

# Hydro MPC booster systems



# Superior boosting with Grundfos Hydro MPC

*A Grundfos Hydro MPC booster system fitted with Grundfos CRE – frequency converter-controlled pumps – ensures complete and instant control, optimum flexibility of booster output, and unbeatable efficiency.*



The Grundfos Hydro MPC booster systems are made to the very highest standards and thanks to the MPC controller they handle even the most difficult boosting jobs with ease and accuracy.

## **Committed to quality**

Commitment to quality is evident in every aspect of the Hydro MPC boosters. Based on the extremely reliable, high-efficiency CR pump range, the Hydro MPC booster solutions are fully integrated systems. Each component is made by Grundfos to meet the strictest quality requirements, so you can rest assured that all the technologies involved work perfectly together.

## **Grundfos Hydro MPC boosters in short:**

- › Outstanding reliability
- › High efficiency
- › Fully integrated all-in-one systems
- › Systems to match every requirement
- › Easy to install
- › Easy to operate
- › Based on decades of know-how and experience

# Grundfos CR pumps – state-of-the-art reliability and efficiency

The Grundfos Hydro MPC booster systems are based on the world-renowned CR range of multistage centrifugal pumps. Grundfos was the first to develop this pump type almost four decades ago, and the latest generation of the CR range remains unchallenged the world's number one today. The outstanding reliability and efficiency of the CR pumps provide the best possible base for our booster systems.

Equipped with the intelligent Grundfos CRE pump, the Hydro MPC boosters offer an even higher efficiency and reduced energy costs. The CRE pumps are equipped with a frequency converter-controlled motor from Grundfos. The end result is complete control, optimum flexibility of booster output, and unbeatable efficiency at all times.

## The complete solution

All components have been combined with focus on quality and efficiency. The Grundfos Hydro MPC booster systems are designed to last: sturdy, compact units with easy access to all service parts.

Grundfos Hydro MPC booster systems can be used wherever additional pressure is needed. Each booster model has been designed to meet specific demands for capacity and control that a customer faces.



*The Grundfos CR/CRE pumps have been engineered for maximum efficiency and reliability. These advantages are incorporated into the Grundfos Hydro MPC booster system.*



*The Grundfos Hydro MPC booster system ensures proper and constant water pressure at all times.*

## > Water Supply

Grundfos Hydro MPC boosters are ideal for mains water supply systems and for pressure boosting in multi-storey buildings. The needs for water in multi storey buildings vary a lot during the course of the day – this demands much from the equipment used. With a Grundfos booster system, it is easy to provide optimum user comfort by maintaining constant water pressure at all levels and at all times.

## > Industry

Industries can also benefit greatly from a booster solution from Grundfos. If you require constant pressure in the face of highly variable flows, Grundfos has the solution. Even the most demanding applications will benefit from the accuracy and advanced pump control in a Grundfos Hydro MPC booster.

## > Irrigation

A Grundfos Hydro MPC booster system can help conserve water and optimise crop yields by responding to pre-set minimum and maximum levels. Grundfos Hydro MPC is lenient on the pipe net in golf course irrigation systems and adapts the performance automatically to any number of sprinklers at any pressure zone during the irrigation cycle. It is benefits like these that make Grundfos the perfect choice for irrigation systems.

# The Multi Pump Control – MPC

## The brain of the system

The brain of the booster systems is the newly developed, highly advanced MPC control unit. Specially designed for the Grundfos booster systems, the MPC is uniquely easy to operate from installation to everyday surveillance.

The main task of the MPC unit is to control the number of pumps in operation, as well as the speed of the individual pumps, in order to adjust the performance of the system to variations in demand. The MPC controller is capable of controlling up to six pumps connected in parallel.

*The Hydro MPC control unit features an installation wizard, which guides the user through a series of dialogue boxes on the large graphic display.*

Step-by-step installation guide

9/15 - Water shortage monitoring device

Select what kind of water shortage monitoring device has been mounted and press the [ok] button to store.  
Then select "go to next page" and press the [ok] button.

See the wiring diagram for details about the terminals.

Go to next page →

Pressure transmitter at terminal no. 54 ☐

Pressure switch or float switch at terminal no. 12 ☐

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Grundfos has employed all its know-how and decades of experience within controls for pump systems to design the operation platform and control functions of the MPC control to suit a wide range of application types.

This way, we have developed a highly advanced control, which offers a wide range of features and functions to improve the performance of the booster system while maintaining a very user-friendly operator interface.

## Installation wizard – helps you get started

Correct installation and commissioning of any booster system is a prerequisite for attaining optimum performance of the system and trouble-free operation year in and year out.

Grundfos has made it simple and straightforward to put Hydro MPC into operation by creating an installation wizard. When using the installation wizard, the operator is guided





*The Hydro MPC control unit offers maximum user friendliness with a large graphic display and menu bar for easy navigation.*

through the various steps via a series of dialogue boxes on the large graphic display. This ensures that all settings are done in the correct sequence, and system performance – as well as required protection settings (e.g. water-shortage protection) – is set up step by step.

#### **Easy-to-operate user interface**

User friendliness was a top priority when developing the MPC control. In order to enable full exploitation of the advanced features and functions, which the MPC control offers, Grundfos has developed a user interface that offers a wide range of facilities while being intuitively simple to operate:

- > Large graphic display with overview of the system including key measuring points
- > Backlight display
- > Menu bar for easy navigation
- > System information and status

#### **> Control functions**

#### **> Cascade control**

#### **> Alternation**

#### **> Speed control**

#### **Data communication**

#### **– helps you monitor and control at a distance**

The Grundfos MPC control is prepared for different communication systems:

#### **> BUS communication**

#### **> Ethernet**

#### **> Grundfos GENI Bus for interface with other Grundfos products**

Via the Ethernet connection, the Grundfos Hydro MPC booster system can be operated from a remote computer where the operator will be able to view the control panel on the computer screen. This allows it to operate the booster system as easily as if the operator was standing in front of the real control panel.

Remote monitoring and data acquisition is also possible. Status on individual pump levels and system level, as well as operating conditions, settings, control mode, warnings and alarms can be read out from a remote computer.

#### **Log and statistics – makes optimisation possible**

In order to enable optimisation of the booster system, it is important to ensure that valid operation data are obtained and continuously logged. The Grundfos MPC control offers easy access to a wide range of operating data and statistics, such as:

- > System performance
- > Energy consumption
- > Alarm and warning log

# Reliability, efficiency and adaptability

Grundfos boosters are all about reliability, efficiency, and adaptability. Built to last, our boosters offer a wide range of user benefits that make them the obvious choice for any application:

## **Tried and tested**

At Grundfos there is no compromises when it comes to quality. We use only the best materials and state-of-the-art technologies, so that you may have every confidence in the finished product. All components as well as the finished products have been carefully tested before they leave the factory.

## **Efficiency you can rely on**

Constant pressure at all levels is a vital feature of any booster system whether installed in a multi-storey building or in an industrial application of any nature. The Grundfos booster

systems offer constant-pressure control with pipe-loss compensation and will handle all variations in the water consumption. Harmful peak pressures are avoided, which means less stress on the pipe net and reduced water loss in the distribution circuit as less water will be forced through leakages.

## **Adaptable to any need**

The Grundfos Hydro MPC boosters adapt to variations in demand at all level and at any time. Whether in residential buildings or in industrial applications, a Grundfos booster system is capable of maintaining the pre-set constant pressure level, or required water level or temperature. This prevents undesirable fluctuations and keeps energy consumption at the lowest possible level while reducing wear on pipes valves etc.

*The Grundfos Hydro MPC boosters offer constant-pressure control with efficient pipe-loss compensation.*



# Innovative technology

Only long-term savings are real savings. The Grundfos Hydro MPC booster systems are created with this in mind. They combine innovative technology, exact capacity adjustment, low maintenance and many other features to significantly reduce the total cost of owning a booster system.

## Pump technology for superior efficiency

At the heart of every Grundfos booster system you find a Grundfos CR or CRE pump. Decades of engineering experience have been applied to take the efficiency and reliability of these pumps to the highest level.

1



Loss of efficiency has been reduced to an absolute minimum in the impeller stack of the Grundfos CR pumps. This has been achieved for instance by applying a floating seal ring as a perfect seal between the individual chambers.

2



An enhanced impeller/chamber design ensures a more streamlined flow. Tiny margins determine the success of the final result, so Grundfos developed a highly specialised laser-welding technology in order to achieve the highest efficiency on the market for any multistage centrifugal pump

## Substantial savings on energy costs

On average, the Grundfos CR pump models offer more than 10% increase in pump efficiency compared to any other multi centrifugal pump on the market. This translates into a power reduction of 15-20% for every CR pump. When the pumps are in operation many hours a day, such improvements provide substantial savings on energy costs – year in and year out.

## Easy maintenance

The CR pumps used in the Grundfos Hydro MPC booster systems have many features, which make maintenance work easy and fast, thereby saving time and money. For example, the patented shaft seal is remarkably durable and can be replaced without use of special tools in a matter of minutes.

Similar care has gone into the design of the whole system in order to make our boosters easy to install and very service-friendly, all adding up to substantial savings over time.

## Unmatched reliability

*The Grundfos CR pumps are available in four different material versions: titanium, stainless steel AISI 316 or AISI 304, and an AISI 304/cast iron combination for the handling of various types of media.*



The Hydro MPC boosters are based on the renowned Grundfos CR range of multi-stage centrifugal pumps, which offers efficiencies that are 10% better on average than any other make. This superior efficiency has been achieved through a unique hydraulic design that incorporates laser-welded impellers.

In addition, the Grundfos CR pumps are fitted with the most reliable shaft seals, the most durable internal bearings, and the most advanced rotating assembly available on the market today.

### **Grundfos motor – a perfect match for your Grundfos Hydro MPC booster**

Grundfos makes its own motors to ensure maximum performance. The Grundfos MG motors are remarkably silent and highly efficient.

### **Quick-replaceable cartridge seal**

The CR pumps are fitted with a specially designed cartridge seal, which increases reliability and enables easy service and access. The cartridge shaft seal configuration comes in a wide choice of materials. It is available in flushed seal, double seal and magnetic drive configurations, and handles temperatures from -40°C to 180°C.

### **Choice of materials**

The CR is available in four different materials: titanium, stainless steel AISI 316, stainless steel AISI 304, and AISI 304/cast iron. This allows you to choose a solution that suits your individual requirements. Furthermore, the CR bearings are remarkably long-lived thanks to hardwearing materials and a wide range of options for difficult liquids.

But you don't have to worry about all the details. Rest assured that the sheer quality of the equipment and the sophisticated, yet easy-to-use MPC control will give you the pressure needed, year in and year out.



# Find what you need at Grundfos

Depending on how complex the actual situation is, you can choose from our made-to-stock range, mix components to create a customised solution, or have us create an entirely unique booster system almost from scratch.

The Grundfos Hydro MPC booster systems are available in a variety of configurations to ensure that there's a model available for every application. We have designed a range of booster systems to meet specific requirements. The end result is a product range with an unparalleled degree of flexibility.



*Standard or customised solution?  
Our skilled team of engineers would  
be more than happy to assist you.*

## **Pre-defined systems or customised solutions**

The pre-defined range comprises the most popular versions of our Grundfos Hydro MPC booster systems, every one exceptional in its own right.

However, Grundfos takes a unique mix-and-match approach to customised solutions. All the elements that make up a Grundfos booster system can be seen as modules that can be combined in countless ways to create the solution that is exactly right for the application at hand.

By combining number and type of pumps, motor size, shaft seal materials, pump materials, control features etc. it is possible to put together a booster system that fully matches the actual requirements of almost any application, no matter the circumstances.

In case of highly specific needs that cannot be met by our pre-defined range or customised solutions, which combine existing components, please let us know. Our skilled team of engineers would be more than happy to create a completely unique solution for you.

*The Grundfos CR pumps are equipped with a unique, easy-replaceable cartridge shaft seal, available in a wide choice of materials. Handles temperatures from -40°C to 180°C.*



# TECHNICAL INFORMATION

## Full-line supplier

Grundfos is a full-line supplier of pressure boosting systems for multiple purposes. Whether for building services or industry, Grundfos offers highly reliable systems that ensure sufficient supply and pressure at all levels.

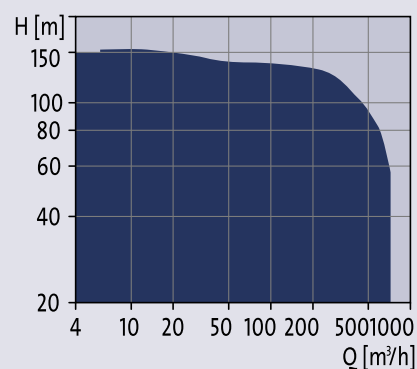
For commercial buildings or industrial applications, Grundfos recommends the Hydro MPC booster series available in six different models.

## Other booster families

In addition to the Hydro MPC range, Grundfos offers a range of other booster systems such as the Hydro Multi E series. Please contact Grundfos for further information and details on customisation and accessories.



## Performance overview



### Range

Flow, m³/h

Head, meter

Pump size, kW

Number of pumps

### Mechanical version

In-line piping

Stainless steel pumps

Stainless steel piping

Stainless steel base frame

### Control

Big graphical display VGA 240 x 320 pixels

Display with backlight

Installation wizard

Pump change over

Frequency converter in pump

Frequency converter in control cabinet

Redundancy on frequency converter

Bus communication

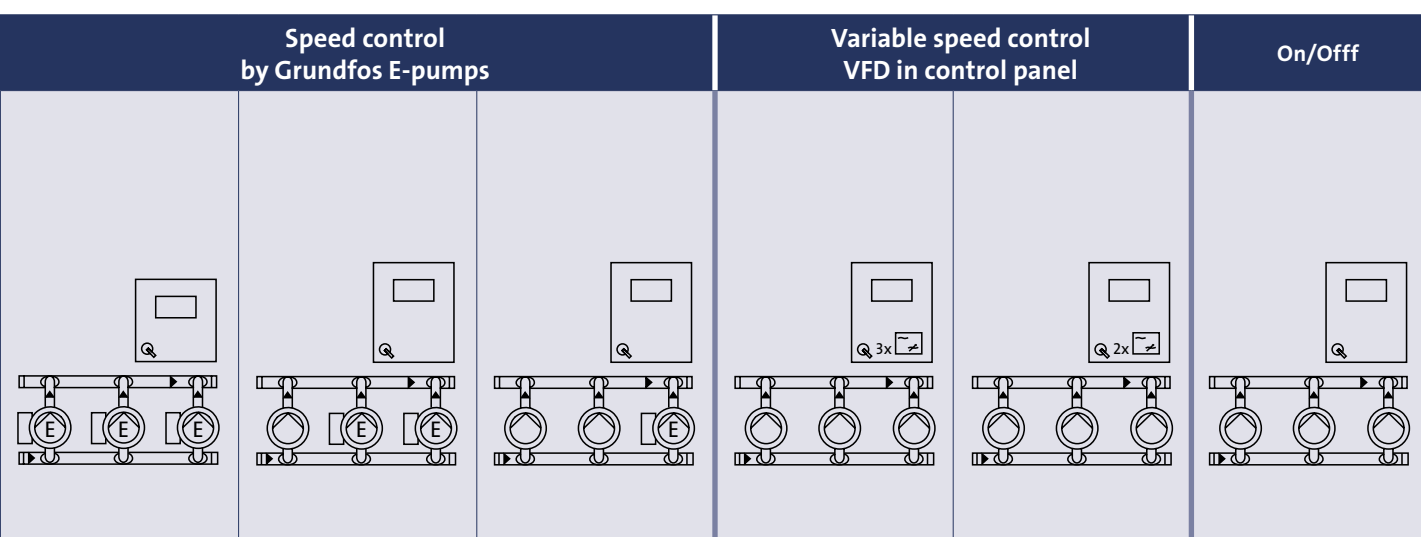
Ethernet connection

### Accessories

Diaphragm tank

Dry-running protection

### System type benefits



Hydro MPC-E	Hydro MPC-ED	Hydro MPC-ES	Hydro MPC-EF	Hydro MPC-EDF	Hydro MPC-S
720	720	720	720	720	720
150	150	150	150	150	150
0.55 - 22	0.55 - 22	0.55 - 22	1.5 - 30	1.5 - 30	1.5 - 30
2 - 6	2 - 6	2 - 6	2 - 6	2 - 6	2 - 6

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Constant pressure	Constant pressure	Constant pressure	Constant pressure	Constant pressure	Constant pressure with a band
All pumps variable speed	Two pumps variable speed	One pumps variable speed	All pumps variable speed	Two pumps variable speed	All pumps are fixed speed
Controlled ramp up on all pumps	Controlled ramp up on two pumps	Controlled ramp up on one pumps	Controlled ramp up on all pumps	Controlled ramp up on all pumps	
Notes: <sup>(1)</sup> On request for pumps bigger than CRIE 20			Notes: <sup>(1)</sup> On request for pumps bigger than CRI 20		

**General data:** Liquid temperature: 0°C - 70°C · Operating pressure: max. 16 bar

### **Grundfos boosters – in a class of their own**

Grundfos is one of the world's leading manufacturers of pumps and pump systems and was the first company ever to develop a multistage in-line centrifugal pump. The present-day CR pump series remains second to none in terms of efficiency, reliability and long-term operation costs.

These superior product features characterize the Grundfos range of Hydro boosters and contribute to making Grundfos boosters the unrivalled market leaders, whether for commercial building projects or industrial applications.

The Grundfos Hydro MPC boosters are fully integrated systems made to the very highest standards and thanks to the advanced MPC controller with the easy-to-operate user interface these boosters are capable of handling the most difficult jobs with ease and accuracy.