#### 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

For more information, visit: grundfos.us/magna3

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www.grundfos.us

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### **DEMAND DEMAND DEMAND DEMAND DEMAND**

The Magna3 combines unrivalled efficiency and a wide range of intelligent features that make it more than a pump. Magna3 is the natural choice for anyone looking to create high performance building systems

be think innovate

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#### GRUNDFOS MAGNA3 - COMMERCIAL BUILDINGS





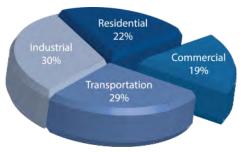
### COMMERCIAL BUILDINGS CONSUME 19% OF OUR ENERGY. PUMPS CONSUME **12%** OF THAT ENERGY IN TYPICAL HVAC APPLICATIONS ALONE.

#### It's time to DEMAND MORE

What can you do NOW to reduce energy consumption while improving indoor comfort for your customers?

#### **Energy savings**

An innovative, ground breaking variable speed pump that monitors system needs and "learns" the building energy usage to optimize performance is here now.



End-use Total Consumption 2012 DOE, Building Energy Data Book

#### **Tougher standards**

Future building designs will require a substantial improvement in building energy performance. What can you do differently to meet that requirement?

#### Doing our part

Grundfos thinking about tomorrow

**CONCERN** *C*Put sustainability first **CARE**  $\bigcirc$  Be there for a growing world **CREATE** Pioneer new technologies

### MORE THAN A PUMP

IF YOU ARE LOOKING FOR THE LOWEST ENERGY HIGH INTELLIGENCE AND FULL RANGE, LOOK NO FURTHER. THE MAGNA3 IS HERE

#### **Reliable innovation**

The MAGNA3 is 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, groundbreaking 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

MINIMIZE ENERGY COSTS – best efficiency in the market

### 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 AND START-UP

- save time and effort



# CONSUMPTION IN THE MARKET COMBINED WITH



### **BUILDING CERTIFICATION AND** RATING SYSTEMS ARE EXPANDING



#### **Commercial Building Rating Systems**

- · LEED
- Building EQ
- Energy Star

### Green Globes

#### **Building rating and certification** systems are different than codes

These are applied at the request of the owner. There are many different building rating systems: LEED, Energy Star, Green Globes, Building EQ, and BREEAM. Each of these rating systems have their own criteria and design requirements but have one thing in common –



they encourage more energy conscious and sustainably focused design. The energy codes define a minimum requirement for building energy-efficient designs, while the building rating systems encourage building owners to exceed these minimums and invest better design.

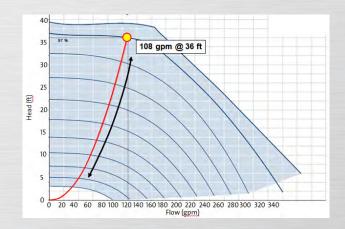




### SAVING ENERGY Full range means perfect fit

The extended MAGNA3 range with maximum heads of 60ft and maximum flows of 550 GPM features more than 25 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.

#### VS/VV Pump curve



# **OPPORTUNITIES WITH MAGNA 3**

Pumps have been applied the same way for decades, which is to satisfy the peak load requirements. In most cases, this doesn't meet the changing load requirements of the building.

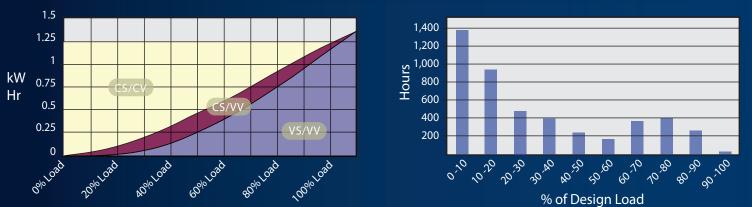
Grundfos MAGNA3 is the leader in advanced technology and control strategies which make it simple to meet building energy demands, while savings as much as 80% with all MAGNA3 control modes.

#### 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.



#### Pump Energy Consumption



VS/VV (Variable Speed, Variable Volume) saves energy, even at reduced loads, when compared to CS/VV (Constant Speed, Variable Volume). These savings are greatly enhanced when compared to the traditional CS/CV (Constant Speed, Constant Volume) systems.

#### **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 ground-breaking 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.



#### **Cooling Load Profile**

The chart reflects how many cooling systems operate the majority of the time at significantly reduced loads. When these systems are operated in a VS/CV or VS/VV manner, maximum energy savings are possible.

The result is a highly efficient and future-proof circulator exceeding even future energy standards.

### ELIMINATE COSTLY EQUIPMENT & INSTALLATION

### You Eliminate:

- Flow Meter
- Pressure gauge
- Temperature Gauge
- Throttling Valve
- ConstantSpeed Pump
- BTU Meter

Eliminate all of this...

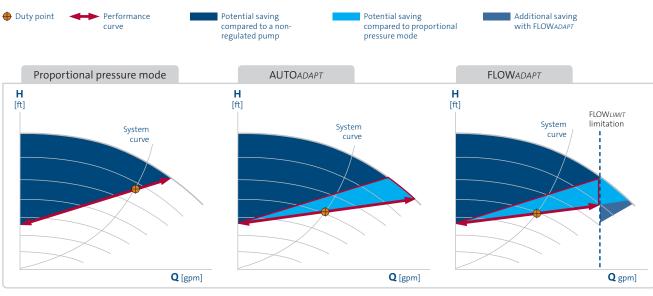
#### ...with this.



### **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.

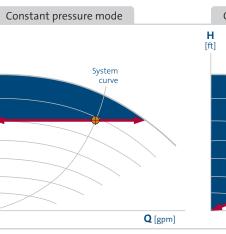


Proportional pressure mode is used in circulating systems. The pump continuously adapts its performance to the varying flow demand.

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[ft]

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.

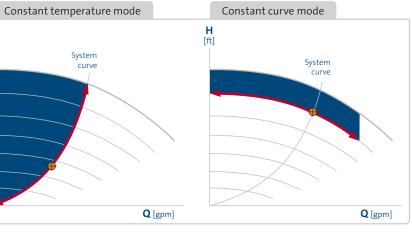


Constant pressure mode is suited for variable flow systems with very low pipe pressure losses, and in open systems where pipe pressure loss is subordinate to static head.

are made unnecessary.



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



Constant temperature mode is used in variable flow systems within heating, 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

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

### IMPROVED BUILDING PERFORMANCE

#### **Built in Heat Energy Meter provides Complete Control**

- Measure current energy consumption, flow rate and much more
- Avoid cost of installing separate heat energy meter in the system
- Automatic link (optional feature) to BMS provides a quick overview of the system
- Applicable in all heating and cooling applications as well as ground source heat pump and solar applications

#### An all in one solution

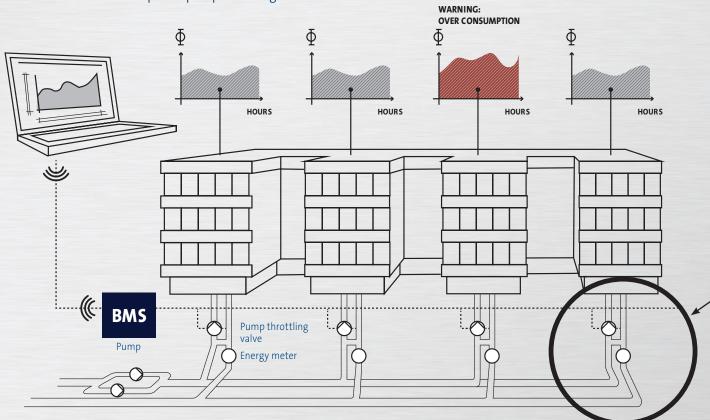
- Optimized pump hydraulics
- Simple BMS integration
- Composite rotor

• Embedded differential pressure & temperature sensor

Optimized user interface
 Compact stator

#### 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.



#### GOOD BYE THROTTLING VALVES

The new FLOWLIMIT function and FLOWADAPT control mode eliminate the need for a pump throttling valve and thereby reduce the pressure loss.

This improves the overall performance of the system and reduces the initial costs. To meet system flow limitations, the pump will adjust its performance to the actual load, which effectively cuts overall system energy consumption.

#### INTEGRATED SENSOR

This model shows an integrated flow temperature sensor that makes other temperature sensors redundant.

#### HELLO INTEGRATED HEAT ENERGY METER

Combined with a return temperature sensor, the built-in flow meter allows you to monitor the heat energy flow in the sysyem. Imagine the never ending possibilities. Wherever there is a pump, there is a need for a heat energy meter.

# Easy optimization

The innovative 3D Work Log and Duty Point Over Time curve make optimization 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 optimization plan or carry out troubleshooting.

# TAKE A CLOSER LOOK

#### Neodymium technology rotor \_

High-performance neodymium magnet rotor increases motor efficiency.

#### 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.

#### 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).

Air-cooling prevents \_ condensation

Air-cooling in the control box prevents condensation problems.

#### Composite rotor can

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

#### **Compact stator**

Highly efficient compact stator minimizes energy loss.

# 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.

# FEATURES & BENEFITS OF MAGNA3

- LOWEST POWER CONSUMPTION IN THE MARKET MINIMIZE ENERGY COSTS
- HIGHEST SYSTEM INTELLIGENCE MINIMIZE
  INVESTMENT COSTS AND GAIN SOPHISTICATED
  CONTROL OF YOUR SYSTEM
- PROVEN RELIABILITY- BASED ON 40 YEARS OF EXPERIENCE AND 1 MILLION TEST HOURS
- GRUNDFOS EYE (RUNNING, STOP, WARNING OR ALARM)
- TFT (THIN FILM TRANSISTOR) INTERFACE
  FOR CONTROLLING AND INFO OF THE
  PUMP
- SELECTION BUTTONS WITH TACTILE FEEDBACK

#### SUITABLE FOR:

- > HEATING
- > COOLING
- > RESIDENTIAL HOT WATER
- > GROUND SOURCE HEAT PUMP SYSTEMS



# THESE EXCEPTIONAL INSTALLATION & OPERATIONAL SAVINGS ARE AVAILABLE DUE TO:

#### System Control Efficiency

- Auto Adapt, Flow Adapt, Temp
  - Heat energy meter
  - Patented differential pressure sensor

#### Hydraulic efficiency

Optimized pump hydraulics

#### **Motor Efficiency**

#### - The most efficient ECM available today

- Composite rotor
- Compact stator

#### **Installation Efficiency**

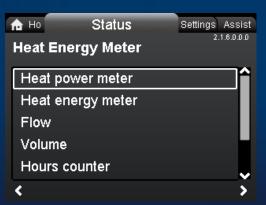
- Easy installation and commissioning
- Grundfos Go
- Assist menu
- Trend Data

The new MAGNA3 comes with a monitoring function, which makes it possible to keep track of the heat energy distribution and consumption within a system. This avoids excessive energy bills caused by system imbalances.

🔒 Ho 🛛 Status	Settings As	sist				
Function o	f analog input					
Select which f have	unction the analog ir	nput shall				
Diff. Pressure control						
	emp. control					

The heat energy meter has an accuracy between +/-1% and +/-10% and makes installing a separate energy metering device within your system superfluous.

Temperature input from return pipe



# PRODUCT RANGE

Pump type	Port-to-port length (IN)	Single pump, cast iron		Single pump, stainless		Twin pump, Cast Iron
		115V	208-230V	115V	208-230V	208-230V
MAGNA3 40-80 F	8-1/2"	98126800	98126828	98126802	98126830	_
MAGNA3 40-120 F	8-1/2"	98126804	98126832	98126806	98126834	_
MAGNA3 40-180 F	8-1/2"	98126808	98126836	98126810	98126838	-
MAGNA3 50-80 F	9-1/2"	98126812	98126840	98126814	98126842	_
MAGNA3 50-150 F	11"	981268016	98126844	98126818	98126846	_
MAGNA3 65-120 F	13-1/2"	98124696	98126848	98124702	98126850	_
MAGNA3 65-150 F	13-1/2"	_	98126852	-	98126854	98126863
MAGNA3 80-100 F	14-1/4"	_	98126856	-	98126858	98126864
MAGNA3 100-120 F	17-3/4"	_	98126860	_	98126862	98126864



#### Temperature range (all models):

Liquid temperature: 14°F up to 230°F Ambient temperature: 32°F up to 104°F

