GRUNDFOS HVAC OEM

JOIN THE EVOLUTION

- ONE is all it takes Grundfos UPM3 & UPM3 HYBRID

be
think
innovate

GRUNDFOS

GRUNDFOS UPM3

NEW Platforms for system integration

JOIN THE EVOLUTION

- ONE is all it takes

GRUNDFOS UPM3

Agenda

- **Introduction UPM3**
  - Applications
  - Benefits & Features
  - Conclusion
- **Introduction UPM3 Hybrid**
  - Dual control
  - User unterface
  - Advanced customization
  - Conclusion
- **UPM3 & UPM3 Hybrid range**
  - Main variants
  - Performance curves
  - Technical specification

GRUNDFOS UPM3

Applications

GRUNDFOS UPM3

Applications

UPM3 the future platform of integrated OEM circulators is fit for any HVAC application

- Boilers Systems
- Heat Pumps
- Solar Thermal Systems
- Heating Kits
- DHW Systems and
- Micro CHP Systems

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Benefits

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Benefits

To us, system integration is a matter of both design and technology.

To enhance system integration the platform comes with

- Maximum reliability
- Optimized design fit for integration
- High efficiency above benchmark level

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Benefits & features

Maximum reliability

- Excellent Product Quality
- Ceramic bearing shaft
- Double de-blocking solution
- Active inrush current limitation
- Ambient temperature

Optimized design fit for integration

- Design & dimensions
- Design principle of easy accessibility
- Connector strategy
- Nameplate & data matrix

High efficiency & performance

- New advanced hydraulics for ecodesign
- Performance range

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Features

Maximum Reliability

- Excellent Product Quality
- Ceramic bearing shaft
- Double de-blocking solution
- Ambient temperature
- Active inrush current limitation

GRUNDFOS UPM3

Excellent product quality

To ensure that also the new UPM3 generation follows the world renown Grundfos product quality the following tests were carried out intensively on a large scale.

- DFMEA
- Leak test
- Water hammer test
- Thermal cycling
- Freezer test
- Particle handling
- Magnitite test
- Several field tests

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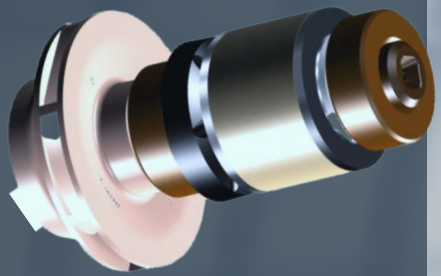
Ceramic bearing system

It is backed up by 60 years of proven pump experience that the ceramic material causes no wear having a hard and durable surface.

That ensures a long life time for any Grundfos OEM circulator.



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De-blocking with double-safety solution

In case of de-blocking functionality the UPM3 is equipped with a *double-safety* solution:

- **Electronic de-blocking functionality** maintaining the maximum starting torque up to 25 Ncm

backed up by the

- **Manual de-blocking device** accessible from the front without demounting the control box.

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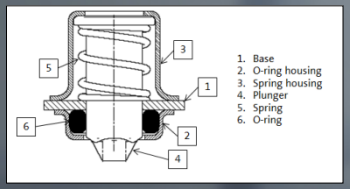
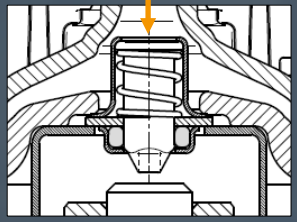
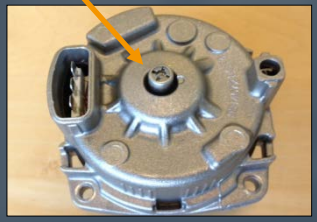
De-blocking manual function

The manual de-blocking device consists of a plunger that axially moves and is sealed by an O-ring.

The plunger is retracted by a spring which is covered with a stainless steel housing that is welded on top of the rotor can.







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De-blocking manual function

The calcification phenomenon might occur when the heating appliance is wet-tested and stored for a longer period before delivery to the installer, or even after a longer break of usage in the field.

In cases in which the electronic de-blocking function of the pump is not sufficient enough only an axial movement of the plunge helps to release the shaft.

By turning or pushing the plunger manually with a Philips No.2 screwdriver the shaft can be easily released. There is access to it through the control box from the front without its dismounting.

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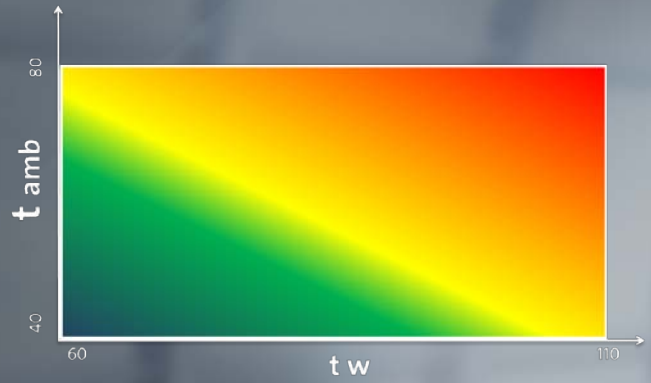
Temperature range



The UPM3 is designed to perform perfectly in ambient temperatures of up to 70° C.

The resilience to heat will enhance the possibilities of system integration enormously.

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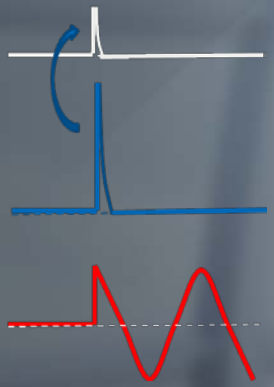
Active inrush current limitation



In the new UPM3, the inrush current level is actively limited to a level that will not harm standard miniature power relays.

This function benefits every HVAC system

- the wear of relays in system controls is reduced
- its life time cycles are extended

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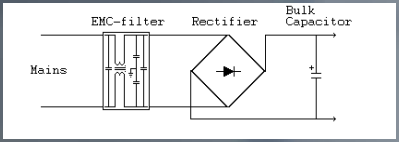
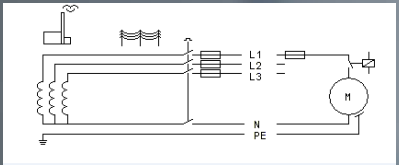
Active inrush current limitation

The inrush current effect





Inrush current

Definition:

Inrush current is „the current peak charging the capacitors in the electronics, when the supply voltage is connected".

All electronic pumps contain electronic units that must be protected by filters including capacitors and ECM pumps frequency converters with AC/DC rectifiers containing capacitors to equalize the waves. This is not the case in most asynchronous pumps. The load of electronically cumulated motors (ECM) behaves as a capacitive load and not as a motor load like in a standard pump.

At start, the capacitor is unloaded. Hereby the amplitude of the current peak depends on the grid impedance, until the capacitor is charged. The faster the capacitor is charged, the higher amplitude, and the faster the pump can be started. After this period of time, the current will drop to the rated current.

The inrush current peak charges the bulk capacitor to 325VDC as fast as the power grid allows. That shows that Inrush current is not only depending on the integrated electronics but as well on the impedance of the grid.

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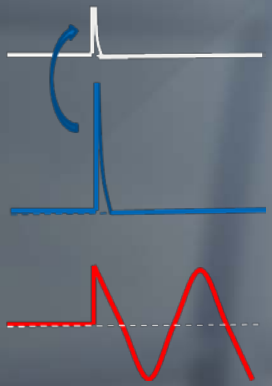
Active inrush current limitation

How to limit the effect



External solutions in the controller of the appliance unit

- Specific relays with silver tin oxide (AgSnO2) inrush relay contacts
- Switching at ZERO crossing
- Standby operation - pump only switches via the PWM signal

Internal solutions in the pump

- Passively: NTC resistor in the power input circuit, or
- Actively: Bypass relay with PTC resistor, controlled by the electronics

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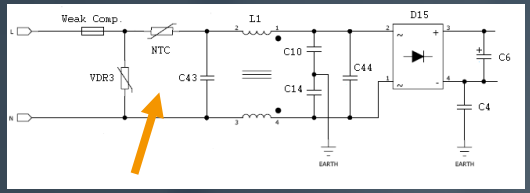
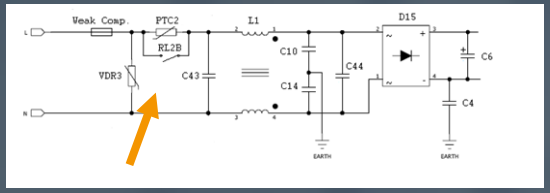
Active inrush current limitation

2 internal options

NTC



RELAY



Note:
when discussing measurements it is important to refer to the same method. Since 2007 Grundfos is using the IEC 61000-3-3 Annex B method for measuring inrush current. Reports are available on request.

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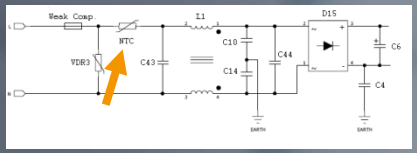
Active inrush current limitation

with NTC



Recommended for pumps which are permanently connected to the grid

- **At start:** the operating temperature of the pump incl. NTC is still cold. In this mode the NTC shows a high resistance and is able to limit the inrush current down to ~8A.

  Note: At restart, the operator should ensure that the NTC has cooled down again.

- **During operation :** the operating temperature of the pump incl. NTC is high. In this mode the NTC shows a low resistance so that the efficient operating is guaranteed.

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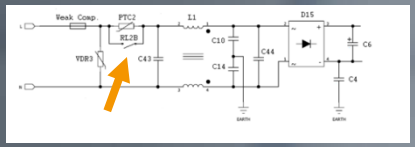
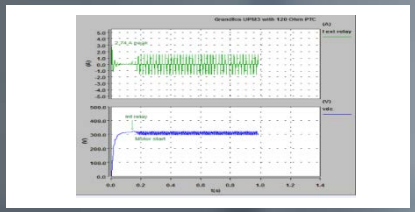
Active inrush current limitation

with RELAY





Recommendation for pumps which are not in permanent operation, and to be interrupted by a relay of the controller of the appliance

- ***At start*** - in this mode the relay is open. In this mode the PTC resistor is able to limit the inrush current down to a level of ~ 4A.
- ***During operation*** - the relay is closed. In this mode the resistor is by-passed, so that an efficient operation is guaranteed.

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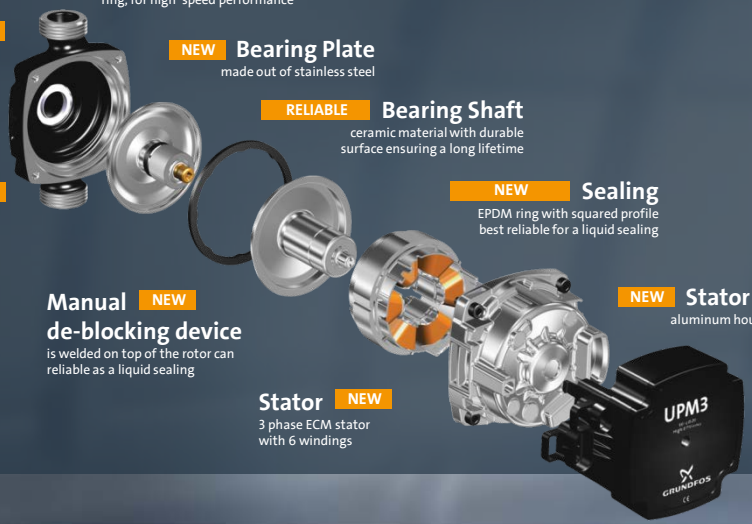
UPM3



NEW **Impeller**
optimized 3D design, PES30%GF, stop ring, for high speed performance

Housing **NEW**
energy optimized hydraulic as standard or customized version available in cast iron & composite material

NEW **Bearing Plate**
made out of stainless steel

RELIABLE **Bearing Shaft**
ceramic material with durable surface ensuring a long lifetime

Rotor **NEW**
high efficient neodymium permanent magnet 4 pole rotor encapsulated with stainless steel

NEW **Sealing**
EPDM ring with squared profile best reliable for a liquid sealing

Manual de-blocking device **NEW**
is welded on top of the rotor can reliable as a liquid sealing

NEW **Stator Housing**
aluminum housing optimized

Stator **NEW**
3 phase ECM stator with 6 windings

NEW **Terminal Box**
with high ingress protection and highly integrated design regarding space and accessibility

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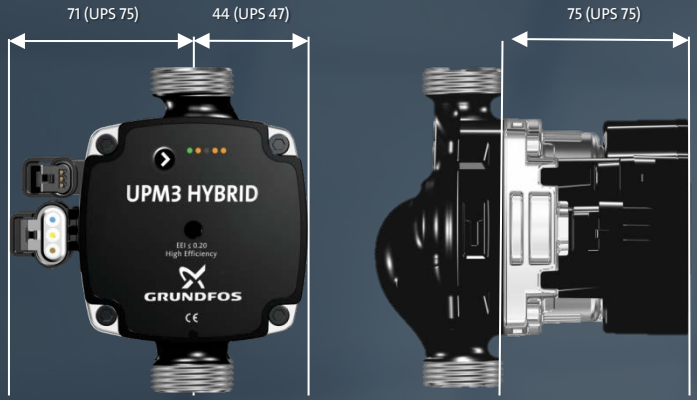
Design dimensions

(in mm)



- UPM3 is the smallest high efficiency circulator for system integration to date –
- again as small as UPS 15 but with all the innovations!

GRUNDFOS UPM3

Design & easy accessibility

The principle of „easy accessibility“ is a part of our UPM3 design idea and provides easy mounting & serviceability.

- Easy access to the pump head screws
- Easy access to the de-blocking screw
- Easy access to the connectors
- Easy access to the user interface

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Terminalbox

- frontfoil positioning options

TERMINALBOX	9h	9h	9h	9h
FRONTFOIL	12h	3h	6h	9h
				

TERMINALBOX	9h	12h	9h	3h
FRONTFOIL	12h	12h	6h	12h
				

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Nameplate how it looks on pumps produced on the line

The big space below is only reserved for customer data – either with customer logo or without.

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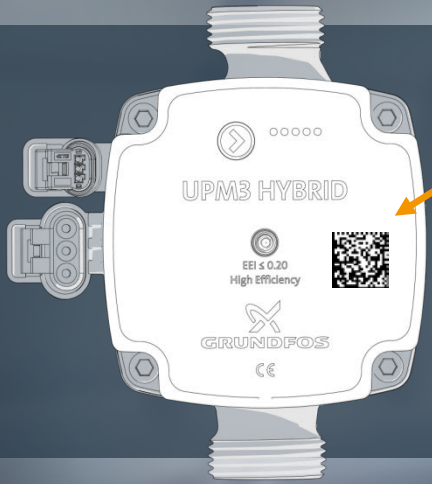
Nameplate on the front

In order to structure the ever growing number of different figures the UPM3 will come with a data matrix field.

With the help of a scanner device the matrix can be easily read and delivers all needed data at once.



Grundfos data matrix

- Grundfos application identifier
- Grundfos material number PN
- Grundfos serial number 8 digits
- Grundfos production year 2 digits
- Grundfos production week 2 digits
- Grundfos customer ID
- Customer's component number

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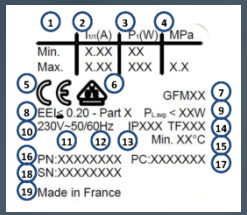
Nameplate on the side

All mandatory technical data are available on the terminal box side.



1	Speed
2	Rated current I 1/1 [A] at maximum and minimum performance
3	Input power P1 [W] at maximum and minimum performance
4	Maximum system pressure [MPa]
5	CE mark
6	Approvals
7	VDE code
8	Energy Index with indication of measurement standard
9	Average power input PL,avg reg. Ecodesign regulation
10	Voltage [V]
11	Power supply AC
12	Frequency [Hz]
13	Enclosure class
14	Temperature class
15	Minimum medium temperature
16	Product number P/N
17	Production code PC (YYWWCustomerID)
18	Serial number S/N
19	Place of production

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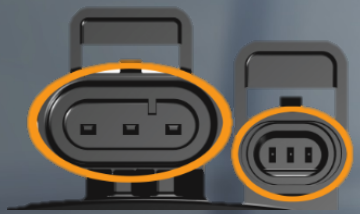
Connectors



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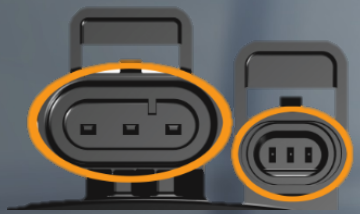
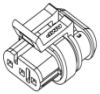
Connectors



Requirements	Power Connector	Signal connector
Connector Type	TE Superseal 	TE mini super seal 
Reliability	Temperature/Burning proofed glow wire material Waterproofed - sealed and water tight	Waterproofed - sealed and water tight
Backwards compatibility	New (MOLEX adapter available)	New
Safety	additional locking latch with pull-out force >100 N Lock to be opened only with a screw driver	additional locking latch with pull-out force >100 N Lock to be opened only with a screw driver
Availability	Worldwide as TE standard available	Worldwide as TE standard available

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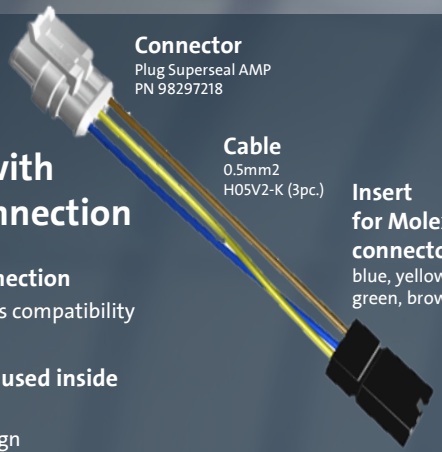
Adapter for superseal connector



Adapter with Molex connection

Additional connection

- for backwards compatibility

Designed to be used inside closed cabinets

- flexible design
- requiring low space

Reliable material

- Polyamide Resin PA6 FR with sealing

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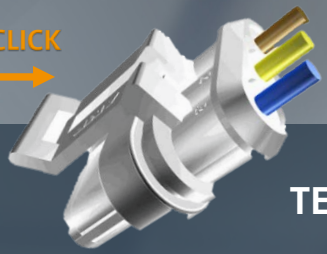
Power Connector

CLICK



TE Superseal

- **Reliability**
  Temperature/Burning proofed glow wire material Waterproofed - sealed and water tight (complete pump IP44)

- **Safety**
  additional locking latch with pull-out force >100 N
  Lock to be opened only with a screw driver

- **Availability**
  Worldwide as standard available

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TE Signal Connector

CLICK

TE Mini Superseal

- **Reliability**
  glow wire material - Waterproofed – sealed and water tight IP44
- **Safety**
  additional locking latch with pull-out force >100 N Lock to be opened only with a screw driver
- **Availability**
  Worldwide as standard available

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Signal connector FCI

Backwards compatibility

For replacement of a UPM/UPER pump with the new UPM3 hereby the delivery comprises a connector with cable

- **Reliability**
  Smart UPM3 signal entrance design already builds a protective environment for the connector access.

- **Safety**
  2 part design - separate lock is needed to meet the pull force requirements >100N

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Performance

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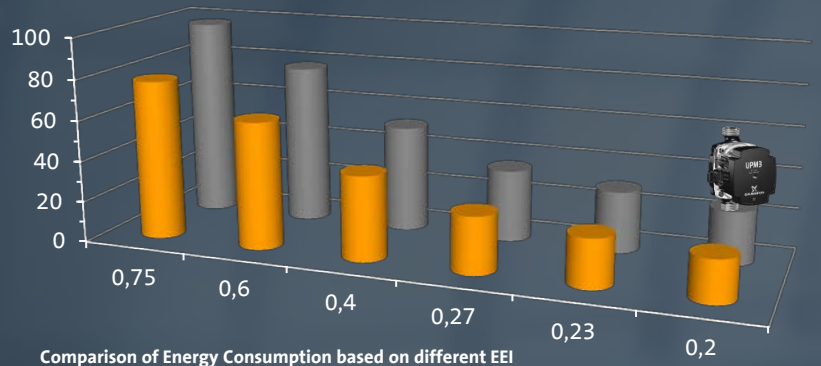
Ecodesign *- High efficiency index on EEI ≤ 0.20 Benchmark*

Assumptions

Consumption period = 5000 h/a

Electricity Costs = 0,25 EUR/kWh

Relation according different EEI



Comparison of Energy Consumption based on different EEI

Asynchronous uncontrolled, controlled, A-class, Ecodesign 2013 & 2015

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Ecodesign – *example based on* $P_{L,avg} = 21\ W$

Yearly Power Consumption $W_{el/a} = P_{L,avg} \times T_{operation/a} = 105\ kWh/a$

Assumptions
Operation hours: 2000...8760 h/a
Average: 5000 h/a

Yearly Electricy Cost $K_{el/a} = W_{el/a} \times k_{Price/kWh} = 19{,}32\ €/a$

Assumptions
Price per €/100kWh (2012):

DK	29.8
DE	25.3
IT	20.8
UK & FR	14.2
EU27	**18.4**

Yearly CO_2 Emissions $M_{CO2} = W_{el/a} \times f_{CO2} = 50\ kg/a$

Assumptions
Commission regulation (EC) 640/2009: 0.40 kg CO2/kWh
Commission regulation (EC) 641/2009: 0.48 kg CO2/kWh

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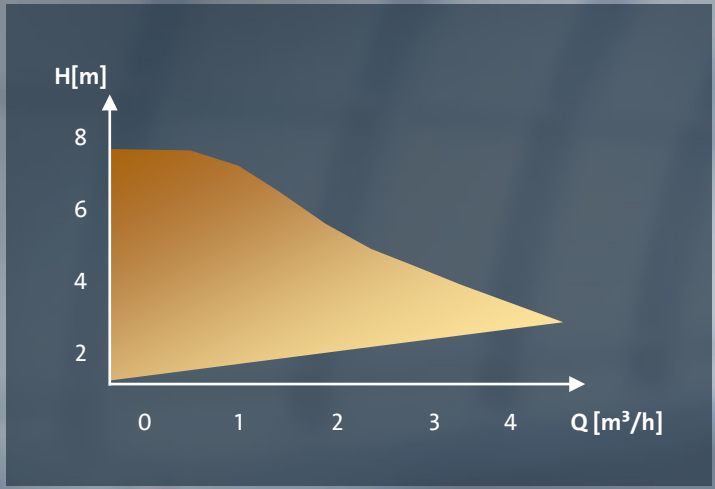
Performance range

The new generation of circulators will cover a performance demand up to H (m) 7,5m and a maximal power consumption up to 60W.

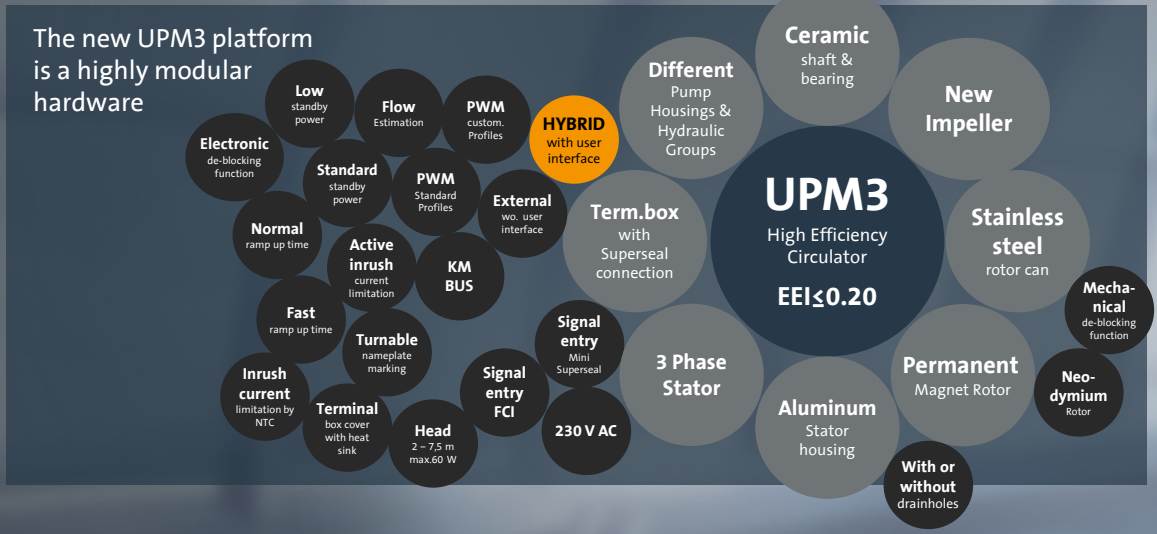


GRUNDFOS UPM3

Conclusion

GRUNDFOS UPM3

Conclusion



GRUNDFOS HVAC OEM

- ONE is all it takes

Based on the modular hardware
the real revolution is

the dual control system

- that creates a new generation of OEM circulators

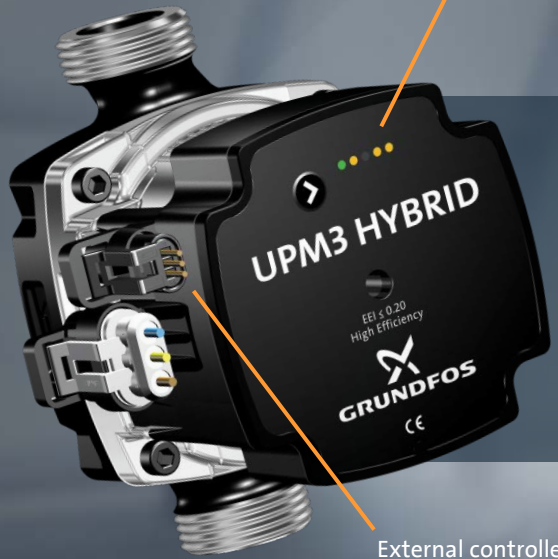
HYBRID Circulators

GRUNDFOS UPM3 HYBRID

Dual control

GRUNDFOS **UPM3 HYBRID**

Hybrid



By combining external controlling through signal entry with internal self-controlling, UPM3 HYBRID is actually

two advanced platforms in one

This gives you access to a full range of settings, covering all your circulator needs in one product.

GRUNDFOS UPM3 HYBRID

User interface

User interface

The user interface is designed with a single push button, one bi-colored red/green LED and four yellow LEDs.

User interface views

The user interface shows two views:

1. Performance View
   Operational status
   Alarm status
2. Setting view

GRUNDFOS **UPM3 HYBRID**

User interface display

LED1 shows with green operation or internal control, with red alarm or external control. LED 2 & 3 indicate the different control modes. LED 4 & 5 indicate the different curves

	LED1	LED2	LED3	LED4	LED5
Proportional Pressure	●	●	●		
Constant Pressure	●	●	●		
Constant Curve	●	●	●		
PWM A Profile	●	●	●		
PWM C Profile	●	●	●		
Curve 1				●	●
Curve 2				●	●
Curve 3				●	●
Curve 4 / AutoAdapt				●	●

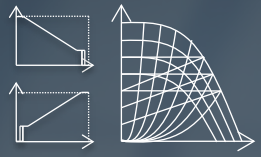
GRUNDFOS UPM3 HYBRID

Hybrid

UPM3 Hybrid xx-70

Offering the full spectrum of the combination of an internally and externally controlled circulator.

Perfect for all kind of HVAC application



PROFIL A HEATING	PROFILE C SOLAR	PROPORTIONAL PRESSURE	CONSTANT PRESSURE	CONSTANT CURVE
4 m	4 m	Curve 1	Curve 1	4 m
5 m	5 m	Curve 2	Curve 2	5 m
6 m	6 m	Curve 3	Curve 3	6 m
7 m	7 m	Auto*Adapt*	Auto*Adapt*	7 m

GRUNDFOS UPM3 HYBRID

Advanced Customization

GRUNDFOS **UPM3**

Hybrid

With the additional „Key lock function“ a solution is now available to protect any of the pre-settings.

The key lock can be enabled either

- by Grundfos already in the factory
- on demand by the OEM manufacturer

Advantage: in this case any flexibility to configure the pump either of maximum performance, control profiles or modes is kept open until the final use is defined.

At least, any risk of a „re-setting“ is hereby reduced significantly.

GRUNDFOS UPM3

Conclusion

GRUNDFOS **UPM3 HYBRID**

Benefits

No matter what your projects demand, the UPM3 Hybrid platform will always be the best solution

- to use universally in new systems or even in replacement cases having always the right control mode profile available
- having the full flexibility in order to adapt the performance in a new system or in still running systems in the field
- to avoid slow moving items
- to cut costs and save time

- ONE is all it takes

GRUNDFOS UPM3

UPM3 range

UPM3

UPM3 FLEX

UPM3 AUTO

UPM3 HYBRID

GRUNDFOS UPM3

UPM3

Grundfos UPM3 is the right choice for all projects and appliances produced on a big scale where a single customized solution is needed.
The variant is designed for a solution in which only one specific external control mode is requested with one specific speed range.

Grundfos UPM3 is a platform that comes without any user interface and using a signal cable entry.

CHOOSE BETWEEN TWO PWM SIGNALS:

PWM A PROFILE

which means the pump would run without signal at MAX speed

PWM C PROFILE

which means the pump would stop without signal.

Further customized input profiles and different return profiles e.g. showing power consumption or flow estimation are available on demand.

GRUNDFOS UPM3

UPM3 FLEX

UPM3 FLEX is the flexible choice to run the pump via an external controller. The customer may decide on short notice on which PWM signal the pump is to run.

It can be used wither with:

PWM A PROFILE

The speed range varies up to 4 different maximum heads.

PWM C PROFILE

The speed range varies up to 4 different maximum heads.

IN TOTAL THE CIRCULATOR IS TO BE CONFIGURED ON 8 SETTINGS.

NEW

First Grundfos remote controlled PWM circulator with free setting of 2 profiles and different maximum head!

GRUNDFOS UPM3

UPM3 AUTO

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

It comes with 3 different control modes as:

PROPORTIONAL | **CONSTANT PRESSURE** | **CONSTANT CURVE**

AND 10 CURVES PLUS 2 AUTOADAPT

NEW

The famous AUTOADAPT proportional pressure functionality is mostly used for heating kits supplying 2-pipe systems with thermostatic radiator valves.

For the first time Grundfos provides a self-controlled pump with AUTOADAPT constant pressure mode. This mode can be efficiently used in systems with e.g. high valve authority like underfloor heating.

GRUNDFOS **UPM3**

UPM3 HYBRID

UPM3 HYBRID is offering the full package of 20 settings based on 5 control modes

All of these combinations gives access to a wide range of configurations either internal and/or external control of the pump. The HYBRID is the universal pump in the program and also serves as an ideal replacement pump in service situations.

It is perfect for all kinds of HVAC applications and can be used for any of your projects.

NEW

First Grundfos circulator with external PWM and internal control!

GRUNDFOS UPM3

Standard Range with cast iron housings

Available Versions	P1
UPM3 15-75 130	60
UPM3 25-75 130	60
UPM3 25-75 180	60
UPM3 15-70 130	52
UPM3 25-70 130	52
UPM3 25-70 180	52
UPM3 15-60 130	39
UPM3 25-60 130	39
UPM3 25-60 180	39
UPM3 15-50 130	33
UPM3 25-50 130	33
UPM3 25-50 180	33
UPM3 15-40 130	25
UPM3 25-40 130	25
UPM3 25-40 180	25

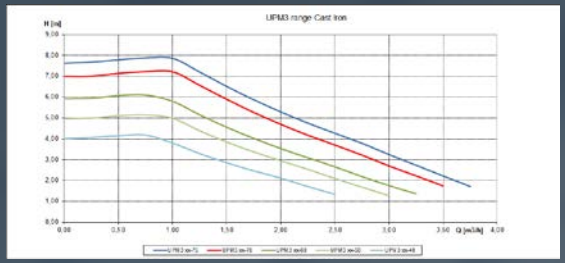
Available Versions	P1
UPM3 FLEX 15-70 130	52
UPM3 FLEX 25-70 130	52
UPM3 FLEX 25-70 180	52
UPM3 FLEX 15-50 130	33
UPM3 FLEX 25-50 130	33
UPM3 FLEX 25-50 180	33

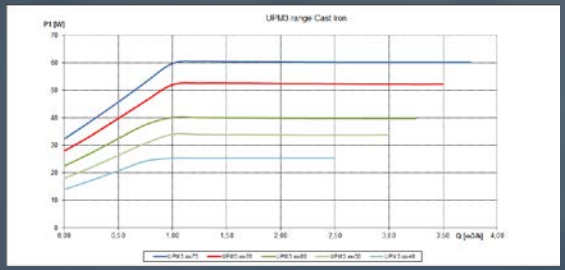
Available Versions	P1
UPM3 AUTO 15-70 130	52
UPM3 AUTO 25-70 130	52
UPM3 AUTO 25-70 180	52
UPM3 AUTO 15-50 130	33
UPM3 AUTO 25-50 130	33
UPM3 AUTO 25-50 180	33
UPM3 AUTO L 15-70 130	52
UPM3 AUTO L 25-70 130	52
UPM3 AUTO L 25-70 180	52
UPM3 AUTO L 15-50 130	33
UPM3 AUTO L 25-50 130	33
UPM3 AUTO L 25-50 180	33

Available Versions	P1
UPM3 HYBRID 15-70 130	52
UPM3 HYBRID 25-70 130	52
UPM3 HYBRID 25-70 180	52
UPM3 HYBRID 15-50 130	33
UPM3 HYBRID 25-50 130	33
UPM3 HYBRID 25-50 180	33

GRUNDFOS **UPM3**

Performance Curves



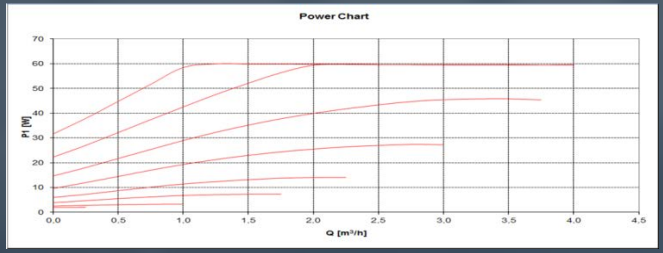


GRUNDFOS **UPM3**

Performance

UPM3 7.5 m

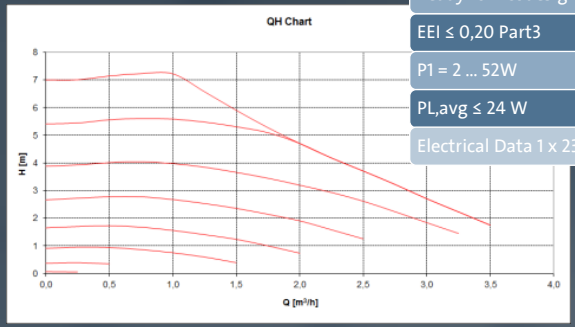
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 60W
- PL,avg ≤ 27 W
- Electrical Data 1 x 230 V, 50/60 Hz

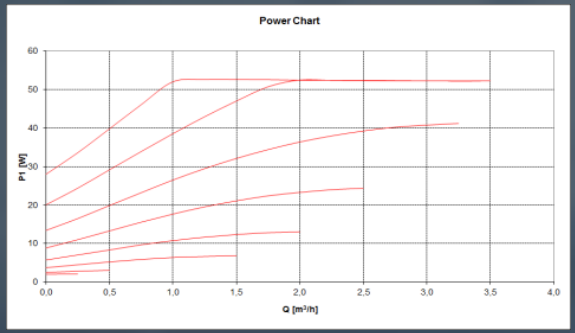


GRUNDFOS **UPM3**

Performance

UPM3 7 m



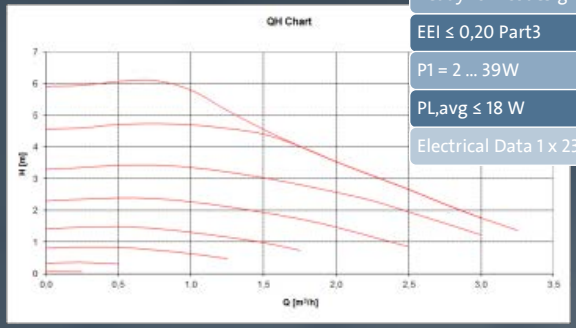


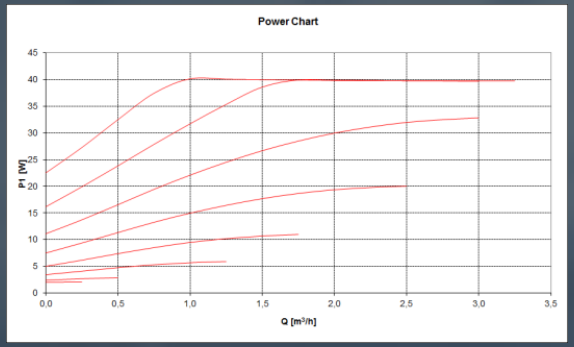
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 52W
- PL,avg ≤ 24 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS UPM3

Performance

UPM3 6 m



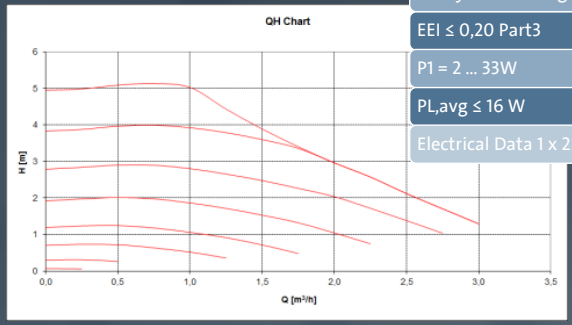


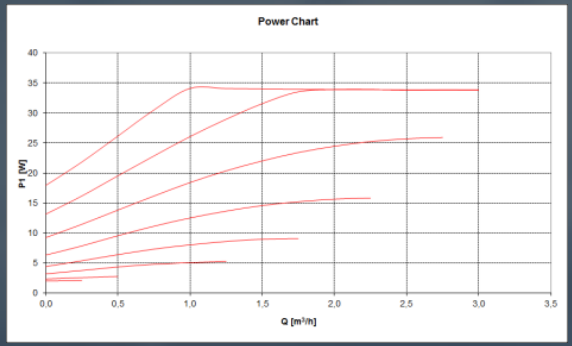
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 39W
- PL,avg ≤ 18 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS UPM3

Performance

UPM3 5 m



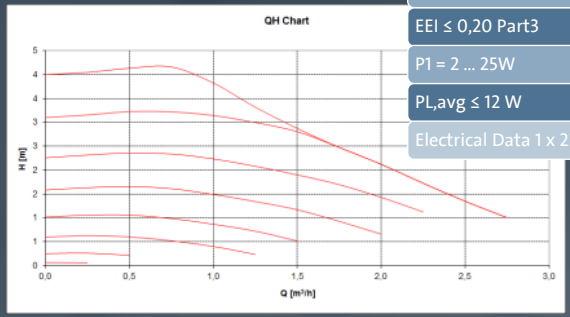


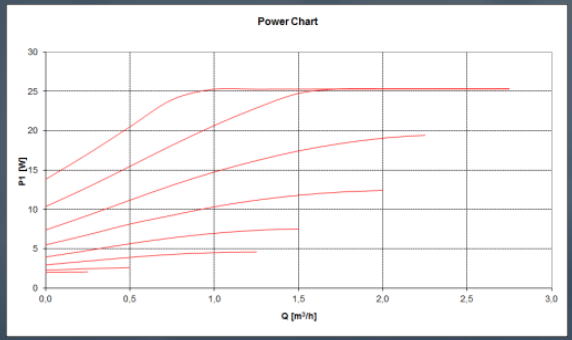
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 33W
- PL,avg ≤ 16 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3**

Performance

UPM3 4 m



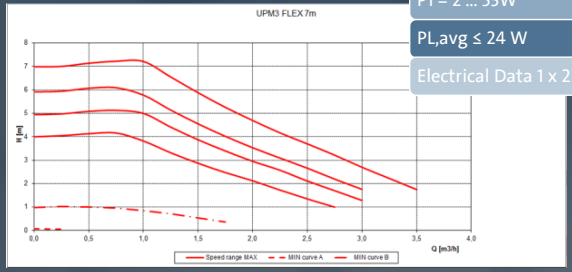


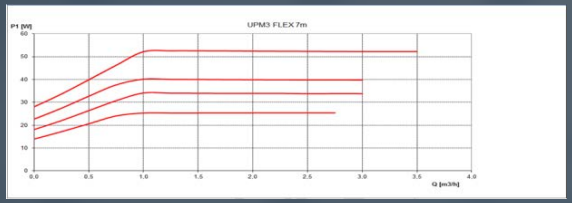
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 25W
- PL,avg ≤ 12 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3 FLEX**

Performance

UPM3 FLEX 7 m





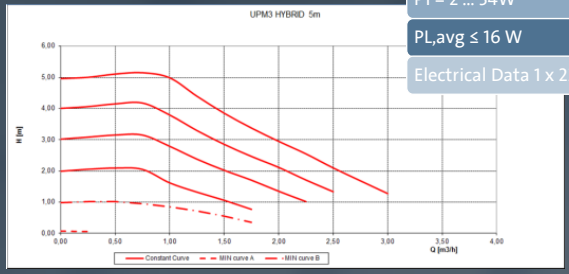
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 53W
- PL,avg ≤ 24 W
- Electrical Data 1 x 230 V, 50/60 Hz

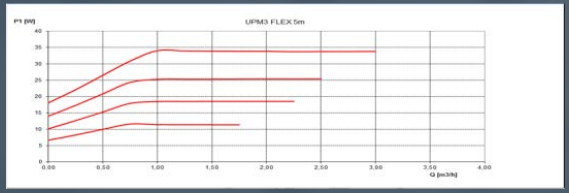
GRUNDFOS **UPM3 FLEX**

Performance

UPM3 FLEX 5 m

- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 34W
- PL,avg ≤ 16 W
- Electrical Data 1 x 230 V, 50/60 Hz

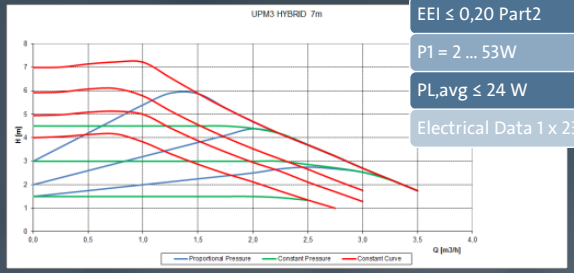


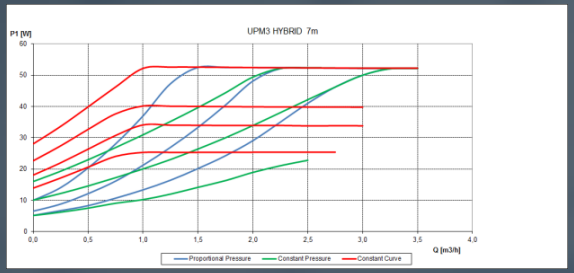


GRUNDFOS **UPM3 AUTO (L)**

Performance

UPM3 AUTO (L) 7 m



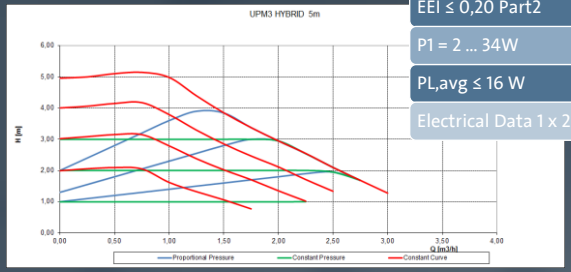


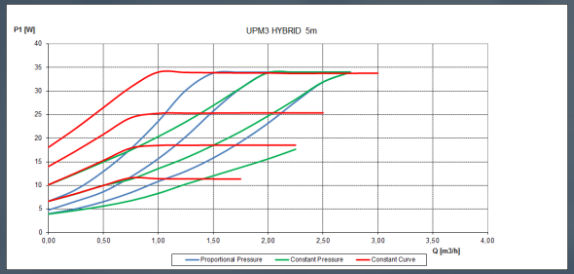
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part2
- P1 = 2 ... 53W
- PL,avg ≤ 24 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3 AUTO (L)**

Performance

UPM3 AUTO (L) 5 m



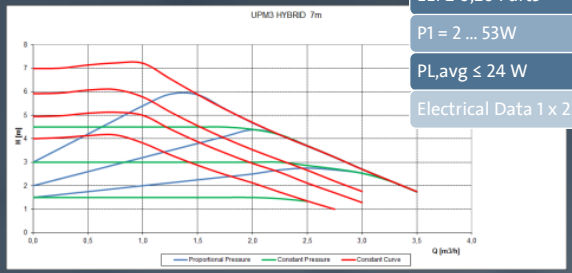


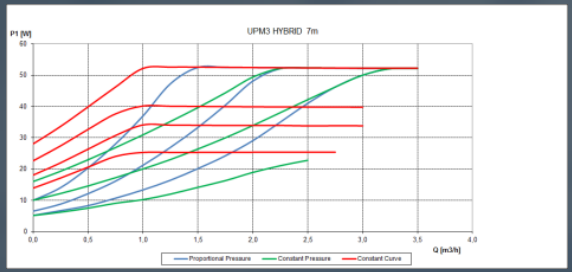
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part2
- P1 = 2 ... 34W
- PL,avg ≤ 16 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3 HYBRID**

Performance

UPM3 HYBRID 7 m



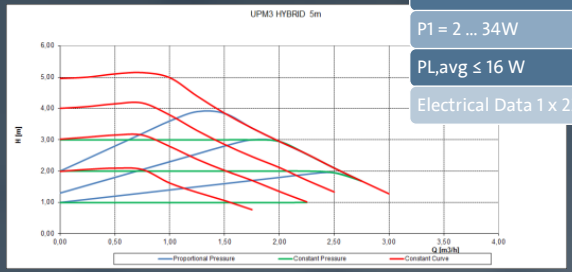


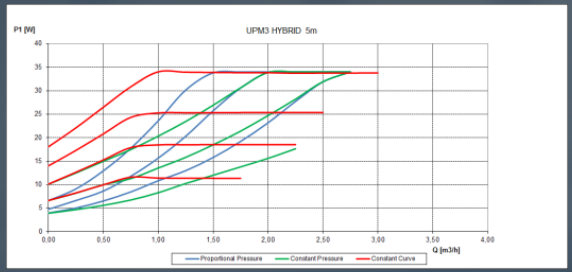
- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 53W
- PL,avg ≤ 24 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3 HYBRID**

Performance

UPM3 HYBRID 5 m





- Ready for Ecodesign 2015
- EEI ≤ 0,20 Part3
- P1 = 2 ... 34W
- PL,avg ≤ 16 W
- Electrical Data 1 x 230 V, 50/60 Hz

GRUNDFOS **UPM3**

Technical specification

CE MARK **CONFORMITY WITH FOLLOWING RELEVANT EC DIRECTIVES**	*EMC Directive (2004/108/EC)* *Standards used:* *EN 61000-6-2:2005, EN 61000-6-3:2007,* *EN 55014-1:2006, EN 55014-2:1997* *Low Voltage Directive (2006/95/EC).* *Standards used:* *EN 60335-1:2012* *EN 60335-2-51:2003 + A1.* *Ecodesign Directive (2009/125/EC).* *Standards used:* *EN 16297-1:2012, -2:2012, -3:2012*
ECODESIGN ERP READY 2015	*fulfilling ecodesign requirements in 2015, EEI ≤ 0.20* *EN16297/3*
REACH COMPLIANCY	*REACh Directive*
WEEE COMPLIANCY	**WEEE Directive 2012/19/EU** **Circulators are not seen as being in scope**
ROHS COMPLIANCY	**RoHS Directive 2011/65/EU (see statement in chapter xx)**
VDE APPROVAL	**VDE certificate:** **It proves the conformity with the essential safety requirements of the EC Low Voltage Directive (2006/95/EC) including amendments.**
VDE CODE	**GFNJB**
ENCLOSURE CLASS:	**IP 44 (without drain holes), IP X4D (with drain holes)**
TF CLASS	**TF 110 at 70°C ambient temperature**
HIGH VOLTAGE PROTECTION	**EN60335-1 but 1500 VDC on power leads of test samples** **On production line: 1000 VAC**

GRUNDFOS UPM3

Technical specification

DRINKING WATER APPROVALS	All pump head components will be compliant with WRAS, KTW, DVGW W270 etc. specific compliant pump housings will be available
DEBLOCKING SOFTWARE	continuously restarting after 1 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 cycles
MINIMUM SWITCHING TIME POWER ON/OFF	With NTC: 1 min, with Relay: no specific requirements
FLOW ESTIMATION	available depending on the housing
INRUSH CURRENT	With relay: <4 A, With NTC: <8 A
EQUIPMENT CLASS:	I
INSULATION CLASS:	F
MAXIMUM LEAKAGE CURRENT	3,5 mA

GRUNDFOS **UPM3**

Technical specification

SPEED RANGE	*563 to 6000 min-1 (depending on the variant)*
MAXIMUM AMBIENT TEMPERATURE	*+70 °C (IP44: lower than medium temperature)*
MAXIMUM MEDIA TEMPERATURE	*+ 95°C on composite housings, + 110°C on cast iron housings*
MAXIMUM SYSTEM PRESSURE:	*1 MPa (10 bar) / Composite PA6.6 housing: 0.3 MPa (3 bar)*
MINIMUM INLET PRESSURE	*0.05 MPa (0.5 bar) at 95 °C liquid temperature*
MINIMUM MEDIA TEMPERATURE	*+ 0 °C (IP44: above dew point of ambient air)*
MINIMUM SUPPLY VOLTAGE	*150 VAC while running with reduced performance 160 VAC at start up*
MOTOR PROTECTION:	*The motor is protected by the electronics in the control box and requires no external motor protection.*
PEAK TEMPERATURE	*Tm = 130°C, Tamb = 55°C for peak = 30 min*
NOMINAL SUPPLY VOLTAGE	*EU: 1 x 230 V + 10 %/- 15 %, 50/60 Hz*
REACTION TIME - TILL MOTOR AT 90%	*< 1,5 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*

GRUNDFOS OEM

JOIN THE EVOLUTION

- upgrade your systems!

be
think
innovate

GRUNDFOS