GRUNDFOS UPM3
THE NEXT GENERATION OF OEM CIRCULATORS

INTELLIGENT SOLUTIONS FOR ALL HVAC SYSTEMS
Introducing UPM3

“The new generation of Grundfos UPM3 circulators is designed with our customers’ needs and challenges in mind. The range offers the flexibility to meet any HVAC demand, the intelligence to do this with top-class efficiency, and the reliability to provide years and years of trouble-free operation.”

– Henrik Bonde, President, Grundfos HVAC OEM

The HVAC industry faces the constant challenge of delivering smaller and more efficient products. This places great demands on the components inside. Our range of UPM3 circulators sets new standards for system integration, allowing you to exceed your customers’ expectation.

Made to integrate – easily and efficiently

The UPM3 range comes with:

» Optimised design fit for easy accessibility
» Intelligent configuration
» High efficiency (exceeding the Ecodesign benchmark level)
» Unmatched reliability

Two platforms. Unlimited possibilities.

The basic UPM3 hardware model is controlled via a signal cable entry and does not feature a user interface. The UPM3 Hybrid, on the other hand, combines external signal controlling and internal self-controlling, providing you with access to a full range of settings that will cover any circulator challenge you might encounter.

The UPM3 range is designed for all kinds of HVAC applications:

» Boiler systems
» Heat pumps
» Solar thermal systems
» Heating kits
» DHW systems
» Micro CHP systems

THE SMALLEST GRUNDFOS OEM CIRCULATOR EVER

THE UPM3 IS THE SMALLEST CIRCULATOR FOR SYSTEM INTEGRATION THAT WE HAVE EVER BUILT. JUST AS COMPACT AS THE UPS 15, IT OFFERS A FULL RANGE OF TECHNOLOGICAL INNOVATIONS, AS WELL.
ULTIMATE RELIABILITY

We know that no amount of features will ever make up for lacking reliability. That is why the UPM3 is made from only the most durable materials and with high quality craftsmanship in every welding.

To continue the success of the UPM2 and provide the lowest failure rate ever, the UPM3 comes with:

» Field and lab tested product quality
» Ceramic bearing shaft
» Double de-blocking system
» High temperature resilience

Made for trouble-free operations

Pushing the limits of innovation

Exceeding efficiency benchmarks
With its new advanced hydraulic system, the UPM3 exceeds the Ecodesign 2015 requirements of EEI < 0.20

Excellent product quality
To ensure that the UPM3 range lives up to the world-renowned Grundfos quality, the range has been extensively lab and field-tested. And it has passed with flying colours.

» Ceramic bearing shaft
The UPM3 comes equipped with ceramic bearing shafts for a long and trouble-free lifetime. The ceramic material is extremely durable and will not wear.

» Double de-blocking system
The UPM3 features a double safety de-blocking system: Electronic de-blocking that maintains the maximum starting torque up to 25 Ncm and manual de-blocking accessible from the front without demounting the control box.

Active inrush current limitation
In the new UPM3, the inrush current level is actively limited to a level that will not harm standard power relays. This reduces contact wear and extends product lifetime.

» High temperature resilience
The UPM3 is designed to perform perfectly in ambient temperatures of up to 70° Celsius. The resilience to heat will enhance the possibilities of system integration enormously.

SAFE!

INSTALLED IN OVER 200 MILLION CIRCULATORS

MANUAL BACK-UP FUNCTION

BUILT FOR UP TO 70° C AMBIENT TEMPERATURES

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Two advanced platforms.  
Same superior hardware.

- **Housing**
  - Energy optimized hydraulic as standard or customized version available in cast iron & composite material.

- **Impeller**
  - Optimized 3D design, PES10%GF, stop ring for high speed performance.

- **Rotor**
  - High efficiency neodymium permanent magnet, 4 pole rotor encapsulated with stainless steel.

- **Sealing**
  - EPDM ring with squared profile best reliable for liquid sealing.

- **Shaft & Bearing**
  - Ceramic material with durable surface ensuring long lifetime.

- **Manual De-blocking Device**
  - Waterproof, accessible from the front through the control box.

- **Bearing Plate**
  - Made out of stainless steel.

- **Stator**
  - 3 phase ECM stator with 6 windings.

- **Stator Housing**
  - Aluminium housing optimized.

- **Control Box**
  - With high ingress protection, easy accessibility, and compact design for easy integration.
## CIRCULATOR TYPE CONFIGURATION

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UPM3 WITHOUT INTERFACE</td>
<td>FULL CUSTOMIZATION</td>
<td>APPLIANCES ON A BIG SCALE PRODUCTION</td>
<td>EXTERNAL</td>
<td>1 (FIXED CUSTOMISED SOLUTION)</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>UPM3 HYBRID WITH INTERFACE</td>
<td>SEMI-CUSTOMISABLE*</td>
<td>BOILER SYSTEMS WITHOUT AND WITH PWM SIGNAL</td>
<td>EXTERNAL/INTERNAL</td>
<td>4</td>
<td>YES*</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES*</td>
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<tr>
<td>UPM3 HYBRID WITH INTERFACE</td>
<td>SEMI-CUSTOMISABLE*</td>
<td>BOILER AND SOLAR SYSTEMS</td>
<td>EXTERNAL</td>
<td>8</td>
<td>YES*</td>
<td>YES*</td>
<td>NO</td>
<td>NO</td>
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<tr>
<td>UPM3 HYBRID WITH INTERFACE</td>
<td>SEMI-CUSTOMISABLE*</td>
<td>HEATING KIT SYSTEMS STANDALONE APPLICATIONS</td>
<td>INTERNAL</td>
<td>10** WITHOUT AUTO ADAPT</td>
<td>NO</td>
<td>NO</td>
<td>YES**</td>
<td>YES**</td>
<td>YES*</td>
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<tr>
<td>UPM3 HYBRID WITH INTERFACE</td>
<td>SEMI-CUSTOMISABLE*</td>
<td>APPLIANCES, CABINETS &amp; KITS</td>
<td>INTERNAL</td>
<td>12** WITH AUTO ADAPT</td>
<td>NO</td>
<td>NO</td>
<td>YES**</td>
<td>YES**</td>
<td>YES*</td>
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<tr>
<td>UPM3 HYBRID WITH INTERFACE</td>
<td>SEMI-CUSTOMISABLE*</td>
<td>UNIVERSAL USE IN ANY OF THE HVAC APPLIANCES</td>
<td>EXTERNAL/INTERNAL</td>
<td>20</td>
<td>YES*</td>
<td>YES*</td>
<td>YES**</td>
<td>YES**</td>
<td>YES*</td>
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</tbody>
</table>

*Customise default setting and locking function
** Automatically controlled variable settings

* 4 curves
** 3 curves
The NEW UPM3 generation

There is a UPM3 for every project.

No matter if you are looking for a circulator with one fixed setting or a more flexible solution, with or without PWM signal, there is a UPM3 to meet your demands.

Take for instance the UPM 3 Hybrid. By combining external controlling with internal self-controlling, the UPM3 Hybrid is actually two advanced platforms in one. This gives you access to a full range settings, covering all your circulator needs.
**UPM3**

UPM3 is the right choice for all projects and appliances produced on a big scale where only one specific external control mode with one specific speed range is requested. UPM3 is controlled via a signal cable entry.

**Description**
- Integrated OEM high efficient circulator
- One specific external control mode
- One specific speed range
- No user interface
- Follow up of UPER/UPM platforms

**Externally controlled by the appliance**
- Different signals and profiles available (PWM A, PWM C, KMBus)
- Standard return signal showing power consumption, alarm and operation status
- Other customized input profiles and different return profiles are possible e.g. flow estimation

Available with many standard and customized housings

Active or passive inrush current limitation

Exceeding benchmark level of the Ecodesign requirements in 2015, EEI ≤ 0.20 EN16297/3

**UPM3 FLEX AC**

By combining 2 PWM profiles, the UPM3 FLEX AC brings new flexibility to the system developer; the OEM production and even to the field installation. Without changing the hardware, the settings can easily be changed: with 4 maximum curves either for heating or PWM profile C for solar.

**Description**
- Integrated OEM high efficiency Circulator

**Externally controlled by the appliance**
- 2 standard PWM profiles available in ONE
  - Profile A for Heating and Profile C for Solar
- 4 MAX curves

Exceeding benchmark level of the Ecodesign requirements in 2015, EEI ≤ 0.20 EN16297/3

**SETTING OPTIONS**

<table>
<thead>
<tr>
<th>EXTERNALLY CONTROLLED BY</th>
<th>MAX HEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWM PROFILE A</td>
<td>7.5 M</td>
</tr>
<tr>
<td>PWM PROFILE C</td>
<td>7 M</td>
</tr>
<tr>
<td>KMBUS</td>
<td>6 M</td>
</tr>
<tr>
<td></td>
<td>5 M</td>
</tr>
<tr>
<td></td>
<td>4 M</td>
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**SETTING VIEW**

<table>
<thead>
<tr>
<th>PWM PROFILE A</th>
<th>4 M</th>
<th>5 M</th>
<th>6 M</th>
<th>7 M</th>
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<tbody>
<tr>
<td>PWM PROFILE B</td>
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<table>
<thead>
<tr>
<th>PWM PROFILE A</th>
<th>4 M</th>
<th>5 M</th>
<th>6 M</th>
<th>7 M</th>
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<tbody>
<tr>
<td>PWM PROFILE C</td>
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<tr>
<td>KM BUS</td>
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</table>

<table>
<thead>
<tr>
<th>PWM PROFILE C</th>
<th>4 M</th>
<th>5 M</th>
<th>6 M</th>
<th>7 M</th>
</tr>
</thead>
</table>
**UPM3 FLEX AS**

UPM3 FLEX AS is a flexible solution for boiler systems now and in the future. It is designed to work both with and without PWM signal, allowing you to upgrade your systems without having to change the circulators.

**Description**
- Integrated OEM high efficient circulator
- For flexible use in appliances without PWM speed control with 4 speeds
- Or in applications with externally controlled signal with standard PWM profile A for 4 MAX curves

Exceeding benchmark level of the Ecodesign requirements in 2015, EEI ≤ 0.20 EN16297/3

**SETTING OPTIONS**

<table>
<thead>
<tr>
<th>PUMP RUNS WITHOUT PWM SIGNAL</th>
<th>PUMP RUNS WITH PWM SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM CURVE</td>
<td></td>
</tr>
<tr>
<td>4 M</td>
<td>4 M</td>
</tr>
<tr>
<td>5 M</td>
<td>5 M</td>
</tr>
<tr>
<td>6 M</td>
<td>6 M</td>
</tr>
<tr>
<td>7 M</td>
<td>7 M</td>
</tr>
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</table>

**UPM3 AUTO**

UPM3 AUTO is for all applications in which an internally controlled pump is needed. It is designed to be used in appliances or cabinets with increased ambient temperatures and limited space options, either in standalone applications or in kit systems without PWM controller.

**Description**
- Standalone OEM high efficiency circulator
- For standalone applications
- Optimal for floorheating with a high valve authority
- Flexibility of settings benefits the OEM production and the installation in the field

Internally controlled circulators
- 3 control modes
- 10 Curves
- PLUS AUTOAdapt proportional and constant pressure
- Substitutes ALPHA2 pumps

**SETTING OPTIONS**

<table>
<thead>
<tr>
<th>SETTING OPTIONS</th>
<th>PROPORTIONAL PRESSURE</th>
<th>CONSTANT PRESSURE</th>
<th>CONSTANT CURVE</th>
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<tbody>
<tr>
<td>CURVE 1</td>
<td>CURVE 1</td>
<td>4/2 M</td>
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<tr>
<td>CURVE 2</td>
<td>CURVE 2</td>
<td>5/3 M</td>
<td></td>
</tr>
<tr>
<td>CURVE 3</td>
<td>CURVE 3</td>
<td>6/4 M</td>
<td></td>
</tr>
<tr>
<td>AUTOAdapt</td>
<td>AUTOAdapt</td>
<td>7/5 M</td>
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</tbody>
</table>

**SETTING VIEW**
UPM3 AUTO L

UPM3 AUTO L is for all applications in which an internally controlled pump is needed. It is designed to be used in appliances or cabinets with increased ambient temperatures and limited space options; either in standalone applications or in kit systems without PWM controller. The AUTO L does not feature AUTO ADAPT modes.

Description
Standalone OEM high efficiency circulator
- For standalone applications
- Optimal for heating kits
- Flexibility of settings benefits the OEM production and the installation in the field

Internally controlled circulators
- 3 control modes
- 10 Curves
- Substitutes ALPHA2L pumps.

UPM3 HYBRID

By combining external controlling through signal entry with internal self-controlling, the UPM3 HYBRID covers all your circulator needs in one product, providing you with access to a full range of settings.

Description
Integrated high efficiency circulator
- For externally and internally controlled circulators
- For all kind of applications with flexible settings in OEM production or in the installation field
- 5 control modes, 18 curves, PLUS 2 AUTO ADAPT proportional and constant pressure
- Substitutes UPM2 and ALPHA2L pumps
UPM3 FEATURE

UPM3 SPECIFICATION

CE MARK COMFORMITY WITH FOLLOWING RELEVANT EC DIRECTIVES


Low voltage Directive (2006/127/EC)


ECODESIGN ERP READY 2015 Fulfilling ecodesign requirements in 2015: EII ≤ 0.20 EN16297/3 or EN16297/2

REACH COMPLIANCE REACH Directive 1907/2006
WEEE COMPLIANCE WEEE Directive 2012/19/EU Circulators are not seen as being in scope

ROHS COMPLIANCE RoHS Directive 2011/65/EU

VDE APPROVAL VDE certificate: No 40039416. It proves the conformity with the essential safety requirements of the EC Low Voltage Directive (2006/95/EC) including amendments

VDE CODE GFNJB (hybrid variants) or GFNJC (UPM3)

ENCLOSURE CLASS IP 44 (standard without drain holes), Option: IP X4D (with drain holes)

TF CLASS TF 110 at 70°C ambient temperature

HIGH VOLTAGE PROTECTION 1000 VAC (EN60355-1)

DRINKING WATER APPROVALS (WASS, KTW, DVGW W270 ETC.

DEBLOCKING SOFTWARE Continuously restarting after 1,33 sec with max torque

DEBLOCKING DEVICE Manual deblocking device, access from front side

DRY RUN ABILITY - FIRST START 1 min (3 x 20 sec), all pumps will be lubricated with glycerine

DRY RUN ABILITY - DURING OPERATION Rotor can filled with water: fulfils EN60335-2-51

EXPECTED LIFETIME: >100.000 h (with specified load profile)

EXPECTED LIFETIME: >500.000 on/off cycles

MINIMUM SWITCHING TIME POWER ON/OFF With NTC: 1min, with Relay: no specific requirements

FLOW ESTIMATION Available depending on the housing, accuracy: see PWM specification

NURUSH CURRENT With relay: <4 A, with NTC:<10 A

UPM3 FEATURE

UPM3 SPECIFICATION

EQUIPMENT CLASS I (EN 60335-1)

INSULATIONS CLASS F (EN 60335-1)

MAXIMUM LEAKAGE CURRENT) ≤ 3,5 mA (EN 60335-1)

SPEED RANGE 563 to 5991 min-1 (depending on the variant)

MAXIMUM AMBIENT TEMPERATURE + 70°C

MAXIMUM MEDIA TEMPERATURE + 95°C on composite housings, + 110°C on cast iron housings

MAXIMUM SYSTEM PRESSURE: 1 MPa (10 bar) (depending on the housing material)

MINIMUM INLET PRESSURE 0.05 MPa (0.5 bar) at 95°C liquid temperature

MINIMUM MEDIA TEMPERATURE + 0°C (for IP44: above dew point of ambient air)

MINIMUM SUPPLY VOLTAGE 160 VAC (with reduced performance)

MOTOR PROTECTION: The motor is protected by the electronics in the control box and requires no external motor protection

PEAK TEMPERATURE Tmax 110°C (for peak ≤ 30 min)

NOMINAL SUPPLY VOLTAGE EU: 1 x 230V ± 10%/-15%, 50 Hz

REACTION TIME (TILL MOTOR AT 90% RPM) < 1,3 sec for cold start, warm start and speed change

REACTION TIME (TILL RETURN SIGNAL VALID) < 3,3 sec for cold start, warm start and speed change

RELATIVE AIR HUMIDITY Maximum 95%, non-condensing environment

STORAGE TEMPERATURE - 40°C to + 75°C+1 A