

UPMO high efficiency circulators to upgrade systems using old hydraulic interfaces

UPMO high-efficiency circulators are designed for upgrading systems using old hydraulic interfaces with UP/UPO, UPS/USPO, UPR/UPRO or UPER/UPERO pump heads

If you are planning to upgrade your heating appliances to conform to Ecodesign requirements, Grundfos has developed the UPMO. It implements all features of the new UPM3 range on existing hydraulic units with an EEI ≤ 0.23 .

As it fulfils the ecodesign requirements, it can also be used as a replacement for existing integrated circulators in your appliances after January 2020 when asynchronous spare pumps will be banned. *Contact your responsible GRUNDFOS HVAC OEM sales representative for more information.*



IWCs			
Hydro Blocks			
Customized Pumps			
Standard Pumps			

The UPMO impeller fits most existing small circulator UP15 housings as used in IWC, hydroblocks, customised or standard housings in composite, cast iron, bronze or stainless steel. UPM3 pump heads with standard impellers will not fit and must not be used.

The UPMO 15-70 matches the performance of most UPS circulators, while the power consumption P1max is reduced from 80-140 W to 60 W or below. It can be validated on specific housings regarding performance, noise level and air venting performance

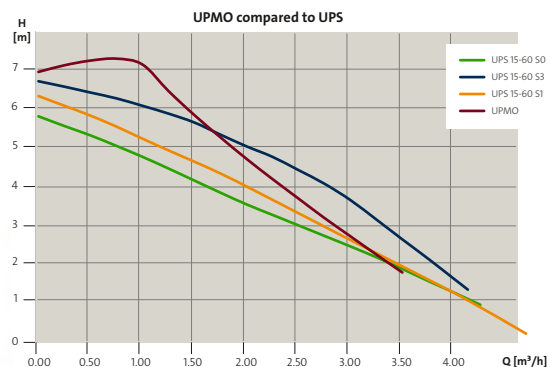
UPMO impeller

UPMO impeller on UPSO housing



UPM3 impeller

UPM3 impeller on UPSO housing



Benefits

- > High degree of interchangeability - easy upgrade strategy
- > Cost effective spare solution - longer serviceability of old boilers
- > Available for different performance ranges up to 7.5 m and 3 m³/h covering almost all small circulator types.
- > Low energy consumption saving up to 70% - fulfilling EU Ecodesign Requirements EEI ≤ 0.23 reg. EN 16297 part 3
- > Excellent product quality equipped with ceramic bearing shafts for a long and trouble-free service life.
- > Designed for OEM requirements regarding reliability with ambient temperatures up to 70°C, multiple antiblocking features, high surge resistance and low inrush current.
- > Great flexibility for system configuration due to different control mode options (internally or externally controlled).
- > System and pump protection due to various alarm functions

Standard IWC – flexible and customisable solutions for boilers

For boiler manufacturers who do not want to invest in costly and time-consuming design and customised hydraulic units, Grundfos offers CHB or CRU integrated water circuits based on standard components. These standard IWCs can also be

configured for combi, system or bi-thermic boilers with standard or high-efficiency pumps. They consist of a return and a flow group pre-mounted in-line on a bottom plate and optionally combined with a plate heat exchanger. All variants can be

equipped with high-efficiency UPM3 or asynchronous standard UPSO pump heads.



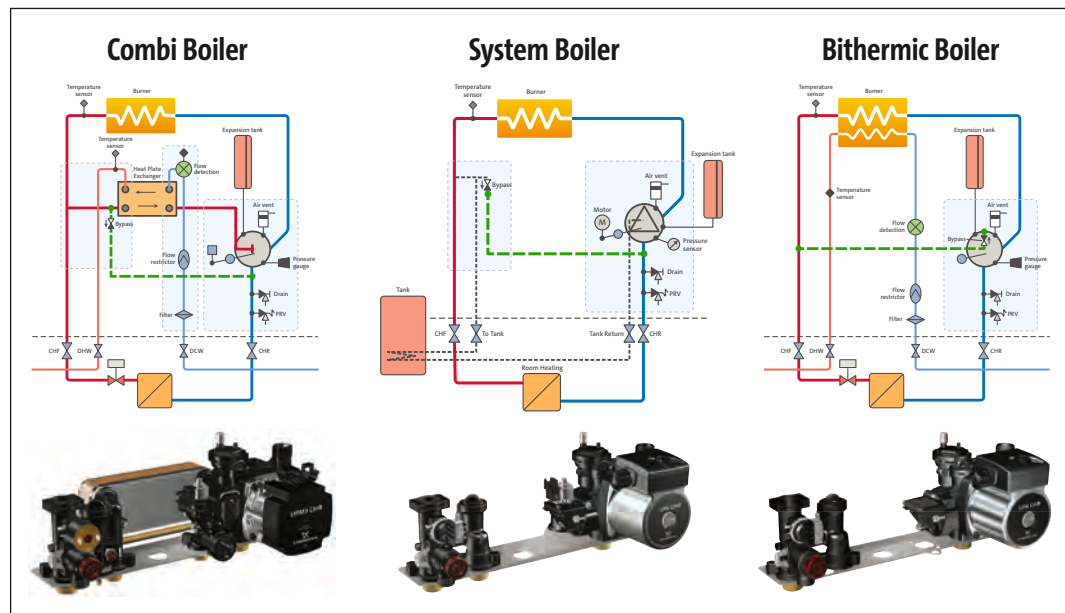
CHB IWC – based on Compact Hydro Block (CHB) components

The Grundfos CHB (Compact Hydro Block) is an innovative hydraulic platform for domestic heating applications. It offers compact design, intelligent built-in features, easy serviceability and energy optimised design.

With several standard parts to choose from and an array of customisation possibilities, the platform can be configured to meet virtually any need and project requirement.

Main CHB benefits:

- > **High degree of predesign**
Functionalities built into the housing
- > **High modularity**
Flexible concept with standard or customised components
- > **Significant cost reductions**
Prefabricated modularity cuts project and tooling costs
- > **Compact design**
Less space required in the complete heating system
- > **Outstanding reliability and robustness**
Quality-tested to perfection
- > **High serviceability**
Easy access to different components
- > **High energy efficiency**
Meets ErP requirements with UPM3 high efficiency pumps heads



CRU IWC – based on Compact Return Unit (CRU) components

The smallest Grundfos hydro block ever without compromising function or serviceability

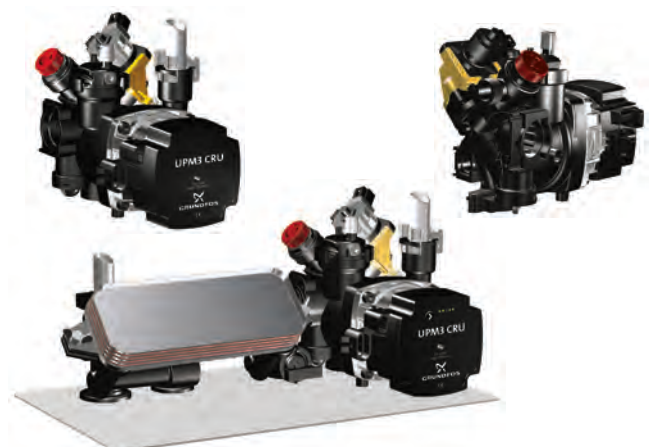
Highly flexible in terms of

- production concept
- scope of customisation

The CRU contains all the basic hydraulic functions that are needed to serve the primary side of a boiler.

The CRU can easily be turned into a combi IWC or a system IWC by connecting the customised manifolds to the horizontal inlet of the CRU.

The manifold connection point is simple and positioned just where you need it, which offers great design flexibility and freedom when choosing manifold solutions.





CHBL – Compact Hydro Block Large for medium-sized boiler and heat pump systems

While the CHB or CRU based hydro blocks are ideal for smaller heating appliances, the CHBL hydro block with different pump heads such as the UPS or UPM with 3/4" connections is ideal for larger boilers or heat pumps with a flow up to 5 m³/h.

At Grundfos, we aim to make your applications simpler through advanced technology. The Grundfos CHBL is another step in that direction. The Grundfos CHBL (Compact Hydro Block Large) is an innovative hydraulic platform for heat pumps and boilers with DN20 hydraulics and a flow of

up to 4 m³/h. It offers compact design, intelligent built-in features, easy serviceability, and energy optimised design.

It can be combined with the Grundfos motorised change-over return valve RV20.

- Main benefits:**
- > **High degree of predesign**
Functionalities built into the housing
 - > **High modularity**
Flexible concept with different components and connections
 - > **Significant cost reductions**
Prefabricated modularity cuts project and tooling costs
 - > **Compact design**
Less space required in the appliance
 - > **Outstanding reliability and robustness**
Quality-tested to perfection
 - > **High serviceability**
Easy access to different components
 - > **High energy efficiency**
Meets ErP requirements with different high efficiency pumps head

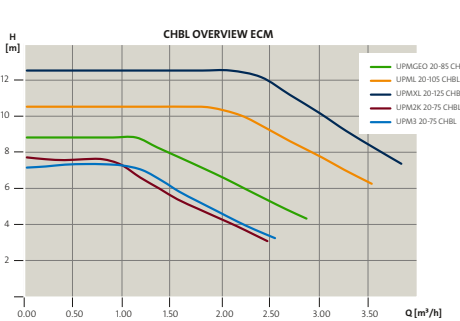
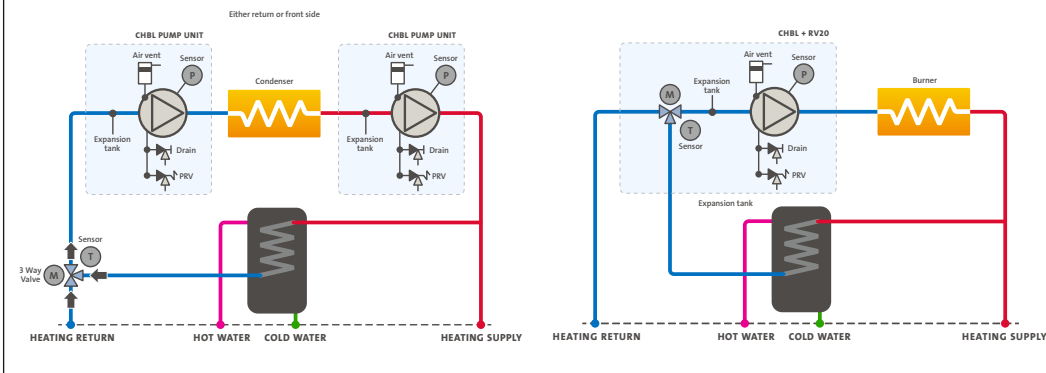
Optimal for boilers and heat pumps



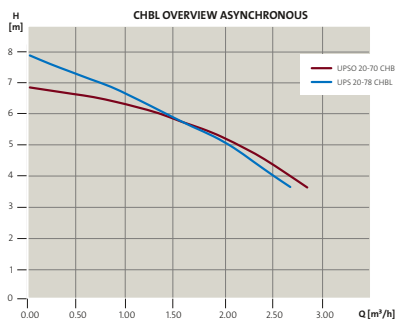
> **Application Heat Pump**
CHBL Pump Unit + RV20 Return Valve



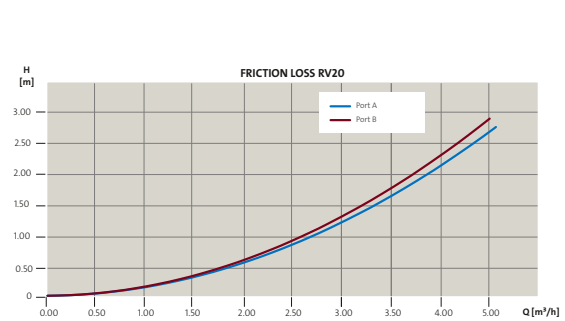
> **Application Combi Boiler**
CHBL Pump Unit + RV20 Return Valve



Q-H performance curves CHBL with ECM pump heads



Q-H performance curves CHBL with asynchronous pump heads



Friction loss return valve RV 20

China goes from coal to clean energy



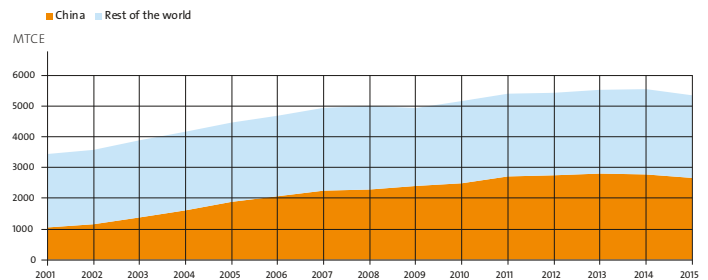
China's National Energy Administration (NEA) had announced that in the next three years alone, China will invest \$361 billion in promoting the substitution of coal for renewable power generation. Within this initiative, two big projects are pushing sales of circulators for gas boilers and heat pumps: coal to gas and coal to electricity.

Coal to Gas initiative

Coal is by far the most important source of energy in China. Approximately 66% (2015) of the primary energy is produced by coal, and the country accounts for around half of the world's coal consumption. Due to air pollution caused by coal, the Chinese government has promised to lessen its dependence on coal. The coal industry employs around 5 million people in China, this fact has forced policy-makers to find a solution which doesn't endanger the whole industry. The transition from coal to gas seems to be a suitable option.

The Chinese government is supporting this transition by improving the gas infrastructure in the country and subsidizing the purchase of new gas boilers. For these boilers, Grundfos has the best pump solutions available, either as asynchronous UPSO or as ECM (BLDC) synchronous UPM3 circulators plus the most reliable flapper diverter valves.

Consumption of coal in the world



UPM3



UPSO



CESA01



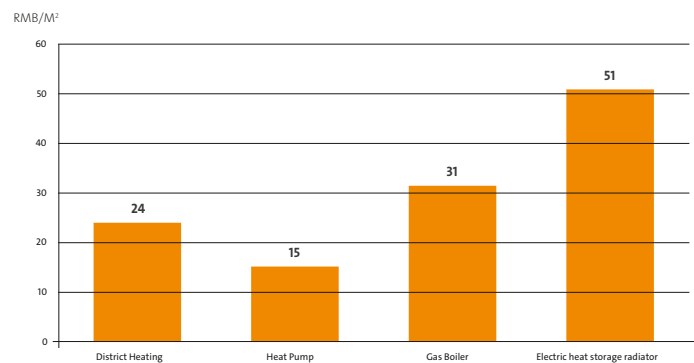
CESA04

Coal to Electricity in rural areas

In some regions of the north-east and east of China, air-sourced heat pumps have become the most popular and suitable solution. In the Beijing area alone, 189,000 households have already joined the "Coal to Electricity" initiative. There are several reasons for this, first, local governments are promoting and subsidizing air-sourced heat pumps. For example, the local government of Beijing is offering an RMB 12,000 incentive (EUR 1,600 approx.) per household for the installation of an air-sourced heat pump. Concerning the use of heat pumps, consumers can get more benefits in the form of special power grants, which decrease electricity prices to as little as EUR 0.01 per kilowatt hour. Another factor motivating the transition from coal to air-sourced heat pumps is the technical breakthrough on low temperature environments enabling heat pumps to operate until -20° . This technical breakthrough made it possible to use air-sourced heat pumps in the north of China, where the heating season is especially harsh.

Low running cost is another important reason for using air-sourced heat pumps, as can be seen from the figure on the right. The cost of heating one m^2 in Beijing during the heating season using a heat pump (15.15 RMB/ m^2) is lower than other heating systems such as district heating (24 RMB/ m^2), gas boiler (31.42 RMB/ m^2) and electric heat storage radiator (50.88 RMB/ m^2). *RMB 1 (Yuan) = EUR 0.135

Heating cost per m^2 during heating season in Beijing



UPMXL



UP26



CHBL

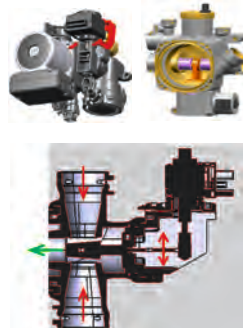


RV20

Grundfos Flapper Valves- most reliable integrated diverter or mixing valve

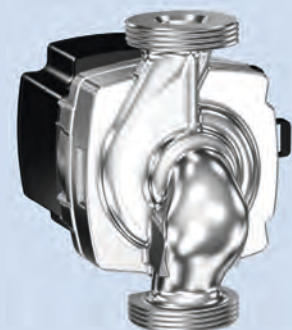
20 years ago, Grundfos has developed its first flapper valve. It is integrated in different versions in more than 10 million hydroblocks or integrated water circuits or used as standalone valve. Stepper or synchronous motors can be used as actuators.

The big advantage of this valve is its reliability, as it has no dynamic sealing. In contrast to piston valves, the lever arm is not moving forwards and backwards but tilting with a fixed static sealing. Therefore there is almost no wear



New way for building pumps for drinking water circulation

Today, Grundfos uses stainless steel housings, cast or made out of metal sheets, or housings made of composite, brass or bronze. These materials are normally accepted for drinking water approvals worldwide but the material costs are quite high. For this reason, Grundfos has started to use enamel coated cast iron pump housings in China.





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Components for HIU (Heat Interface Unit) for supply of DHW and CH on demand

Heat Interface Units (HIU) are units for supplying houses or flats with domestic hot water or heating on demand from centralised or district heating. Based on our experience with fresh water modules, Grundfos offers system components that can be combined into very efficient and compatible components.

The Grundfos FWM system kit offers key components for building fresh water modules for HIU integration to provide an electronically controlled instantaneous domestic hot water service.

The FWM system kit will provide the capacity for supplying domestic hot water of up to 30l/min. with a set point temperature between 30°C and 65°C. System performance will depend on the selected PHE.

System controls are embedded in the pump electronics. Configurations and settings are carried out using the user interface on the pump.

In normal mode, the DHW temperature set point can be configured between 30°C and 65°C.

In installer mode, an anti-legionella cycle can be enabled for thermal disinfection of the system.

If hot water recirculation is required, the kit system can be expanded by including a comfort pump (DHW kit).

The comfort pump will provide the following options in terms of hot water recirculation schemes:

- Auto Timer Programming ATP (default)
- Tapping +5 min.
- Thermostat controlled
- Always on
- Manual timer

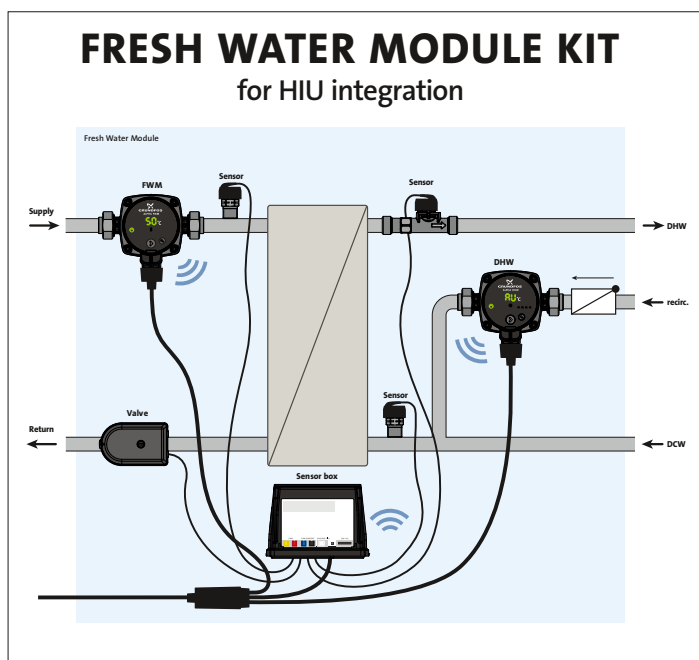
The kits offered consist of the following:

FWM kit:

- FWM Pump
- Sensor box
- Mains cable harness for sensor box and pumps
- Flow sensor VFS (2-40 l/min or 1-15 l/min) incl. flow pipe and cable
- Temperature sensor RPS (0-6 bar) incl. cable

DHW kit:

- DHW Pump
- Temperature Sensor RPS (0-10 bar) incl. cable



A Service Tool application is available that will enable the installer to evaluate and log system performance and conduct error debugging. The Service Tool is free of charge but requires a laptop computer and a Grundfos USB service tool dongle.

The following components are available:

- FWM pump
- DHW pump
- Sensor box
- Sensor
- Valve

Grundfos HVAC OEM can assist you in the selection of the PHE and optimisation of system controls in the pump to obtain the best performance.

Grundfos HVAC OEM Division

With an annual production of around ten million circulator pumps and hydraulic systems, Grundfos is the world's leading manufacturer of circulator pumps.

The HVAC OEM Division is equipped to serve all kinds of customers all over the world.

A Grundfos partnership gives you state-of-the-art solutions, professional trouble shooting assistance in your production, and up-dates on new developments within all kinds of HVAC hydraulics technology.

Contact us to learn more about what this would mean for your company.

<http://www.grundfos.com/market-areas/buildings/hvac-oem.html>



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