



BE ▶ THINK ▶ INNOVATE ▶

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

GRUNDFOS  
COMMERCIAL BUILDING SERVICES

# Grundfos pumps and know-how for pressure boosting 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 pressure booster system expertise Grundfos can offer you.

# About to plan a pressure boosting system? Call Grundfos first!

## A good beginning makes a good ending

If you are about to plan a pressure boosting system, the very best way to start is to call Grundfos for a talk about what you could do. We can tell you exactly what is possible – and point out potential pitfalls. Your planning becomes easier, and the people inhabiting your finished projects will enjoy plumbing that works exceptionally well.

## Your project planning partner

At Grundfos, we do not simply sell pumps. We make a wealth of experience available to you. That is why we encourage you to make full use of our expertise by involving us during the earliest project stages. Then we can give you the best help possible – and you derive the full benefit of partnering with Grundfos. So for the best results, call us first.

## We share the tricks of the trade

Pressure boosting is about ensuring comfort for every person in the finished building. We can help you make that happen. Being Grundfos, it goes without saying that we offer superior pump technology for every boosting need. But you should also be aware that we will let you know all the little tricks of the trade beforehand.

For example, we can help you design a system that will provide hot and cold water in equal measure – a small point, perhaps, but one that is genuinely appreciated by millions of people every time they take a shower. That is what the Grundfos difference is all about. This brochure includes a few tips of this kind; for more information, contact your local Grundfos company.

## All the pressure you'll ever need

Grundfos has a full selection of pumps to provide the right pressure in your water supply system. Ranging from single pumps with capacity up to 2000 m<sup>3</sup>/h, and turnkey booster set, all controlled by a dedicated user-friendly pump controller.

Every member of the pressure booster product family features Grundfos quality throughout.



## Find all the information you need here!

Grundfos WebCAPS and WinCAPS are complete tools for Computer Aided Product Selection. Here you will find full pump data, step-by-step guides for easy dimensioning, technical specifications for your project plans, video clips demonstrating how to service your pumps, and more.

You enter WebCAPS via the Grundfos website. The CD-ROM version, WinCAPS, is available from your local Grundfos office.

The Grundfos System Guide is a comprehensive binder full of information and recommendations to help you design the best possible heating, air conditioning, pressure boosting, and wastewater systems.



www.grundfos.com

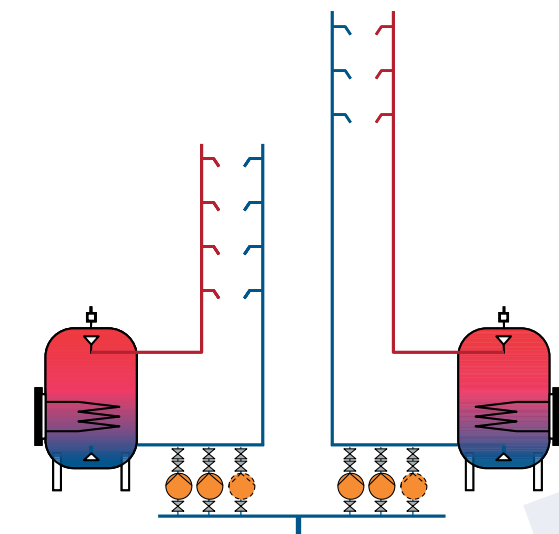
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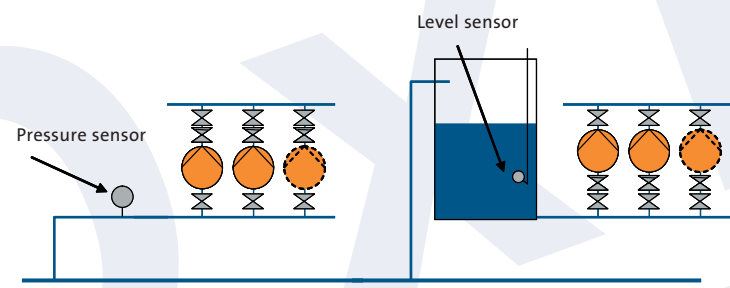
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## A few tips when designing pressure boosting



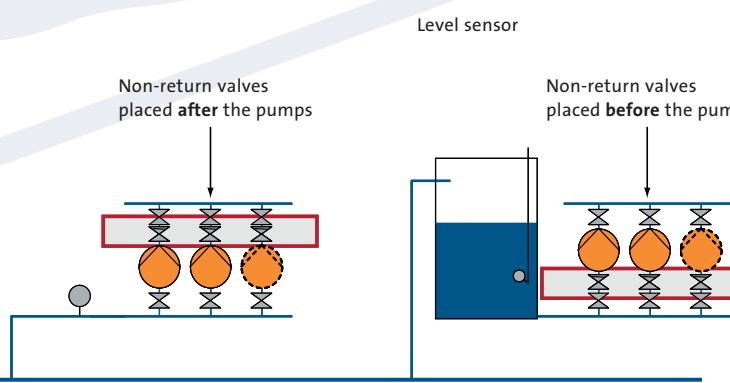
### Include hot water supply in each zone

If the pressure boosting system is divided into zones, we always recommend that you include a hot-water production unit in each zone. That way, you avoid large differences in pressure between the hot and cold water.



### Always use dry-running protection!

We always recommend that you add dry-running protection to your pressure boosting system. Exactly how you do this depends on the type of system. If your booster system is connected *directly* to the water supply, you should use a *pressure sensor* to monitor that there is sufficient pressure to the pump. If your system uses a *break tank*, use a *level sensor* in the tank instead.



### Where should I place non-return valves?

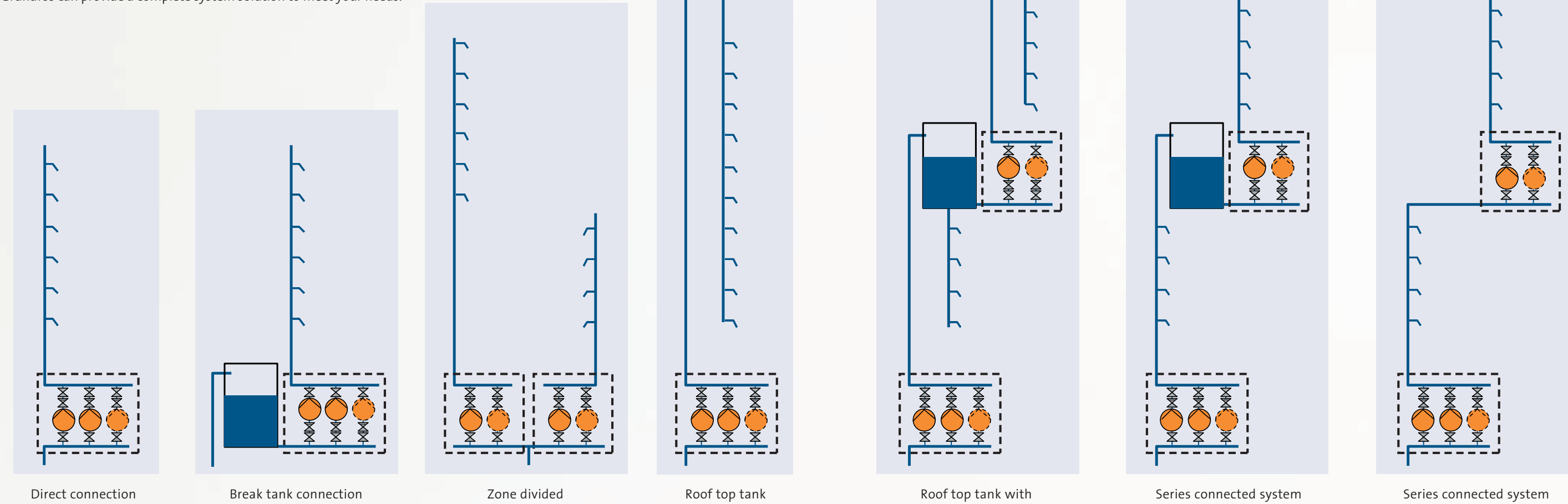
In systems exposed to inlet pressure – i.e. systems that are connected directly to the water supply – we recommend that you place the non-return valves *after* the pumps. This prevents the pressure inside the pump from becoming too low, so you avoid problems with air being sucked through the shaft seal.

If your system is subjected to suction pressure – i.e. if it is connected to a break tank – you should place the non-return valves *before* the pumps.

# System overview

## Meeting your needs

Water supply solutions can be made in several different ways, depending upon individual system requirements. Whether demands for flexibility, local legislation, or regional standards set your course, Grundfos can provide a complete system solution to meet your needs.



## The brains behind the boosting: Multi Pump Control

Grundfos has developed the perfect brains for use with CR-based Hydro booster systems. The Multi Pump Control maintains its outstanding user-friendliness right from the initial installation through to everyday operation.

The large display is easy to navigate, regardless of whether you are using the installation wizard or carrying out day-to-day monitoring. The Ethernet connection option even brings the Hydro MPC interface to your own computer so that matter where you are, you will always be in control.

*The Hydro MPC can control up to six pumps connected in parallel, adjusting the speed of each pump to optimise performance at all times. The Hydro MPC also gives you access to remote data communication, operation statistics, and much more.*



		Hydro MPC	Hydro 1000	Hydro Multi-E	Hydro Sole	CR(E)	NB(E) NK(E)	TP(E)	HS	BMB
		TURNKEY UNITS				SINGLE PUMPS				
		720m <sup>3</sup> /h 160 m	480m <sup>3</sup> /h 100 m	115m <sup>3</sup> /h 100 m	44m <sup>3</sup> /h 38 m	99m <sup>3</sup> /h 120 m	270m <sup>3</sup> /h 130 m	480m <sup>3</sup> /h 130 m	2000m <sup>3</sup> /h 130 m	90m <sup>3</sup> /h 260 m
Direct connection	Single zone	●		●						
	Zone divided	●			●					
Break tank connection	Single zone	●		●						
	Zone divided	●			●					
Roof tank			●			●	●	●	●	●
Series connection		●				●	●	●	●	●

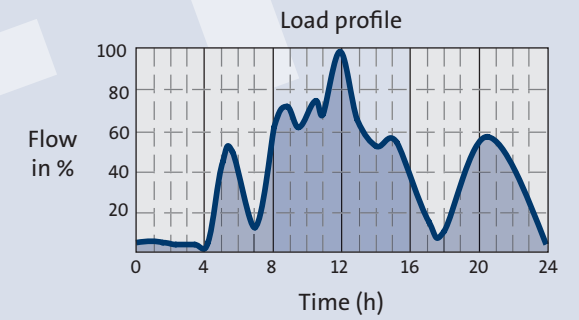
## Calculating what you need

The calculation of flow, pressure and load profile is important to identify the correct pump system for your installation. Below a few examples of how to calculate the right flow and examples of the related load profile.

For more specific calculations to suit your installation, contact us – we will be happy to be of assistance.

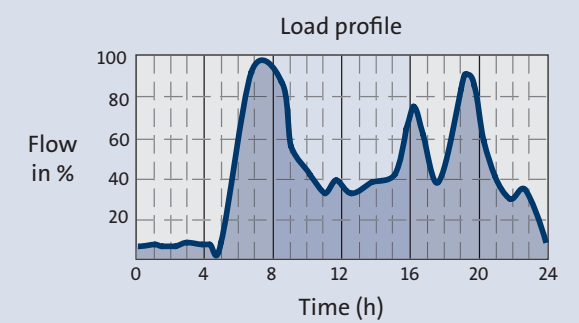
### School

Calculation of max. flow for system design		Example
Units	1 pupil	700
Total consumption per bed	8 m <sup>3</sup> /year	5,600 m <sup>3</sup> /year
Consumption period	200 day/year	(5,600/200)
Average consumption per day	0.04m <sup>3</sup>	28.0 m <sup>3</sup>
Factor for maximum consumption	1.3	(28 x 1.3)
Maximum consumption per day	0.065 m <sup>3</sup>	36.4 m <sup>3</sup>
Factor for peak flow per hour	2.5	(36.4 x 2.6)/24
Dimensioning flow per hour/bed	0.007 m <sup>3</sup> /h	3.8 m <sup>3</sup> /h



### Apartment blocks

Calculation of max. flow for system design		Example
Units	1 residence	65
Total consumption per bed	183 m <sup>3</sup> /year	11,895 m <sup>3</sup> /year
Consumption period	365 day/year	(11,895/365)
Average consumption per day	0.5 m <sup>3</sup>	32.6 m <sup>3</sup>
Factor for maximum consumption	1.3	(32.6 x 1.3)
Maximum consumption per day	0.65 m <sup>3</sup>	42.4 m <sup>3</sup>
Factor for peak flow per hour	1.7	(42.4 x 1.7)/24
Dimensioning flow per hour/bed	0.046 m <sup>3</sup> /h	3 m <sup>3</sup> /h



### Hospital

Calculation of max. flow for system design		Example
Units	1 bed	600
Total consumption per bed	300 m <sup>3</sup> /year	180,000 m <sup>3</sup> /year
Consumption period	365 day/year	(180,000/365)
Average consumption per day	0.8 m <sup>3</sup>	493.2 m <sup>3</sup>
Factor for maximum consumption	1.2	(493.2 x 1.2)
Maximum consumption per day	0.96 m <sup>3</sup>	591.8 m <sup>3</sup>
Factor for peak flow per hour	3.0	(591.8 x 3)/24
Dimensioning flow per hour/bed	0.12 m <sup>3</sup> /h	73.9 m <sup>3</sup> /h

