

Hydro MPC

*Integrated Pump Systems
and HVAC Applications*



be
think
innovate

GRUNDFOS 

Advantages of Packaged Systems

Grundfos integrated packaged pumping systems are factory-designed for optimized pumping and simplified installation. The advantages include:

- Single point responsibility
- Controls are optimized to application
- Better overall pumping efficiency
- Pretested at the factory as a complete pump system
- Implementing communication is easier and less costly
- Smaller footprint
- Less risk / liability
- Easy to install
- Lower installed cost

HVAC applications are demanding more in terms of control and energy sustainability. Grundfos Hydro MPC has a solution with optimized control to meet challenging HVAC applications. The available control modes are:

- Differential pressure
- Proportional differential pressure
- Constant temperature
- Differential temperature
- Constant flow rate
- Constant pressure
- Proportional pressure



Simplify your System

Comparison between Hydro MPC system and field built end suction pumps

PACKAGED HYDRO MPC 3-PUMP SYSTEM:

- One housekeeping pad, no grouting
- No suction diffusers or triple duty valves
- One set of expansion joints (optional)
- One electrical connection
- No shaft/coupling alignments, adjustments
- Integrated controls
- Pretested at factory as complete system

FIELD BUILT END SUCTION PUMPS:

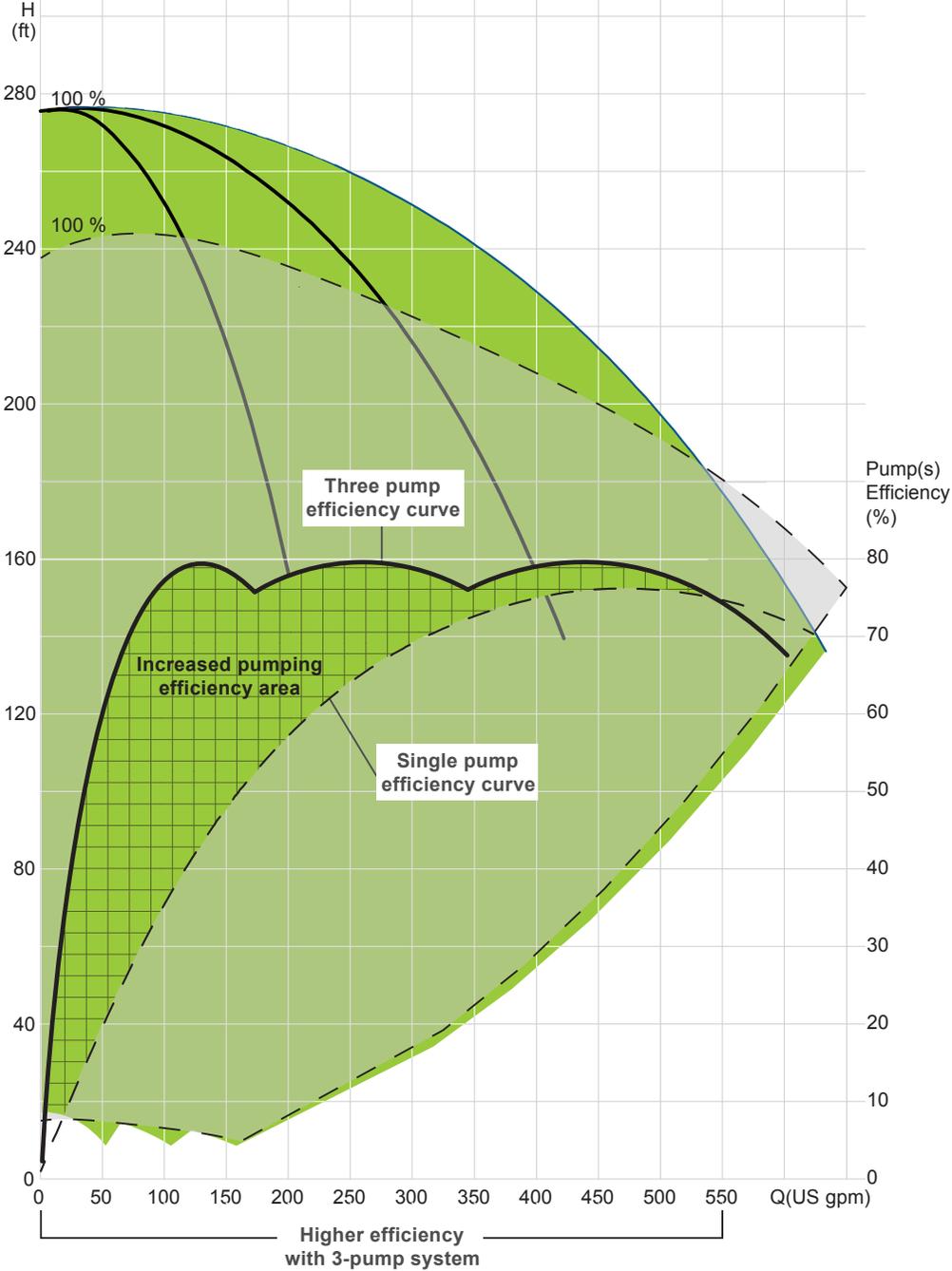
- Two housekeeping pads, grouting
- Two inertia basis
- Two suction diffusers, triple duty valves, isolation valves
- Two sets of expansion joints
- Two VFD's mount and install
- Two electrical connections (to VFD's and to pumps)
- Two laser alignments, adjustments
- Gauges / sensors / etc.
- Field built controls

Simplified!

COMMON ISSUES ASSOCIATED WITH FIELD BUILT PUMPING SYSTEMS:

- Coordination between responsible parties
- Control issues
- Compatibility
- Communication
- Cost of labor
- Space

Perfecting your energy responsibility throughout the entire flow range



Typically, the maximum designed flow is only required for a small percentage of time. High efficiency in part-load conditions is key to saving energy cost.

Expect increased efficiency through advanced controls

THE “BRAINS” OF THE SYSTEM

The highly advanced MPC control unit is the “brain” behind our Hydro MPC systems. Specially designed for control of parallel connected pumps, the MPC is easy to operate and monitor.

Grundfos has used its experience with pump system controls to design the operation platform and control functions of the MPC to suit a wide range of application types.

The result is a highly advanced control system that offers multiple features and functions that can be used to improve the performance of the pump system while maintaining a user-friendly operator interface.

OPTIMAL NUMBER OF PUMPS RUNNING

The method of evaluating the number of pumps that should be running is unique in the Hydro MPC. The pump curve data loaded into the controller ensures that the system can determine an estimated flow rate very precisely. The curves also make it possible to calculate the optimal start speed of the pumps. It can therefore stop or start an extra pump, while being as energy effective as possible while maintaining energy efficiency.

PROPORTIONAL PRESSURE FUNCTION

The proportional pressure function gives the Hydro MPC the ability to increase setpoint pressure at higher flow rates and reduce the setpoint at lower flow rates. The pump curve data loaded into the controller gives the controller the ability to continuously estimate the flow rate so no flow meter is required for the proportional pressure function.

PUMP OUTSIDE DUTY RANGE

Pump curve data loaded into the controller makes it possible to determine the location of the pumps on the curve. This function issues a warning if the duty point of the pumps moves out of the defined range. The warning is given with a set time delay. It is possible to choose whether the warning is to be reset automatically or manually when the duty point comes within

the defined duty range. It is also possible to set a relay output to be activated when the warning is given, and deactivated when the warning is reset.

DATA COMMUNICATION

The MPC is set up for various communication systems to help you monitor and control the unit from a distance.

- Ethernet via built-in web server
- Bacnet, Lon, Modbus, Profibus

LOG AND STATISTICS

For full optimization of the pump system, it's important to ensure that valid operation data is obtained and continuously logged. The Grundfos MPC control offers easy access to a wide range of operating data and statistics, such as:

- Built-in logging capability
- System performance
- Energy consumption
- Alarm and warning log



Advanced control in packaged systems

The ability to monitor or even control the pump system remotely is an important feature in many applications. The MPC's digital input and output capability can be expanded to meet many requirements. The available SCADA bus protocols for integrating the controls into a building management system include the following options:

- Profibus
- Modbus
- LON
- BACnet
- GSM

USER-FRIENDLY INTERFACE

- Large, backlit graphic display screen with overview of the system, including key measuring points
- Menu bar for easy navigation
- System information and status
- Control functions
- Cascade control
- Alternation
- Speed control
- Help function for each screen

ETHERNET CONNECTION

As standard, the MPC comes with Ethernet connection possibility. The Ethernet solution lets you easily import

the pump system interface to your PC screen, either by connecting it directly or by defining an IP address for the Hydro MPC and logging on via the internet.

REDUNDANT SENSORS

In order to increase reliability, a backup primary sensor can be connected as a redundant sensor. With the redundant sensor installed, the CU352 monitors both sensors, and in case of dissimilarity between the outputs of the sensors, the CU352 displays a warning. If a fault is registered on a sensor (i.e. the sensor output is out of range) the CU352 automatically switches to the other sensor.

INSTALLATION WIZARD GETS YOU STARTED

Grundfos created an installation wizard to make it simple and straightforward to operate the Hydro MPC. The installation wizard guides the operator through a sequence of instructions to ensure that all settings are made in the correct order and that system performance, as well as required protection settings (e.g. water-shortage protection), are set up step by step. Correct installation and commissioning of any pump system is a prerequisite for attaining optimum performance of the system and trouble-free operation.



Expect reliability, maintainability and adaptability

Grundfos pump systems represent reliability, efficiency, and adaptability. Our pump systems are the obvious choice for any application: they're built to last and feature a wide range of user benefits.

TESTED FOR DEPENDABILITY

At Grundfos, there are no compromises when it comes to quality. We use only the best materials and state-of-the-art technologies, so you can have confidence in the finished product. Each pump as well as the final system configuration have been carefully inspected and tested before leaving the factory.

SERVICE ABILITY

The Grundfos CR multistage pump is by far one of the most service friendly pumps on the market. The high-quality cartridge mechanical seal minimizes downtime for repairs and if the seal needs replacing it can be done in matter of minutes.

FULLY ADAPTABLE TO YOUR APPLICATION

Grundfos Hydro MPC systems adapt to variations in demand at all levels and at any time. Whether in commercial buildings or in industrial applications, a Grundfos pump system is capable of maintaining pre-set control parameter. This capability prevents undesirable fluctuations and keeps energy consumption at the lowest level possible while reducing wear and tear on pipes and valves.



Grundfos CR pumps are equipped with a unique, easy-to-replace cartridge shaft seal that's available in a choice of materials. It can handle temperatures from -40°F to 250°F.

Hydro MPC

Complete integrated pumping systems

Data

Flow, Q (4 pumps): Max. 2540 gpm
Flow, Q (6 pumps): Max. 3800 gpm
Head, H: Max. 500 ft
Liquid temp.: Max. 250°F
Working press.: Max. 232 psi

Main applications

- Water supply
- Irrigation
- Municipal
- HVAC
- Industrial plants

COMMITTED TO EXCELLENCE IN PUMPING

Grundfos is one of the world's leading manufacturers of pumps and pumping systems and was the first company ever to develop a multistage in-line centrifugal pump. The current 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 MPC systems and contribute to making Grundfos pump systems the unrivaled market leaders, whether for commercial building projects or industrial applications.

Grundfos Hydro MPC systems are fully integrated systems made to the very highest standards. The advanced MPC controller features a user-friendly interface, making these pump systems capable of handling the most difficult jobs with ease and accuracy.

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