

Get advice **before** you plan your heating system



**Flexible systems rise to any challenge**

With Grundfos as your advisor, it is easy to create a flexible heating system that will handle changing building configurations. By dividing your system into primary and secondary sections, for example, you gain the freedom to experiment with the secondary sections without affecting the primary installation. You could say that this is our way of making sure that you don't need to buy a new car just to replace the tyres.

**Grundfos – your project planning partner**

So for the best results and maximum flexibility, contact Grundfos during the early planning stages and we will be pleased to work in partnership with you to develop the best solution to meet your specific needs.

**Want an easy overview?  
Try Computer Aided Product Selection**

Grundfos WinCAPS is a complete electronic tool for pump dimensioning and selection. The software is available on CD-ROM and contains most of the information found in Grundfos back-up technical documentation, as well as calculation modules and technical specifications that can be inserted directly into project plans, quotations, etc. WebCAPS, the online version, is available at [www.grundfos.com/cbs](http://www.grundfos.com/cbs).

The Grundfos System Guide is a comprehensive selection tool addressing heating, air conditioning, pressure boosting, and wastewater systems. It includes descriptions, evaluations and recommendations to help you plan the best possible system.

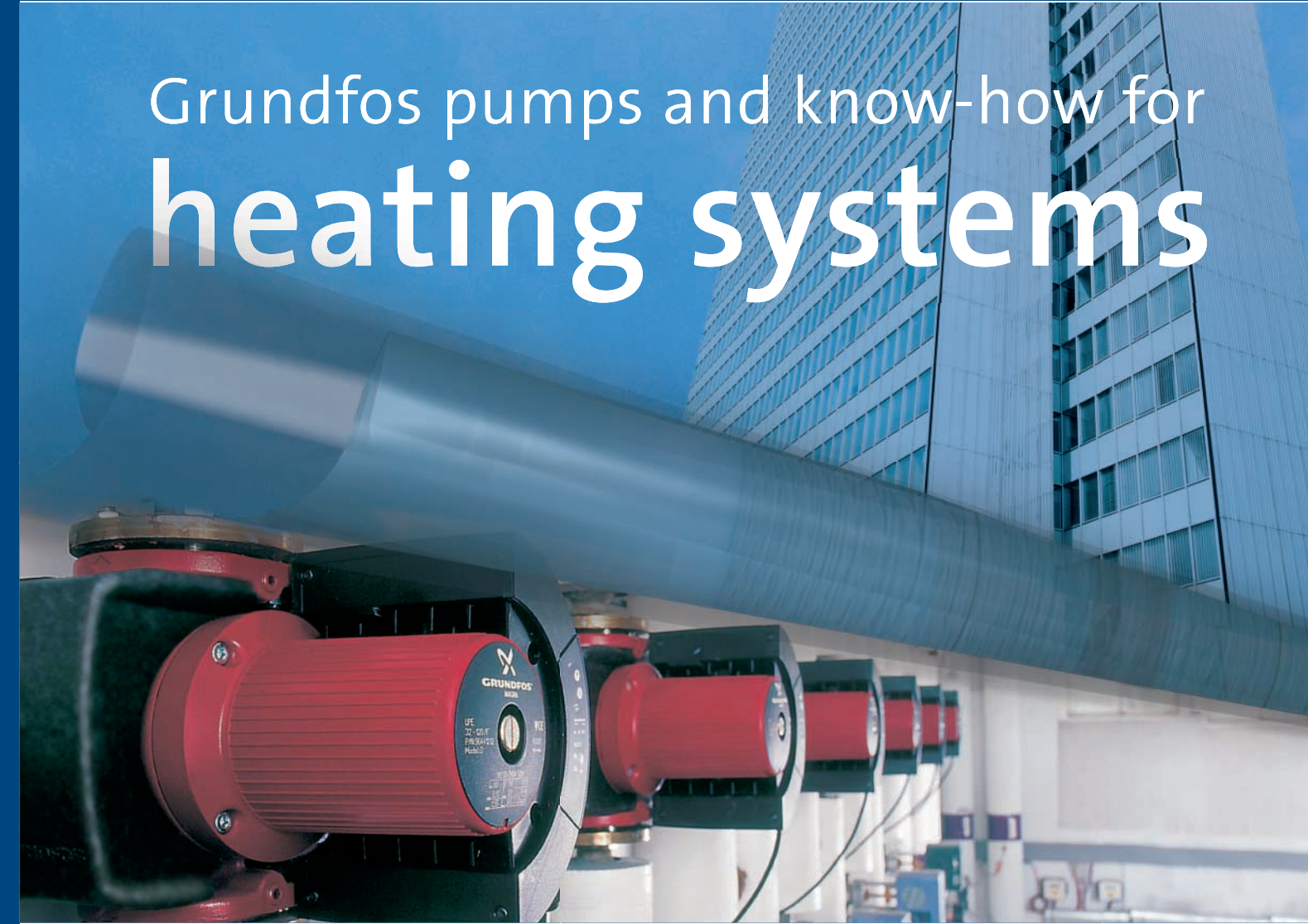


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Being responsible is our foundation  
Thinking ahead makes it possible  
Innovation is the essence

GRUNDFOS  
COMMERCIAL BUILDING SERVICES

Grundfos pumps and know-how for  
**heating systems**



**Grundfos – your system design partner**

Grundfos offers a complete range of pump solutions for the commercial building sector. But we also offer system know-how that can help create the best, most efficient designs for your building project. This is also true for air conditioning systems, fire protection, wastewater handling, pressure boosting, and heating.

So whatever system you are planning, call Grundfos before you get down to exact designs – as we can ensure you have the best available solution. This brochure offers a brief glimpse of the heating system expertise Grundfos can offer you.



**We can help you plan for the future**

When you are planning a heating system, don't wait until you have fixed the system design before you contact your pump supplier. Why? Well for example the customer might decide to move the fitness centre and swimming pool to where the cinema was supposed to go – a circumstance we can help you plan for. Additionally, you may be planning a building that will be converted or used for different purposes after a few years – e.g. the addition of restaurants, shops, or other outlets. If your heating system is too rigid in its design, it will be difficult and expensive to make the necessary changes.

**All the pumps you'll ever need – and cheaper in the long run.**

When you need to make a final pump selection, we have every kind of pump you will ever need to include in a heating system – with models capable of handling flows up to 4,000 m<sup>3</sup>/h. Every product is produced with long-term savings in mind - because quality pays off.



*The Grundfos range has pumps in all sizes. Every one has been designed with optimum performance and efficiency in mind.*

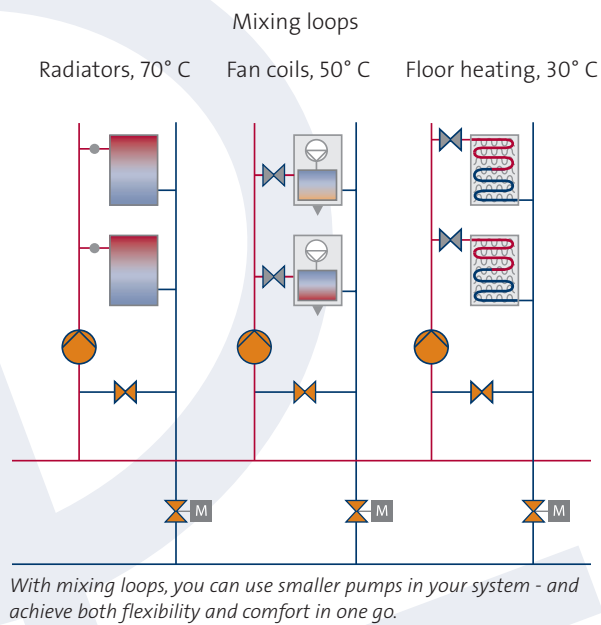
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### 1 Optimal results for your heating system using mixing loops

Mixing loops let you divide your system into sections, thereby achieving maximum efficiency, comfort and flexibility. The most energy-efficient option is to use a 2-way regulating valve to separate the primary and secondary sections, allowing you to adjust temperature and flow as you please. Future changes are also easily accommodated, as you only need to adjust that particular mixing loop – and not the entire system.

### Divide your building into zones

Mixing loops let you divide your building into zones that can be controlled independently. You can have floor-by-floor zones, allowing easy day/night/weekend management, or building façade zones – for example, south-facing rooms need less heat. Whatever method you choose, you will get more efficient operation. So you can actually save money by including more pumps in your design.

### More pumps do not necessarily mean more expense

When calculating the cost of operating a pumping system, the differential pressure is very important. If you do not

separate your system into sections, your main pump must be large enough to supply sufficient differential pressure to the furthest points of your system. This often results in excessive differential pressure in the rest of the system, or, to put it simply, you end up paying for pressure you don't need.

### Don't pay for pressure you don't need

When you divide up your system, the main pump only has to reach the overall distribution network and the regulating valves in your mixing loops. The rest of the differential pressure will be supplied within the mixing loop – which can, of course, be dimensioned to suit your exact requirements. So the extra pumps ensure that you only pay for what you need!

### Reduce flow, too

Mixing loops can also reduce the overall flow in your distribution network. When you increase the flow pipe temperature before individual mixing loops, they need less flow to deliver the desired temperature. Moreover, mixing loops enable more efficient control of the return temperature, which offers scope for even greater savings – especially in district heating installations.

# Greater comfort, flexibility and control. Lower costs.

## We have the whole system in mind

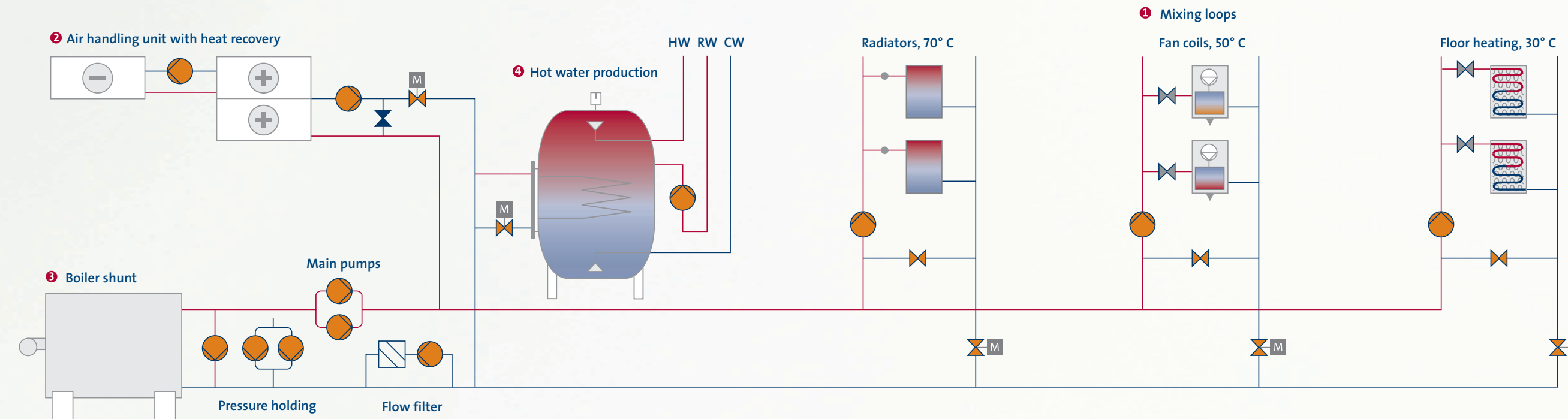
Grundfos offers a complete range of modern, energy-efficient and low-maintenance pumps. However in heating systems, energy-efficient pumps are only half the story. The system design itself is even more important.

With the right overall design you can minimise energy consumption and maximize comfort levels whilst at the same time being ready for future changes. With Grundfos as your partner, we can help you achieve all this.

## Plan your heating system from the outside in

We recommend that you define your system from the outside in because when you know the flows and temperatures required for the radiators, underfloor heating, etc., you will know the exact demands on the central equipment and you will have plenty of opportunities to design a flexible system.

Finally, remember that when you are ready to make the actual pump selection, much of the scope for flexibility maybe gone. So contact us early on in your design or join us at one of our seminars where we will share our system know-how with you.



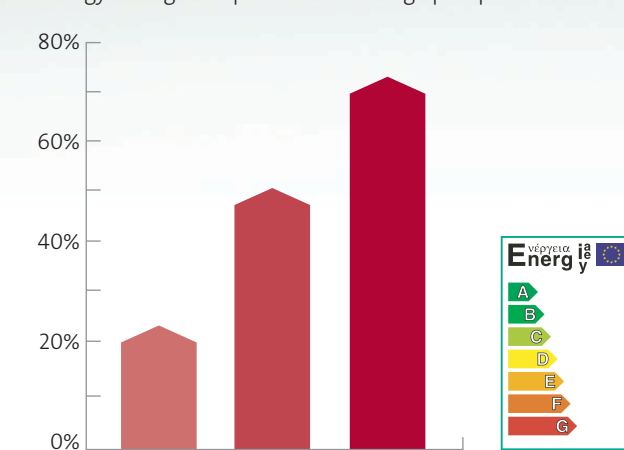
## Energy labelling: showing pump efficiency

Already well known when buying household appliances, the energy labelling scheme has now been extended to the pump industry, where it clearly illustrates the energy-efficiency of circulator pumps.

An average circulator pump, such as those used in most heating installations in Europe, has an energy class D or E rating. By contrast, the energy consumption of an A rated pump is 75% lower than that of the average circulator pump installed today.

So when Grundfos pumps such as the MAGNA range of intelligent heating pumps are rated A, they make a real difference. And that is just one example of our dedication to bringing you the best solutions.

Energy savings compared to an average pump



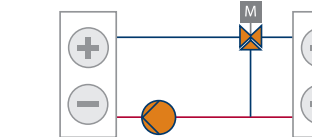
C, B, and especially A-rated pumps offer significant energy savings compared to pumps with average energy consumption.



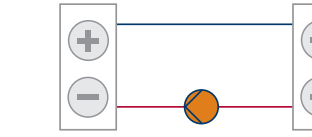
	UPS UPSD 0.06 – 2.2 kW	UPE/UPED Magna 0.06 – 2.2 kW	TP TPD 0.25 – 630 kW	TPE/TPED Series 2000 0.37 – 7.5 kW	TPE/TPED Series 1000 0.37 – 22 kW	NBE NKE 0.37 – 7.5 kW	NB NK 0.37 – 315 kW	CR 0.37 – 45 kW
Main pumps		•	•	•	•	•	•	
Boiler shunts	•		•		•	•	•	
Filter pumps			•	•				
Mixing loops	•	•	•	•	•			
Heat surfaces	•		•	•	•			
Heat recovery	•		•	•	•			
DWH production	•		•	•	•			
DWH recirculation	•		•	•	•			
Pressure holding								•

### 2 Heat recovery

This system is designed to recover the heat of the outlet air to improve energy efficiency. The primary task of the pump is to ensure an optimal flow between the heating surfaces, and the pump/valve is controlled via your ventilation systems general control unit. In systems of this kind, you can achieve very substantial savings by using a controlled pump instead of a three-way valve to reach the correct temperature. For details, contact your local Grundfos consultant.



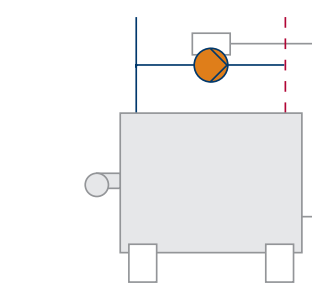
3-way valve controlled system



Pump controlled system

### 3 Boiler shunt pump

The primary task of the boiler shunt pump is to prevent excessive differences in temperature between the top and bottom of the boiler. Such temperature differences would cause tension in the material and reduce the boilers life expectancy. In addition, low temperatures at the bottom of the boiler can cause corrosion in connection with some fuel types. Using a controlled pump ensures maximum safety and maximum energy savings – so contact us if you want advice on how to optimise your boiler configuration.



Placing of temperature sensor

### 4 Hot water circulation

In systems such as this, designed for domestic hot water heating, the circulator pump ensures that hot water is always available as close to the tapping point as possible. This not only increases user comfort, it also helps conserve water resources. For more information and advice on system design, call us.

