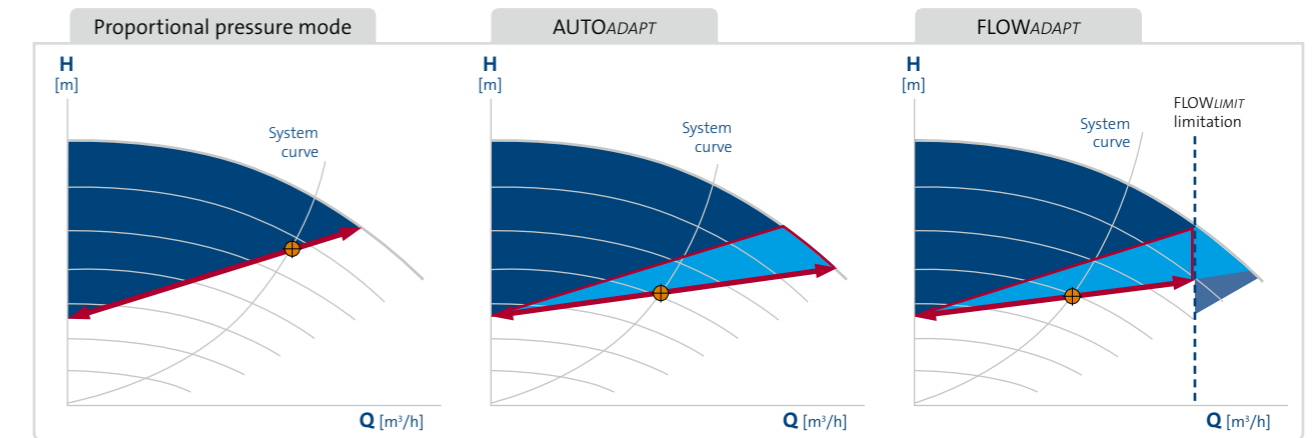
# INTRODUCING: YOUR PERFECT CONTROL MODE

## Intelligent control saves time and energy

The MAGNA3 gives you the full range of control mode options you would expect from a state-of-the-art circulator pump. But the intelligent modes – AUTOADAPT and FLOWADAPT – set MAGNA3 apart from the competition. Furthermore, the FLOWLIMIT and Automatic Night Setback control functions are applicable with all MAGNA3 control modes.



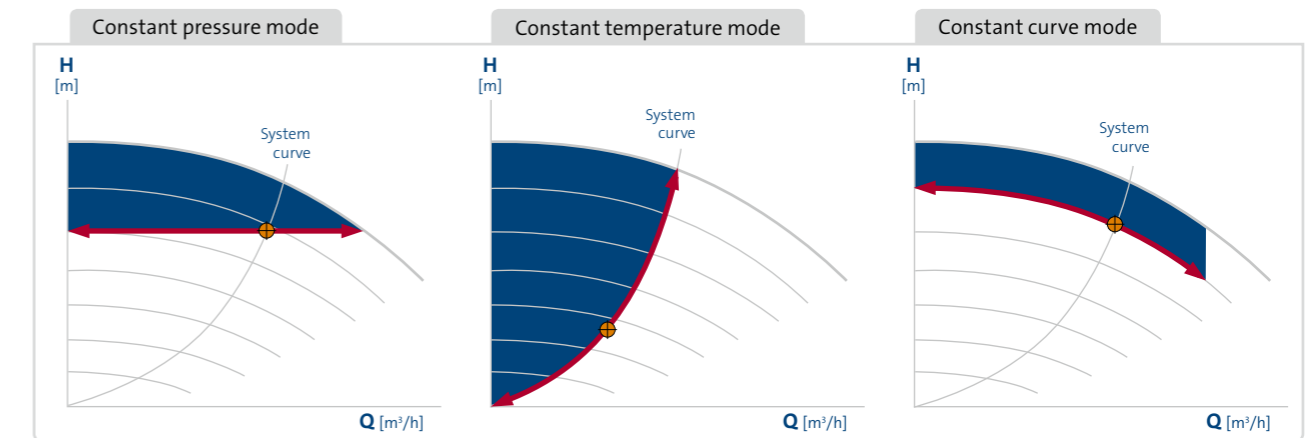
● Duty point   
 ↔ Performance curve   
   Potential saving compared to a non-regulated pump   
   Potential saving compared to proportional pressure mode   
   Additional saving with FLOWADAPT



Proportional pressure mode is used in circulating systems. The pump continuously adapts its performance to the varying flow demand.

The AUTOADAPT function continuously adjusts the proportional pressure curve and automatically sets a more efficient one, without compromising comfort demands. With this factory setting, in 80% of the installations no manual adjustments are needed.

FLOWADAPT is a combination of AUTOADAPT and FLOWLIMIT. The MAGNA3 continuously monitors the flow rate ensuring that it is not exceeded. This will save the cost of a separate pump throttling valve.



Constant pressure mode is suited for variable flow systems with very low pipe pressure losses, and in open systems where pipe pressure loss is subordinate to static head.

Constant temperature mode is used in variable flow systems, where a constant liquid temperature at a user-defined point, is desired. The pump is in charge of the flow, and external controller for temperature regulation are made unnecessary.

Constant curve mode is used when there is a demand for constant flow and constant head. The pump is adjusted to the desired duty point making pump throttling valves, which are traditionally required in this situation, obsolete.

# INTELLIGENT SOLUTIONS

## Built for building management

Optional CIM modules support all common fieldbus standards, making MAGNA3 the perfect addition to any BMS system.

## Heat energy meter

The MAGNA3 features a built-in heat energy meter that can monitor system heat energy distribution and consumption in order to avoid excessive energy bills caused by system imbalances. The heat energy meter has an accuracy of +/-1% to +/-10%, depending on the duty point, and will save you the cost of installing a separate energy metering device within your system.

## No pump throttling valves

The new FLOWLIMIT function and FLOWADAPT control mode allow you to set a maximum flow limit for your MAGNA3 pump. The pump continuously monitors the flow rate to ensure the desired maximum flow is not exceeded. This eliminates the need for pump throttling valves and hereby improves the system's overall energy-efficiency. To meet system flow limitations, the pump will adjust its performance to a given setpoint, which dramatically cuts energy consumption.

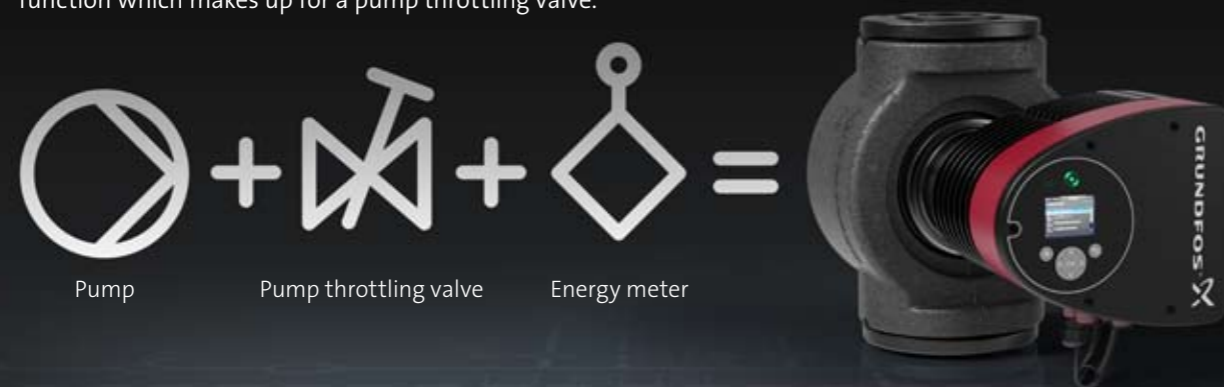
## Wireless communication between two single pumps

MAGNA3 is supplied with wireless technology which enables it to connect to another MAGNA3 pump. Using the built-in wizard, connection to a parallel coupled pump is quick and easily obtained. The two pumps are now controlled jointly in either cascade mode, alternating mode or pump back-up mode.



## More than a pump:

The MAGNA3 has a built in energy meter and a flow limiting function which makes up for a pump throttling valve.



## More I/O for system intelligence

With the addition of an extra configurable relay and an analog input, the complete MAGNA3 I/O package allows for better system monitoring and optimal pump regulation.

### MAGNA3 I/O package

1 x analog input (0-10V/4-20mA) for differential pressure sensor, constant temperature control, heat energy metering or external set point

2 x relay outputs configurable as alarm, ready or operation

3 x digital inputs for external start/stop, max. curve and min. curve

## Easy optimisation

The innovative 3D Work Log and Duty Point Over Time curve make optimisation simple and accurate. The two new features give you the details of the pump's performance since the day it was installed as well as the details of its operating conditions, such as average temperature and power consumption. Based on this, it is easy to find the optimal replacement pump, perfect optimisation plan or carry out troubleshooting.

# TAKE A CLOSER LOOK

## Perfect insulation

Heating insulation shell that provides optimal thermal insulation of the pump housing. Delivered as standard, the insulation shells are perfectly molded to the pump shape to avoid subsequent time-consuming adjustments.

## Corrosion protection

Cataphoresis surface treatment of pump and stator housing protects against corrosion.

## Clamp ring

Innovative, specially designed clamp ring allows for fast repositioning and servicing of pump head.

## Improved hydraulics

Pump hydraulics have been further improved through the use of flow analysis and 3D development tools.

## Air-cooling prevents condensation

Air-cooling in the control box prevents condensation problems.

## Neodymium technology rotor

High-performance neodymium magnet rotor increases motor efficiency.

## Composite rotor can

Composite rotor can minimizes power loss and contributes to higher energy efficiency.

## Compact stator

Highly efficient compact stator minimizes energy loss.

## Sensors make the difference

Integrated sensor measures differential pressure over the pump for increased efficiency. Temperature sensor provides pump liquid temperature data for heat energy estimation (add external sensor to measure return pipe liquid temperature).

## Easy BMS integration

For connection to BMS, CIM modules are easily mounted directly in the control box.

## High-quality user interface

TFT (Thin Film Transistor) color display for easy and intuitive pump setup.

## Easy cabling

Unique power connection through plug connection inside the control box.

## More data to and from the pump

Three digital inputs, two output relays and one analog input for external sensor.

## Pump status indicator

The innovative Grundfos Eye provides visual indication of pump status: pump running, warning or alarm.

## Accessories

### Grundfos GO

Grundfos GO gives you intuitive handheld pump control and full access to the Grundfos online tools on the go.



### CIM modules

For connection to BMS, CIM modules with the following field-bus standards can be added: LON, Profibus, Modbus, SMS/GSM/GPRS and BACnet. In addition, the GENIBus is also available.



### Insulation shells for cooling applications

Insulation shells that prevent condensation and corrosion in air conditioning and ground source heat pump systems.



## Reliability through generations

The MAGNA3 hardware is a third generation platform built on Grundfos' 65 years of pump experience, while the pump's new self-protecting electronics prove that we are still the industry's electronic pump pioneers.

## 1 million test hours

At Grundfos, we believe in the value of thorough testing. The MAGNA3 has been submitted to more than 1 million test hours in extreme conditions, including alternating pressure tests, high humidity tests as well as high and low-temperature tests.

# PRODUCT RANGE

MAGNA3

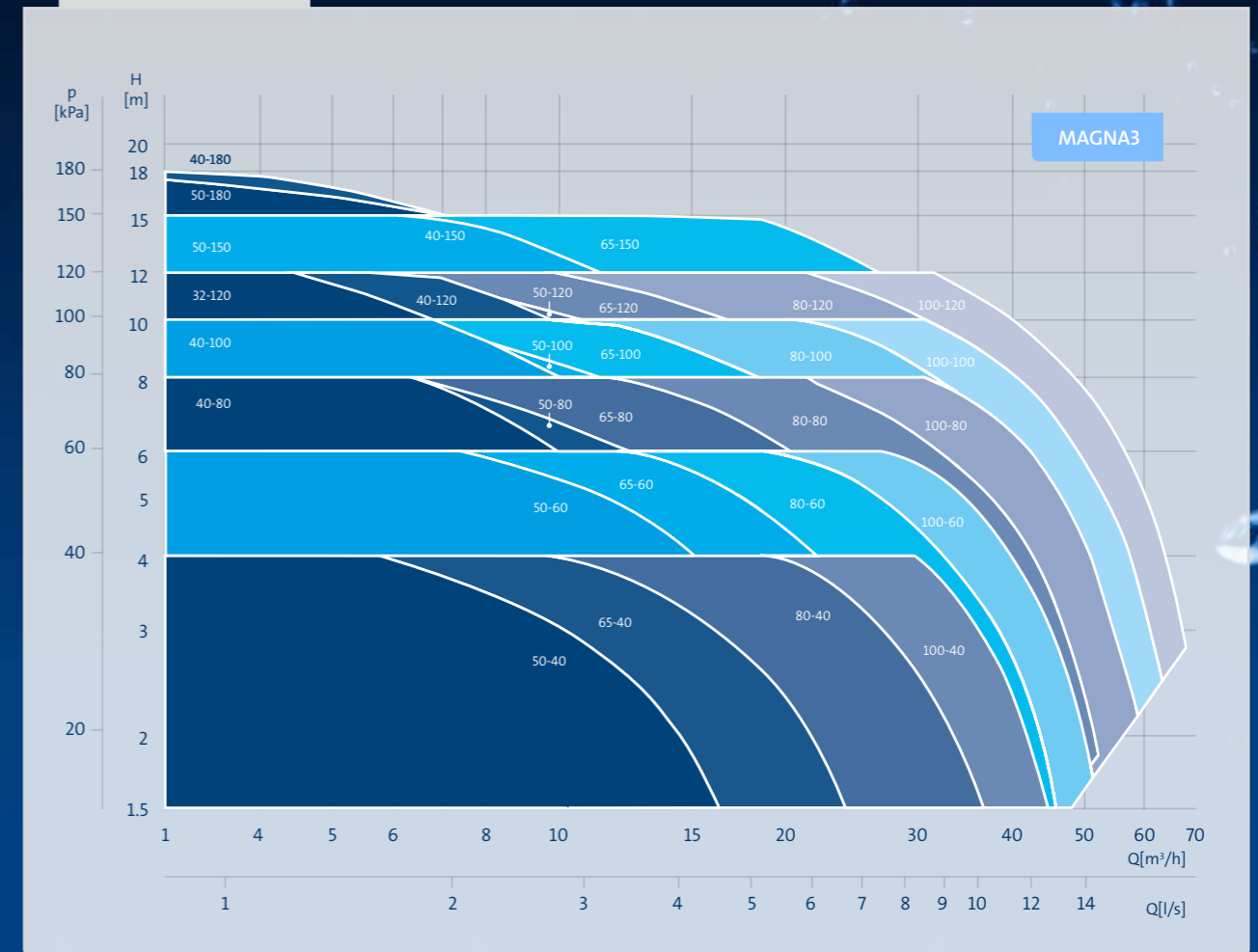
Pump type	Port-to-port length (mm)	Single pump, cast iron		Single pump, stainless steel	Twin pump, cast iron	
		PN 6/10	PN 16	PN 6/10	PN 6/10	PN 16
MAGNA3 32-120 F	220	●	●	●	●	●
MAGNA3 40-80 F	220	●	●	●	●	●
MAGNA3 40-100 F	220	●	●	●	●	●
MAGNA3 40-120 F	250	●	●	●	●	●
MAGNA3 40-150 F	250	●	●	●	●	●
MAGNA3 40-180 F	250	●	●	●	●	●
MAGNA3 50-40 F	240	●	●	●	●	●
MAGNA3 50-60 F	240	●	●	●	●	●
MAGNA3 50-80 F	240	●	●	●	●	●
MAGNA3 50-100 F	280	●	●	●	●	●
MAGNA3 50-120 F	280	●	●	●	●	●
MAGNA3 50-150 F	280	●	●	●	●	●
MAGNA3 50-180 F	280	●	●	●	●	●
MAGNA3 65-40 F	340	●	●	●	●	●
MAGNA3 65-60 F	340	●	●	●	●	●
MAGNA3 65-80 F	340	●	●	●	●	●
MAGNA3 65-100 F	340	●	●	●	●	●
MAGNA3 65-120 F	340	●	●	●	●	●
MAGNA3 65-150 F	340	●	●	●	●	●

Pump type	Port-to-port length (mm)	Single pump, cast iron			Twin pump, cast iron		
		PN 6	PN 10	PN 16	PN 6	PN 10	PN 16
MAGNA3 80-40 F	360	●	●	●	●	●	●
MAGNA3 80-60 F	360	●	●	●	●	●	●
MAGNA3 80-80 F	360	●	●	●	●	●	●
MAGNA3 80-100 F	360	●	●	●	●	●	●
MAGNA3 80-120 F	360	●	●	●	●	●	●
MAGNA3 100-40 F	450	●	●	●	●	●	●
MAGNA3 100-60 F	450	●	●	●	●	●	●
MAGNA3 100-80 F	450	●	●	●	●	●	●
MAGNA3 100-100 F	450	●	●	●	●	●	●
MAGNA3 100-120 F	450	●	●	●	●	●	●

**Temperature range (all models):**

Liquid temperature: -10°C up to +110°C  
 Ambient temperature: 0°C up to +40°C

PERFORMANCE RANGE



## MAGNA3

We offer a complete range of MAGNA3 pumps with unrivalled efficiency, intelligent technology to match your every need and the well-known Grundfos reliability based on 65 years of experience.

### The full Grundfos product range covers all building application areas:

- Pressure boosting
- Heating
- Cooling
- Ground source energy, GSHP
- District energy
- Water disinfection
- Wastewater handling
- Rainwater harvesting
- Fire fighting

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