

# INTELLIGENT WATER BOOSTING MADE SMARTER

GRUNDFOS iSOLUTIONS



be  
think  
innovate

GRUNDFOS 

# INTELLIGENT WATER BOOSTING MADE SMARTER

Water boosting is about providing constant pressure in any given application and at the same time ensure low energy consumption. Grundfos booster systems have unique functionalities improving overall energy efficiency and comfort.

So, whether you are looking for a system for light commercial, large commercial or industrial solutions; Grundfos booster systems can help optimize system performance as an integrated part of the communication suite in commercial buildings or industries.

- Designed to maximise efficiency
- Intelligent system control and insights into your system
- World-class hygienic design
- Standard plug-and-play or custom-built solutions

## Plug & Pump

Fit for purpose, constant pressure range, quick installation and set-up. Connectible with needed functionalities.



### SCALA2



Max Flow:  
**3.6 m³/h**  
Max Head:  
**43 m**

### CMBE



Max Flow:  
**20 m³/h**  
Max Head:  
**100.3 m**

### Hydro Solo-E



Max Flow:  
**71 m³/h**  
Max Head:  
**95 m/155 m**

### Hydro Multi-E CME



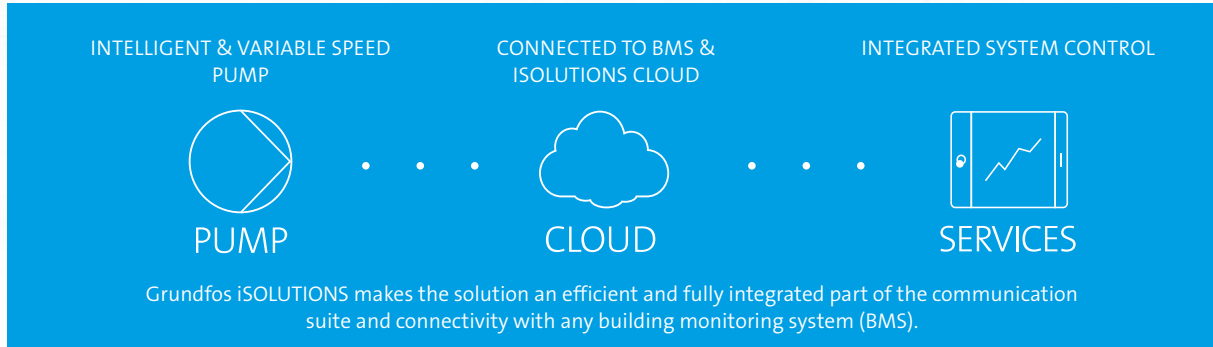
Max Flow:  
**80 m³/h**  
Max Head:  
**150 m**

### Hydro Multi-E CRE



Max Flow:  
**140 m³/h**  
Max Head:  
**155 m**

# GRUNDFOS iSOLUTIONS – SMARTER BOOSTER SYSTEMS



## REDUCED ENERGY CONSUMPTION

Grundfos boosters are designed to maximise efficiency. The systems automatically match the customers' water demand profile through the intelligent use of pump curves and cascade functions. The system will find the best efficiency point despite varying daytime and night time demand profiles.

The proportional pressure functions which optimise energy efficiency to the utmost, are a result of Grundfos engineers many years of experience in developing pump solutions.

## Application Optimized

Premium range, intuitive set-up and control features for demanding applications. Can be customized to fit specific needs.



### Hydro MPC



Max Flow:  
**1080 m<sup>3</sup>/h**  
Max Head:  
**155 m**

### Hydro MPC



Max Flow:  
**1380 m<sup>3</sup>/h**  
Max Head:  
**155 m**

### Custom built solutions



Max Flow:  
**>1380 m<sup>3</sup>/h**  
Max Head:  
**+250 m**



# HYDRO MPC

## SUPERB PRESSURE CONTROL – OPTIMAL ENERGY EFFICIENCY

### THE PREMIUM CHOICE FOR ANY JOB

The Hydro MPC is Grundfos' premium product in the Hydro Booster portfolio. A long list of special features makes it able to handle the operational challenges of any water boosting application. Its easy BMS integration makes it the preferred choice for complex systems and highly technological buildings.

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# HYDRO MPC IN MORE DETAIL



### High efficiency IE5 Motors

All motors used within the range come with an IE5 rating, the highest energy-efficiency level for electrical motors delivering up to 11 kW.



### Extra protection: Detection of defect non-return valve

Each pump outlet is equipped with a non-return valve (NRV) to avoid backflow when the pump is not running. If the pump is forced backwards due to a defect NRV, the controller will give a warning/alarm.



### Energy optimization with multi sensor

Optimized system performance by utilizing a secondary fall-back sensor, that enable the system perform with proportional pressure, regulation at the critical pressure point.

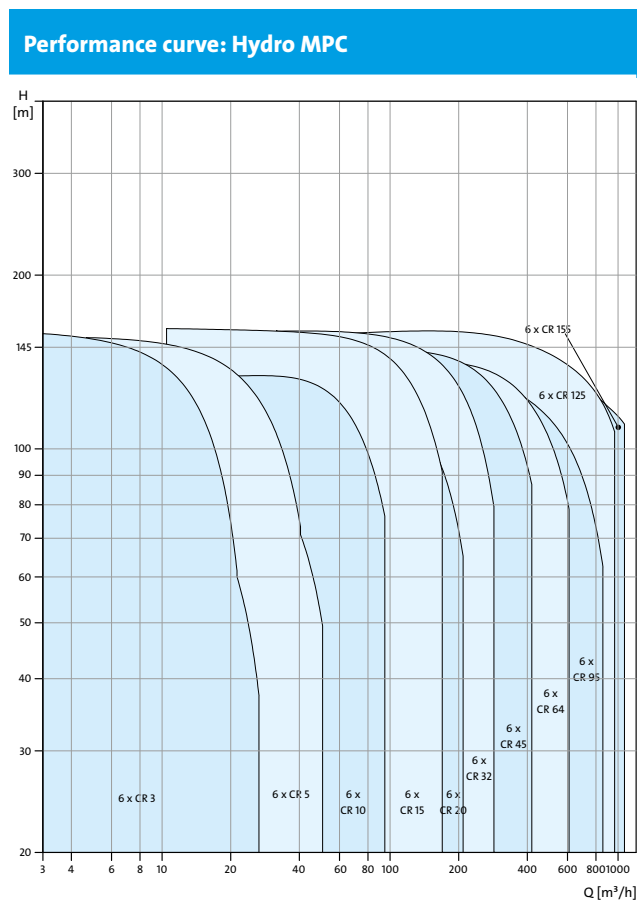


### Extended CR booster range

The CR range is updated and extended - CR95 to CR155 improving efficiency and NPSH.

General information	
Product range	2-6 pumps
Flow range	0-1080 m <sup>3</sup> /h
Pressure range	PN16
Max power	6 x 55 kW
Liquid temp.	0-60°C
Ambient temp.	0-40°C

Material information	
Manifold + base frame Stainless steel EN/DIN 1.4301/AISI 304	CRI, CRIE 3 to 20 CR, CRE 32 to CR155
Pump: Stainless steel EN/DIN 1.4301/AISI 304	CRI, CRIE 3 to 20
Pump: Cast iron (Wetted parts are Stainless steel)	CR, CRE 32 to CR155



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# HYDRO MULTI-B

RELIABLE BOOSTING SYSTEM  
WITH USER-FRIENDLY  
INTERFACE

## USER-FRIENDLY, BASIC BOOSTING SOLUTION

The Hydro Multi-B is a simple and easy-to-use booster solution. The user-friendly control unit has the basic functionalities needed and together with the tank filling function, the Hydro Multi-B is a strong and reliable choice from the hydro booster product range.

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# HYDRO MULTI-B IN MORE DETAIL



### High efficiency IE5 Motors

All motors used within the range comes with IE5 rating, the highest energy efficiency level for electrical motors.



### Dry run protection

A safety feature will stop the system if it runs dry. It can easily be set up to react to a digital input via e.g. a pressure switch or an inlet pressure measurement.



### Standby pumps

It is possible to configure a number of standby pumps. The pumps will still alternate automatically to ensure that all pumps run eventually and no pumps seize up.



### Maximum pressure alarm

A dedicated function monitors the discharge pressure and gives a warning/alarm if a defined limit is exceeded.

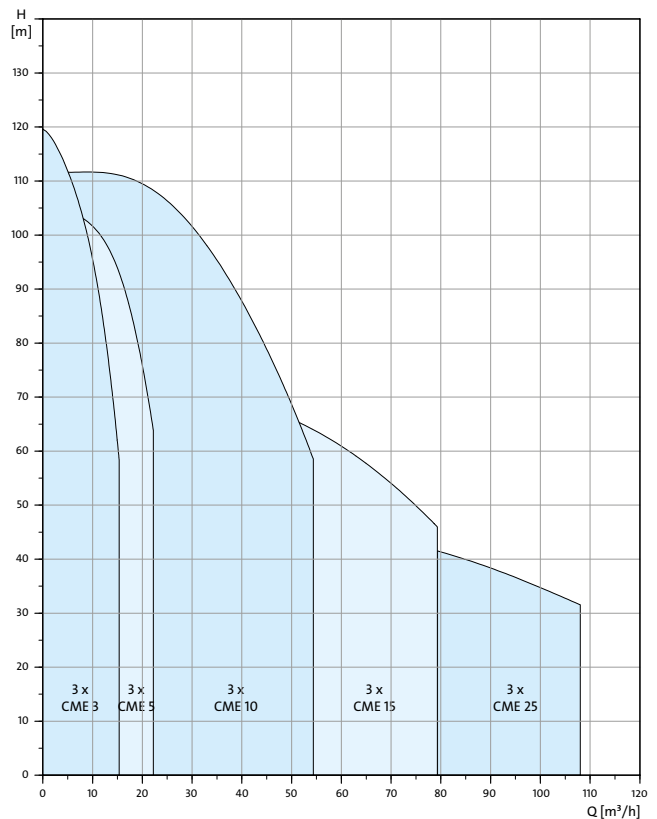
General information	
Product range	2-3 pumps
Flow range	0-108 m <sup>3</sup> /h
Pressure range	PN10 & PN16
Max power	3 x 7,5kW
Liquid temp.	0-60°C
Ambient temp.	0-40°C

Material information	
Manifold + base frame: Stainless steel EN/DIN 1.4301/AISI 304*	CME-I 3 to 25
Pump: Stainless steel EN/DIN 1.4301/AISI 304**	CME-I 3 to 25

\*Galvanized steel is optional

\*\* Cast iron pump is optional

### Performance curve: HYDRO MULTI-B



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# HYDRO MULTI-E

COMPACT SOLUTION WITH SYSTEM CONTROL REDUNDANCY

## PUMPS WITH BUILT-IN CONTROLS PROVIDE FULL REDUNDANCY

Unique to the Hydro Multi-E is its lack of a conventional control unit. In this intelligent solution, the control of the system lies within the pumps, which are able to communicate with each other. Since each pump can function as the controlling unit, there is full redundancy if a sensor or pump should fail. Together with Grundfos GO, the Multi-E presents a highly reliable and versatile booster solution.

## GRUNDFOS iSOLUTIONS



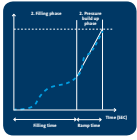


# HYDRO MULTI-E IN MORE DETAIL



### High efficiency IE5 Motors

All motors used within the range comes with IE5 rating, the highest energy efficiency level for electrical motors.



### No water hammer

Slow pipe filling is a feature used to slowly fill up e.g. an empty riser pipe in a high-rise building to avoid water hammering.



### Multi-master control

Multi-master and redundant sensor, will enable the system to operate disregarding which pump is the controlling pump, with seamless switch over in case a faulty sensor or pump.



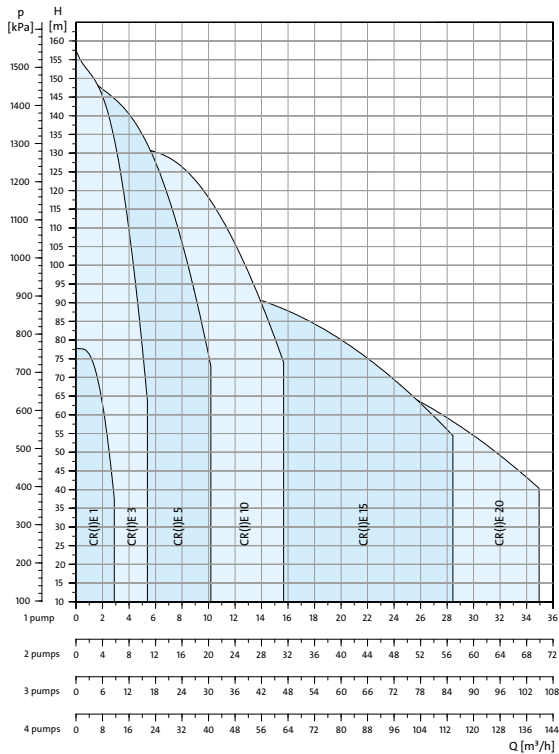
### The full overview with Grundfos GO

Need operation information such as operating hours, power consumption and energy consumption? With Grundfos GO every system operation detail is only one click away.

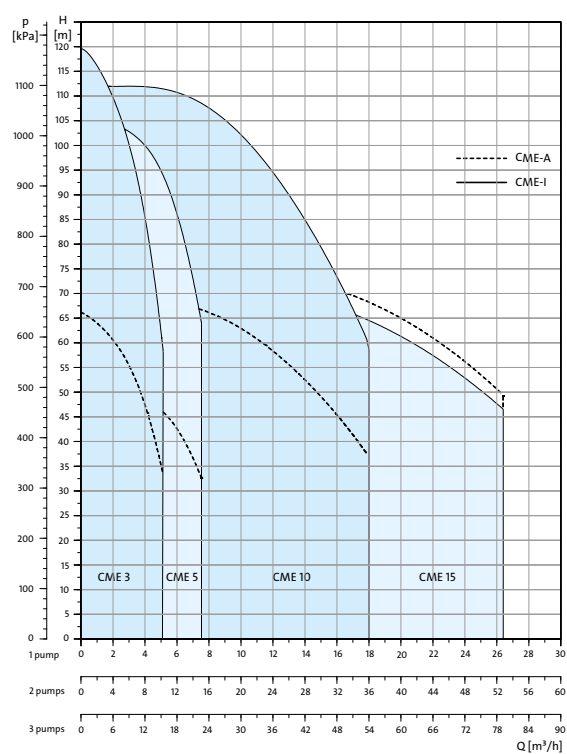
General information	
Product range	2-4 pumps
Flow range	0-140m <sup>3</sup> /h - CRE & CRIE 0-80m <sup>3</sup> /h - CME
Pressure range	PN10 & PN16
Max power	4 x 11kW
Liquid temp.	0-60°C
Ambient temp.	0-50°C

Material information	
Manifold + base frame: Stainless steel EN/DIN 1.4301/AISI 304	CRE, CRIE 3 to 20 CME-I 3 to 15
Manifold + base frame Galvanized steel EN/DIN 1.4301/AISI 304	CME-A
Pump: Stainless steel EN/DIN 1.4301/AISI 304	CRIE & CME-I
Pump: Cast iron (Wetted parts are Stainless steel)	CRE & CME-A

## Performance curve: HYDRO MULTI-E, CRE/CRIE



## Performance curve: HYDRO MULTI-E, CME



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# HYDRO SOLO-E

## THE COMPACT PLUG-AND-PUMP SOLUTION

### COMPACT, EFFICIENT AND READY TO GO

The Hydro Solo-E booster set is a turnkey solution that efficiently keeps a constant pressure in your system at all times. The compact solution comes with our most efficient motor – the IE4, which guarantees maximum efficiency at the lowest possible energy cost.

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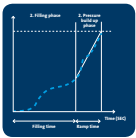


# HYDRO SOLO-E IN MORE DETAIL



### High efficiency IE5 Motors

All motors used within the range comes with IE5 rating, the highest energy efficiency level for electrical motors.



### No water hammer

Slow pipe filling is a feature used to slowly fill up e.g. an empty riser pipe in a high-rise building to avoid water hammering.



### Alarm for limit exceed

The limit-exceeded function monitors a variety of different analogue input signals, and gives a warning or alarm if e.g. the discharge pressure exceeds an end-user defined limit.



### The full overview with Grundfos GO

Need operation information such as operating hours, power consumption and energy consumption? With Grundfos GO every system operation detail is only one click away.

## General information

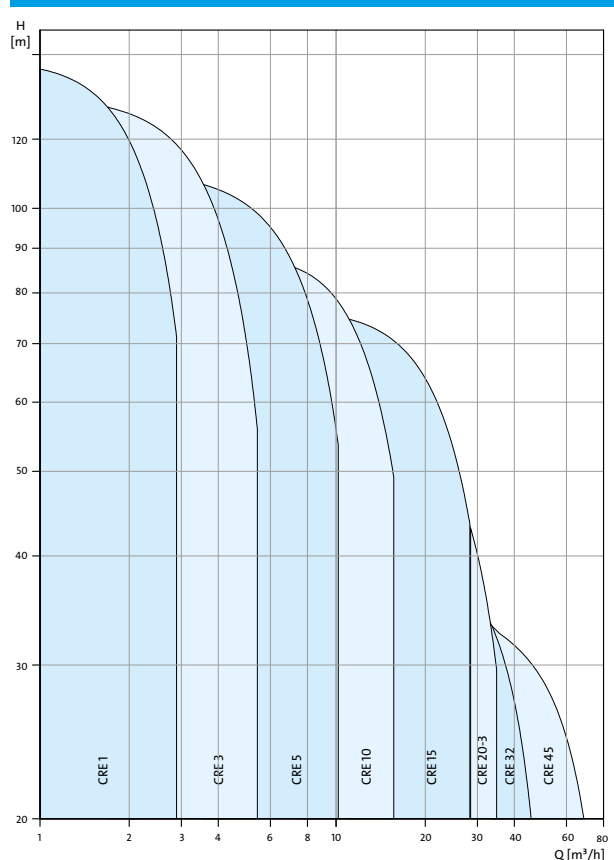
Product range	1 pump
Flow range	0-71 m <sup>3</sup> /h
Pressure range	PN10 & PN16
Max power	11kW
Liquid temp.	0-60°C
Ambient temp.	0-50°C

## Material information

Manifold + base frame*: Stainless steel EN/DIN 1.4301/AISI 304	CRIE 1 to 20 CRE 32 to 45
Pump: Stainless steel EN/DIN 1.4301/AISI 304	CRIE 1 to 20
Pump: Cast iron (Wetted parts are Stainless steel)	CRE 32 to 45

\*Base frame is optional

## Performance curve: HYDRO SOLO-E



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# CMBE BOOSTER

## COMPACT AND ENERGY EFFICIENT BOOSTER

### THE SAFE CHOICE FOR CONSTANT PRESSURE

The Grundfos CMBE Booster is a compact booster system for water supply in domestic and commercial applications. The integrated speed controller enables the CMBE Booster to keep constant pressure in the pipe system. CMBE TWIN offers dual pump system to run in duty/stand by or duty/assist operation.

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# CMBE BOOSTER IN MORE DETAIL



### Constant pressure

The integrated speed controller keeps a constant pressure in the pipe system.



### Dry-running protection

Dry-running protection is very important as dry running may damage the bearings and shaft seals.



### Easy installation

The booster is easy to install. When the booster has been connected to the pipes, it is a matter of plugging the plug.



### Cascade control

With CMBE TWIN cascade control ensures the performance of the booster system is automatically adapted to the consumption by switching pumps on or off.



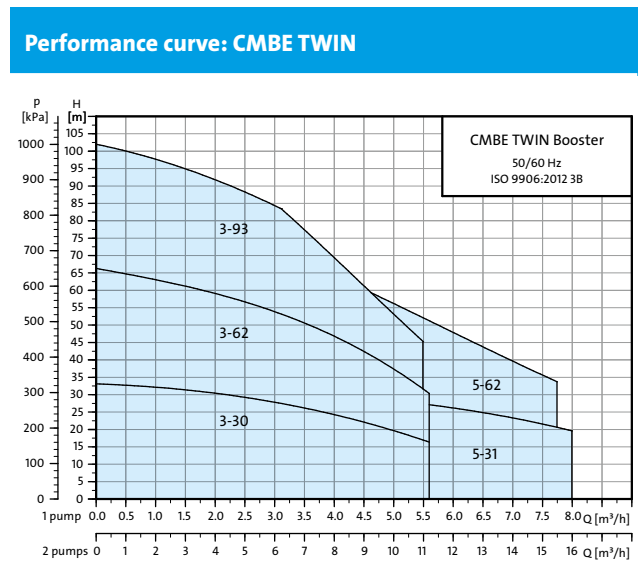
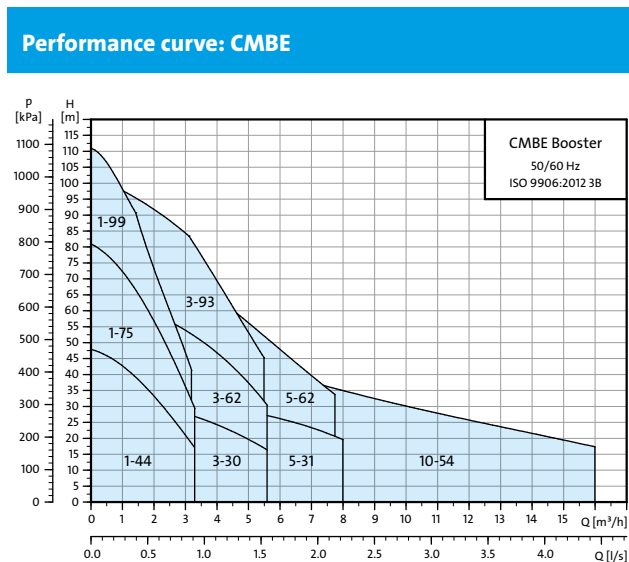
### Pump Alternation

CMBE TWIN incorporates pump alternation to enable equal distribution on the pump operating hours over time.

General information	
Product range	1-2 pumps
Flow range	0-20 m <sup>3</sup> /h
Pressure range	PN10
Max power	2 x 1.7 kW
Liquid temp.	0-60°C
Ambient temp.	0-55°C

Material information	
Pump housing	Stainless steel EN/ DIN 1.4301/AISI 304
Manifold*	Stainless steel EN/ DIN 1.4301/AISI 304
Base frame	Stainless steel EN/ DIN 1.4301/AISI 304

\*Manifold is available as accessory



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# PRODUCT FEATURES AND FUNCTIONS

## BOOSTING SYSTEMS FOR ANY APPLICATION NEEDS

Grundfos has a wide range of products that comes with different features and functions.

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X1 = Only available on selected products

x = Yes

÷ = No



Functionality	Hydro MPC	Control MPC	MULTI-E	MULTI-B	SOLO-E	CMBE
<b>Booster variant</b>						
Number of pumps	2-6	2-6	2-4	2-4	1	1-2
Pump type	All	All	CRE, CRIE, CME	CR, CRM, CRE, CME	CRE, CRIE	CME
Motor power, integrated e-pump	0.37 - 22 kW	0.37 - 22 kW	0.37 - 11 kW	0.55 - 7.5 kW	0.37 - 11 kW	0.55 - 1.72 kW
Motor power, external CUE (-EC system)	0.55 - 55 kW	0.55 - 55 kW	÷	÷	÷	÷
Motor power, external CUE (-F system)	0.55 - 55 kW	0.55 - 55 kW	÷	÷	÷	÷
Motor power, external VFD	0.55 - 250 kW	0.55 - 250 kW	÷	÷	÷	÷
Max head	155 m	155 m	153 m	146 m	146 m	100.3 m
Max flow	1080 m <sup>3</sup> /h	1380 m <sup>3</sup> /h	140 m <sup>3</sup> /h	108 m <sup>3</sup> /h	139 m <sup>3</sup> /h	20 m <sup>3</sup> /h
Type of display	High regulation color display	High regulation color display	Numeric display with touch foil	Numeric display with touch foil	Numeric display with touch foil	Numeric display with touch foil
<b>Communication/integration BMS/SCADA via Grundfos CIM or CIU modules</b>						
Common protocols	x	x	x	(x)	x	(x)
GSM/GPRS (SCADA enabled)	x	x	x	x	x	x
<b>Functions</b>						
<b>Control functions</b>						
Pressure control	x	x	x	x	x	x
Flow control	x	x	÷	÷	0	÷
Differential pressure control	x	x	÷	÷	X1	÷
Temperature control	x	x	÷	÷	0	÷
<b>Cascade control functions for high efficiency &amp; comfort</b>						
Constant pressure, through variable speed of the pumps	x	x	x	x	x	x
Automatic cascade control, constantly adapts no. of pumps to flow demand	x	x	x	x	÷	x
Multi-master function	÷	÷	x	÷	÷	x
Min. time between start/stop, prevents constantly start/stop at low flow	x	x	x	x	÷	x
Standby pump (duty operation), one pump acts as a backup for the system	x	x	x	x	x	x
Pump test run, prevents pump damage at stop situations	x	x	÷	÷	x	÷
Pump stop attempt, system attempt to run most efficient	x	x	x	x	÷	x
Pilot pump, pump that takes over in low flow situations	x	x	÷	÷	÷	÷
Setpoints – (*Alternative/Ramp/*External)	x	x	x (*)	÷	x	÷

X1 = Only available on selected products

x = Yes

÷ = No



Functions	Hydro MPC	Control MPC	MULTI-E	MULTI-B	SOLO-E	CMBE
<b>Functions that optimize and gives more energy savings</b>						
Proportional pressure	x	x	÷	x	x	x
Pump curve data in controller	x	x	÷	÷	X1	÷
Clock program	x	x	÷	÷	÷	÷
Flow estimation	x	x	÷	÷	X1	÷
<b>Other control functions</b>						
Tank filling, with pressure sensor/level switch	÷	÷	÷	x	÷	x
Reduced operation, in case of emergency power run	x	x	÷	÷	÷	÷
Fixed inlet pressure, if no inlet pressure sensor available	x	x	÷	÷	÷	÷
<b>System and pipe protection</b>						
Dry running protection/water shortage, and inlet pressure measurement	x	x	x	x	x	x
Pressure monitoring min./max.	x	x	÷	÷	x	÷
Stop function, low flow stop protection/hysteresis on min. flow	x	x	x	x	x	x
Non-return valve, NRV fault detection	x	x	÷	÷	÷	÷
Pump outside duty range, alarm only	x	x	÷	÷	X1	÷
Pressure relief, control of release valve	x	x	÷	÷	÷	÷
Fault, primary sensor	x	x	x	x	x	x
Soft pressure buildup	x	x	x	÷	x	x
Emergency run, set-up and function	x	x	÷	÷	÷	÷
Min. performance, ensures circulation at low consumption	x	x	÷	÷	÷	÷
<b>Log values, selectable values</b>						
Estimated flow rate, with no flowmeter	x	x	÷	÷	X1	÷
Pump speed/setpoint/process value etc.	x	x	÷	÷	x	÷
Fault log	x	x	x	x	x	x
Log graph on controller display	x	x	÷	÷	÷	÷
<b>Measured values</b>						
Power/energy/specific energy consumption, only e-systems	x	x	x	÷	x	÷
Volume	x	x	x	÷	x	÷
Accumulated flow with pulse meter reading	x	x	x	÷	x	÷
<b>Alerts</b>						
Actual alarms/warnings	x	x	x	x	x	x
Reset of alarms or warnings	x	x	x	x	x	x
Alarm/warning log, last 24 alerts	24 alerts	24 alerts	5 alerts	x	5 alerts	x
<b>Remote control</b>						
GRM/iSOLUTIONS cloud	x	x	x	x	x	x
VNC ethernet, remote controller and monitoring	x	x	÷	÷	÷	÷
Grundfos GO, app	÷	÷	x	÷	x	x
<b>Sensor function</b>						
Redundant primary sensor	x	x	x	x	x	x
Secondary sensor, fall back sensor	x	x	÷	÷	x	x
Multi sensor, HVAC applications	x	x	÷	÷	÷	÷
<b>Other</b>						
Service contact info	x	x	÷	÷	÷	÷
Access lock with password/access with key lock*	x	x	x*	x*	X1	x*
Wizard for start-up/assist*	x	x	x*	÷	X1	÷
<b>Input/output</b>						
Digital input	3	3	2	2	2	2
Digital input/output	÷	÷	2	2	2	2
Analog input	3	3	3 per pump	2	1	2
Analog output			1 per pump	÷	1	÷
Relay output	2	2	2 per pump	÷	1	÷
Extension of input/output	IO 351 B	IO 351 B	÷	÷	÷	÷
CIM modules	x	x	x	x	x	x



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