Custom-built Hydro 2000 boosters

When an application requires special solutions, the Grundfos Hydro 2000 can be customised through a wide range of options and accessories.

CR/CRE pumps
Through a combination of motor size, type of shaft seal, pump materials and bearing system, the CR/CRE pumps in the Hydro 2000 booster system can be customised to cope with a multitude of difficult media or to suit unusual or difficult applications.
For particularly corrosive media such as seawater, a titanium solution is available.

Manifold and base frame
As standard, the Hydro 2000 is supplied with a stainless steel manifold and base frame to meet requirements of durability and maintenance. Other types of material are available to meet specific requirements relating to surroundings and media.

Control and accessories
External control can be provided via bus communication. The Grundfos Gateway G100 allows for communication with a variety of management systems. Efficient dry-running protection can be provided by using the advanced Grundfos LiqTec™ level sensor.

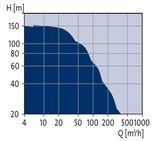
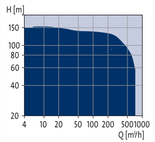
A host of other variants and special solutions are available to cater for difficult or unusual applications. Consult your Grundfos representative for further details.

Titanium booster in fishing port
A perfect example of a successful application under highly difficult conditions is a landing station at a Portuguese fishing port. The fishing boats land their catch at all hours of the day and the cleaning of the fish – as well as the fishing gear – must take place immediately. Only seawater is used for this purpose, and the pump system must be capable of providing a constant pressure, 24 hours a day, year in and year out.

The Grundfos Hydro 2000 with CRTE titanium pumps is able to withstand the aggressive seawater and to maintain the required constant pressure through automatic pressure control.

Grundfos is a full line supplier of booster systems

Grundfos is a full line supplier of pressure booster systems for use in water supply, industry and irrigation. Whether supplying water in a hotel, office building, hospital or multi-storey apartment house, or whether industrial processes or irrigation are concerned, Grundfos has the system which ensures a reliable water supply at a high level of comfort. For any such application Grundfos recommends the Hydro 2000 booster series, where four different types of systems are available.

Type	Performance range	Data	Benefits
ME		Flow: max. 256 m³/h Head: max. 150 m Pump size: 0.37 – 7.5 kW Number of pumps: 2 - 4	• All pumps are variable speed • Constant pressure • Soft-start on all pumps • Requires only very small diaphragm tank
MES		Flow: max. 256 m³/h Head: max. 150 m Pump size: 0.37 – 7.5 kW Number of pumps: 2 - 4	• One pump is variable speed • Constant pressure • Requires only very small diaphragm tank
MF		Flow: max. 540 m³/h Head: max. 150 m Pump size: 0.37 – 30 kW Number of pumps: 2 - 6	• One pump is variable speed via external frequency converter • Constant pressure • Requires only very small diaphragm tank
MS		Flow: max. 540 m³/h Head: max. 150 m Pump size: 0.37 – 30 kW Number of pumps: 2 - 6	• All pumps are fixed speed • Constant pressure within a band

General data:
Liquid temperature: 0°C – 70°C
Operating pressure: max. 16 bar

Other booster families
In addition to the Hydro 2000 booster range Grundfos also offers other booster types such as Hydro 1000 and Hydro 2000 Solo E. Please contact Grundfos for further information.

GRUNDFOS

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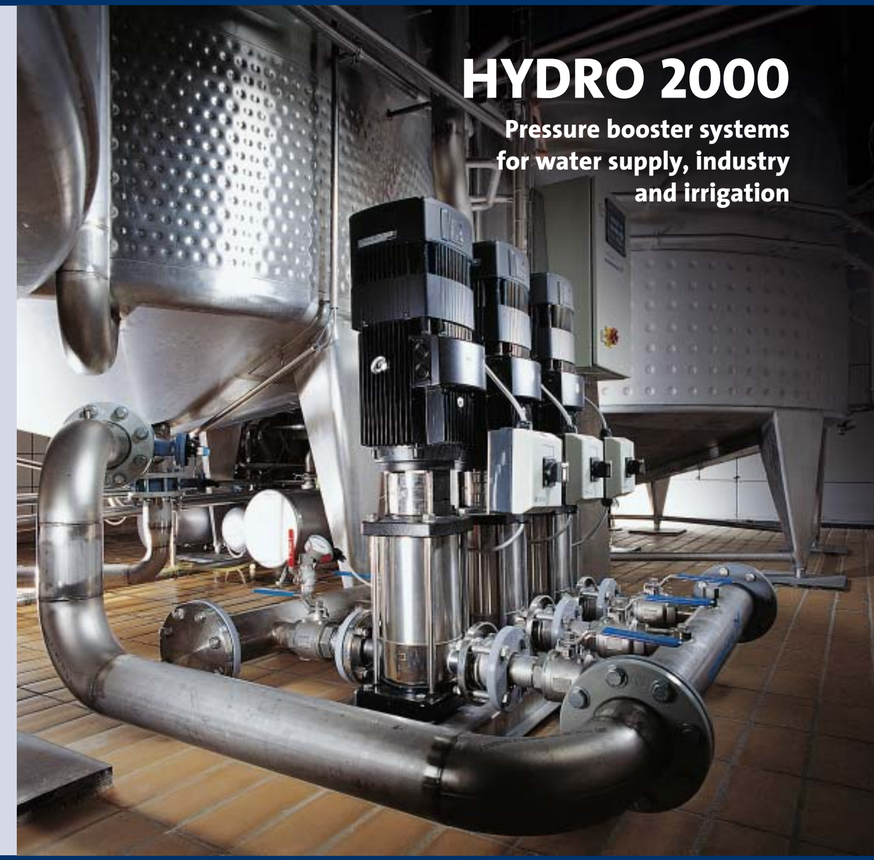


HYDRO 2000

Pressure booster systems for water supply, industry and irrigation

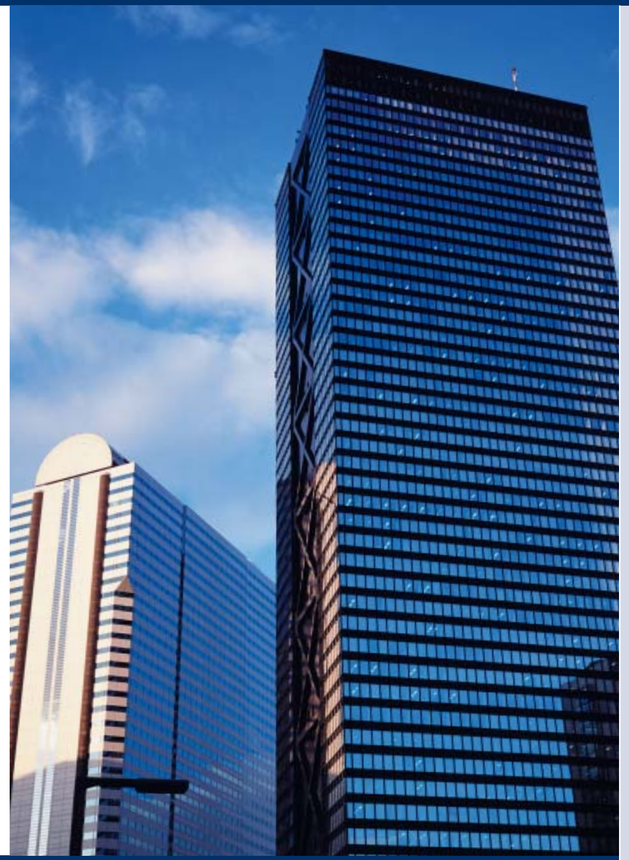
Grundfos booster systems provide ultimate adaptability

Grundfos offers a comprehensive range of booster systems designed for applications in water supply, industry, and irrigation. Adaptability is the keyword behind the Grundfos systems. Each model has been designed to meet specific capacity requirements, and each is based on a method of control, which will satisfy all operational demands, while providing optimum comfort.

The variety of pumps and the choice of components, which can be made available, guarantee a reliable supply and energy-efficient operation. The systems are supplied ready for operation, and all components are assembled and thoroughly tested by Grundfos.

The Grundfos Hydro 2000 booster systems are suitable for a wide range of applications.

Front page:
Grundfos Hydro 2000 in brewery boosting the pressure of softened water (Denmark).



Water supply, pressure boosting

- Mains water supply systems for waterworks and distribution networks.
- Pressure booster systems for multi-storey buildings, hotels, office buildings, hospitals, schools and other large building complexes.

Industrial applications

- Water supply and pressure booster systems for the food industry.
- Water treatment and filtration systems.
- Systems for the petrochemical, pharmaceutical and metal industries where water and pressure boosting plays an important part in the processes.

Irrigation

- Irrigation of golf courses, sports fields, etc.
- Parks and other recreational areas.
- Greenhouses, nurseries, vineyards, etc.

Other

- Swimming baths, water worlds, etc.
- Fountains.

Main components

The Grundfos booster systems are of a thoroughly tested design. All main components are manufactured by Grundfos, which guarantees optimum performance under all circumstances.

Grundfos CR/CRE pumps

The booster systems are based on the latest generation of the world-renowned Grundfos CR/CRE multistage centrifugal pumps. The durable CR/CRE pumps guarantee reliable and trouble-free operation with state-of-the-art efficiency. The CR/CRE pumps are unmatched in efficiency and reliability. A hard-wearing, easy-to-replace cartridge seal facilitates servicing and minimises downtime.

The CRE pumps used for the booster systems are equipped with Grundfos' own frequency converter-controlled motors and thus provide the ultimate in pumping technology available on the market today.

Control 2000

Advanced control with straightforward operation is characteristic of the Grundfos controller range. The Hydro 2000 controller can switch the system on/off and control the frequency of up to six parallel-connected pumps by constant pressure control. This can be supplemented by pipeloss compensation, which improves comfort and contributes to energy saving.

Variable speed is offered either via...

- a frequency converter installed in the Hydro 2000 control cabinet controlling the fixed speed CR pumps, or

- Grundfos CRE pumps with a frequency converter built into the motor.

The result is perfect control with minimal pressure fluctuations.

The controller unit has all the parameters necessary to ensure optimum user comfort and low operating costs. Constant pressure, pipeloss compensation, timer program, alternative setpoint, pump priority and bus communication are just some of the features available.

Sturdy construction

The booster systems are constructed as compact units on a base frame. The pumps are fitted with optimised intake and discharge manifolds, including all necessary shut-off and non-return valves.

The pressure transmitter fitted to the system ensures instant control. The stainless steel frame and manifolds, apart from being corrosion-resistant, ensure water quality and cleanliness.

Water supply/pressure boosting

Grundfos Hydro 2000 booster installed at the Mariott Hotel, Copenhagen, Denmark, where it provides outstanding comfort and reliability regardless of variations in consumption.

The Grundfos booster systems are used in water supply systems for waterworks and mains pressure boosting as well as pressure boosting in multi-storey buildings such as hotels, schools and other large building complexes.

Reliability of supply

The Grundfos Hydro 2000 pressure booster system provides outstanding reliability and efficiency second to none. In the event of pump failure the supply is ensured by the remaining parallel-connected pumps, or by the operation of stand-by pump(s).

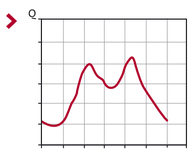
The system is constantly monitored by a control unit, which will stop the system if necessary, and signal the relevant alarms. The variable speed systems minimise the risk of water hammer and subsequent pipe damage.

Operating costs

The Hydro 2000 cascade control ensures that only the necessary number of pumps is in operation at any one time. Operation control based on constant pressure with pipeless compensation generates substantial power savings. In addition, a built-in stop function ensures that the system is automatically put on stand-by by zero water demand.

Comfort

The constant pressure control with pipeless compensation ensures user comfort, regardless of variations in consumption. The ensuing lower pressure will result in reduced loss of water through leakage in the distribution circuit. Hygiene is ensured through extensive use of stainless steel.



Typical consumption pattern of water in a residential area

Flow: Large variation between maximum and minimum consumption.

Pressure: Constant pressure is required at all time.

Industry

Water plays an extremely important role in many industrial processes. The need for constant pressure, often under conditions with great fluctuations in flow, places great demands on the pressure booster system.

Reliability

Reliability with the possibility of constant monitoring is essential in modern industry; a breakdown can have serious implications. The Grundfos Hydro 2000 system with parallel-connected pumps and stand-by pumps with bus communication is the ideal choice as pressure booster system for any industrial application.

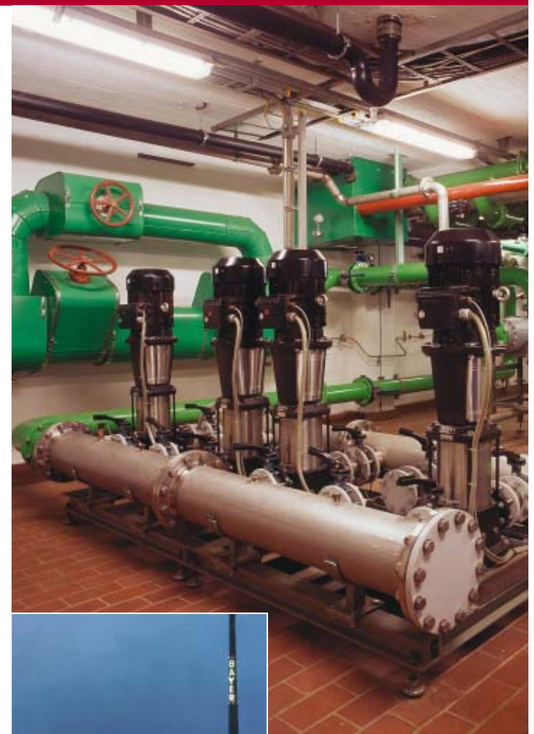
Large and rapid flow variations place great demands on the system controller, but this too is dealt with effectively by means of the Hydro 2000 closed-loop control.

Automatic start/stop of the system, remote control of setpoint and a timer program are some of the many functions, which make the Hydro 2000 system ideally suited to industry.

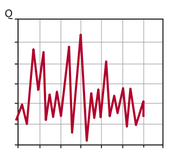
Low operating costs

As a result of the variety of models, which make up the Grundfos Hydro 2000 range, the installation of expensive systems with surplus capacity is now a thing of the past. Featuring pipeless compensation and alternative setpoints for night reduction, the Hydro 2000 system allows industry to considerably reduce energy consumption in these two important areas.

The design of all Hydro 2000 systems feature loose flanges and the possibility of pipe connection from either side. This makes the systems easy to install and very service-friendly, two very important considerations when choosing a pressure booster solution.



A Grundfos Hydro 2000 booster installed in the Bayer production plant, Germany, where it is boosting water pressure for the production of pharmaceuticals.



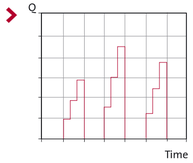
Typical consumption pattern of industrial application

Flow: Large and rapid variation between maximum and minimum consumption.

Pressure: Constant pressure is required at all time.

Irrigation

Grundfos Hydro 2000 booster in irrigation system at Humphris Nursery, Australia, boosting the pressure of water for the production of camellias.



Typical consumption pattern of an irrigation system

Flow: Varying but known consumption.

Pressure: The system is divided into pressure zones.

The maintenance of green areas like golf courses, sports grounds or parks usually requires irrigation, especially during the hottest months of the year. With a view to minimising water consumption and adapting the system to the application concerned, the irrigation system must be of a suitable size – and must be easy to operate.

Reliability

Depending on the climatic conditions and time of year, the consumption pattern in an irrigation system is liable to vary. The Grundfos Hydro 2000 offers automatic monitoring of preset maximum and minimum levels. In case of pressure drop as a result, for instance, of a pipe burst the system will automatically shut down.

Bus communication allows for central monitoring and control of the system.

Correct pressure

An irrigation system for large areas will often entail a need for separate pressure zones. The required pressure may vary depending on the areas being irrigated. With a Hydro 2000 system the pressure setpoint can be remote controlled from a centrally placed control unit.

There are no special requirements as regards the location for installation – the compact design and construction of the systems facilitate installation almost anywhere.

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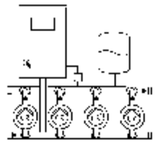
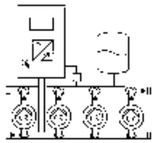
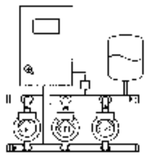
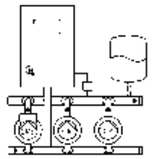
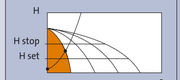
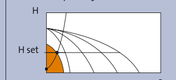
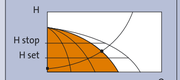
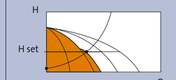
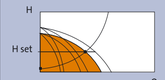
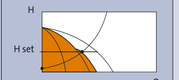
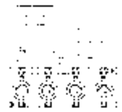
General functions

ON/OFF Hydro 2000 MS	VARIABLE SPEED Hydro 2000 MF	VARIABLE SPEED Hydro 2000 ME	VARIABLE SPEED Hydro 2000 MES
			
One pump in operation. 	One pump in operation via frequency converter. 	One pump in operation. 	One pump with MGE motor in operation. 
Three pumps in operation. 	One pump in operation via frequency converter and two pumps mains operated. 	Three pumps in operation. 	One pump with MGE motor and two mains operated pumps in operation. 
• Maintains an almost constant pressure by cutting the pumps in or out, as required. • Pump changeover is automatic and depends on load, time and fault. • The cut-out pressure (H stop) cannot be set, but is calculated automatically.	• Maintains a constant pressure through continuously variable adjustment of the speed of one pump. The other pumps are cut in/out on mains operation, as required. • The frequency-controlled pump is always started first. • Pump changeover is automatic and depends on load, time and fault. • All pumps are controlled by the frequency converter alternately.	• Maintains a constant pressure through continuously variable adjustment of the speed of the pumps connected. • The system performance is adjusted to the demand through cutting in/out of pumps and parallel control of the pumps in operation. • Pump changeover is automatic and depends on load, time and fault.	• Maintains a constant pressure through continuously variable adjustment of the speed of one pump. The other pumps are cut in/out on mains operation, according to demand, thus achieving a performance corresponding to the consumption. • The pump with MGE motor will always be started first. • Pump changeover is automatic and depends on load, time and fault.

Product Range

SYSTEM	ON/OFF Hydro 2000 MS	VARIABLE SPEED Hydro 2000 MF	VARIABLE SPEED Hydro 2000 ME	VARIABLE SPEED Hydro 2000 MES
				
RANGE				
Number of pumps	2 - 6	2 - 6	2 - 4	2 - 4
Motor (kW)	0.37 - 30	0.37 - 30	0.37 - 7.5	0.37 - 7.5
MECHANICAL VERSION				
In-line pipe routing	●	●	●	●
Stainless steel manifold	●	●	●	●
Stainless steel base frame	●	●	●	●
Identical pumps	●	●	●	
CONTROL				
Constant pressure		●	●	●
Friction loss compensation	●	●	●	●
Pump changeover	●	●	●	●
Soft start		●	●	●
Frequency converter in control cabinet		●		
Frequency converter in pump (CRE)			●	●
Bus communication	●	●	●	●
APPLICATION				
Water supply		●	●	●
Industry		●	●	●
Irrigation	●	●	●	●
ACCESSORIES				
Diaphragm tank	●	●	●	●
Dry-running protection	●	●	●	●
PCU 2000 communication unit	●	●	●	●
Safety switch	●	●	●	●