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Hydro MPC

Booster systems with 2 to 6 pumps
50 Hz



Contents

Introduction

Benefits	3
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Product data

Performance range	5
Product range	6
Type key	7
Operating conditions	7

Construction

Pump	8
Shaft seal	8
Motor	8
Manifold	9
Control cabinet	9
CU 351	10
IO 351	10
Base frame	10
System components	10
Flange dimensions	10

Functions

Overview of control variants	11
CU 351 control panel	12
Overview of functions	14
Description of selected functions	15

Installation

Mechanical installation	21
Electrical installation	22

Sizing

Sizing	23
Understanding the curve charts	29
Example: How to select a system	30

Curve conditions

How to read the curve charts	31
------------------------------	----

Curve charts

Hydro MPC with CRI(E) 3	32
Hydro MPC with CRI(E) 5	33
Hydro MPC with CRI(E) 10	34
Hydro MPC with CRI(E) 15	35
Hydro MPC with CRI(E) 20	36
Hydro MPC with CR(E) 32	37
Hydro MPC with CR(E) 45	38
Hydro MPC with CR(E) 64	39
Hydro MPC with CR(E) 90	40
Hydro MPC with CR(E) 120	41
Hydro MPC with CR(E) 150	42

Technical data

Hydro MPC with CRI(E) 3 / CRI(E) 5	43
Hydro MPC with CRI(E) 10	47
Hydro MPC with CRI(E) 15 / CRI(E) 20	51
Hydro MPC with CR(E) 32	57
Hydro MPC with CR(E) 45 / CR(E) 64	60
Hydro MPC with CR(E) 90	66
Hydro MPC with CR(E) 120 / CR(E) 150	70

Optional equipment

Diaphragm tank	74
Redundant primary sensor	74
Dry-running protection	75
Pilot pump	75
Bypass connection	75
Position of non-return valve	76
Stainless steel non-return valve	76
Emergency operation switch	76
Repair switch	76
Isolating switch	76
Main switch with switching off of the neutral conductor	77
Operation light, system	77
Operation light, pump	77
Fault light, system	77
Fault light, pump	78
Panel light and socket	78
IO 351B interface	78
Ethernet	78
GENIbus module	79
CIU communication interface	79
Transient voltage protection	79
Lightning protection	79
Phase failure monitoring	79
Beacon	79
Audible alarm	79
Voltmeter	80
Ammeter	80

Accessories

Dry-running protection	81
Diaphragm tank	81
Foot valve	82
Machine shoe	82
Extra documentation	82

Alternative booster systems

Alternative booster systems	83
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Further product documentation

WebCAPS	84
WinCAPS	85

Grundfos Hydro MPC booster systems are designed for transfer and pressure boosting of clean water in places such as these:

- waterworks
- blocks of flats
- hotels
- industry
- hospitals
- schools.

As standard, Hydro MPC booster systems consist of two to six identical CR(I)E/CR(E) pumps connected in parallel and mounted on a common base frame provided with a control cabinet and all the necessary fittings.

Most of the booster systems are available with either CR(I) pumps and/or CR(I)E pumps. For further information, see page 9.

The pumps of the booster system can be removed without interfering with the pipework on either side of the manifolds.

Hydro MPC booster systems come in three control variants. For further information, see Product range on page 6 and Overview of control variants on page 11.

Hydro MPC-E

Booster systems with two to six identical electronically speed-controlled pumps. Pipework connection from R 2 to DN 350.

From 0.37 to 22 kW, Hydro MPC-E is fitted with CR(I)E pumps with integrated frequency converter.

As from 30 kW, Hydro MPC-E is fitted with CR pumps connected to external Grundfos CUE frequency converters (one per pump).

Hydro MPC-F

Booster systems with two to six identical CR(I) pumps connected to one external Grundfos CUE frequency converter. The speed-controlled operation alternates between the pumps of the booster system. Pipework connection from R 2 to DN 350 and motor sizes from 0.55 to 55 kW.

Hydro MPC-S

Booster systems fitted with two to six identical mains-operated CR(I) pumps, pipework connection from R 2 to DN 350 and motor sizes from 0.37 to 55 kW.

Benefits

Perfect constant-pressure control



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Fig. 1 CU 351

The pumps of the Hydro MPC booster system are controlled individually by the CU 351 multi-pump control unit which contains application-optimised software and pump curve data. The CU 351 thus knows the exact hydraulic and electrical data of the pumps to be controlled.

User-friendliness

Hydro MPC features a built-in start-up wizard in a wide range of local languages that guides the installer through a series of steps until the booster system is correctly installed and commissioned. When the installation is complete, the simple, user-friendly interface makes sure that day-to-day operation is equally easy.

Reliability



TM04 4568 1709

Fig. 2 Grundfos CR pumps

Hydro MPC is built on the highly renowned Grundfos CR pump range. CR pumps are known for their reliability, efficiency and adaptability.

Every vital piece of the Hydro MPC is Grundfos made. You are thus guaranteed long-lasting technology that requires a minimum of maintenance and provides a maximum of efficiency.

Low energy consumption

Hydro MPC booster systems come with EFF1 motors as standard. EFF1 motors are known for their high efficiency and their low noise level.



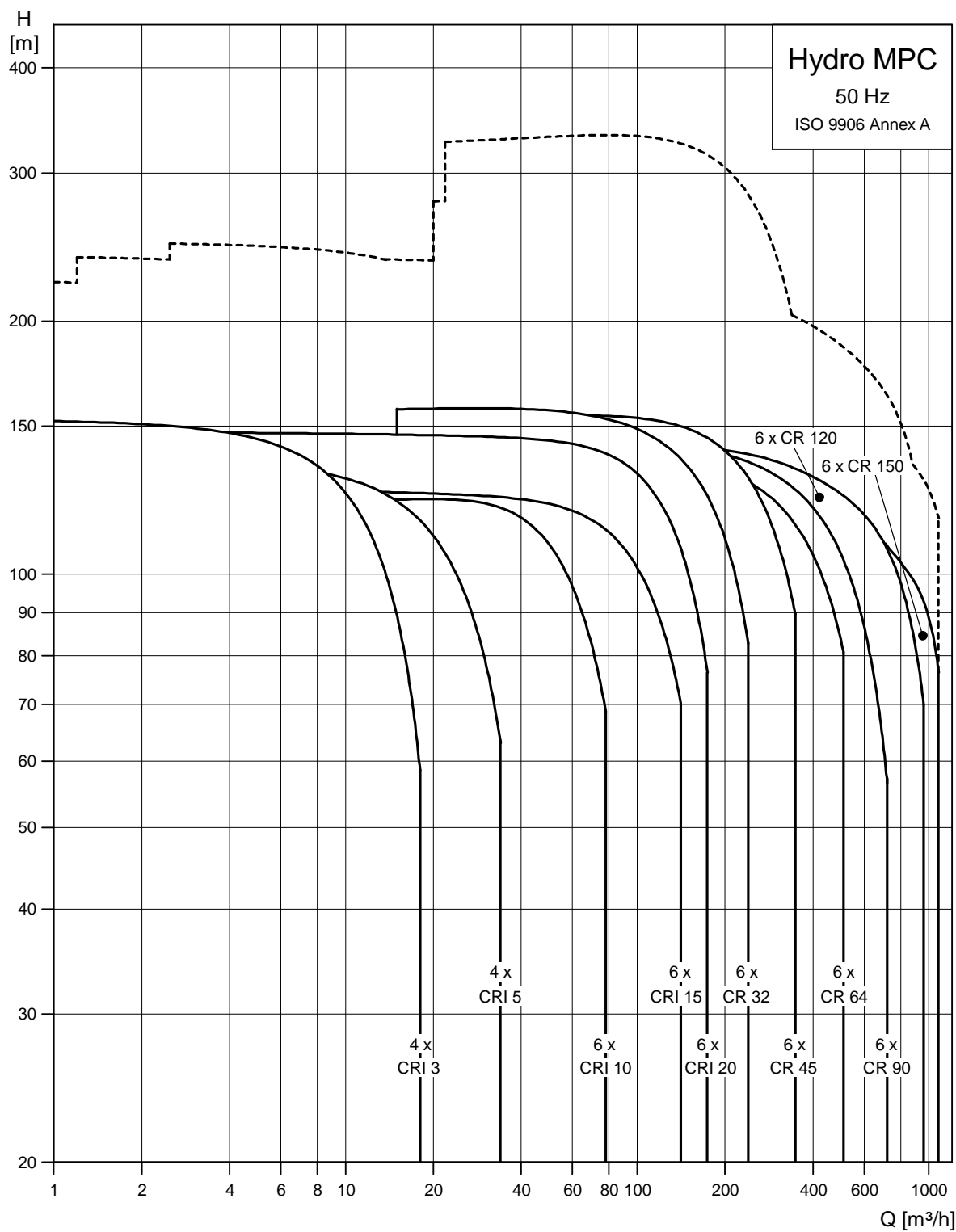
Flexibility

The elements of the Hydro MPC can be combined in a number of ways to make sure that we build the perfect solution for you!

Custom-built solutions

If this data booklet does not provide you with a solution that meets your specific pumping needs, please contact us.

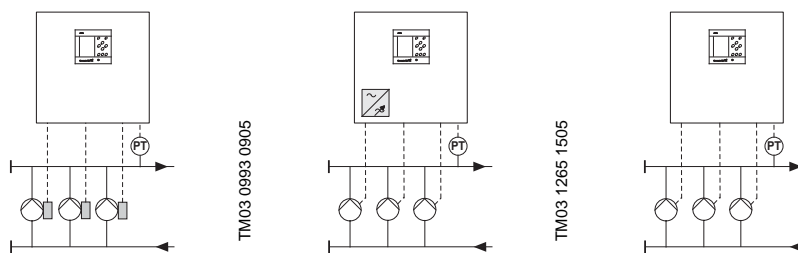
Performance range



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Note: The area within the dotted line applies to Hydro MPC booster systems available on request. The performance range is based on the standard range of the CR and CRI pumps.

Product range



Control variant	Hydro MPC-E	Hydro MPC-F	Hydro MPC-S
Hydraulic data			
Max. head [m]	155	155	155
Flow rate [m ³ /h]	0 - 1080	0 - 1080	0 - 1080
Liquid temperature [°C]	0 to +70	0 to +70	0 to +70
Max. operating pressure [bar]	16 ¹⁾	16 ¹⁾	16 ¹⁾
Motor data			
Number of pumps	2 - 6	2 - 6	2 - 6
Motor power [kW]	0.37 - 55 ²⁾	0.55 - 55	0.37 - 55
Shaft seal			
HQQE (SiC/SiC/EPDM)	●	●	●
Materials			
CRI(E) 3 to CRI(E) 20: Stainless steel EN/DIN 1.4301/AISI 304	●	●	●
CR(E) 32 to CR(E) 150: Cast iron and stainless steel EN/DIN 1.4301/AISI 304	●	●	●
Manifold: Stainless steel	●	●	●
Manifold: Galvanised steel ³⁾	○	○	○
Pipework connection			
Union connection	R 2 to R 2 1/2	R 2 to R 2 1/2	R 2 to R 2 1/2
DIN flange	DN 80 to DN 350	DN 80 to DN 350	DN 80 to DN 350
Functions			
Constant-pressure control	●	●	● ⁴⁾
Automatic cascade control	●	●	●
Pump changeover/alternation	●	●	●
Stop function	●	●	●
Proportional-pressure control	●	●	●
GENIbus communication (external)	○	○	○
Integrated frequency converter (in pump)	●	-	-
External frequency converter (in cabinet)	●	●	-
Ethernet connection	●	●	●
Alternative setpoints	●	●	●
Redundant primary sensor (option)	●	●	●
Standby pump	●	●	●
Emergency run	●	●	●

● Available as standard.

○ Available on request.

¹⁾ Booster systems with a maximum operating pressure higher than 16 bar are available on request.

²⁾ Hydro MPC-E booster systems from 0.37 to 22 kW are fitted with speed-controlled CR(I)E pumps with integrated frequency converters. Hydro MPC-E booster systems from 30 to 55 kW are fitted CR(I) pumps connected to Grundfos CUE frequency converters.

³⁾ Galvanised steel manifolds are available on request in some regions. For further information, contact Grundfos.

⁴⁾ The pressure will be almost constant between H_{set} and H_{stop} . For further information, see page 11.

Type key

Example	Hydro MPC	-E	/G	/NS	3 CRIE 5-8	(*	3x380-415V, 50/60 Hz, N, PE
Type range							
Subgroups: Pumps with integrated frequency converter (0.37 - 22 kW) - one per pump: -E Pumps with Grundfos CUE frequency converter (30 kW and above) - one per pump: -E Pumps with external Grundfos CUE frequency converter: -F Mains-operated pumps (start/stop): -S							
Manifold material : Stainless steel /G : Galvanised steel /OM: Other materials							
Suction manifold : With suction manifold /NS: Without suction manifold							
Number of pumps with integrated frequency converter and pump type							
Number of mains-operated pumps and pump type							
Supply voltage, frequency							

(* Code for custom-built solution.

Operating conditions

Operating pressure

As standard, the maximum operating pressure is 16 bar.

On request, Grundfos offers Hydro MPC booster systems with a higher maximum operating pressure.

Temperature

Liquid temperature: 0 °C to +70 °C.

Ambient temperature: 0 °C to +40 °C.

Relative humidity

Max. relative humidity: 95 %.

Pump

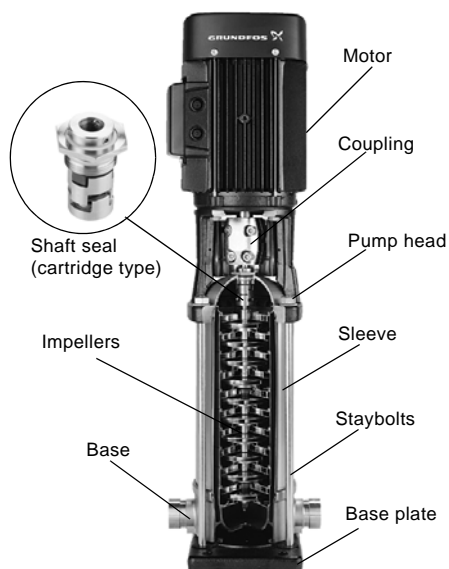


Fig. 3 CR pump

CR pumps are non-self-priming, vertical multistage centrifugal pumps.

Each pump consists of a base and a pump head. The chamber stack and outer sleeve are secured between the pump head and the base by means of staybolts. The base has suction and discharge ports on the same level (in-line) and of the same port size.

CRE and CRIE pumps are based on CR and CRI pumps. The difference between the CR and CRE pump range is the motor. CRE and CRIE pumps are fitted with a motor with integrated frequency converter.

CR and CRE pumps have pump head and base of cast iron while CRI and CRIE pumps have pump head and base of stainless steel.

All hydraulic parts are made of stainless steel.

For further information, see the following data booklets:

Title	Publication number
CR, CRI, CRN, CRE, CRIE, CRNE	V7023751
CR, CRI, CRN, CRT, CRE, CRIE, CRNE, CRTE custom-built pumps	96486346
Grundfos E-pumps	96570076

The data booklets are available in WebCAPS on www.grundfos.com. See page 84.

For information about the pump's position in the booster system, see fig. 7 on page 10.

Shaft seal

All pumps are equipped with a maintenance-free mechanical HQQE shaft seal of the cartridge type. Seal faces are silicon carbide/silicon carbide. Rubber parts are of EPDM.

Note: Other shaft seal variants are available on request.



Fig. 4 Cartridge shaft seal

The shaft seal can be replaced without dismantling the pump. The shaft seal of pumps with motors of 11 kW and up can be replaced without removing the motor.

For further information, see the data booklet on shaft seals, publication number 96519875. The data booklet is available in WebCAPS. See page 84.

Motor

CR and CRI pumps

CR and CRI pumps are fitted with a totally enclosed, fan-cooled, 2-pole Grundfos standard motor with principal dimensions in accordance with the EN standards.

Electrical tolerances to EN 60034.

	Standard motor
Mounting designation	Up to 4 kW: V 18 From 5.5 kW: V 1
Insulation class	F
Efficiency class	EFF1
Enclosure class	IP55 ¹⁾
Supply voltage (tolerance: ± 10 %)	P ₂ : 0.37 to 1.5 kW: 3 x 220-240/380-415 V, 50 Hz P ₂ : 2.2 to 11 kW: 3 x 380-415 V, 50 Hz P ₂ : 15 to 55 kW: 3 x 380-415/660-690V, 50 Hz

¹⁾ IP65 available on request.

Three-phase Grundfos motors from 3 kW and up have a built-in thermistor (PTC) according to DIN 44 082 (IEC 34-11: TP 211).

CRE and CRIE pumps

CRE and CRIE pumps are fitted with a totally enclosed, fan-cooled, 2-pole motor with integrated frequency converter. Principal dimensions are in accordance with EN standards. Electrical tolerances to EN 60034.

	Motor with integrated frequency converter		
	P ₂ : ≤ 1.1 kW	P ₂ : 0.75 to 7.5 kW	P ₂ : ≥ 11 to 22 kW
Mounting designation	V18	Up to 4 kW: V 18 From 5.5 kW: V 1	
Insulation class	F		
Efficiency class	EFF1	EFF1	EFF1
Enclosure class	IP 54		
Supply voltage (tolerance: ± 10 %)	1 x 200-240 V, 50/60 Hz	3 x 380-480 V, 50/60 Hz	3 x 380-415 V, 50/60 Hz

Motors with integrated frequency converter require no external motor protection. The motor incorporates thermal protection against slow overloading and seizure (IEC 34-11: TP 211).

Manifold

A suction manifold of stainless steel (EN DIN 1.4571) is fitted on the suction side of the pumps.

A discharge manifold of stainless steel (EN DIN 1.4571) is fitted on the discharge side of the pumps.

An isolating valve and a non-return valve are fitted between the discharge manifold and the individual pumps. The non return valve may be fitted on the suction side on request.

As an alternative, Hydro MPC is available with galvanised steel manifolds in some countries. If a Hydro MPC with galvanised steel manifolds is ordered, the base frame and stand for the controller also come in galvanised steel. For further information, contact Grundfos.

For information about the position of the suction and discharge manifold, see fig. 7 on page 10.

Control cabinet

The control cabinet is fitted with all the necessary components. If necessary, Hydro MPC booster systems are fitted with a fan to remove surplus heat generated by the frequency converter.

Control cabinet variants

The control cabinets are divided into four different designs based on construction:

- **Design A:** Systems with the control cabinet mounted on the same base frame as the pumps.
- **Design B:** Systems with the control cabinet centred on the base frame.
- **Design C:** Systems with the control cabinet mounted on its own base for floor mounting. The control cabinet can be placed up to 2 metres from the pumps.
- **Design D:** Systems with the control cabinet mounted on its own base frame. The control cabinet can be placed up to 2 metres from the pumps.

For further information, see fig. 7 on page 10 and the chapter of Technical data for the individual Hydro MPC.

CU 351

CU 351, the multi-pump control unit of the Hydro MPC, is placed in the door of the control cabinet.



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Fig. 5 CU 351

The CU 351 features an LCD display, ten buttons and two indicator lights. The control panel enables manual setting and change of parameters such as setpoint, start/stop of system or individual pumps.

The CU 351 has application-optimised software for setting the system to the application in question.

IO 351

The IO 351 is a module for exchange of digital and analog signals between the CU 351 and the remaining electrical system via GENIbus. The IO 351 comes in the variants A and B.



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Fig. 6 IO 351A and IO 351B

IO 351A

The IO 351A is used for one to three mains-operated Grundfos pumps.

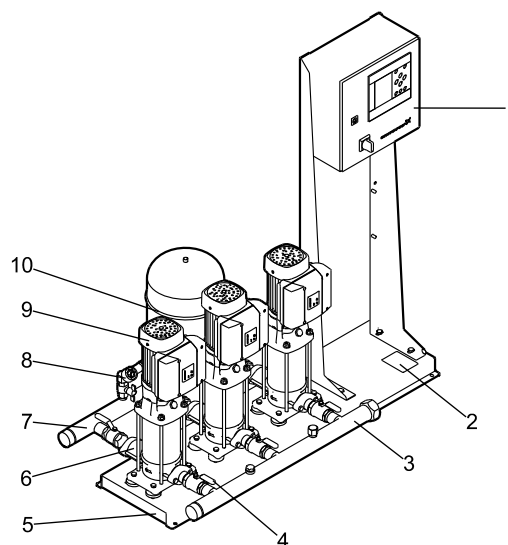
IO 351B

The IO 351B is used for one to six mains-operated Grundfos pumps and/or pumps controlled by external Grundfos CUE frequency converters. The module can also be used as an input-output module for communication with monitoring equipment or another external equipment.

Base frame

A Hydro MPC booster system has a common base frame. The pumps are fixed to the base frame by means of bolts. The control cabinet is fixed to the base frame by means of a stand. See fig. 7 on page 10. The base frame and stand are of stainless steel EN DIN 1.4301.

System components



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Fig. 7 System components

Pos.	Description	Quantity
1	Control cabinet	1
2	Nameplate	1
3	Suction manifold (stainless steel)	1
4	Isolating valve	2 per pump
5	Base frame (stainless steel)	1
6	Non-return valve	1 per pump
7	Discharge manifold (stainless steel)	1
8	Pressure transmitter/gauge	1
9	Pump	2 - 6
10	Diaphragm tank	1

Flange dimensions

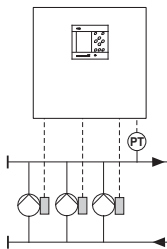
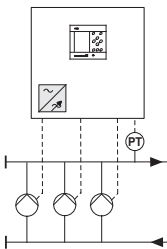
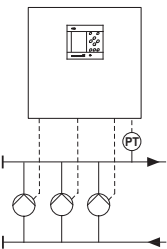
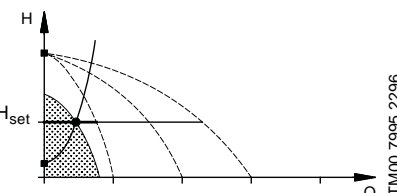
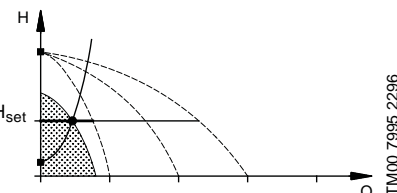
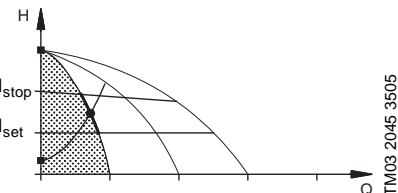
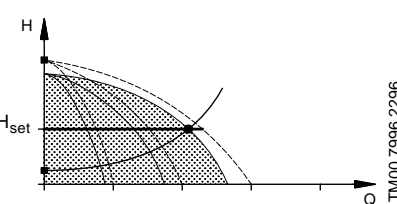
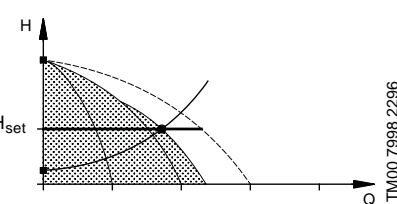
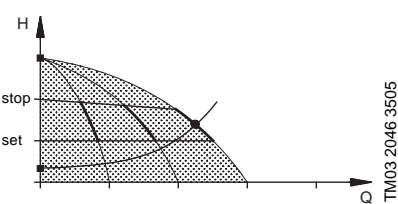
PN 16 flanges

Standard: EN 1092-2 PN 16 (1.6 MPa)						
Nominal diameter (DN)						
DN	80	100	125	150	200	250
D ₁	80	100	125	150	200	250
D ₂	160	180	210	240	295	355
D ₃	200	220	250	285	340	405
S	8x19	8x19	8x19	8x23	12x23	12x28

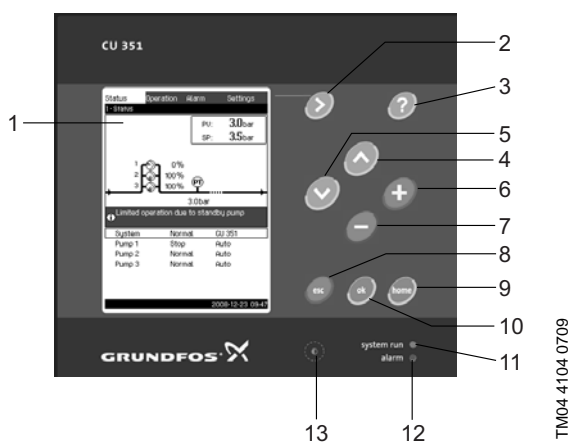
PN 25 flanges

Standard: EN 1092-2 PN 25 (2.5 MPa)		
Nominal diameter (DN)		
DN	300	350
D ₁	300	350
D ₂	430	490
D ₃	485	555
S	16x30	16x33

Overview of control variants

Booster systems with speed-controlled pumps	Booster systems with pumps connected to one CUE frequency converter	Booster systems with mains-operated pumps
Hydro MPC-E	Hydro MPC-F	Hydro MPC-S
<p>Hydro MPC booster system with three CR(I)E pumps.</p>	<p>Hydro MPC booster system with three CR pumps. One of the pumps is connected to an external Grundfos CUE frequency converter in the control cabinet. The speed-controlled operation alternates between the pumps of the Hydro MPC.</p>	<p>Hydro MPC booster system with three mains-operated CR(I) pumps.</p>
 <p style="text-align: right;">TM03 0993 0905</p>	 <p style="text-align: right;">TM03 1265 1505</p>	 <p style="text-align: right;">TM03 0999 0905</p>
<p>One CR(I)E pump in operation.</p>	<p>One CR pump connected to an external Grundfos CUE frequency converter in operation.</p>	<p>One mains-operated CR(I) pump in operation.</p>
 <p style="text-align: right;">TM00 7995 2296</p>	 <p style="text-align: right;">TM00 7995 2296</p>	 <p style="text-align: right;">TM03 2045 3505</p>
<p>Three CR(I)E pumps in operation.</p>	<p>One CR pump connected to an external Grundfos CUE frequency converter and two mains-operated CR pumps in operation.</p>	<p>Three mains-operated CR(I) pumps in operation.</p>
 <p style="text-align: right;">TM00 7996 2296</p>	 <p style="text-align: right;">TM00 7996 2296</p>	 <p style="text-align: right;">TM03 2046 3505</p>
<ul style="list-style-type: none"> Hydro MPC-E maintains a constant pressure through continuously variable adjustment of the speed of the CR(I)E pumps connected. The performance is adjusted to the demand through cutting in/out the required number of CR(I)E pumps and through parallel control of the pumps in operation. Pump changeover is automatic and depends on load, operating hours and fault. All pumps in operation will run at equal speed. 	<ul style="list-style-type: none"> Hydro MPC-F maintains a constant pressure through continuously variable adjustment of the speed of the CR pump connected to an external Grundfos CUE frequency converter. The speed controlled operation alternates between the pumps. One CR pump connected to the Grundfos CUE frequency converter always starts first. If the pressure cannot be maintained by the pump, one or two mains-operated CR pumps will be cut in. Pump changeover is automatic and depends on load, operating hours and fault. 	<ul style="list-style-type: none"> Hydro MPC-S maintains an almost constant pressure through cutting in/out the required number of pumps. The operating range of the pumps will lie between the lines H_{set} and H_{stop} (cut-out pressure). The cut-out pressure cannot be set, but is calculated automatically. Pump changeover is automatic and depends on load, operating hours and fault.

CU 351 control panel



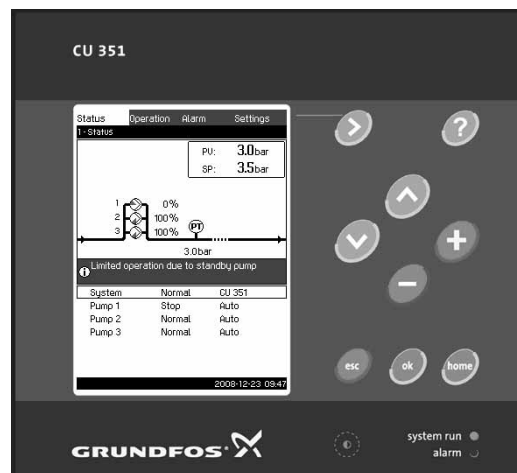
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Fig. 8 CU 351 control panel

Key

Pos.	Description
1	Display
2	Arrow to the right
3	Help
4	Up
5	Down
6	Plus
7	Minus
8	Esc
9	Home
10	Ok
11	Indicator light, operation (green)
12	Indicator light, fault (red)
13	Contrast

Menu Status



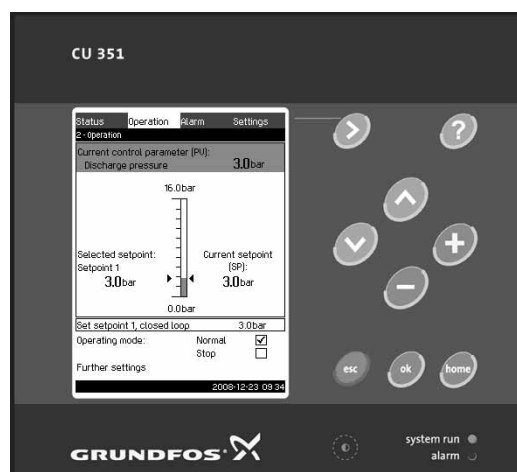
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Fig. 9 Menu Status

Description

- Reading of process value (PV) of control parameter and selected setpoint (SP).
- Graphical illustration of system (upper display half).
- Indication if any incidents occur during operation (middle of display).
- Reading of performance of system and individual pumps (lower display half).
- Button for further information.
- Active buttons are illuminated.

Menu Operation



TM04 4107 0709

Fig. 10 Menu Operation

Description

- Setting of basic parameters, for instance setpoint, start/stop of system or individual pumps.
- Reading of selected setpoint and current setpoint.
- Button for further information.
- Active buttons are illuminated.

Menu Alarm



TM04 4108 0709

Fig. 11 Menu Alarm

Description

- Overview of current warnings and alarms in clear text with detailed information:
 - What the cause of the fault is.
 - Where the fault occurred: System, Pump no. 1...
 - When the fault occurred (time and date).
 - When the fault disappeared (time and date).
- Alarm log with up to 24 warnings and alarms.
- Button for further information.
- Active buttons are illuminated.

Menu Settings



TM04 4109 0709

Fig. 12 Menu Settings

Description

- Various settings:
 - external setpoint influence
 - redundant primary sensor
 - standby pump
 - stop function
 - proportional pressure
 - display language
 - Ethernet, etc.
- Button for further information.
- Active buttons are illuminated.

Overview of functions

	Hydro MPC		
	-E	-F	-S
Functions via the CU 351 control panel			
Constant-pressure control	●	●	● ¹⁾
Automatic cascade control	●	●	●
Alternative setpoints	●	●	●
Redundant primary sensor (option)	●	●	●
Min. changeover time	●	●	●
Number of starts per hour	●	●	●
Standby pumps	●	●	●
Forced pump changeover	●	●	●
Pump test run	●	●	●
Dry-running protection (option)	●	●	●
Stop function	●	●	● ²⁾
Password	●	●	●
Clock program	●	●	●
Proportional-pressure control	●	●	●
Pilot pump	●	●	●
Soft pressure build-up	●	●	●
Emergency run	●	●	●
Pump curve data	●	●	●
Flow estimation	●	●	●
Limit exceeded 1 and 2	●	●	●
Pumps outside duty range	●	●	●
Communication			
Ethernet connection	●	●	●
Other bus protocols: PROFIBUS, LON, Modbus, radio/modem/PLC via CIU units. For further information, see Optional equipment, page 74.	○	○	○
External GENIbus connection (option)	○	○	○

- Standard.
- On request.

1) The pressure will be almost constant between H_{set} and H_{stop} . For further information, see page 11.

2) Hydro MPC-S will have on/off control of all pumps. For further information, see page 17.

Description of selected functions

Constant-pressure control

Constant-pressure control ensures that the Hydro MPC booster system delivers a constant pressure despite a change in consumption.

When taps are opened, water is drawn from the diaphragm tank, if installed in the system. The pressure drops to a set cut-in pressure, and the first speed-controlled pump starts to operate. The speed of the pump in operation is continuously increased to meet the demand. As the consumption rises, more pumps will cut in until the performance of the pumps in operation corresponds to the demand. During operation, the CU 351 controls the speed of each pump individually according to known pump curve data downloaded into the CU 351.

Furthermore, the CU 351 regularly estimates the flow rate to detect whether pumps are to be cut-in or cut-out. The flow estimation is based on the best efficiency point of the pump with the aim to reduce the energy consumption to a minimum.

When the water consumption falls, pumps are cut out one by one to maintain the set discharge pressure.

Display language



Fig. 13 Display language

Via the CU 351, you can select the language for the display.

Options:

- British English
- German
- Danish
- Spanish
- Finnish
- French
- Greek
- Italian

- Dutch
- Polish
- Portuguese
- Russian
- Swedish
- Chinese
- Korean
- Japanese
- Czech
- Turkish
- Czech.

Pump curve data

Status	Operation	Alarm	Settings
4.3.10 - Pump curve data			
Pump data:			
Nominal flow rate Qnom			10.0m³/h
Nominal head Hnom			48m
Max. head Hmax			61m
Max. flow rate Qmax			0.0m³/h
Motor data:			
Power, 00, 100 % speed			0.00kW
Power, 00, 50 % speed			0.00kW
Nominal power Pnom			0.00kW
Flow estimation			
2007-11-26 16:26			

Fig. 14 Pump curve data

As standard, Hydro MPC will help you minimise energy consumption and cut energy costs. By means of pump curve data stored from factory, the CU 351 will know exactly which and how many pumps to control. These pump curve data enables the CU 351 to optimise performance and minimise energy consumption.

Redundant primary sensor

A redundant sensor can be installed as backup for the primary sensor in order to increase reliability and prevent stop of operation. The redundant primary sensor is in the same reference point as the primary sensor, i.e. in the discharge manifold of the booster system.

Note: The redundant primary sensor is available as a factory-fitted option.

TM03 8987 4807

TM03 8975 4807

Automatic cascade control

Cascade control ensures that the performance of Hydro MPC is automatically adapted to consumption by switching pumps on or off. The system thus runs as energy-efficiently as possible with a constant pressure and a limited number of pumps.

Alternative setpoints

This function makes it possible to set up to six setpoints as alternatives to the primary setpoint. The setpoints can be set for closed loop and open loop. The performance of the system can thus be adapted to other consumption patterns.

Example

A Hydro MPC booster system is used for irrigation of a hilly golf course.

Constant-pressure irrigation of golf course sections of different sizes and at different altitudes may require more than one setpoint.

For golf course sections at a higher altitude a higher discharge pressure is required.

Number of starts per hour

This function limits the number of pump starts and stops per hour. It reduces noise emission and improves the comfort of systems with mains-operated pumps.

Each time a pump starts or stops, the CU 351 calculates when the next pump is allowed to start or stop in order not to exceed the permissible number of starts per hour.

The function always allows pumps to be started to meet the requirement, but pump stops will be delayed, if needed, in order not to exceed the permissible number of starts/stops per hour.

Standby pumps

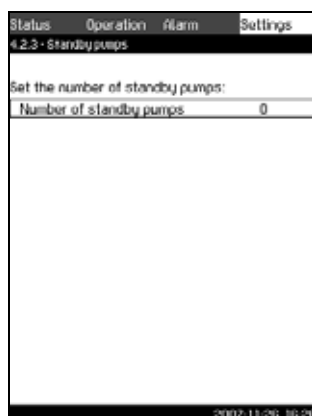


Fig. 15 Standby pumps

TM03 2366 4807

It is possible to let one or more pumps function as standby pumps. A booster system with for instance four pumps, one having the status of standby pump, will run like a booster system with three pumps, as the maximum number of pumps in operation is the total number of pump minus the number of standby pumps.

If a pump is stopped due to a fault, the standby pump will be cut in. This function ensures that the Hydro MPC booster system can maintain the nominal performance even if one of the pumps is stopped due to a fault.

The status as standby pump alternates between all pumps of the same type, for instance electronically speed-controlled pumps.

Forced pump changeover

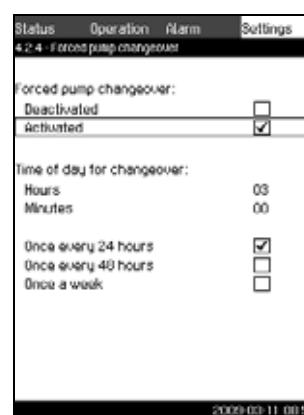


Fig. 16 Forced pump changeover

This function ensures that the pumps run for the same number of operating hours over time.

In certain applications the required flow remains constant for long periods and does not require all pumps to run. In such situations, pump changeover does not take place naturally, and forced pump changeover may thus be required.

Once every 24 hours the controller checks if any pump in operation has been running continuously for the last 24 hours.

If this is the case, the pump with the largest number of operating hours is stopped and replaced by the pump with the lowest number of operating hours.

TM03 2365 4807

Pump test run



TM03 2364 4807

Fig. 17 Pump test run

This function is primarily used in connection with pumps that do not run every day.

Benefits:

- Pumps do not seize up during a long standstill due to deposits from the pumped liquid.
- The pumped liquid does not decay in the pump.
- Trapped air is removed from the pump.
- The pump starts automatically and runs for a short time.

Dry-running protection

This function is one of the most important ones, as dry running may damage bearings and shaft seals.

The inlet pressure of the booster system or the level in a tank, if any, on the inlet side is monitored. If the inlet pressure or the water level is too low, all pumps will be stopped.

Level switches, pressure switches or analog sensors signalling water shortage at a set level can be used. Furthermore, you can set the system to be reset and restarted manually or automatically after a situation with water shortage.

Stop function



TM03 2355 4807

Fig. 18 Stop function

The stop function makes it possible to stop the last pump in operation if there is no or a very small consumption.

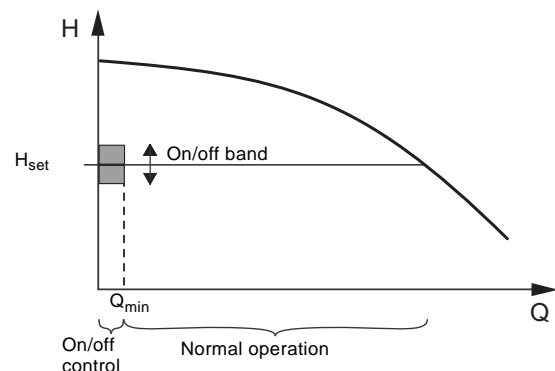
Purpose:

- to save energy
- to prevent heating of shaft seal faces due to increased mechanical friction as a result of reduced cooling by the pumped liquid
- to prevent heating of the pumped liquid.

This function is only used in Hydro MPC booster systems with variable-speed pumps.

Note: Hydro MPC-S will have on/off control of all pumps.

When the stop function is activated, the operation of Hydro MPC is continuously monitored to detect a low flow rate. If the CU 351 detects no or a low flow rate ($Q < Q_{min}$), it will change from normal constant-pressure operation to on/off control of the last pump in operation.



TM03 1692 2705

Fig. 19 On/off band

As long as the flow rate is lower than Q_{min} , the pump will run in on/off operation. If the flow rate is increased to above Q_{min} , the pumps will return to normal constant-pressure operation.

Via the CU 351 you can set the Hydro MPC is to operate as energy-saving as possible or with the highest level of comfort meaning less starts/stops of the last pump in operation during low flow.

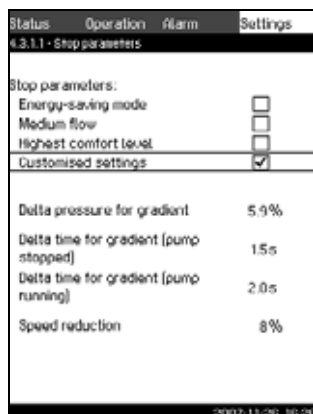


Fig. 20 Stop parameters

Four stop parameters can be selected:

- **Energy-saving mode (factory setting)**
If you want the highest energy-saving mode possible.
- **Medium flow**
If you want a compromise between the highest energy-saving mode and highest comfort level.
- **Highest comfort level**
If you want the highest comfort level without too many pump starts/stops.
- **Customised settings**
If you want to make your own settings.

Pilot pump

The pilot pump takes over the operation from the main pumps in periods when the consumption is so small that the stop function of the main pumps is activated.

Purpose:

- to save energy
- to reduce the number of operating hours of the main pumps.

Password

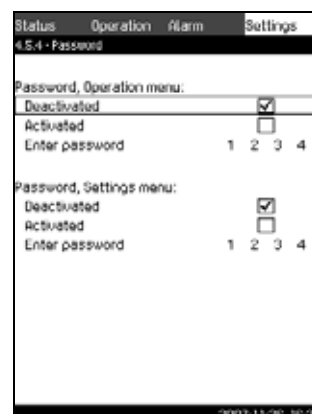


Fig. 21 Password

Passwords make it possible to limit the access to the menus **Operation** and **Settings** in the controller of the booster system. If the access is limited, it is not possible to view or set any parameter in the menus.

Clock program



Fig. 22 Clock program

This function makes it possible to set up to ten events with specification of day and time for their activation/deactivation. An example of application is sprinkling of golf courses at fixed times for the individual greens.

Proportional pressure

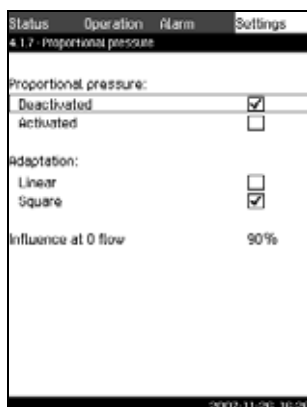


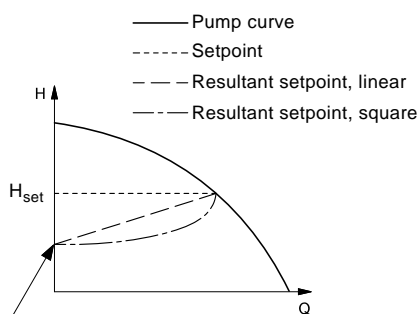
Fig. 23 Proportional pressure

This function can be used in applications with a large pipe system, for instance a village supplied with water from a pumping station or waterworks.

In situations with high flow rates, the pressure loss in the pipe system is relatively high. In order to deliver a system pressure of 5 bar in such a situation, the discharge pressure of the system must be set to 6 bar if the pressure loss in the pipe system is 1 bar.

In a low-flow situation, the pressure loss in the pipe system may be 0.2 bar. Here the system pressure would be 5.8 bar if the setpoint was fixed to 6 bar. That is 0.8 bar too high compared with the peak situation above.

To compensate for this extensive system pressure, the proportional pressure function of the CU 351 automatically adapts the setpoint to the actual flow rate. The adaptation can be linear or square. Such an automatic adaptation offers you large energy savings and optimum comfort at tap point!



Starting point of proportional pressure control
(Influence at 0 flow = x % of H_{set})

Fig. 24 Proportional-pressure control

Example:

Influence at 0 flow (Q₀) = Pressure loss in supply pipe x 100 / setpoint.

Influence at 0 flow (Q₀) = 1 bar x 100 / 6 bar = 16.67 %.

Setpoint at Q_{min} with proportional-pressure control:
6 bar – (6 bar x 0.1667) = **5 bar**.

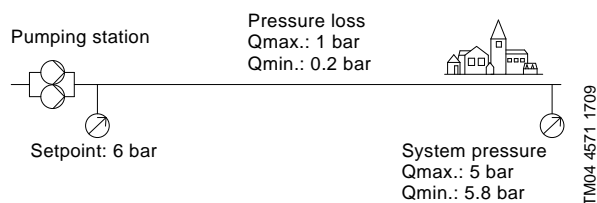


Fig. 25 Without proportional-pressure control

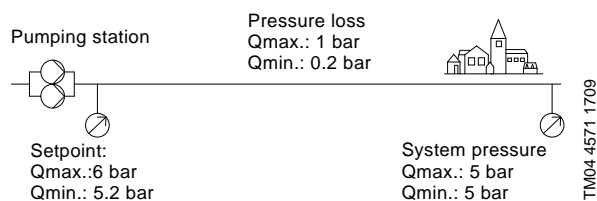


Fig. 26 With proportional-pressure control

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Soft pressure build-up

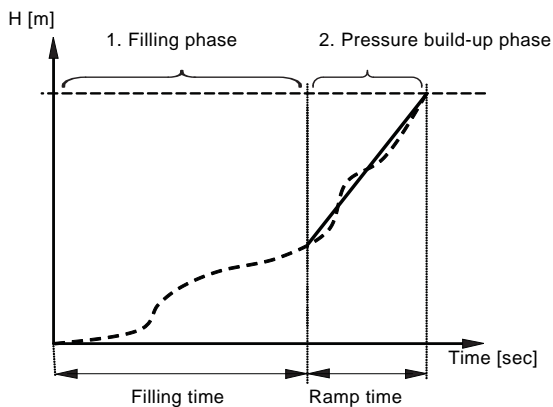


TM03 8970 4807

Fig. 27 Soft pressure build-up

This function ensures a soft start of systems with for instance empty pipework. It has two phases:

1. The pipework is slowly filled with water.
2. When the pressure sensor of the system detects that the pipework has been filled, the pressure is increased until it reaches the setpoint. See fig. 28.

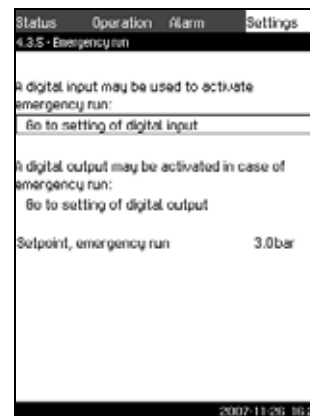


TM03 9037 3207

Fig. 28 Filling and pressure build-up phases

The function can be used for preventing water hammering in high-rise buildings with unstable voltage supply or in irrigation applications.

Emergency run



TM03 8971 4807

Fig. 29 Emergency run

The function is especially suited for important systems where the operation must not be interrupted. If activated this function will keep all pumps running regardless of warnings or alarms. The pumps will run according to a setpoint set specifically for this function.

Mechanical installation

Location

The booster system must be installed in a well-ventilated room to ensure sufficient cooling of the control cabinet and pumps.

Note: Hydro MPC is not designed for outdoor installation and must not be exposed to direct sunlight.

The booster system should be placed with a 1-metre clearance in front and on the two sides for inspection and removal.

Pipework

Arrows on the pump base show the direction of flow of water through the pump.

The pipework connected to the booster system must be of adequate size.

The pipes are connected to the manifolds of the booster system. Either end can be used. Apply sealing compound to the unused end of the manifold and fit the screw cap. For manifolds with flanges, a blanking flange with gasket must be fitted.

To optimise operation and minimise noise and vibration, it may be necessary to consider vibration dampening of the booster system.

Noise and vibration are generated by the rotations in the motor and pump and by the flow in pipework and fittings. The effect on the environment is subjective and depends on correct installation and the state of the remaining system.

If booster systems are installed in blocks of flats or the first consumer on the line is close to the booster system, it is advisable to fit expansion joints on the suction and discharge pipes to prevent vibration being transmitted through the pipework.

Note: Expansion joints, pipe supports and machine shoes shown in the figure above are not supplied with a standard booster system.

All nuts should be tightened prior to start-up.

The pipes must be fastened to parts of the building to ensure that they cannot move or be twisted.

Foundation

The booster system should be positioned on an even and solid surface, such as a concrete floor or foundation. If the booster system is not fitted with vibration dampers, it must be bolted to the floor or foundation.

Note: As a rule of thumb, the weight of a concrete foundation should be 1.5 x the weight of the booster system.

Dampening

To prevent the transmission of vibrations to buildings, it is advisable to isolate the booster system foundation from building parts by means of vibration dampers.

Which is the right damper varies from installation to installation, and a wrong damper may increase the vibration level. Vibration dampers should therefore be sized by the supplier.

If the booster system is installed on a base frame with vibration dampers, expansion joints should always be fitted on the manifolds. This is important to prevent the booster system from “hanging” in the pipework.

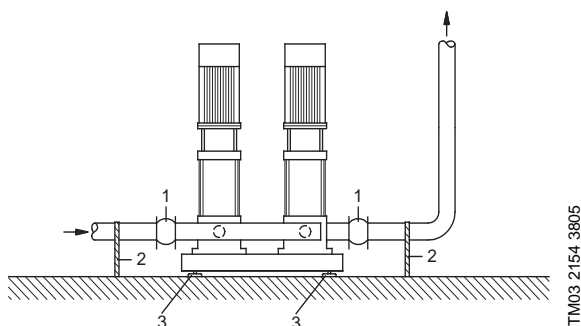


Fig. 30 Schematic view of hydraulic installation

Pos.	Description
1	Expansion joint
2	Pipe support
3	Machine shoe

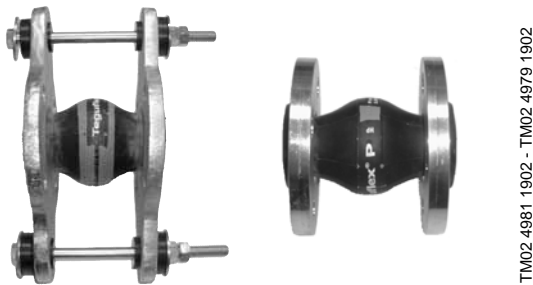
Expansion joints

Expansion joints provide these advantages:

- Absorption of thermal expansion and contraction of pipework caused by variations in liquid temperature.
- Reduction of mechanical influences in connection with pressure surges in the pipework.
- Isolation of structure-borne noise in the pipework (only rubber bellows expansion joints).

Note: Expansion joints must not be installed to compensate for inaccuracies in the pipework such as centre displacement of flanges.

Fit expansion joints at a distance of minimum 1 to 1.5 x DN diameter from the manifold on the suction as well as on the discharge side. This prevents the development of turbulence in the expansion joints, resulting in better suction conditions and a minimum pressure loss on the pressure side.



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Fig. 31 Examples of rubber bellows expansion joints with and without limiting rods

Expansion joints with limiting rods can be used to minimise the forces caused by the expansion joints. Expansion joints with limiting rods are always recommended for flanges larger than DN 100.

The pipes should be anchored so that they do not stress the expansion joints and the pump. Follow the supplier's instructions and pass them on to advisers or pipe installers.

Electrical installation

The electrical installation should be carried out by an authorised person in accordance with local regulations.

- The electrical installation of the booster system must be carried out in accordance with enclosure class IP 54.
- Make sure that the booster system is suitable for the power supply to which it is connected.
- Make sure that the wire cross-section corresponds to the specifications in the wiring diagram.

Note: The mains connection should be carried out as shown in the wiring diagram.

Sizing

When sizing a booster system, the following must be taken into account:

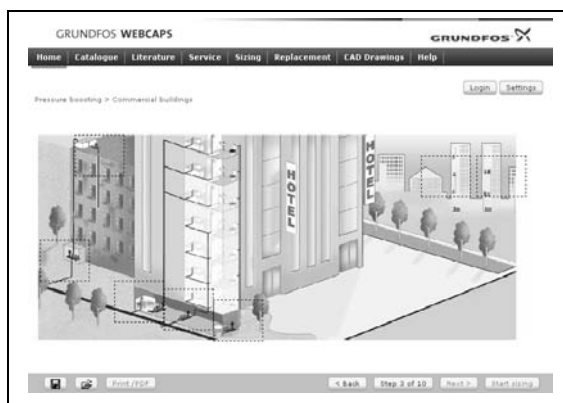
- The performance of the booster system must meet the highest possible demand both in terms of flow rate and pressure.
- The booster system must not be oversized. This is important in relation to installation and operating costs.

You can size Grundfos Hydro MPC booster systems via WinCAPS, WebCAPS or this data booklet.

Sizing in WinCAPS or WebCAPS (recommended)

We recommend that you size your Hydro MPC booster system in WinCAPS or WebCAPS, which are selection programs offered by Grundfos. For further information, see page 84.

WebCAPS or WinCAPS feature a user-friendly and easy-to-use virtual guide which leads you through the selection of the most optimum booster system for the application in question.



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Fig. 32 Sizing in WebCAPS

Sizing via this data booklet

There are seven steps:

1. Maximum flow requirement
2. Required discharge pressure
3. System layout
4. Consumption profile and load profile
5. Inlet pressure
6. Selection of booster system
7. Accessories.

1. Maximum flow requirement

Total consumption and maximum flow rate depend on the application in question. The maximum flow requirement can be calculated by means of the table below which is based on statistical data.

Consumer	Unit	Q_{year}	Consumption period d	Q_{day}	fd	$Q(m)_{\text{day}}$	ft	Max. flow rate
		m^3/year	days/year	m^3/day		m^3/day		m^3/h
Residence building	Residence (2.5 persons)	183	365	0.5	1.3	0.65	1.7	0.046
Office building	Employee	25	250	0.1	1.2	0.12	3.6	0.018
Shopping centre	Employee	25	300	0.08	1.2	0.1	4.3	0.018
Supermarket	Employee	80	300	0.27	1.5	0.4	3.0	0.05
Hotel	Bed	180	365	0.5	1.5	0.75	4.0	0.125
Hospital	Bed	300	365	0.8	1.2	1.0	3.0	0.12
School	Pupil	8	200	0.04	1.3	0.065	2.5	0.007

Example: Hotel with 540 beds

Number of beds: n

Total annual consumption: $Q_{\text{year}} \times n$

Consumption period: d

Average consumption per day: $(Q_{\text{year}} \times n)/d$

Year maximum consumption: $Q(m)_{\text{day}} = fd \times Q_{\text{day}}$

Maximum flow requirement per hour: $Q_{\text{max}} = \text{Max. flow rate/hour} \times \text{no. of beds}$

Calculation

n = 540 beds

$Q_{\text{year}} \times n = 180 \times 540 = 97,200 \text{ m}^3/\text{year}$

d = 365 days/year

$(Q_{\text{year}} \times n)/d = 97,200/365 = 266.3 \text{ m}^3/\text{day}$

$Q(m)_{\text{day}} = fd \times Q_{\text{day}} = 1.5 \times 266.3 = 399.4 \text{ m}^3/\text{day}$

$Q_{\text{max}} = \text{Max. flow rate/hour} \times \text{no. of beds} = 0.125 \times 540 = \mathbf{67.5 \text{ m}^3/\text{h}}$.

2. Required discharge pressure

The required discharge pressure, P_{set} , of the Hydro MPC can be calculated with the following equation:

$$P_{set} = P_{tap(min)} + P_f + (h_{max}/10.2) ;$$

$$P_{boost} = P_{set} - P_{in(min)}.$$

Key

P_{set} = Required discharge pressure in bar

$P_{tap(min)}$ = Required minimum pressure at the highest tapping point in bar

P_f = Total pipe friction loss in metre

h_{max} = Height from booster discharge port to highest tapping point in metre

$P_{in(min)}$ = Min. inlet pressure in bar

P_{boost} = Required boost in bar.

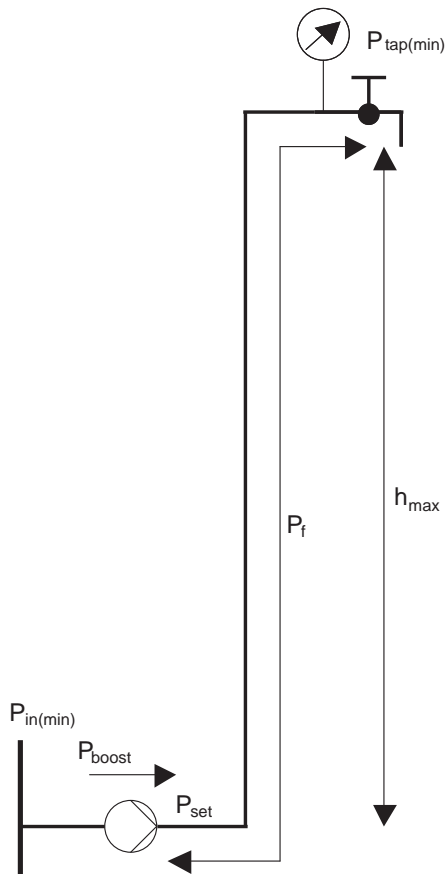


Fig. 33 Calculation of required discharge pressure

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Calculation

$$P_{tap(min)} = 2 \text{ bar}$$

$$P_f = 1.2 \text{ bar}$$

$$h_{max} = 41.5 \text{ metres}$$

$$P_{in(min)} = 2 \text{ bar}$$

$$P_{set} = 2 + 1.2 + (41.5/10.2) = 7.3 \text{ bar}$$

$$P_{boost} = 7.3 - 2 = 5.3 \text{ bar.}$$

3. System layout

What is the system layout?

- Direct boosting
(example: Hydro MPC connected to water mains designed to distribute water from one place to another).
- Break tank
(example: Hydro MPC connected to a break tank installed before the booster system).
- Pressure boosting in zones
(example: High-rise building or hilly landscape where the water supply system is divided into zones).
- Roof tank
(example: Hydro MPC distributes water to a roof tank on top of a high-rise building).

4. Consumption profile and load profile

The consumption pattern of the installation can be illustrated as a 24-hour consumption profile and a load profile.

24-hour consumption profile

The 24-hour consumption profile is the relation between the time of the day and the flow rate.

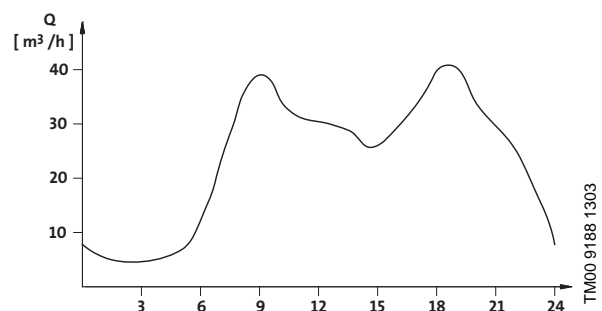


Fig. 34 Example of 24-hour consumption profile

Note: If the consumption is variable and optimum comfort is required, pumps with continuously variable speed control should be used.

Load profile

When the 24-hour consumption profile has been determined, the load profile can be made.

The load profile gives an overview of how many per cent per day the booster operates at a specific flow rate.

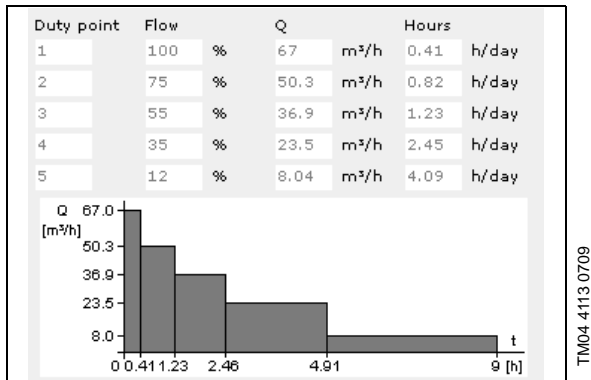
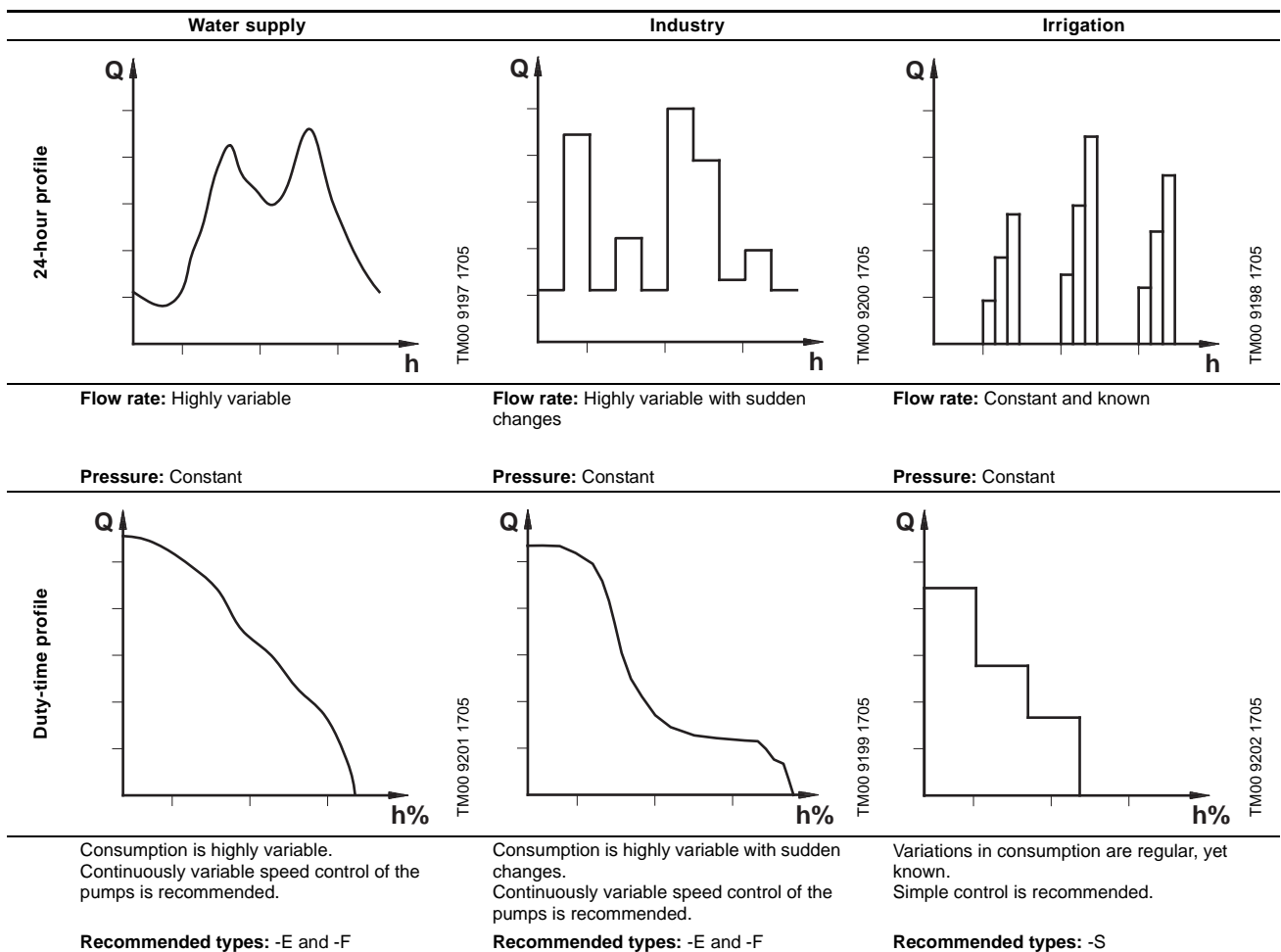


Fig. 35 Load profile

Examples of typical 24-hour consumption profiles and their load profiles:



5. Inlet pressure

Is there a positive inlet pressure? If so, the inlet pressure must be taken into consideration to ensure safe operation.

The values for inlet pressure and operating pressure must not be considered individually, but must always be compared.

Example

A Hydro MPC-E booster system with 3 CRIE 20-7 pumps has been selected.

Maximum operating pressure: **16 bar**.

Maximum inlet pressure: **10 bar**.

Discharge pressure against a closed valve: **10 bar**.

The selected system is allowed to start at an inlet pressure of maximum 5.8 bar, as the maximum operating pressure is limited to 16 bar. If the maximum inlet pressure exceeds 5.8 bar, a system rated PN 25 must be selected.

6. Selection of Hydro MPC booster system

Select the booster system on the basis of these factors. Maximum flow requirement, required discharge pressure, load profile, number of pumps required, possible standby pumps, etc.

7. Accessories

Having selected the optimum Hydro MPC booster system, you must consider whether accessories as those mentioned below are required.

Dry-running protection

Every booster system **must** be protected against dry running.

The inlet conditions determine the type of dry-running protection:

- If the system draws from a tank or a well, select a level switch or electrode relay for dry-running protection.
- If the system has an inlet pressure, select a pressure transmitter or a pressure switch for dry-running protection.

Diaphragm tank

The need for a diaphragm tank is estimated on the basis of the following guidelines:

- Due to the stop function, all Hydro MPC booster systems **in buildings** should be equipped with a diaphragm tank.
- Normally, Hydro MPC booster systems in water-supply applications require **no** diaphragm tank, as miles of piping partly hold the necessary capacity, partly have the elasticity to give sufficient capacity. **Note:** To avoid the risk of water hammering, a diaphragm tank may be necessary.
- The need for a diaphragm tank for Hydro MPC booster systems in industrial applications should be estimated from situation to situation on the basis of the individual factors on site.

Note: If the Hydro MPC booster system includes pilot pumps, the diaphragm tank is to be sized according to the capacity of this pump.

For further information about optional equipment and accessories, see page 74 to 82.

Pump type	Recommended diaphragm tank size [litres]		
	-E	-F	-S
CRI(E) 3	8	8	80
CRI(E) 5	12	12	120
CRI(E) 10	18	18	180
CRI(E) 15	80	80	300
CRI(E) 20	80	80	400
CR(E) 32	80	80	600
CR(E) 45	120	120	800
CR(E) 64	120	120	1000
CR(E) 90	180	180	1500
CR(E) 120	180	180	1500
CR(E) 150	180	180	1500

The size of the obligatory diaphragm tank in litres can be calculated from the following equations:

Hydro MPC-E and -F

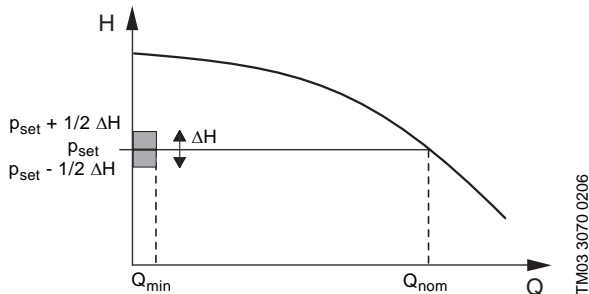
$$V_0 = \frac{k_Q \cdot Q \cdot (p_{set} + 1)^2 \cdot \left(\frac{3600}{N} - 10\right)}{3.6 \cdot (k_f \cdot p_{set} + 1) \cdot k_H \cdot p_{set}}$$

Hydro MPC-S

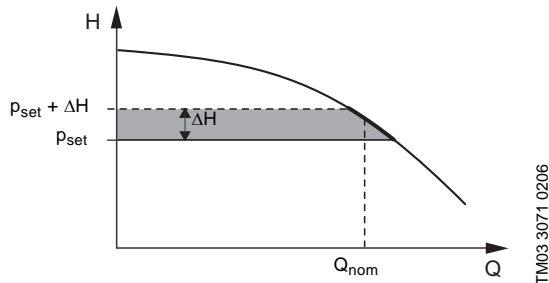
$$V_0 = \frac{1000 \cdot Q \cdot (p_{set} + 1) \cdot (k_H \cdot p_{set} + p_{set} + 1)}{4 \cdot N \cdot (k_f \cdot p_{set} + 1) \cdot k_H \cdot p_{set}}$$

Symbol	Description
V_0	Tank volume [litres]
k_Q	The ratio between nominal flow rate of one pump Q_{nom} and the flow rate Q_{min} at which the pump is to change to on/off operation. $k_Q = Q_{min}/Q_{nom}$
Q	Mean flow rate, Q_{nom} [m^3/h]
p_{set}	Setpoint [bar]
k_H	The ratio between the on/off band ΔH and the setpoint p_{set} . $k_H = \Delta H/p_{set}$
k_f	The ratio between tank pre-charge pressure p_0 and the setpoint p_{set} . $k_f = p_0/p_{set}$. 0.9 for Hydro MPC-S 0.7 for Hydro MPC-E, -ED, -ES, -EF, -EDF and -F
N	Maximum number of starts/stops per hour.

Hydro MPC-E and -F



Hydro MPC-S



The tank values are based on the following data:

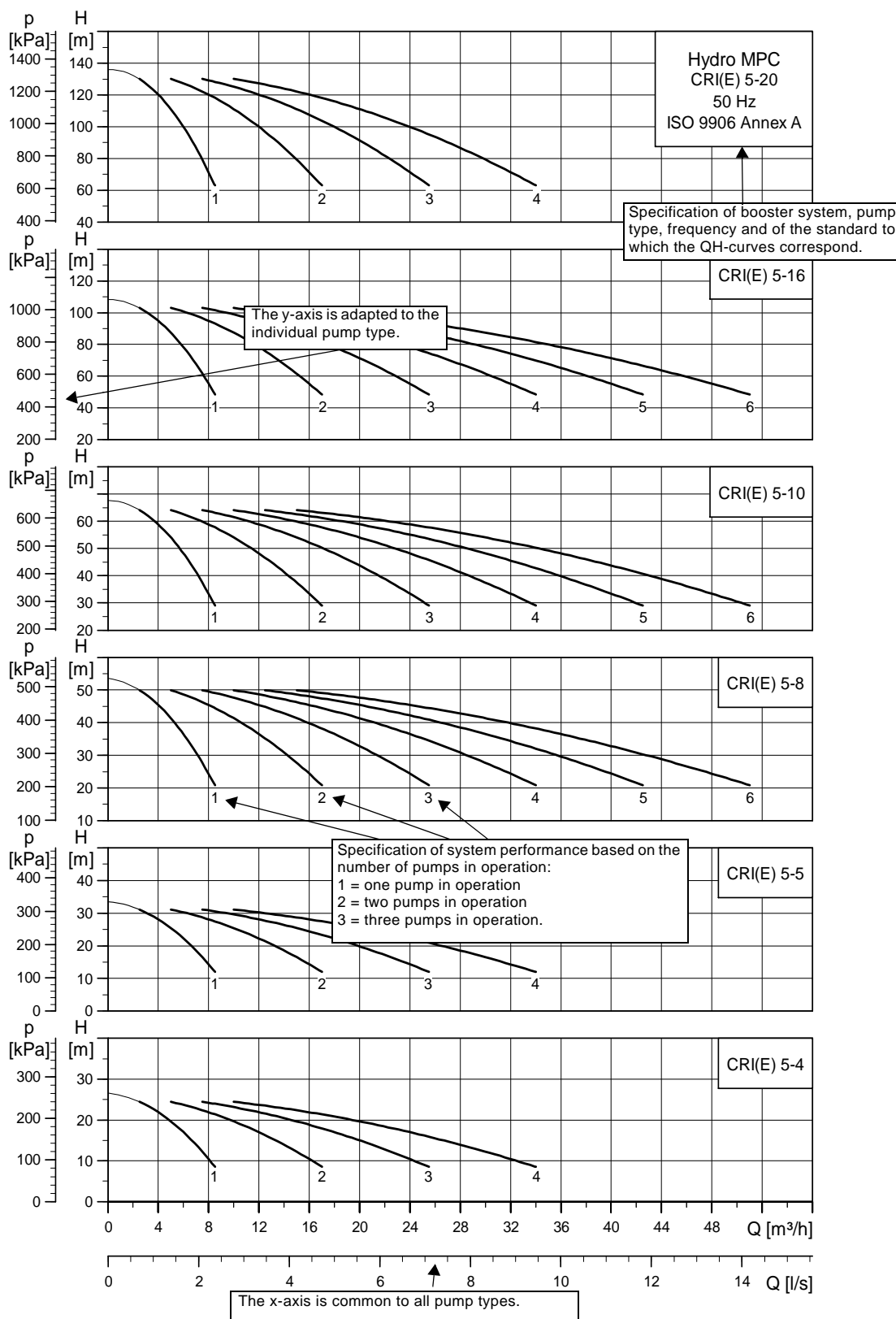
Symbol	Hydro MPC	
	-E and -F	-S
Q	Q_{nom} of one pump	Q_{nom} of one pump
k_Q	10 %	-
p_{set}	4 bar	4 bar
k_H	20 %	25 %
k_f	0.7	0.9

Example of Hydro MPC-E and -S with CRI(E) 20

Symbol	Hydro MPC-E	Hydro MPC-S
Q [m^3/h]	10	10
k_Q	10 %	-
k_H	20 %	25 %
p_{set} [bar]	4	4
N [h^{-1}]	200	100
Result		
V_0 [litres]	18.3	163
Selected tank	18	180
ΔH [bar]	0.8	1
p_0 [bar]	2.8	3.6

Understanding the curve charts

The x-axis showing the flow rate (Q) in m³/h is common to all the curves; the y-axis showing the head (H) in metres has been adapted to the individual pump type.



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Example: How to select a system

- A flow rate of 67.5 m³/h is required.
- A head of 73 metres is required.

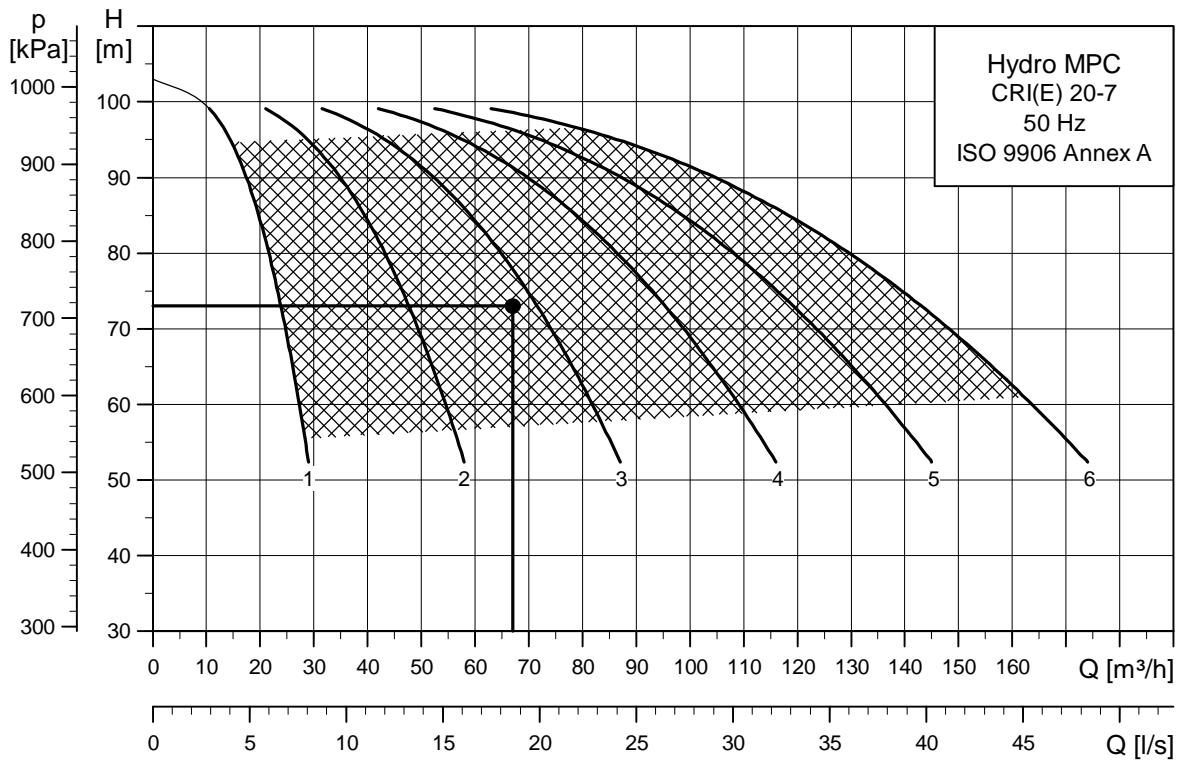
Now draw a vertical line from the specified flow rate.

Draw a horizontal line from the head required.

The intersection of the two lines gives the number of pumps required for the system (3 CRI(E) 20-7).

The pump type best meeting this specification is found by means of the y-axis, for instance 3 CRI(E) 20-7.

Only booster systems with performance ranges within the hatched area in the example should be selected.



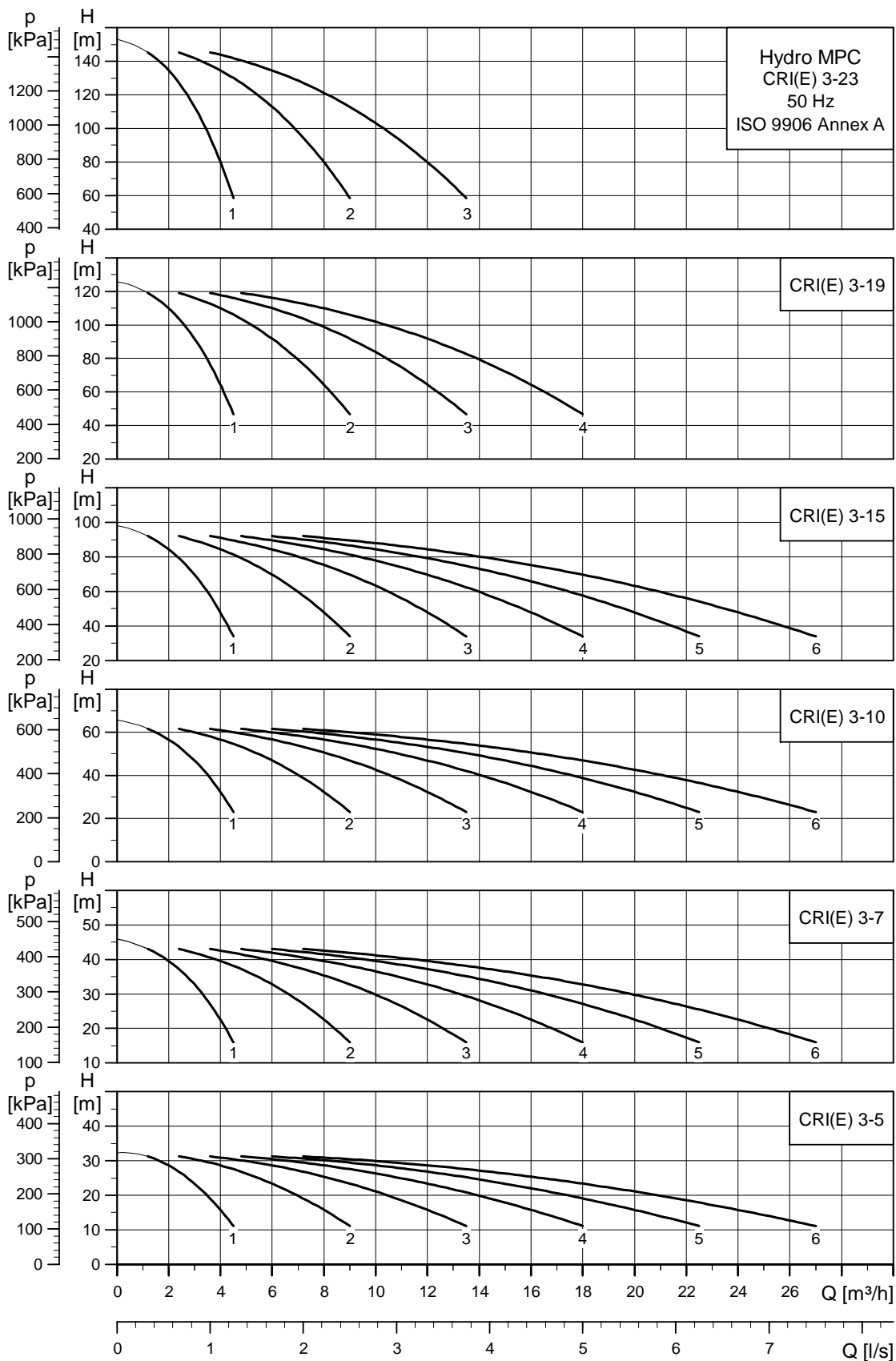
TM03 1153 2009

How to read the curve charts

The guidelines below apply to the curves shown on the following pages:

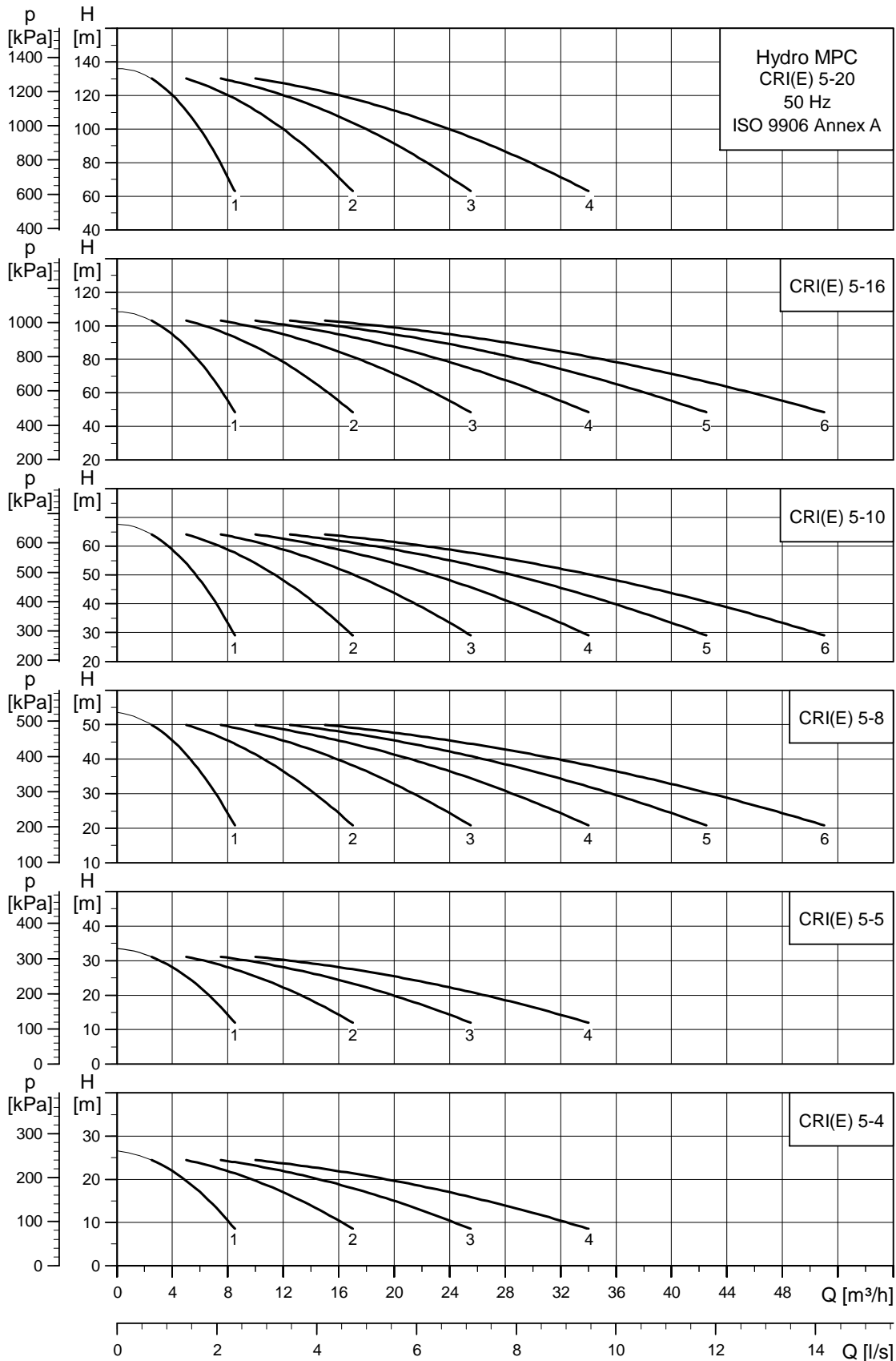
1. Tolerances to ISO 9906, Annex A, if indicated.
2. The curves show the pump mean values.
3. The curves should not be used as guarantee curves.
4. Measurements were made with pure water at a temperature of +20 °C.
5. The curves apply to a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).

Hydro MPC with CRI(E) 3



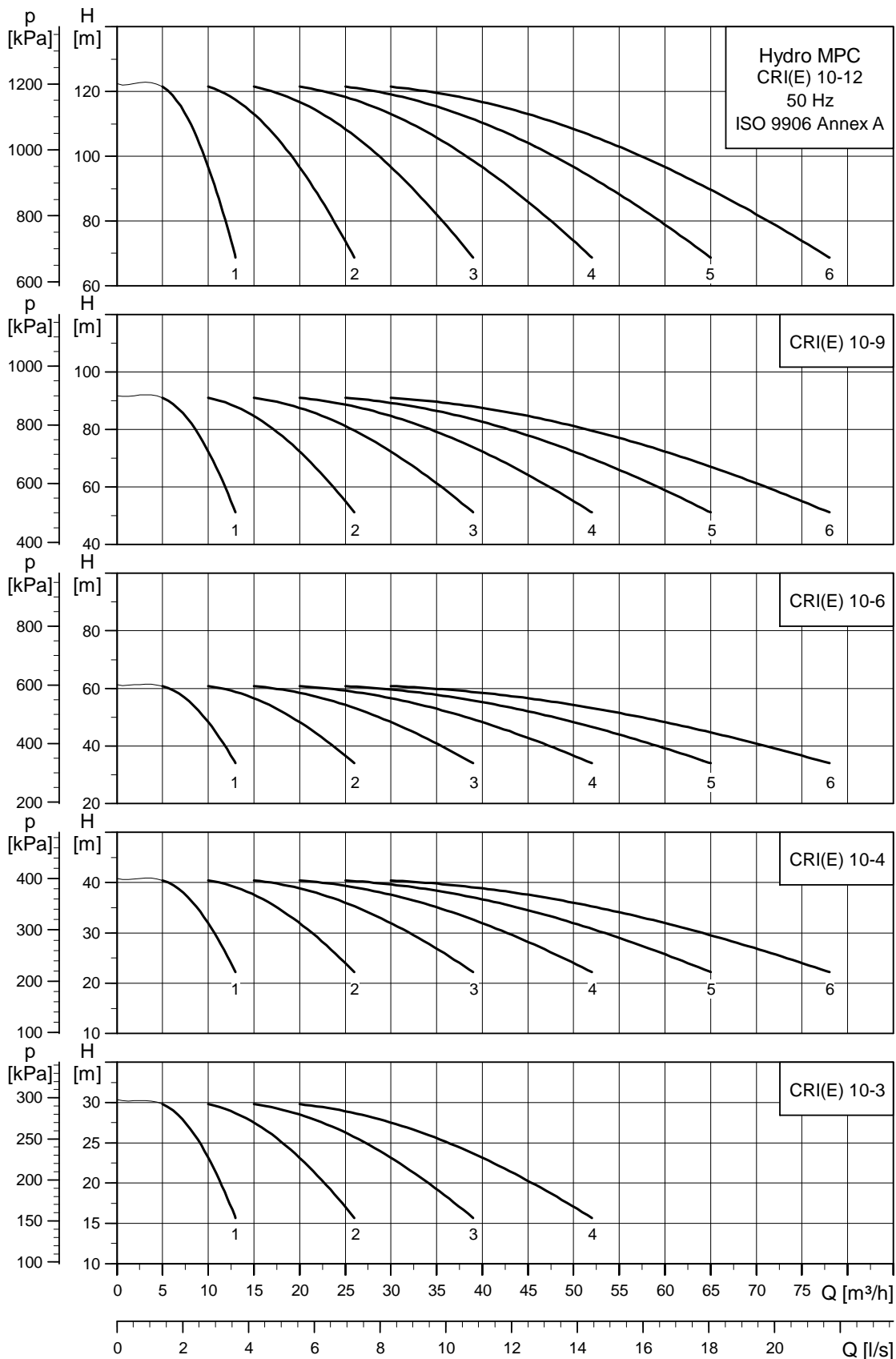
TM03 0989 3806

Hydro MPC with CRI(E) 5



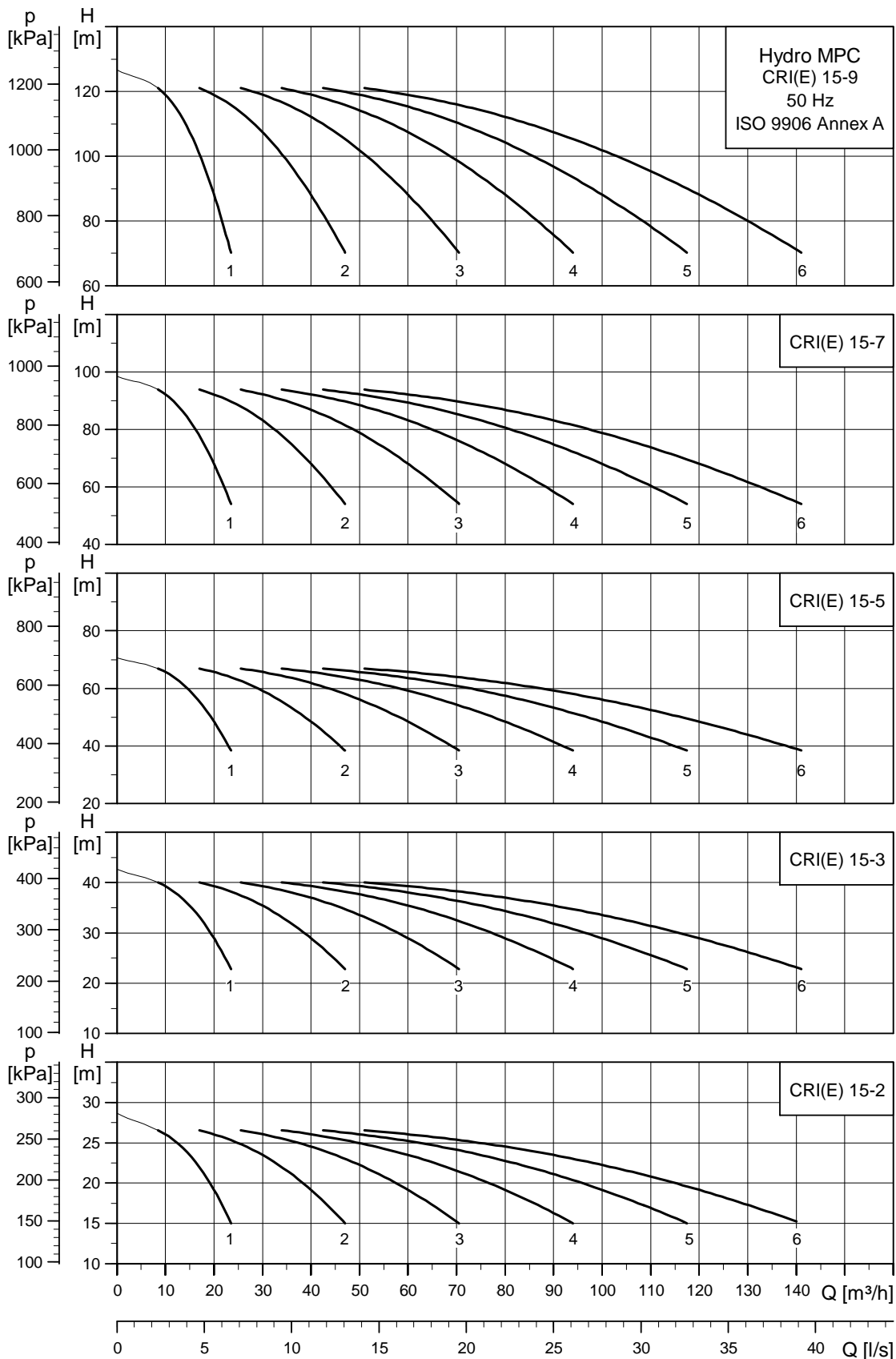
TM03 0990 2009

Hydro MPC with CRI(E) 10



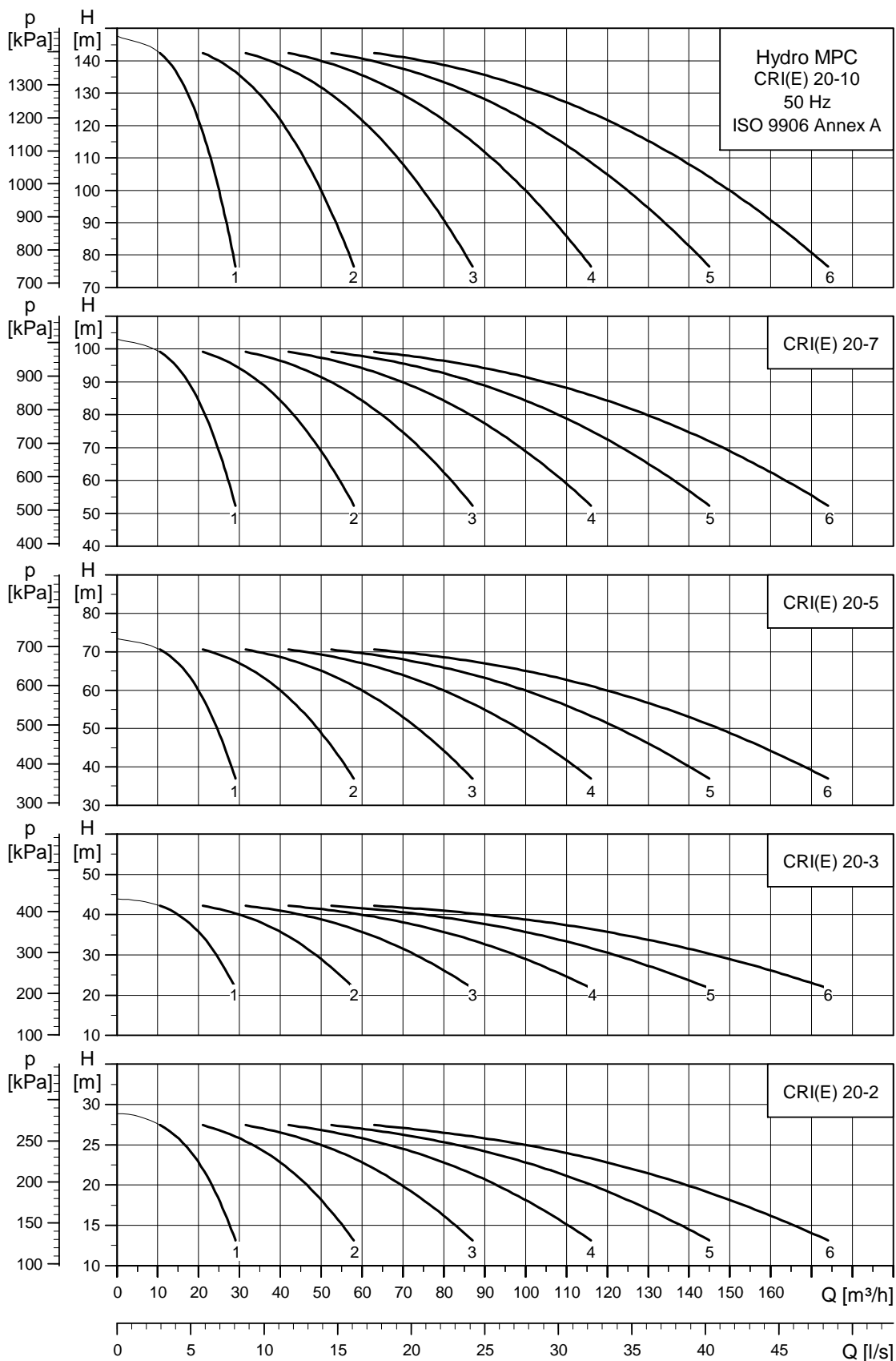
TM03 0991 2009

Hydro MPC with CRI(E) 15



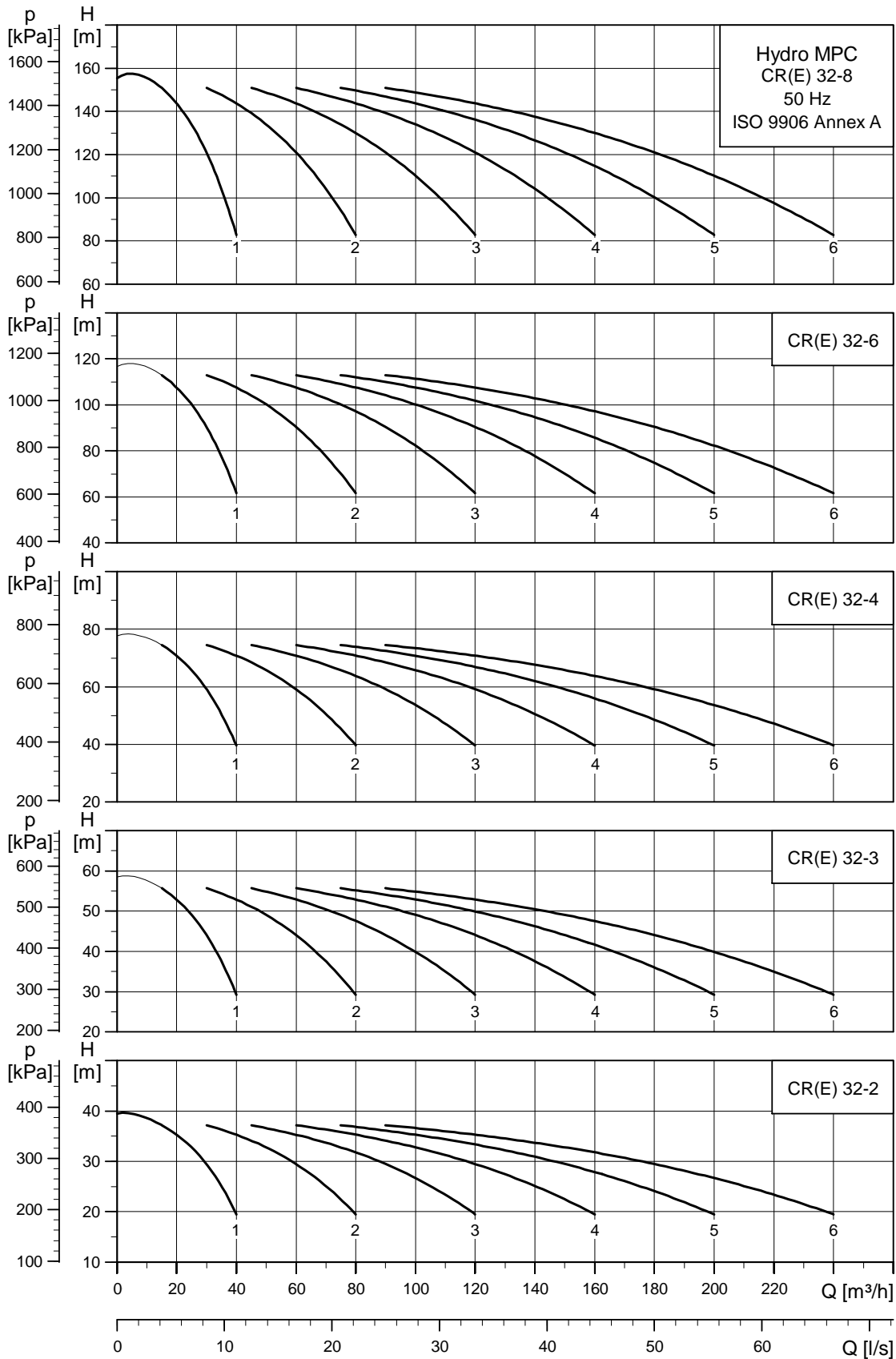
TM03 1066 2009

Hydro MPC with CRI(E) 20



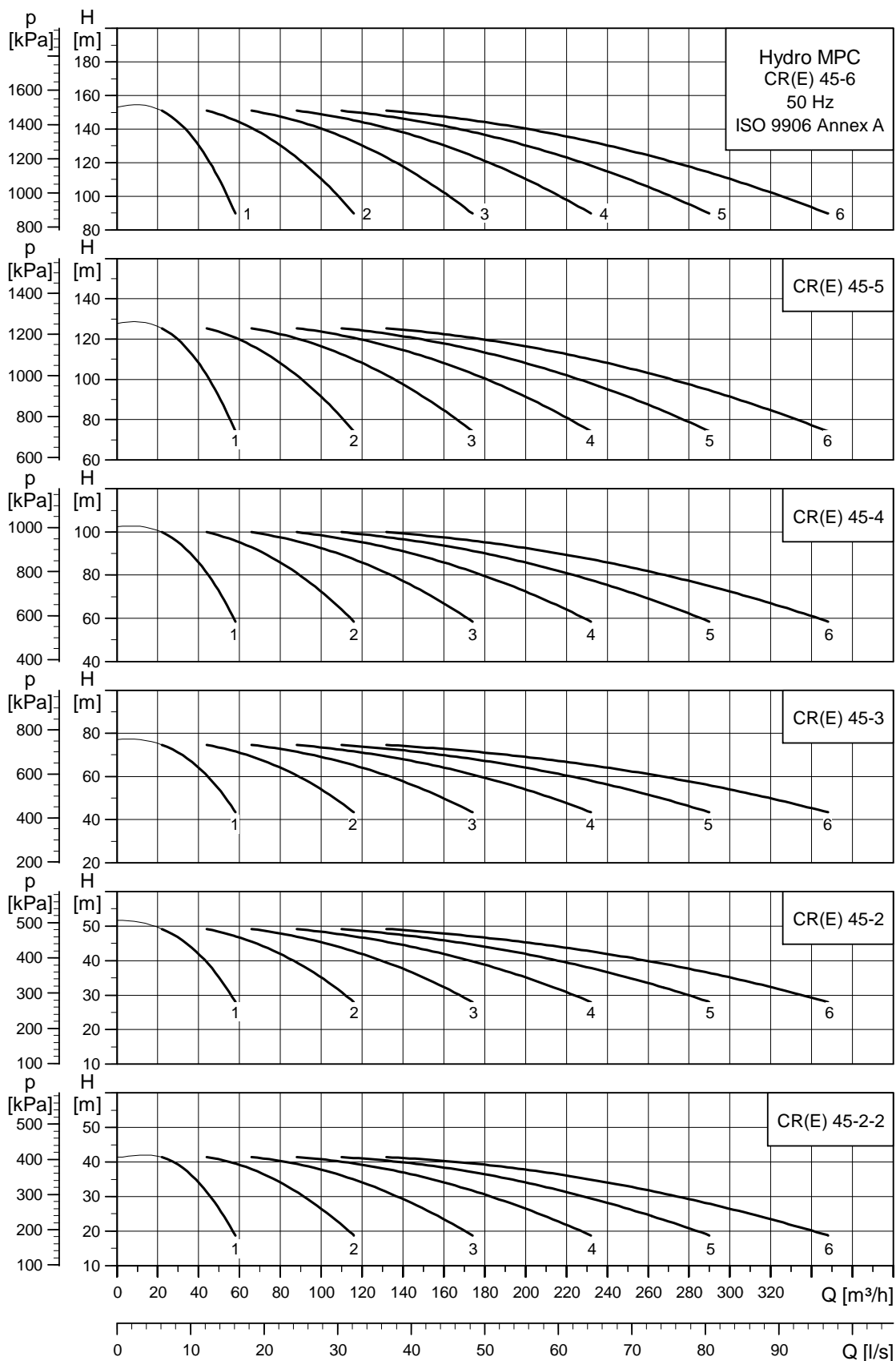
TM03 1067 2009

Hydro MPC with CR(E) 32



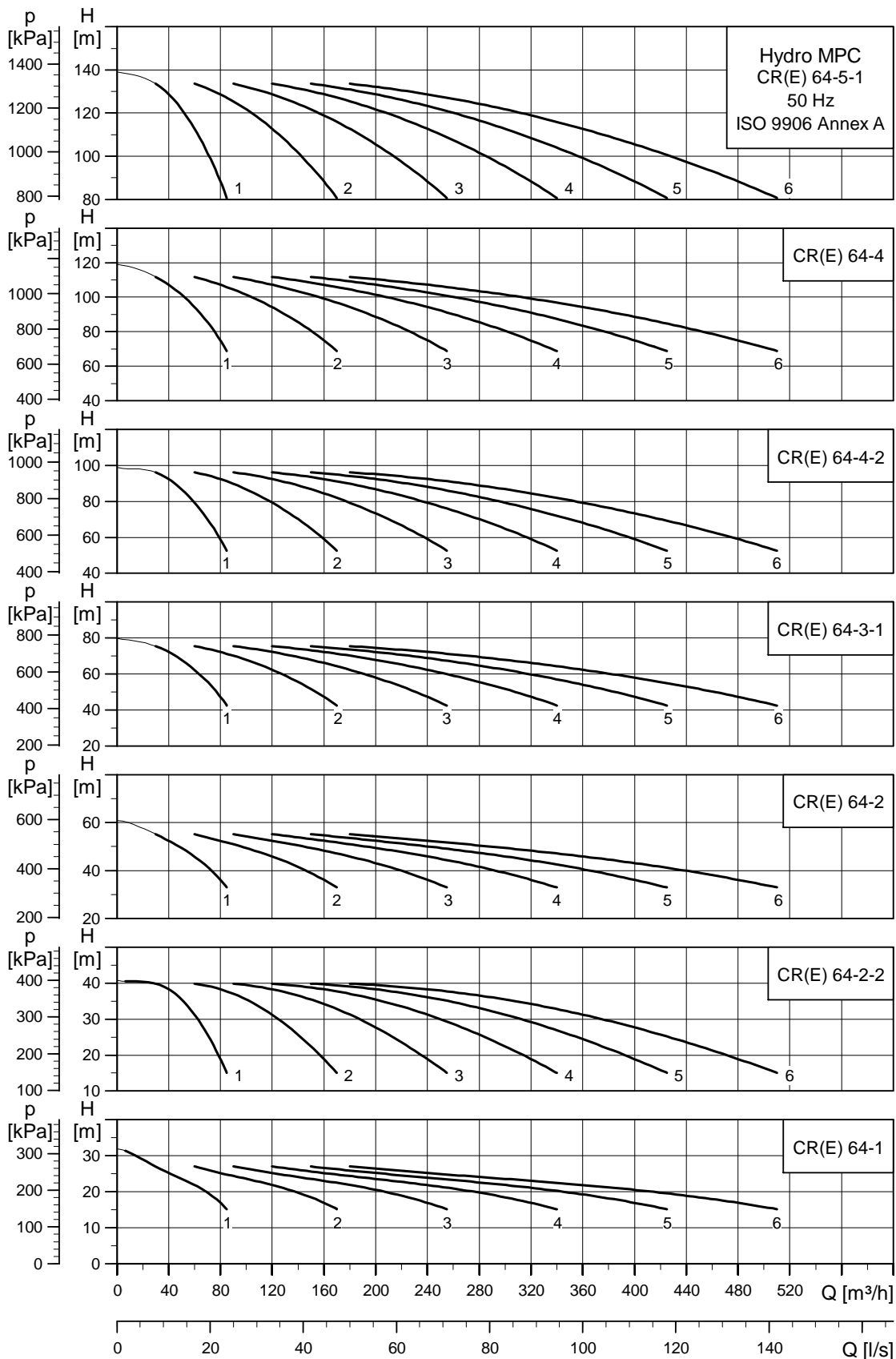
TM03 1068 2009

Hydro MPC with CR(E) 45



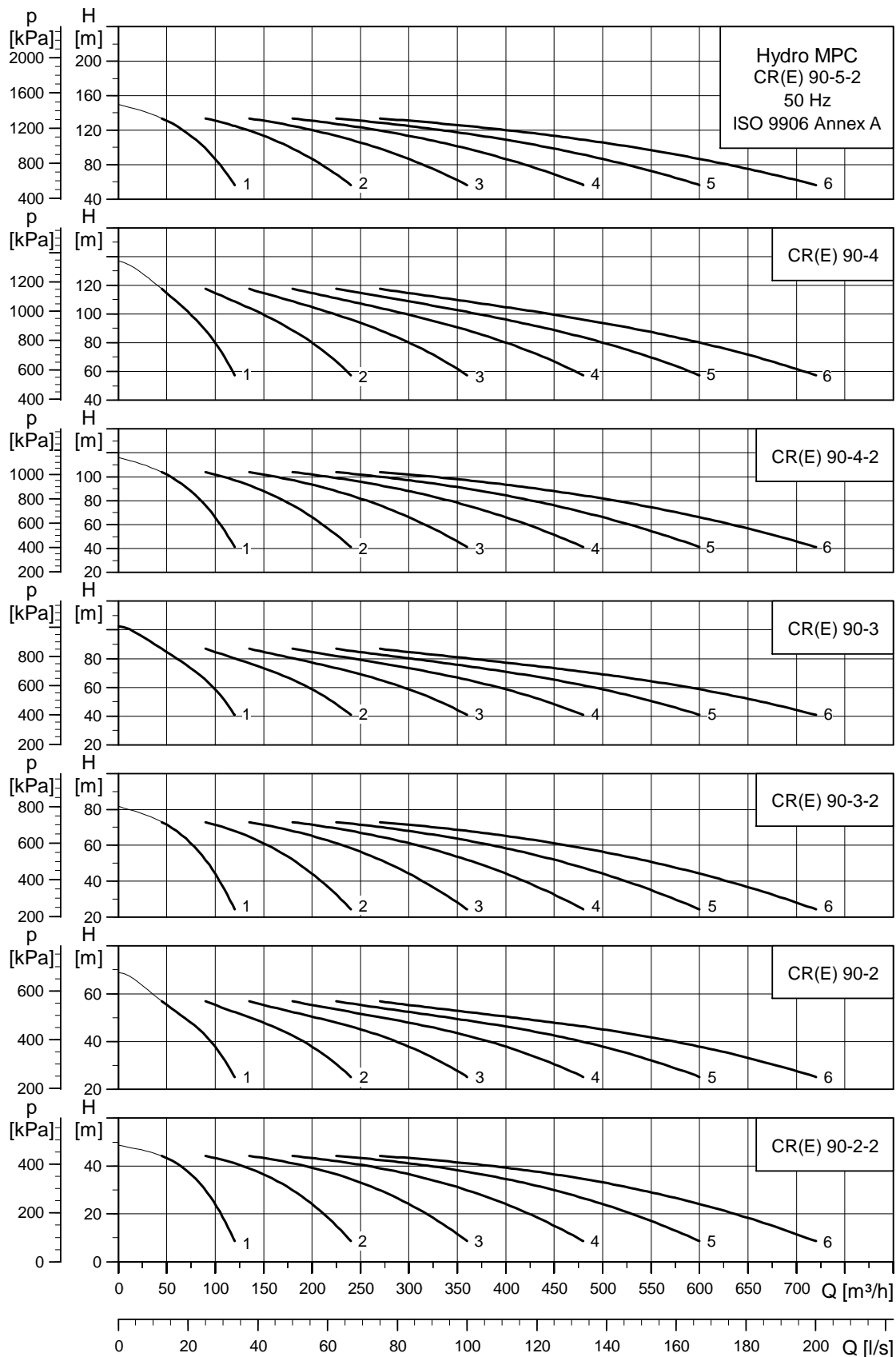
TM03 1069 2009

Hydro MPC with CR(E) 64



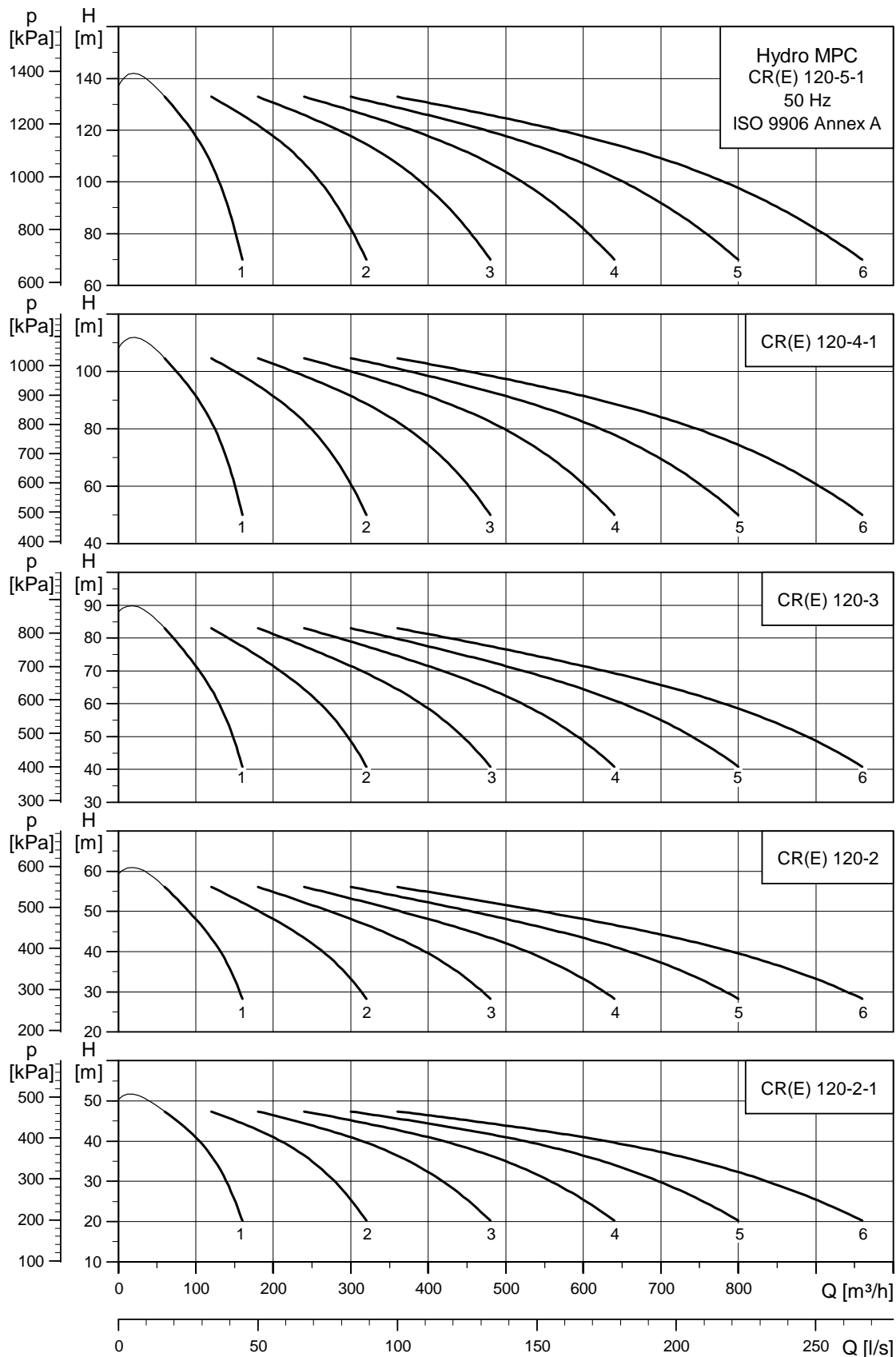
TM03 1070 3806

Hydro MPC with CR(E) 90



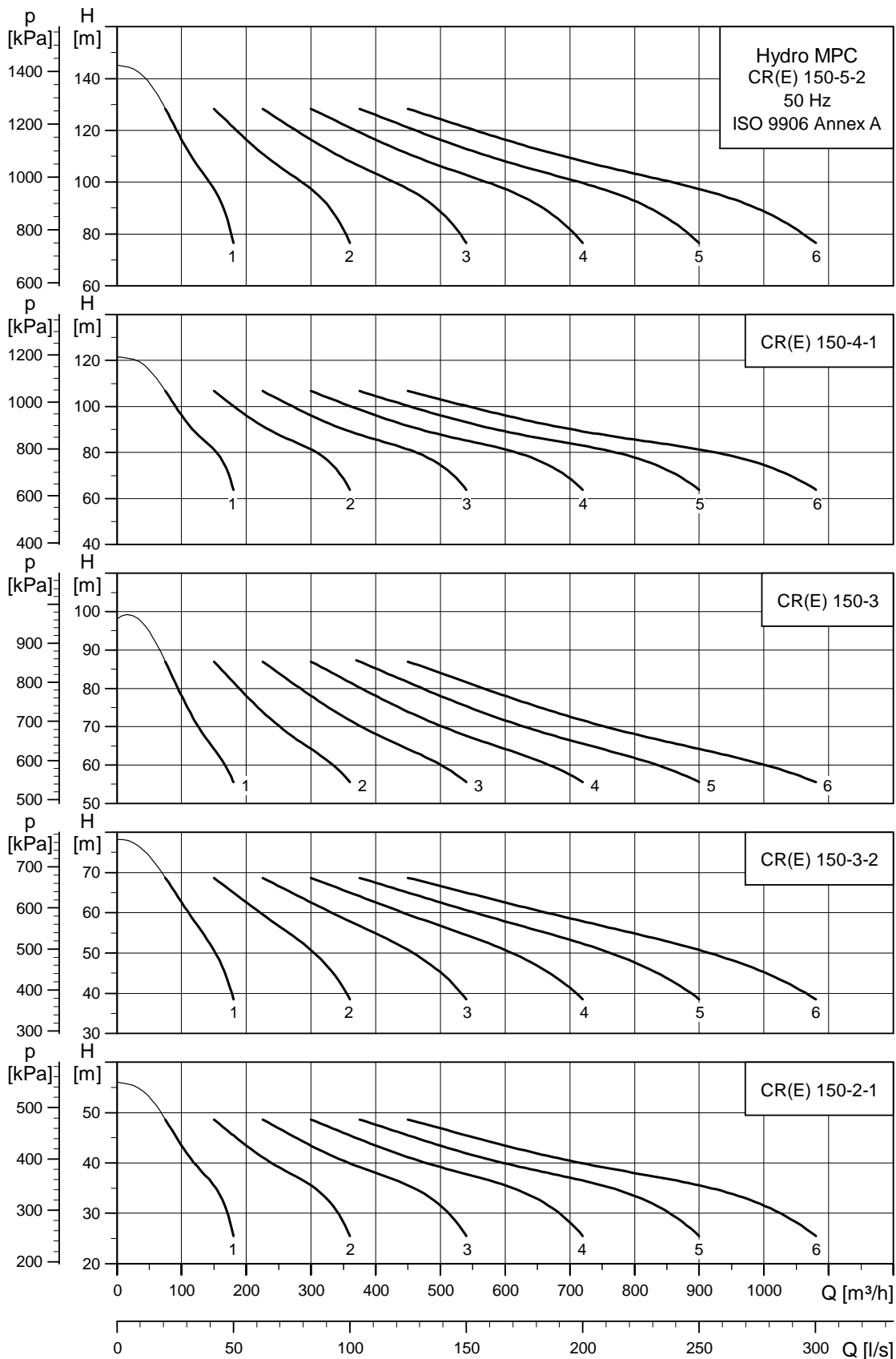
TM03 1143 2009

Hydro MPC with CR(E) 120



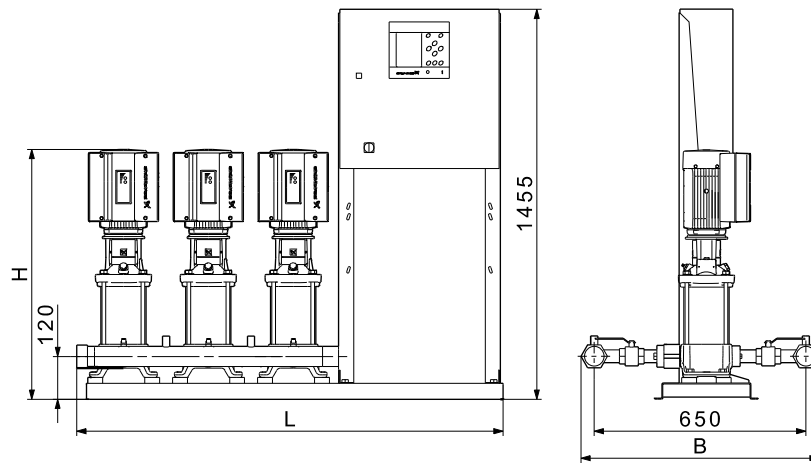
TM04 4774 2009

Hydro MPC with CR(E) 150



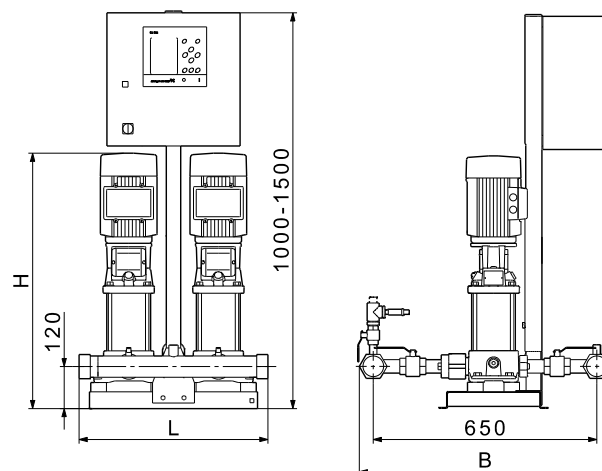
TM04 4775 2009

Hydro MPC with CRI(E) 3 / CRI(E) 5



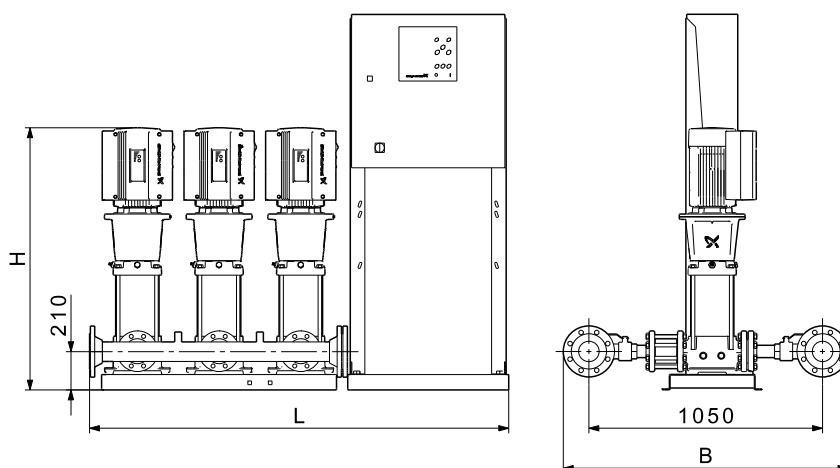
TM03 1740 1909

Fig. 36 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps (design A)



TM03 1181 1909

Fig. 37 Dimensional sketch of a Hydro MPC booster system with a control cabinet centred on the base frame (design B)



TM03 1187 1909

Fig. 38 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRI E 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Max. I_0 [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRIE3-5 ¹⁾	3x380-415V, ±10%, N, PE	0.37	3.8	2.7	Rp 2	714	1050	551	100	A
	CRIE3-7 ¹⁾	3x380-415V, ±10%, N, PE	0.55	6.1	3.9	Rp 2	714	1050	645	103	A
	CRIE3-10 ¹⁾	3x380-415V, ±10%, N, PE	0.75	7.2	5.1	Rp 2	714	1050	690	113	A
	CRIE3-15 ¹⁾	3x380-415V, ±10%, N, PE	1.1	10.5	7.4	Rp 2	714	1050	827	116	A
	CRIE3-19	3x380-415V, ±5%, PE	1.5	6.8	-	Rp 2	714	1050	940	147	A
	CRIE3-23	3x380-415V, ±5%, PE	2.2	9.5	-	Rp 2	714	1050	1052	154	A
3	CRIE3-5 ¹⁾	3x380-415V, ±10%, N, PE	0.37	4.7	2.7	Rp 2	714	1370	551	156	A
	CRIE3-7 ¹⁾	3x380-415V, ±10%, N, PE	0.55	7.4	3.9	Rp 2	714	1370	645	160	A
	CRIE3-10 ¹⁾	3x380-415V, ±10%, N, PE	0.75	8.8	5.1	Rp 2	714	1370	690	175	A
	CRIE3-15 ¹⁾	3x380-415V, ±10%, N, PE	1.1	12.8	7.4	Rp 2	714	1370	827	179	A
	CRIE3-19	3x380-415V, ±5%, PE	1.5	10.2	-	Rp 2	714	1370	940	224	A
	CRIE3-23	3x380-415V, ±5%, PE	2.2	14.3	-	Rp 2	714	1370	1052	235	A
4	CRIE3-5 ¹⁾	3x380-415V, ±10%, N, PE	0.37	5.4	5.4	Rp 2 1/2	730	1690	551	200	A
	CRIE3-7 ¹⁾	3x380-415V, ±10%, N, PE	0.55	8.6	7.8	Rp 2 1/2	730	1690	645	206	A
	CRIE3-10 ¹⁾	3x380-415V, ±10%, N, PE	0.75	10.2	10.2	Rp 2 1/2	730	1690	690	225	A
	CRIE3-15 ¹⁾	3x380-415V, ±10%, N, PE	1.1	14.8	14.8	Rp 2 1/2	730	1690	827	232	A
	CRIE3-19	3x380-415V, ±5%, PE	1.5	13.6	-	Rp 2 1/2	730	1690	940	291	A
	CRIE3-23	3x380-415V, ±5%, PE	2.2	19	-	Rp 2 1/2	730	1690	1052	306	A

Hydro MPC-F with CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI3-7	3x380-415V, ±5%, PE	0.55	2.9	Rp 2	714	610	587	168	C
	CRI3-10	3x380-415V, ±5%, PE	0.75	3.8	Rp 2	714	610	690	178	C
	CRI3-15	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	714	610	777	181	C
	CRI3-19	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	714	610	915	195	C
	CRI3-23	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	714	610	987	202	C
	3	CRI3-7	3x380-415V, ±5%, PE	0.55	4.3	Rp 2	714	930	587	212
CRI3-10		3x380-415V, ±5%, PE	0.75	5.7	Rp 2	714	930	690	227	C
CRI3-15		3x380-415V, ±5%, PE	1.1	7.8	Rp 2	714	930	777	232	C
CRI3-19		3x380-415V, ±5%, PE	1.5	10.2	Rp 2	714	930	915	253	C
CRI3-23		3x380-415V, ±5%, PE	2.2	14.3	Rp 2	714	930	987	264	C
4		CRI3-7	3x380-415V, ±5%, PE	0.55	5.8	Rp 2 1/2	730	1250	587	257
	CRI3-10	3x380-415V, ±5%, PE	0.75	7.6	Rp 2 1/2	730	1250	690	278	A
	CRI3-15	3x380-415V, ±5%, PE	1.1	10.4	Rp 2 1/2	730	1250	777	283	A
	CRI3-19	3x380-415V, ±5%, PE	1.5	13.6	Rp 2 1/2	730	1250	915	312	A
	CRI3-23	3x380-415V, ±5%, PE	2.2	19	Rp 2 1/2	730	1250	987	326	A

1) CRI(E) pumps with single-phase motors.

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase pumps.

Dimensions may vary by ± 10 mm.

Hydro MPC-S with CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI3-5	3x380-415V, ±5%, PE	0.37	2	Rp 2	714	720	551	102	B
	CRI3-7	3x380-415V, ±5%, PE	0.55	2.9	Rp 2	714	720	587	105	B
	CRI3-10	3x380-415V, ±5%, PE	0.75	3.8	Rp 2	714	720	690	115	B
	CRI3-15	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	714	720	777	118	B
	CRI3-19	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	714	720	915	132	B
	CRI3-23	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	714	720	987	139	B
3	CRI3-5	3x380-415V, ±5%, PE	0.37	3	Rp 2	714	1570	551	164	A
	CRI3-7	3x380-415V, ±5%, PE	0.55	4.3	Rp 2	714	1570	587	168	A
	CRI3-10	3x380-415V, ±5%, PE	0.75	5.7	Rp 2	714	1570	690	184	A
	CRI3-15	3x380-415V, ±5%, PE	1.1	7.8	Rp 2	714	1570	777	188	A
	CRI3-19	3x380-415V, ±5%, PE	1.5	10.2	Rp 2	714	1570	915	209	A
	CRI3-23	3x380-415V, ±5%, PE	2.2	14.3	Rp 2	714	1570	987	220	A
4	CRI3-5	3x380-415V, ±5%, PE	0.37	4	Rp 2 1/2	730	1890	551	207	A
	CRI3-7	3x380-415V, ±5%, PE	0.55	5.8	Rp 2 1/2	730	1890	587	212	A
	CRI3-10	3x380-415V, ±5%, PE	0.75	7.6	Rp 2 1/2	730	1890	690	232	A
	CRI3-15	3x380-415V, ±5%, PE	1.1	10.4	Rp 2 1/2	730	1890	777	238	A
	CRI3-19	3x380-415V, ±5%, PE	1.5	13.6	Rp 2 1/2	730	1890	915	267	A
	CRI3-23	3x380-415V, ±5%, PE	2.2	19	Rp 2 1/2	730	1890	987	281	A

Hydro MPC-E with CRIE 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Max. I ₀ [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRIE5-4 ¹⁾	3x380-415V, ±10%, N, PE	0.55	6.1	3.9	Rp 2	714	1050	572	105	A
	CRIE5-5 ¹⁾	3x380-415V, ±10%, N, PE	0.75	7.2	5.1	Rp 2	714	1050	634	110	A
	CRIE5-8 ¹⁾	3x380-415V, ±10%, N, PE	1.1	10.5	7.4	Rp 2	714	1050	726	118	A
	CRIE5-10	3x380-415V, ±5%, PE	1.5	6.8	-	Rp 2	714	1050	846	145	A
	CRIE5-16	3x380-415V, ±5%, PE	2.2	9.5	-	Rp 2	714	1050	1070	155	A
	CRIE5-20	3x380-415V, ±5%, PE	3	12.4	-	Rp 2	714	1050	1175	173	A
3	CRIE5-4 ¹⁾	3x380-415V, ±10%, N, PE	0.55	7.4	3.9	Rp 2	714	1370	572	163	A
	CRIE5-5 ¹⁾	3x380-415V, ±10%, N, PE	0.75	8.8	5.1	Rp 2	714	1370	634	170	A
	CRIE5-8 ¹⁾	3x380-415V, ±10%, N, PE	1.1	12.8	7.4	Rp 2	714	1370	726	183	A
	CRIE5-10	3x380-415V, ±5%, PE	1.5	10.2	-	Rp 2	714	1370	846	221	A
	CRIE5-16	3x380-415V, ±5%, PE	2.2	14.3	-	Rp 2	714	1370	1070	236	A
	CRIE5-20	3x380-415V, ±5%, PE	3	18.6	-	Rp 2	714	1370	1175	264	A
4	CRIE5-4 ¹⁾	3x380-415V, ±10%, N, PE	0.55	8.6	7.8	Rp 2 1/2	730	1690	572	209	A
	CRIE5-5 ¹⁾	3x380-415V, ±10%, N, PE	0.75	10.2	10.2	Rp 2 1/2	730	1690	634	219	A
	CRIE5-8 ¹⁾	3x380-415V, ±10%, N, PE	1.1	14.8	14.8	Rp 2 1/2	730	1690	726	236	A
	CRIE5-10	3x380-415V, ±5%, PE	1.5	13.6	-	Rp 2 1/2	730	1690	846	287	A
	CRIE5-16	3x380-415V, ±5%, PE	2.2	19	-	Rp 2 1/2	730	1690	1070	307	A
	CRIE5-20	3x380-415V, ±5%, PE	3	25	-	Rp 2 1/2	730	1690	1175	344	A

1) CRI(E) pumps with single-phase motors.

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

Maximum current in neutral conductor, Max. I₀ [A], applies to booster systems with single-phase pumps.

Dimensions may vary by ± 10 mm.

Hydro MPC-F with CRI 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI5-4	3x380-415V, ±5%, PE	0.55	2.9	Rp 2	714	610	572	170	C
	CRI5-5	3x380-415V, ±5%, PE	0.75	3.8	Rp 2	714	610	642	172	C
	CRI5-8	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	714	610	726	183	C
	CRI5-10	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	714	610	846	199	C
	CRI5-16	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	714	610	1005	203	C
	CRI5-20	3x380-415V, ±5%, PE	3	12.8	Rp 2	714	610	1175	221	C
3	CRI5-4	3x380-415V, ±5%, PE	0.55	4.3	Rp 2	714	930	572	215	C
	CRI5-5	3x380-415V, ±5%, PE	0.75	5.7	Rp 2	714	930	642	219	C
	CRI5-8	3x380-415V, ±5%, PE	1.1	7.8	Rp 2	714	930	726	235	C
	CRI5-10	3x380-415V, ±5%, PE	1.5	10.2	Rp 2	714	930	846	258	C
	CRI5-16	3x380-415V, ±5%, PE	2.2	14.3	Rp 2	714	930	1005	265	C
	CRI5-20	3x380-415V, ±5%, PE	3	19.2	Rp 2	714	930	1175	292	C
4	CRI5-4	3x380-415V, ±5%, PE	0.55	5.8	Rp 2 1/2	730	1250	572	261	A
	CRI5-5	3x380-415V, ±5%, PE	0.75	7.6	Rp 2 1/2	730	1250	642	266	A
	CRI5-8	3x380-415V, ±5%, PE	1.1	10.4	Rp 2 1/2	730	1250	726	288	A
	CRI5-10	3x380-415V, ±5%, PE	1.5	13.6	Rp 2 1/2	730	1250	846	319	A
	CRI5-16	3x380-415V, ±5%, PE	2.2	19	Rp 2 1/2	730	1250	1005	328	A
	CRI5-20	3x380-415V, ±5%, PE	3	26	Rp 2 1/2	730	1250	1175	363	A

Hydro MPC-S with CRI 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI5-4	3x380-415V, ±5%, PE	0.55	2.9	Rp 2	714	720	572	107	B
	CRI5-5	3x380-415V, ±5%, PE	0.75	3.8	Rp 2	714	720	642	109	B
	CRI5-8	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	714	720	726	120	B
	CRI5-10	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	714	720	846	136	B
	CRI5-16	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	714	720	1005	140	B
	CRI5-20	3x380-415V, ±5%, PE	3	12.8	Rp 2	714	720	1175	158	B
3	CRI5-4	3x380-415V, ±5%, PE	0.55	4.3	Rp 2	714	1570	572	171	A
	CRI5-5	3x380-415V, ±5%, PE	0.75	5.7	Rp 2	714	1570	642	175	A
	CRI5-8	3x380-415V, ±5%, PE	1.1	7.8	Rp 2	714	1570	726	191	A
	CRI5-10	3x380-415V, ±5%, PE	1.5	10.2	Rp 2	714	1570	846	214	A
	CRI5-16	3x380-415V, ±5%, PE	2.2	14.3	Rp 2	714	1570	1005	221	A
	CRI5-20	3x380-415V, ±5%, PE	3	19.2	Rp 2	714	1570	1175	248	A
4	CRI5-4	3x380-415V, ±5%, PE	0.55	5.8	Rp 2 1/2	730	1890	572	216	A
	CRI5-5	3x380-415V, ±5%, PE	0.75	7.6	Rp 2 1/2	730	1890	642	221	A
	CRI5-8	3x380-415V, ±5%, PE	1.1	10.4	Rp 2 1/2	730	1890	726	243	A
	CRI5-10	3x380-415V, ±5%, PE	1.5	13.6	Rp 2 1/2	730	1890	846	274	A
	CRI5-16	3x380-415V, ±5%, PE	2.2	19	Rp 2 1/2	730	1890	1005	283	A
	CRI5-20	3x380-415V, ±5%, PE	3	26	Rp 2 1/2	730	1890	1175	318	A

1) CRI(E) pumps with single-phase motors.

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

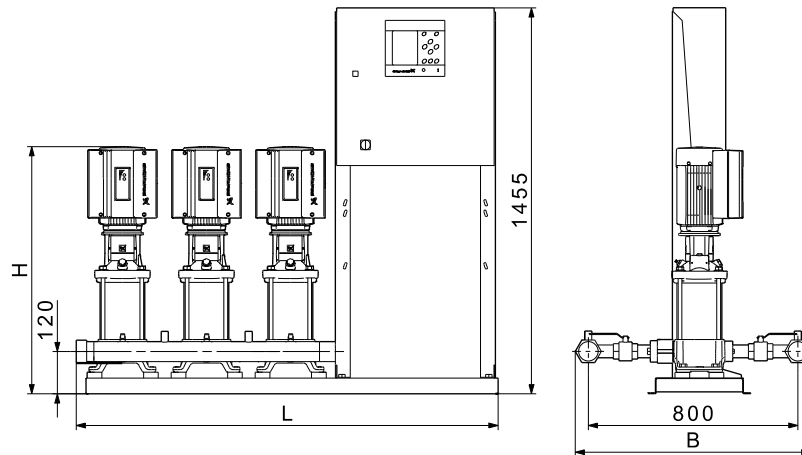
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

Maximum current in neutral conductor, Max. I₀ [A], applies to booster systems with single-phase pumps.

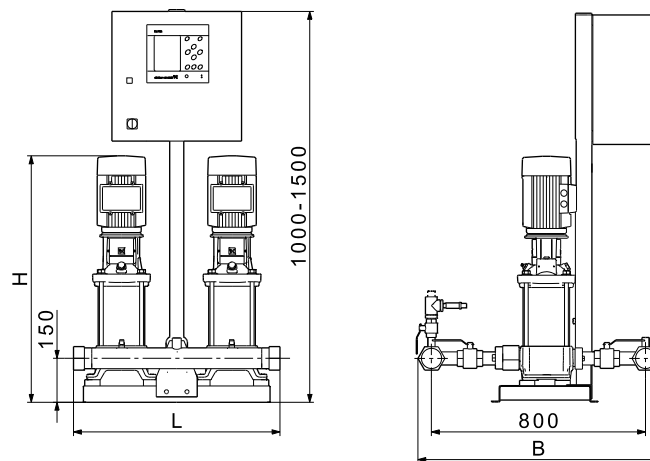
Dimensions may vary by ± 10 mm.

Hydro MPC with CRI(E) 10



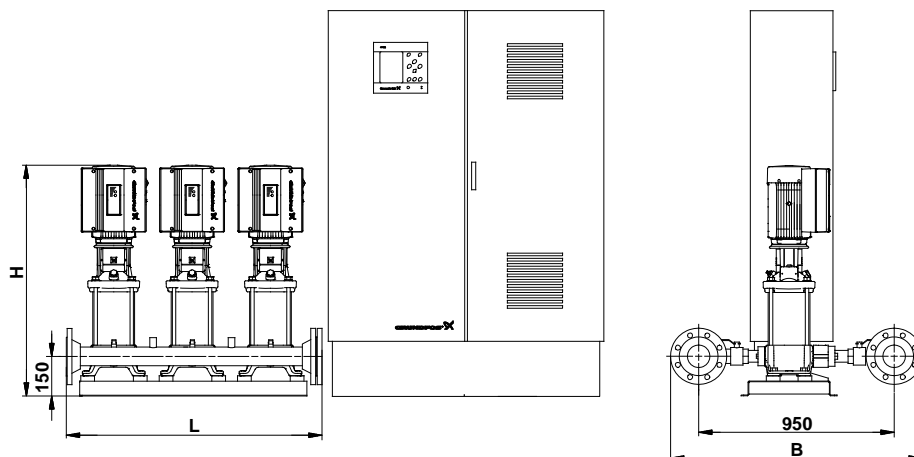
TM03 1182 2009

Fig. 39 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps (design A)



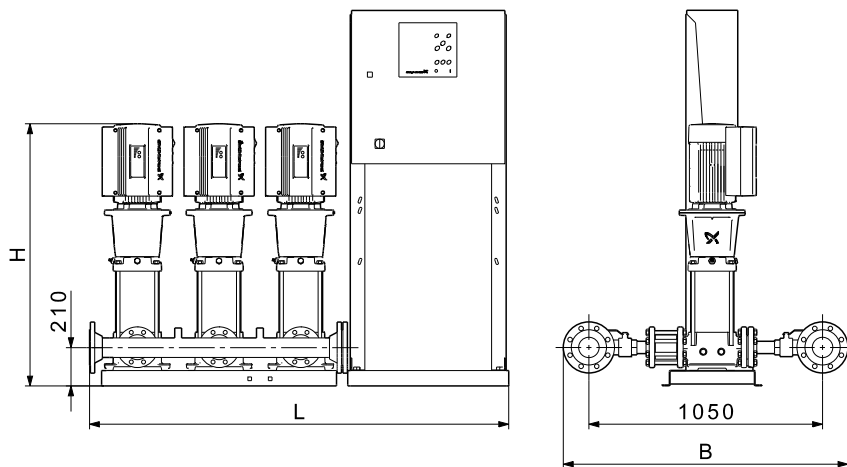
TM03 1183 2009

Fig. 40 Dimensional sketch of a Hydro MPC booster system with a control cabinet centred on the base frame (design B)



TM03 3044 0106

Fig. 41 Dimensional sketch of a Hydro MPC booster system with a floor-mounted control cabinet (design C)



TM03 1187 1909

Fig. 42 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRIE 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Max. I ₀ [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRIE10-3 ¹⁾	3x380-415V, ±10%, N, PE	1.1	10.5	7.4	Rp 2	864	1080	688	140	A
	CRIE10-4	3x380-415V, ±5%, PE	1.5	6.8	-	Rp 2	864	1080	783	173	A
	CRIE10-6	3x380-415V, ±5%, PE	2.2	9.5	-	Rp 2	864	1080	884	181	A
	CRIE10-9	3x380-415V, ±5%, PE	3	12.4	-	Rp 2	864	1080	992	197	A
	CRIE10-12	3x380-415V, ±5%, PE	4	16	-	Rp 2	864	1080	1119	223	A
3	CRIE10-3 ¹⁾	3x380-415V, ±10%, N, PE	1.1	12.8	7.4	Rp 2 1/2	880	1400	688	223	A
	CRIE10-4	3x380-415V, ±5%, PE	1.5	10.2	-	Rp 2 1/2	880	1400	783	271	A
	CRIE10-6	3x380-415V, ±5%, PE	2.2	14.3	-	Rp 2 1/2	880	1400	884	283	A
	CRIE10-9	3x380-415V, ±5%, PE	3	18.6	-	Rp 2 1/2	880	1400	992	307	A
	CRIE10-12	3x380-415V, ±5%, PE	4	24	-	Rp 2 1/2	880	1400	1119	347	A
4	CRIE10-3 ¹⁾	3x380-415V, ±10%, N, PE	1.1	14.8	14.8	DN 80	1004	1720	688	299	A
	CRIE10-4	3x380-415V, ±5%, PE	1.5	13.6	-	DN 80	1004	1720	783	364	A
	CRIE10-6	3x380-415V, ±5%, PE	2.2	19	-	DN 80	1004	1720	884	380	A
	CRIE10-9	3x380-415V, ±5%, PE	3	25	-	DN 80	1004	1720	992	412	A
	CRIE10-12	3x380-415V, ±5%, PE	4	32	-	DN 80	1004	1720	1119	465	A
5	CRIE10-3 ¹⁾	3x380-415V, ±10%, N, PE	1.1	16.5	14.8	DN 80	1004	1640	688	341	D
	CRIE10-4	3x380-415V, ±5%, PE	1.5	17	-	DN 80	1004	1640	783	420	D
	CRIE10-6	3x380-415V, ±5%, PE	2.2	24	-	DN 80	1004	1640	884	441	D
	CRIE10-9	3x380-415V, ±5%, PE	3	31	-	DN 80	1004	1640	992	481	D
	CRIE10-12	3x380-415V, ±5%, PE	4	40	-	DN 80	1004	1640	1119	547	D
6	CRIE10-3 ¹⁾	3x380-415V, ±10%, N, PE	1.1	18.1	14.8	DN 100	1024	2102	688	405	D
	CRIE10-4	3x380-415V, ±5%, PE	1.5	20	-	DN 100	1024	2102	783	511	D
	CRIE10-6	3x380-415V, ±5%, PE	2.2	29	-	DN 100	1024	2102	884	535	D
	CRIE10-9	3x380-415V, ±5%, PE	3	37	-	DN 100	1024	2102	992	584	D
	CRIE10-12	3x380-415V, ±5%, PE	4	48	-	DN 100	1024	2102	1119	664	D

Hydro MPC-F with CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI10-3	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	864	670	688	206	C
	CRI10-4	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	864	670	784	218	C
	CRI10-6	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	864	670	844	226	C
	CRI10-9	3x380-415V, ±5%, PE	3	12.8	Rp 2	864	670	993	243	C
	CRI10-12	3x380-415V, ±5%, PE	4	16	Rp 2	864	670	1120	272	C
3	CRI10-3	3x380-415V, ±5%, PE	1.1	7.8	Rp 2 1/2	880	990	688	277	C
	CRI10-4	3x380-415V, ±5%, PE	1.5	10.2	Rp 2 1/2	880	990	784	295	C
	CRI10-6	3x380-415V, ±5%, PE	2.2	14.3	Rp 2 1/2	880	990	844	307	C
	CRI10-9	3x380-415V, ±5%, PE	3	19.2	Rp 2 1/2	880	990	993	333	C
	CRI10-12	3x380-415V, ±5%, PE	4	24	Rp 2 1/2	880	990	1120	375	C
4	CRI10-3	3x380-415V, ±5%, PE	1.1	10.4	DN 80	1004	1320	688	354	C
	CRI10-4	3x380-415V, ±5%, PE	1.5	13.6	DN 80	1004	1320	784	378	C
	CRI10-6	3x380-415V, ±5%, PE	2.2	19	DN 80	1004	1320	844	394	C
	CRI10-9	3x380-415V, ±5%, PE	3	26	DN 80	1004	1320	993	428	C
	CRI10-12	3x380-415V, ±5%, PE	4	32	DN 80	1004	1320	1120	484	C
5	CRI10-3	3x380-415V, ±5%, PE	1.1	13	DN 80	1004	1640	688	404	C
	CRI10-4	3x380-415V, ±5%, PE	1.5	17	DN 80	1004	1640	784	434	C
	CRI10-6	3x380-415V, ±5%, PE	2.2	24	DN 80	1004	1640	844	455	C
	CRI10-9	3x380-415V, ±5%, PE	3	32	DN 80	1004	1640	993	496	C
	CRI10-12	3x380-415V, ±5%, PE	4	40	DN 80	1004	1640	1120	567	C
6	CRI10-3	3x380-415V, ±5%, PE	1.1	15.6	DN 100	1024	2102	688	470	C
	CRI10-4	3x380-415V, ±5%, PE	1.5	20	DN 100	1024	2102	784	506	C
	CRI10-6	3x380-415V, ±5%, PE	2.2	29	DN 100	1024	2102	844	530	C
	CRI10-9	3x380-415V, ±5%, PE	3	38	DN 100	1024	2102	993	581	C
	CRI10-12	3x380-415V, ±5%, PE	4	48	DN 100	1024	2102	1120	666	C

Hydro MPC-S with CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI10-3	3x380-415V, ±5%, PE	1.1	5.2	Rp 2	864	750	688	143	B
	CRI10-4	3x380-415V, ±5%, PE	1.5	6.8	Rp 2	864	750	784	155	B
	CRI10-6	3x380-415V, ±5%, PE	2.2	9.5	Rp 2	864	750	844	163	B
	CRI10-9	3x380-415V, ±5%, PE	3	12.8	Rp 2	864	750	993	180	B
	CRI10-12	3x380-415V, ±5%, PE	4	16	Rp 2	864	750	1120	208	B
3	CRI10-3	3x380-415V, ±5%, PE	1.1	7.8	Rp 2 1/2	880	1600	688	233	A
	CRI10-4	3x380-415V, ±5%, PE	1.5	10.2	Rp 2 1/2	880	1600	784	251	A
	CRI10-6	3x380-415V, ±5%, PE	2.2	14.3	Rp 2 1/2	880	1600	844	263	A
	CRI10-9	3x380-415V, ±5%, PE	3	19.2	Rp 2 1/2	880	1600	993	288	A
	CRI10-12	3x380-415V, ±5%, PE	4	24	Rp 2 1/2	880	1600	1120	330	A
4	CRI10-3	3x380-415V, ±5%, PE	1.1	10.4	DN 80	1004	1920	688	309	A
	CRI10-4	3x380-415V, ±5%, PE	1.5	13.6	DN 80	1004	1920	784	333	A
	CRI10-6	3x380-415V, ±5%, PE	2.2	19	DN 80	1004	1920	844	349	A
	CRI10-9	3x380-415V, ±5%, PE	3	26	DN 80	1004	1920	993	382	A
	CRI10-12	3x380-415V, ±5%, PE	4	32	DN 80	1004	1920	1120	438	A
5	CRI10-3	3x380-415V, ±5%, PE	1.1	13	DN 80	1004	1640	688	350	D
	CRI10-4	3x380-415V, ±5%, PE	1.5	17	DN 80	1004	1640	784	380	D
	CRI10-6	3x380-415V, ±5%, PE	2.2	24	DN 80	1004	1640	844	400	D
	CRI10-9	3x380-415V, ±5%, PE	3	32	DN 80	1004	1640	993	442	D
	CRI10-12	3x380-415V, ±5%, PE	4	40	DN 80	1004	1640	1120	512	D
6	CRI10-3	3x380-415V, ±5%, PE	1.1	15.6	DN 100	1024	2102	688	412	D
	CRI10-4	3x380-415V, ±5%, PE	1.5	20	DN 100	1024	2102	784	448	D
	CRI10-6	3x380-415V, ±5%, PE	2.2	29	DN 100	1024	2102	844	472	D
	CRI10-9	3x380-415V, ±5%, PE	3	38	DN 100	1024	2102	993	522	D
	CRI10-12	3x380-415V, ±5%, PE	4	48	DN 100	1024	2102	1120	606	D

1) CRI(E) pumps with single-phase motors.

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

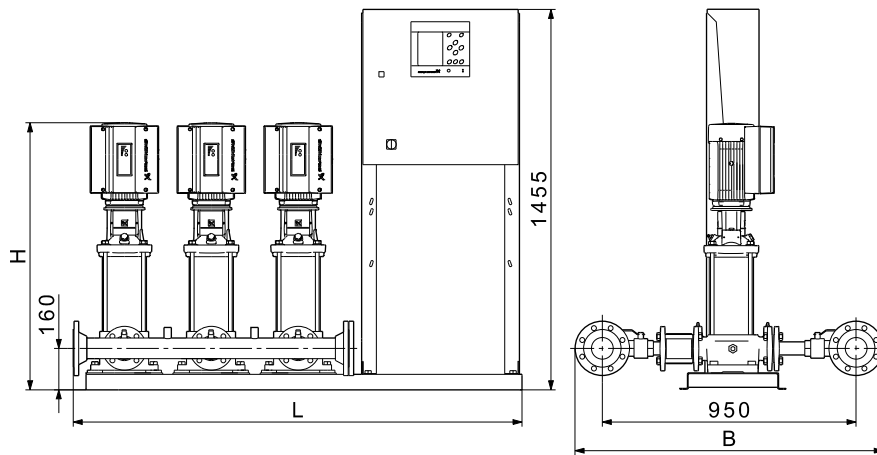
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase pumps.

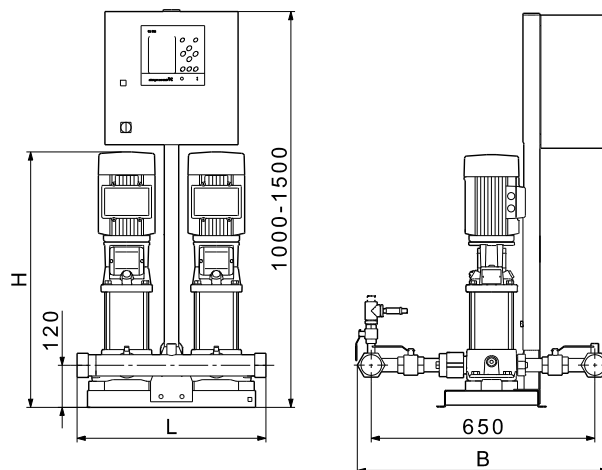
Dimensions may vary by ± 10 mm.

Hydro MPC with CRI(E) 15 / CRI(E) 20



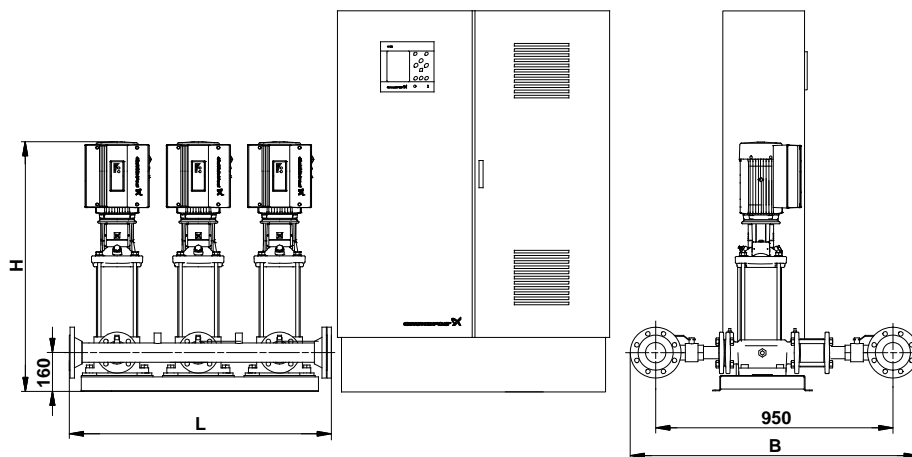
TM03 1184 1909

Fig. 43 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps (design A)



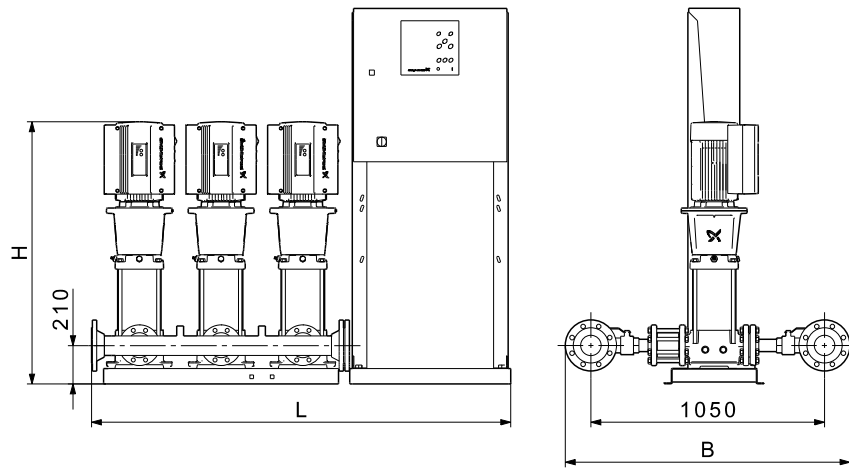
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Fig. 44 Dimensional sketch of a Hydro MPC booster system with a control cabinet centred on the base frame (design B)



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Fig. 45 Dimensional sketch of a Hydro MPC booster system with a floor-mounted control cabinet (design C)



TM03 1187 1909

Fig. 46 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRIE 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRIE15-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	1110	803	184	A
	CRIE15-3	3x380-415V, ±5%, PE	3	12.4	Rp 2 1/2	1026	1110	867	194	A
	CRIE15-5	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	1110	995	224	A
	CRIE15-7	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	1110	1135	272	A
	CRIE15-9	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	1110	1213	284	A
3	CRIE15-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1430	803	304	A
	CRIE15-3	3x380-415V, ±5%, PE	3	18.6	DN 80	1150	1430	867	319	A
	CRIE15-5	3x380-415V, ±5%, PE	4	24	DN 80	1150	1430	995	365	A
	CRIE15-7	3x380-415V, ±5%, PE	5.5	33	DN 80	1150	1430	1135	434	A
	CRIE15-9	3x380-415V, ±5%, PE	7.5	45	DN 80	1150	1430	1213	453	A
4	CRIE15-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1750	803	393	A
	CRIE15-3	3x380-415V, ±5%, PE	3	25	DN 100	1170	1750	867	413	A
	CRIE15-5	3x380-415V, ±5%, PE	4	32	DN 100	1170	1750	995	474	A
	CRIE15-7	3x380-415V, ±5%, PE	5.5	44	DN 100	1170	1750	1135	566	A
	CRIE15-9	3x380-415V, ±5%, PE	7.5	60	DN 100	1170	1750	1213	590	A
5	CRIE15-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	803	459	D
	CRIE15-3	3x380-415V, ±5%, PE	3	31	DN 100	1170	1702	867	484	D
	CRIE15-5	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	995	561	D
	CRIE15-7	3x380-415V, ±5%, PE	5.5	55	DN 100	1170	1702	1135	677	D
	CRIE15-9	3x380-415V, ±5%, PE	7.5	75	DN 100	1170	1702	1213	720	D
6	CRIE15-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	803	603	D
	CRIE15-3	3x380-415V, ±5%, PE	3	37	DN 150	1235	1940	867	633	D
	CRIE15-5	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	995	726	D
	CRIE15-7	3x380-415V, ±5%, PE	5.5	66	DN 150	1235	1940	1135	865	D
	CRIE15-9	3x380-415V, ±5%, PE	7.5	90	DN 150	1235	1940	1213	901	D

Hydro MPC-F with CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI15-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	730	764	233	C
	CRI15-3	3x380-415V, ±5%, PE	3	12.8	Rp 2 1/2	1026	730	1068	244	C
	CRI15-5	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	730	995	273	C
	CRI15-7	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	730	1136	327	C
	CRI15-9	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	730	1214	363	C
3	CRI15-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1060	764	334	C
	CRI15-3	3x380-415V, ±5%, PE	3	19.2	DN 80	1150	1060	1068	351	C
	CRI15-5	3x380-415V, ±5%, PE	4	24	DN 80	1150	1060	995	393	C
	CRI15-7	3x380-415V, ±5%, PE	5.5	34	DN 80	1150	1060	1136	470	C
	CRI15-9	3x380-415V, ±5%, PE	7.5	46	DN 80	1150	1060	1214	524	C
4	CRI15-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1382	764	415	C
	CRI15-3	3x380-415V, ±5%, PE	3	26	DN 100	1170	1382	1068	437	C
	CRI15-5	3x380-415V, ±5%, PE	4	32	DN 100	1170	1382	995	493	C
	CRI15-7	3x380-415V, ±5%, PE	5.5	45	DN 100	1170	1382	1136	595	C
	CRI15-9	3x380-415V, ±5%, PE	7.5	61	DN 100	1170	1382	1214	667	C
5	CRI15-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	764	484	C
	CRI15-3	3x380-415V, ±5%, PE	3	32	DN 100	1170	1702	1068	511	C
	CRI15-5	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	995	581	C
	CRI15-7	3x380-415V, ±5%, PE	5.5	56	DN 100	1170	1702	1136	710	C
	CRI15-9	3x380-415V, ±5%, PE	7.5	76	DN 100	1170	1702	1214	801	C
6	CRI15-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	764	610	C
	CRI15-3	3x380-415V, ±5%, PE	3	38	DN 150	1235	1940	1068	642	C
	CRI15-5	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	995	727	C
	CRI15-7	3x380-415V, ±5%, PE	5.5	67	DN 150	1235	1940	1136	899	C
	CRI15-9	3x380-415V, ±5%, PE	7.5	91	DN 150	1235	1940	1214	1008	C

Hydro MPC-S with CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI15-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	780	764	170	B
	CRI15-3	3x380-415V, ±5%, PE	3	12.8	Rp 2 1/2	1026	780	1068	181	B
	CRI15-5	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	780	995	209	B
	CRI15-7	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	1310	1136	288	A
	CRI15-9	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	1310	1214	324	A
3	CRI15-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1630	764	290	A
	CRI15-3	3x380-415V, ±5%, PE	3	19.2	DN 80	1150	1630	1068	306	A
	CRI15-5	3x380-415V, ±5%, PE	4	24	DN 80	1150	1630	995	348	A
	CRI15-7	3x380-415V, ±5%, PE	5.5	34	DN 80	1150	1060	1136	436	D
	CRI15-9	3x380-415V, ±5%, PE	7.5	46	DN 80	1150	1060	1214	490	D
4	CRI15-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1950	764	370	A
	CRI15-3	3x380-415V, ±5%, PE	3	26	DN 100	1170	1950	1068	391	A
	CRI15-5	3x380-415V, ±5%, PE	4	32	DN 100	1170	1950	995	447	A
	CRI15-7	3x380-415V, ±5%, PE	5.5	45	DN 100	1170	1382	1136	559	D
	CRI15-9	3x380-415V, ±5%, PE	7.5	61	DN 100	1170	1382	1214	631	D
5	CRI15-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	764	429	D
	CRI15-3	3x380-415V, ±5%, PE	3	32	DN 100	1170	1702	1068	456	D
	CRI15-5	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	995	526	D
	CRI15-7	3x380-415V, ±5%, PE	5.5	56	DN 100	1170	1702	1136	671	D
	CRI15-9	3x380-415V, ±5%, PE	7.5	76	DN 100	1170	1702	1214	761	D
6	CRI15-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	764	552	D
	CRI15-3	3x380-415V, ±5%, PE	3	38	DN 150	1235	1940	1068	584	D
	CRI15-5	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	995	668	D
	CRI15-7	3x380-415V, ±5%, PE	5.5	67	DN 150	1235	1940	1136	850	D
	CRI15-9	3x380-415V, ±5%, PE	7.5	91	DN 150	1235	1940	1214	959	D

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

Dimensions may vary by ± 10 mm.

Hydro MPC-E with CRIE 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRIE20-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	1110	804	186	A
	CRIE20-3	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	1110	905	216	A
	CRIE20-5	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	1110	1046	259	A
	CRIE20-7	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	1110	1124	278	A
	CRIE20-10	3x380-415V, ±5%, PE	11	43	Rp 2 1/2	1026	1010	1483	424	D
3	CRIE20-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1430	804	307	A
	CRIE20-3	3x380-415V, ±5%, PE	4	24	DN 80	1150	1430	905	353	A
	CRIE20-5	3x380-415V, ±5%, PE	5.5	33	DN 80	1150	1430	1046	416	A
	CRIE20-7	3x380-415V, ±5%, PE	7.5	45	DN 80	1150	1430	1124	444	A
	CRIE20-10	3x380-415V, ±5%, PE	11	64	DN 80	1150	1520	1483	633	D
4	CRIE20-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1750	804	397	A
	CRIE20-3	3x380-415V, ±5%, PE	4	32	DN 100	1170	1750	905	458	A
	CRIE20-5	3x380-415V, ±5%, PE	5.5	44	DN 100	1170	1750	1046	542	A
	CRIE20-7	3x380-415V, ±5%, PE	7.5	60	DN 100	1170	1750	1124	578	A
	CRIE20-10	3x380-415V, ±5%, PE	11	86	DN 100	1170	1950	1483	859	D
5	CRIE20-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	804	464	D
	CRIE20-3	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	905	541	D
	CRIE20-5	3x380-415V, ±5%, PE	5.5	55	DN 100	1170	1702	1046	647	D
	CRIE20-7	3x380-415V, ±5%, PE	7.5	75	DN 100	1170	1702	1124	704	D
	CRIE20-10	3x380-415V, ±5%, PE	11	107	DN 100	1170	2522	1443	1019	D
6	CRIE20-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	804	609	D
	CRIE20-3	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	905	701	D
	CRIE20-5	3x380-415V, ±5%, PE	5.5	66	DN 150	1235	1940	1046	829	D
	CRIE20-7	3x380-415V, ±5%, PE	7.5	90	DN 150	1235	1940	1124	883	D
	CRIE20-10	3x380-415V, ±5%, PE	11	128	DN 150	1235	2924	1443	1313	D

Hydro MPC-F with CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI20-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	730	804	233	C
	CRI20-3	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	730	905	267	C
	CRI20-5	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	730	1046	323	C
	CRI20-7	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	730	1124	357	C
	CRI20-10	3x380-415V, ±5%, PE	11	43	Rp 2 1/2	1026	1010	1496	431	C
3	CRI20-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1060	804	334	C
	CRI20-3	3x380-415V, ±5%, PE	4	24	DN 80	1150	1060	905	384	C
	CRI20-5	3x380-415V, ±5%, PE	5.5	34	DN 80	1150	1060	1046	464	C
	CRI20-7	3x380-415V, ±5%, PE	7.5	46	DN 80	1150	1060	1124	515	C
	CRI20-10	3x380-415V, ±5%, PE	11	64	DN 80	1150	1520	1496	607	C
4	CRI20-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1382	804	415	C
	CRI20-3	3x380-415V, ±5%, PE	4	32	DN 100	1170	1382	905	481	C
	CRI20-5	3x380-415V, ±5%, PE	5.5	45	DN 100	1170	1382	1046	587	C
	CRI20-7	3x380-415V, ±5%, PE	7.5	61	DN 100	1170	1382	1124	655	C
	CRI20-10	3x380-415V, ±5%, PE	11	86	DN 100	1170	1950	1496	789	C
5	CRI20-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	804	484	C
	CRI20-3	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	905	565	C
	CRI20-5	3x380-415V, ±5%, PE	5.5	56	DN 100	1170	1702	1046	700	C
	CRI20-7	3x380-415V, ±5%, PE	7.5	76	DN 100	1170	1702	1124	786	C
	CRI20-10	3x380-415V, ±5%, PE	11	107	DN 100	1170	2522	1456	939	C
6	CRI20-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	804	610	C
	CRI20-3	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	905	709	C
	CRI20-5	3x380-415V, ±5%, PE	5.5	67	DN 150	1235	1940	1046	887	C
	CRI20-7	3x380-415V, ±5%, PE	7.5	91	DN 150	1235	1940	1124	990	C
	CRI20-10	3x380-415V, ±5%, PE	11	128	DN 150	1235	2924	1456	1182	C

Hydro MPC-S with CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRI20-2	3x380-415V, ±5%, PE	2.2	9.5	Rp 2 1/2	1026	780	804	170	B
	CRI20-3	3x380-415V, ±5%, PE	4	16	Rp 2 1/2	1026	780	905	203	B
	CRI20-5	3x380-415V, ±5%, PE	5.5	22	Rp 2 1/2	1026	1310	1046	284	A
	CRI20-7	3x380-415V, ±5%, PE	7.5	30	Rp 2 1/2	1026	1310	1124	318	A
	CRI20-10	3x380-415V, ±5%, PE	11	43	Rp 2 1/2	1026	1010	1496	371	D
3	CRI20-2	3x380-415V, ±5%, PE	2.2	14.3	DN 80	1150	1630	804	290	A
	CRI20-3	3x380-415V, ±5%, PE	4	24	DN 80	1150	1630	905	339	A
	CRI20-5	3x380-415V, ±5%, PE	5.5	34	DN 80	1150	1060	1046	430	D
	CRI20-7	3x380-415V, ±5%, PE	7.5	46	DN 80	1150	1060	1124	481	D
	CRI20-10	3x380-415V, ±5%, PE	11	64	DN 80	1150	1520	1496	565	D
4	CRI20-2	3x380-415V, ±5%, PE	2.2	19	DN 100	1170	1950	804	370	A
	CRI20-3	3x380-415V, ±5%, PE	4	32	DN 100	1170	1950	905	435	A
	CRI20-5	3x380-415V, ±5%, PE	5.5	45	DN 100	1170	1382	1046	551	D
	CRI20-7	3x380-415V, ±5%, PE	7.5	61	DN 100	1170	1382	1124	619	D
	CRI20-10	3x380-415V, ±5%, PE	11	86	DN 100	1170	1950	1496	746	D
5	CRI20-2	3x380-415V, ±5%, PE	2.2	24	DN 100	1170	1702	804	429	D
	CRI20-3	3x380-415V, ±5%, PE	4	40	DN 100	1170	1702	905	511	D
	CRI20-5	3x380-415V, ±5%, PE	5.5	56	DN 100	1170	1702	1046	661	D
	CRI20-7	3x380-415V, ±5%, PE	7.5	76	DN 100	1170	1702	1124	746	D
	CRI20-10	3x380-415V, ±5%, PE	11	107	DN 100	1170	2522	1456	871	D
6	CRI20-2	3x380-415V, ±5%, PE	2.2	29	DN 150	1235	1940	804	552	D
	CRI20-3	3x380-415V, ±5%, PE	4	48	DN 150	1235	1940	905	650	D
	CRI20-5	3x380-415V, ±5%, PE	5.5	67	DN 150	1235	1940	1046	838	D
	CRI20-7	3x380-415V, ±5%, PE	7.5	91	DN 150	1235	1940	1124	940	D
	CRI20-10	3x380-415V, ±5%, PE	11	128	DN 150	1235	2924	1456	1144	C

Design A: Hydro MPC booster system with a control cabinet mounted on the same base frame as the pumps.

Design B: Hydro MPC booster system with a control cabinet centred on the base frame.

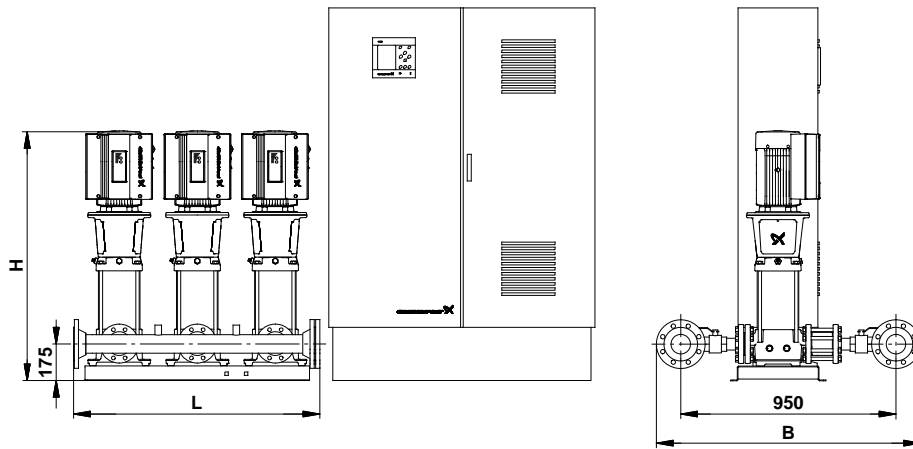
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

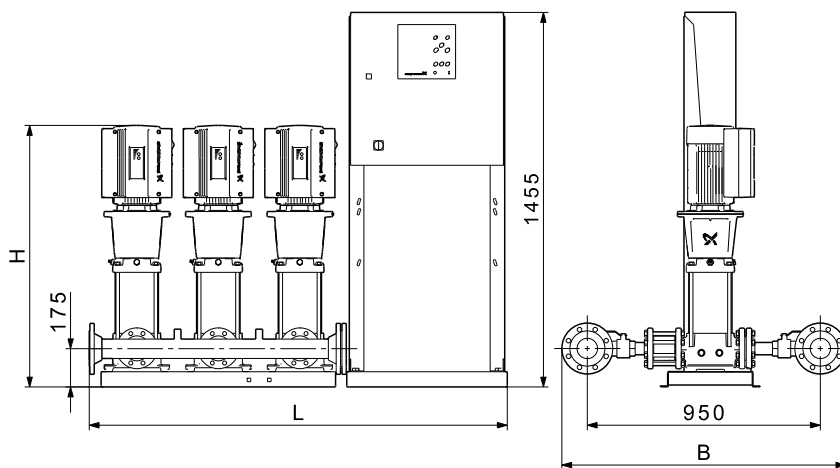
Dimensions may vary by ± 10 mm.

Hydro MPC with CR(E) 32



TM03 3043 0106

Fig. 47 Dimensional sketch of a Hydro MPC booster system with a floor-mounted control cabinet (design C)



TM03 1186 1909

Fig. 48 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRE 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CRE32-2	3x380-415V, ±5%, PE	4	16	DN 100	1170	1022	1017	290	D
	CRE32-3	3x380-415V, ±5%, PE	5.5	22	DN 100	1170	1022	1106	314	D
	CRE32-4	3x380-415V, ±5%, PE	7.5	30	DN 100	1170	1022	1164	367	D
	CRE32-6	3x380-415V, ±5%, PE	11	43	DN 100	1170	1022	1546	281	D
	CRE32-8	3x380-415V, ±5%, PE	15	56	DN 100	1170	1022	1686	473	D
3	CRE32-2	3x380-415V, ±5%, PE	4	24	DN 100	1170	1522	1017	409	D
	CRE32-3	3x380-415V, ±5%, PE	5.5	33	DN 100	1170	1522	1106	442	D
	CRE32-4	3x380-415V, ±5%, PE	7.5	45	DN 100	1170	1522	1164	522	D
	CRE32-6	3x380-415V, ±5%, PE	11	64	DN 100	1170	1522	1546	395	D
	CRE32-8	3x380-415V, ±5%, PE	15	84	DN 100	1170	1522	1686	695	D
4	CRE32-2	3x380-415V, ±5%, PE	4	32	DN 150	1235	2024	1017	556	D
	CRE32-3	3x380-415V, ±5%, PE	5.5	44	DN 150	1235	2024	1106	601	D
	CRE32-4	3x380-415V, ±5%, PE	7.5	60	DN 150	1235	2024	1164	706	D
	CRE32-6	3x380-415V, ±5%, PE	11	86	DN 150	1235	2024	1546	549	D
	CRE32-8	3x380-415V, ±5%, PE	15	112	DN 150	1235	2024	1686	957	D
5	CRE32-2	3x380-415V, ±5%, PE	4	40	DN 150	1235	2524	1017	695	D
	CRE32-3	3x380-415V, ±5%, PE	5.5	55	DN 150	1235	2524	1106	752	D
	CRE32-4	3x380-415V, ±5%, PE	7.5	75	DN 150	1235	2524	1164	896	D
	CRE32-6	3x380-415V, ±5%, PE	11	107	DN 150	1235	2524	1546	685	D
	CRE32-8	3x380-415V, ±5%, PE	15	140	DN 150	1235	2524	1686	1189	D
6	CRE32-2	3x380-415V, ±5%, PE	4	48	DN 200	1290	3026	1017	760	D
	CRE32-3	3x380-415V, ±5%, PE	5.5	66	DN 200	1290	3026	1106	828	D
	CRE32-4	3x380-415V, ±5%, PE	7.5	90	DN 200	1290	3026	1164	986	D
	CRE32-6	3x380-415V, ±5%, PE	11	128	DN 200	1290	3026	1546	757	D
	CRE32-8	3x380-415V, ±5%, PE	15	168	DN 200	1290	3026	1686	1333	D

Hydro MPC-F with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CR32-2	3x380-415V, ±5%, PE	4	16	DN 100	1170	1022	1017	343	C
	CR32-3	3x380-415V, ±5%, PE	5.5	22	DN 100	1170	1022	1106	386	C
	CR32-4	3x380-415V, ±5%, PE	7.5	30	DN 100	1170	1022	1164	445	C
	CR32-6	3x380-415V, ±5%, PE	11	43	DN 100	1170	1022	1546	490	C
	CR32-8	3x380-415V, ±5%, PE	15	56	DN 100	1170	1022	1693	542	C
3	CR32-2	3x380-415V, ±5%, PE	4	24	DN 100	1170	1522	1017	456	C
	CR32-3	3x380-415V, ±5%, PE	5.5	34	DN 100	1170	1522	1106	517	C
	CR32-4	3x380-415V, ±5%, PE	7.5	46	DN 100	1170	1522	1164	606	C
	CR32-6	3x380-415V, ±5%, PE	11	64	DN 100	1170	1522	1546	672	C
	CR32-8	3x380-415V, ±5%, PE	15	84	DN 100	1170	1522	1693	779	C
4	CR32-2	3x380-415V, ±5%, PE	4	32	DN 150	1235	2024	1017	599	C
	CR32-3	3x380-415V, ±5%, PE	5.5	45	DN 150	1235	2024	1106	680	C
	CR32-4	3x380-415V, ±5%, PE	7.5	61	DN 150	1235	2024	1164	798	C
	CR32-6	3x380-415V, ±5%, PE	11	86	DN 150	1235	2024	1546	884	C
	CR32-8	3x380-415V, ±5%, PE	15	112	DN 150	1235	2024	1693	1016	C
5	CR32-2	3x380-415V, ±5%, PE	4	40	DN 150	1235	2524	1017	734	C
	CR32-3	3x380-415V, ±5%, PE	5.5	56	DN 150	1235	2524	1106	836	C
	CR32-4	3x380-415V, ±5%, PE	7.5	76	DN 150	1235	2524	1164	985	C
	CR32-6	3x380-415V, ±5%, PE	11	107	DN 150	1235	2524	1546	1112	C
	CR32-8	3x380-415V, ±5%, PE	15	140	DN 150	1235	2524	1693	1246	C
6	CR32-2	3x380-415V, ±5%, PE	4	48	DN 200	1290	3026	1017	786	C
	CR32-3	3x380-415V, ±5%, PE	5.5	67	DN 200	1290	3026	1106	925	C
	CR32-4	3x380-415V, ±5%, PE	7.5	91	DN 200	1290	3026	1164	1103	C
	CR32-6	3x380-415V, ±5%, PE	11	128	DN 200	1290	3026	1546	1235	C
	CR32-8	3x380-415V, ±5%, PE	15	168	DN 200	1290	3026	1693	1390	C

Hydro MPC-S with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
2	CR32-2	3x380-415V, ±5%, PE	4	16	DN 100	1170	1022	1017	280	D
	CR32-3	3x380-415V, ±5%, PE	5.5	22	DN 100	1170	1022	1106	332	D
	CR32-4	3x380-415V, ±5%, PE	7.5	30	DN 100	1170	1022	1164	391	D
	CR32-6	3x380-415V, ±5%, PE	11	43	DN 100	1170	1022	1546	431	D
	CR32-8	3x380-415V, ±5%, PE	15	56	DN 100	1170	1022	1693	482	D
3	CR32-2	3x380-415V, ±5%, PE	4	24	DN 100	1170	1522	1017	404	D
	CR32-3	3x380-415V, ±5%, PE	5.5	34	DN 100	1170	1522	1106	482	D
	CR32-4	3x380-415V, ±5%, PE	7.5	46	DN 100	1170	1522	1164	571	D
	CR32-6	3x380-415V, ±5%, PE	11	64	DN 100	1170	1522	1546	630	D
	CR32-8	3x380-415V, ±5%, PE	15	84	DN 100	1170	1522	1693	707	D
4	CR32-2	3x380-415V, ±5%, PE	4	32	DN 150	1235	2024	1017	544	D
	CR32-3	3x380-415V, ±5%, PE	5.5	45	DN 150	1235	2024	1106	643	D
	CR32-4	3x380-415V, ±5%, PE	7.5	61	DN 150	1235	2024	1164	761	D
	CR32-6	3x380-415V, ±5%, PE	11	86	DN 150	1235	2024	1546	841	D
	CR32-8	3x380-415V, ±5%, PE	15	112	DN 150	1235	2024	1693	958	D
5	CR32-2	3x380-415V, ±5%, PE	4	40	DN 150	1235	2524	1017	679	D
	CR32-3	3x380-415V, ±5%, PE	5.5	56	DN 150	1235	2524	1106	796	D
	CR32-4	3x380-415V, ±5%, PE	7.5	76	DN 150	1235	2524	1164	944	D
	CR32-6	3x380-415V, ±5%, PE	11	107	DN 150	1235	2524	1546	1044	D
	CR32-8	3x380-415V, ±5%, PE	15	140	DN 150	1235	2524	1693	1209	C
6	CR32-2	3x380-415V, ±5%, PE	4	48	DN 200	1290	3026	1017	725	D
	CR32-3	3x380-415V, ±5%, PE	5.5	67	DN 200	1290	3026	1106	874	D
	CR32-4	3x380-415V, ±5%, PE	7.5	91	DN 200	1290	3026	1164	1051	D
	CR32-6	3x380-415V, ±5%, PE	11	128	DN 200	1290	3026	1546	1196	C
	CR32-8	3x380-415V, ±5%, PE	15	168	DN 200	1290	3026	1693	1349	C

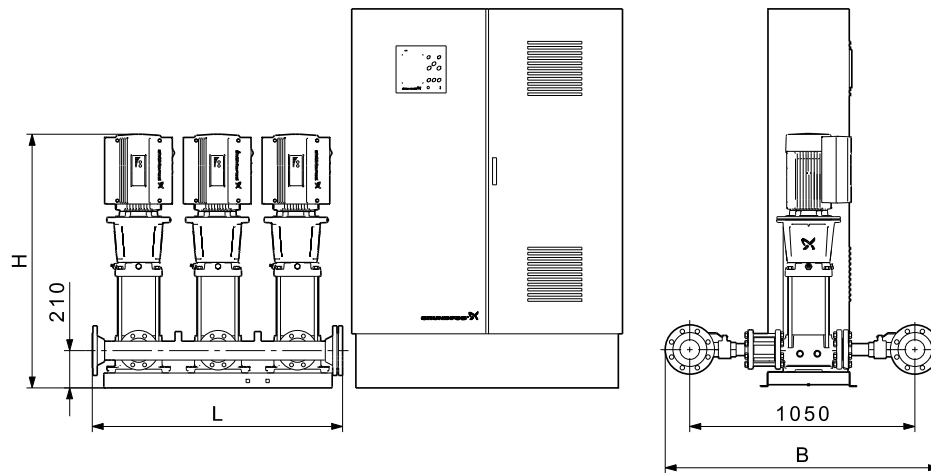
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

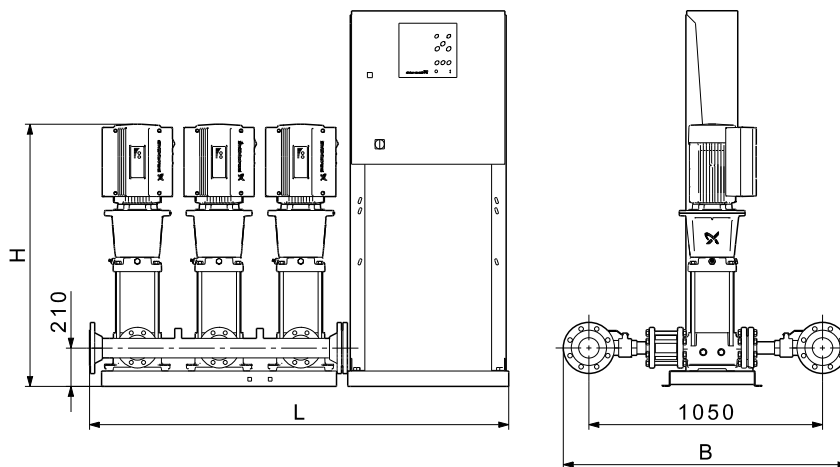
Dimensions may vary by ± 10 mm.

Hydro MPC with CR(E) 45 / CR(E) 64



TM03 1693 2209

Fig. 49 Dimensional sketch of a Hydro MPC booster system with a floor-mounted control cabinet (design C)



TM03 1187 1909

Fig. 50 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRE 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CRE45-2-2	3x380-415V, ±5%, PE	5.5	33	DN 150	1335	1524	1100	496	D
	CRE45-2	3x380-415V, ±5%, PE	7.5	45	DN 150	1335	1524	1088	523	D
	CRE45-3	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1410	689	D
	CRE45-4	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1490	728	D
	CRE45-5	3x380-415V, ±5%, PE	18.5	102	DN 150	1335	1524	1614	767	D
	CRE45-6	3x380-415V, ±5%, PE	22	126	DN 150	1335	1524	1720	879	D
4	CRE45-2-2	3x380-415V, ±5%, PE	5.5	44	DN 150	1335	2024	1100	656	D
	CRE45-2	3x380-415V, ±5%, PE	7.5	60	DN 150	1335	2024	1088	691	D
	CRE45-3	3x380-415V, ±5%, PE	11	86	DN 150	1335	2024	1410	924	D
	CRE45-4	3x380-415V, ±5%, PE	15	112	DN 150	1335	2024	1490	984	D
	CRE45-5	3x380-415V, ±5%, PE	18.5	136	DN 150	1335	2024	1614	1037	D
	CRE45-6	3x380-415V, ±5%, PE	22	168	DN 150	1335	2024	1720	1153	D
5	CRE45-2-2	3x380-415V, ±5%, PE	5.5	55	DN 200	1390	2526	1100	862	D
	CRE45-2	3x380-415V, ±5%, PE	7.5	75	DN 200	1390	2526	1088	918	D
	CRE45-3	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1410	1195	D
	CRE45-4	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1490	1264	D
	CRE45-5	3x380-415V, ±5%, PE	18.5	170	DN 200	1390	2526	1614	1330	D
	CRE45-6	3x380-415V, ±5%, PE	22	210	DN 200	1390	2526	1720	1490	D
6	CRE45-2-2	3x380-415V, ±5%, PE	5.5	66	DN 200	1390	3026	1100	1032	D
	CRE45-2	3x380-415V, ±5%, PE	7.5	90	DN 200	1390	3026	1088	1084	D
	CRE45-3	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1410	1441	D
	CRE45-4	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1490	1495	D
	CRE45-5	3x380-415V, ±5%, PE	18.5	204	DN 200	1390	3026	1614	1589	D
	CRE45-6	3x380-415V, ±5%, PE	22	252	DN 200	1390	3026	1720	1767	D

Hydro MPC-F with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR45-2-2	3x380-415V, ±5%, PE	5.5	34	DN 150	1335	1524	1100	551	C
	CR45-2	3x380-415V, ±5%, PE	7.5	46	DN 150	1335	1524	1088	607	C
	CR45-3	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1375	714	C
	CR45-4	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1490	861	C
	CR45-5	3x380-415V, ±5%, PE	18.5	104	DN 150	1335	1524	1614	860	C
	CR45-6	3x380-415V, ±5%, PE	22	125	DN 150	1335	1524	1789	1228	C
4	CR45-2-2	3x380-415V, ±5%, PE	5.5	45	DN 150	1335	2024	1100	709	C
	CR45-2	3x380-415V, ±5%, PE	7.5	61	DN 150	1335	2024	1088	783	C
	CR45-3	3x380-415V, ±5%, PE	11	86	DN 150	1335	2024	1375	923	C
	CR45-4	3x380-415V, ±5%, PE	15	112	DN 150	1335	2024	1490	1109	C
	CR45-5	3x380-415V, ±5%, PE	18.5	138	DN 150	1335	2024	1614	1109	C
	CR45-6	3x380-415V, ±5%, PE	22	166	DN 150	1335	2024	1789	1573	C
5	CR45-2-2	3x380-415V, ±5%, PE	5.5	56	DN 200	1390	2526	1100	914	C
	CR45-2	3x380-415V, ±5%, PE	7.5	76	DN 200	1390	2526	1088	1007	C
	CR45-3	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1375	1202	C
	CR45-4	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1490	1403	C
	CR45-5	3x380-415V, ±5%, PE	18.5	173	DN 200	1390	2526	1614	1514	C
	CR45-6	3x380-415V, ±5%, PE	22	208	DN 200	1390	2526	1789	1954	C
6	CR45-2-2	3x380-415V, ±5%, PE	5.5	67	DN 200	1390	3026	1100	1090	C
	CR45-2	3x380-415V, ±5%, PE	7.5	91	DN 200	1390	3026	1088	1201	C
	CR45-3	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1375	1414	C
	CR45-4	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1490	1650	C
	CR45-5	3x380-415V, ±5%, PE	18.5	207	DN 200	1390	3026	1614	1761	C
	CR45-6	3x380-415V, ±5%, PE	22	249	DN 200	1390	3026	1789	2293	C

Hydro MPC-S with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR45-2-2	3x380-415V, ±5%, PE	5.5	34	DN 150	1335	1524	1100	517	D
	CR45-2	3x380-415V, ±5%, PE	7.5	46	DN 150	1335	1524	1088	572	D
	CR45-3	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1375	672	D
	CR45-4	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1490	789	D
	CR45-5	3x380-415V, ±5%, PE	18.5	104	DN 150	1335	1524	1614	788	D
	CR45-6	3x380-415V, ±5%, PE	22	125	DN 150	1335	1524	1789	1050	D
4	CR45-2-2	3x380-415V, ±5%, PE	5.5	45	DN 150	1335	2024	1100	673	D
	CR45-2	3x380-415V, ±5%, PE	7.5	61	DN 150	1335	2024	1088	746	D
	CR45-3	3x380-415V, ±5%, PE	11	86	DN 150	1335	2024	1375	880	D
	CR45-4	3x380-415V, ±5%, PE	15	112	DN 150	1335	2024	1490	1051	D
	CR45-5	3x380-415V, ±5%, PE	18.5	138	DN 150	1335	2024	1614	1072	C
	CR45-6	3x380-415V, ±5%, PE	22	166	DN 150	1335	2024	1789	1399	C
5	CR45-2-2	3x380-415V, ±5%, PE	5.5	56	DN 200	1390	2526	1100	874	D
	CR45-2	3x380-415V, ±5%, PE	7.5	76	DN 200	1390	2526	1088	966	D
	CR45-3	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1375	1134	D
	CR45-4	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1490	1365	C
	CR45-5	3x380-415V, ±5%, PE	18.5	173	DN 200	1390	2526	1614	1364	C
	CR45-6	3x380-415V, ±5%, PE	22	208	DN 200	1390	2526	1789	1853	C
6	CR45-2-2	3x380-415V, ±5%, PE	5.5	67	DN 200	1390	3026	1100	1039	D
	CR45-2	3x380-415V, ±5%, PE	7.5	91	DN 200	1390	3026	1088	1149	D
	CR45-3	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1375	1376	C
	CR45-4	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1490	1609	C
	CR45-5	3x380-415V, ±5%, PE	18.5	207	DN 200	1390	3026	1614	1688	C
	CR45-6	3x380-415V, ±5%, PE	22	249	DN 200	1390	3026	1789	2180	C

Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

Dimensions may vary by ± 10 mm.

Hydro MPC-E with CRE 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CRE64-1	3x380-415V, ±5%, PE	5.5	33	DN 150	1335	1524	1022	509	D
	CRE64-2-2	3x380-415V, ±5%, PE	7.5	45	DN 150	1335	1524	1093	519	D
	CRE64-2	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1335	683	D
	CRE64-3-1	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1417	718	D
	CRE64-4-2	3x380-415V, ±5%, PE	18.5	102	DN 150	1335	1524	1544	831	D
	CRE64-4	3x380-415V, ±5%, PE	22	126	DN 150	1335	1524	1570	870	D
	CR64-5-1	3x380-415V, ±5%, PE	30	168	DN 150	1335	1524	1762	1480	C
4	CRE64-1	3x380-415V, ±5%, PE	5.5	44	DN 200	1390	2026	1022	702	D
	CRE64-2-2	3x380-415V, ±5%, PE	7.5	60	DN 200	1390	2026	1093	714	D
	CRE64-2	3x380-415V, ±5%, PE	11	86	DN 200	1390	2026	1335	945	D
	CRE64-3-1	3x380-415V, ±5%, PE	15	112	DN 200	1390	2026	1417	1000	D
	CRE64-4-2	3x380-415V, ±5%, PE	18.5	136	DN 200	1390	2026	1544	1150	D
	CRE64-4	3x380-415V, ±5%, PE	22	168	DN 200	1390	2026	1570	1171	D
	CR64-5-1	3x380-415V, ±5%, PE	30	224	DN 200	1390	2026	1762	2172	C
5	CRE64-1	3x380-415V, ±5%, PE	5.5	55	DN 200	1390	2526	1022	879	D
	CRE64-2-2	3x380-415V, ±5%, PE	7.5	75	DN 200	1390	2526	1093	907	D
	CRE64-2	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1335	1181	D
	CRE64-3-1	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1417	1243	D
	CRE64-4-2	3x380-415V, ±5%, PE	18.5	170	DN 200	1390	2526	1544	1431	D
	CRE64-4	3x380-415V, ±5%, PE	22	210	DN 200	1390	2526	1570	1471	D
	CR64-5-1	3x380-415V, ±5%, PE	30	280	DN 200	1390	2526	1762	2639	C
6	CRE64-1	3x380-415V, ±5%, PE	5.5	66	DN 200	1390	3026	1022	1052	D
	CRE64-2-2	3x380-415V, ±5%, PE	7.5	90	DN 200	1390	3026	1093	1070	D
	CRE64-2	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1335	1424	D
	CRE64-3-1	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1417	1469	D
	CRE64-4-2	3x380-415V, ±5%, PE	18.5	204	DN 200	1390	3026	1544	1710	D
	CRE64-4	3x380-415V, ±5%, PE	22	252	DN 200	1390	3026	1570	1744	D
	CR64-5-1	3x380-415V, ±5%, PE	30	336	DN 200	1390	3026	1762	3080	C

Hydro MPC-F with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR64-1	3x380-415V, ±5%, PE	5.5	34	DN 150	1335	1524	1022	587	C
	CR64-2-2	3x380-415V, ±5%, PE	7.5	46	DN 150	1335	1524	1093	650	C
	CR64-2	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1335	752	C
	CR64-3-1	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1417	953	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	104	DN 150	1335	1524	1504	983	C
	CR64-4	3x380-415V, ±5%, PE	22	125	DN 150	1335	1524	1570	1209	C
	CR64-5-1	3x380-415V, ±5%, PE	30	168	DN 150	1335	1524	1762	1490	C
4	CR64-1	3x380-415V, ±5%, PE	5.5	45	DN 200	1390	2026	1022	785	C
	CR64-2-2	3x380-415V, ±5%, PE	7.5	61	DN 200	1390	2026	1093	869	C
	CR64-2	3x380-415V, ±5%, PE	11	86	DN 200	1390	2026	1335	1003	C
	CR64-3-1	3x380-415V, ±5%, PE	15	112	DN 200	1390	2026	1417	1261	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	138	DN 200	1390	2026	1504	1301	C
	CR64-4	3x380-415V, ±5%, PE	22	166	DN 200	1390	2026	1570	1576	C
	CR64-5-1	3x380-415V, ±5%, PE	30	224	DN 200	1390	2026	1762	1937	C
5	CR64-1	3x380-415V, ±5%, PE	5.5	56	DN 200	1390	2526	1022	968	C
	CR64-2-2	3x380-415V, ±5%, PE	7.5	76	DN 200	1390	2526	1093	1075	C
	CR64-2	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1335	1261	C
	CR64-3-1	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1417	1552	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	173	DN 200	1390	2526	1504	1714	C
	CR64-4	3x380-415V, ±5%, PE	22	208	DN 200	1390	2526	1570	1918	C
	CR64-5-1	3x380-415V, ±5%, PE	30	280	DN 200	1390	2526	1762	2734	C
6	CR64-1	3x380-415V, ±5%, PE	5.5	67	DN 200	1390	3026	1022	1155	C
	CR64-2-2	3x380-415V, ±5%, PE	7.5	91	DN 200	1390	3026	1093	1282	C
	CR64-2	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1335	1485	C
	CR64-3-1	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1417	1828	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	207	DN 200	1390	3026	1504	2001	C
	CR64-4	3x380-415V, ±5%, PE	22	249	DN 200	1390	3026	1570	2249	C
	CR64-5-1	3x380-415V, ±5%, PE	30	336	DN 200	1390	3026	1762	3157	C

Hydro MPC-S with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR64-1	3x380-415V, ±5%, PE	5.5	34	DN 150	1335	1524	1022	552	D
	CR64-2-2	3x380-415V, ±5%, PE	7.5	46	DN 150	1335	1524	1093	615	D
	CR64-2	3x380-415V, ±5%, PE	11	64	DN 150	1335	1524	1335	710	D
	CR64-3-1	3x380-415V, ±5%, PE	15	84	DN 150	1335	1524	1417	881	D
	CR64-4-2	3x380-415V, ±5%, PE	18.5	104	DN 150	1335	1524	1504	911	D
	CR64-4	3x380-415V, ±5%, PE	22	125	DN 150	1335	1524	1570	1031	D
	CR64-5-1	3x380-415V, ±5%, PE	30	168	DN 150	1335	1524	1762	1295	D
4	CR64-1	3x380-415V, ±5%, PE	5.5	45	DN 200	1390	2026	1022	748	D
	CR64-2-2	3x380-415V, ±5%, PE	7.5	61	DN 200	1390	2026	1093	832	D
	CR64-2	3x380-415V, ±5%, PE	11	86	DN 200	1390	2026	1335	960	D
	CR64-3-1	3x380-415V, ±5%, PE	15	112	DN 200	1390	2026	1417	1202	D
	CR64-4-2	3x380-415V, ±5%, PE	18.5	138	DN 200	1390	2026	1504	1264	C
	CR64-4	3x380-415V, ±5%, PE	22	166	DN 200	1390	2026	1570	1402	C
	CR64-5-1	3x380-415V, ±5%, PE	30	224	DN 200	1390	2026	1762	1807	C
5	CR64-1	3x380-415V, ±5%, PE	5.5	56	DN 200	1390	2526	1022	928	D
	CR64-2-2	3x380-415V, ±5%, PE	7.5	76	DN 200	1390	2526	1093	1033	D
	CR64-2	3x380-415V, ±5%, PE	11	107	DN 200	1390	2526	1335	1193	D
	CR64-3-1	3x380-415V, ±5%, PE	15	140	DN 200	1390	2526	1417	1514	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	173	DN 200	1390	2526	1504	1564	C
	CR64-4	3x380-415V, ±5%, PE	22	208	DN 200	1390	2526	1570	1816	C
	CR64-5-1	3x380-415V, ±5%, PE	30	280	DN 200	1390	2526	1762	2308	C
6	CR64-1	3x380-415V, ±5%, PE	5.5	67	DN 200	1390	3026	1022	1104	D
	CR64-2-2	3x380-415V, ±5%, PE	7.5	91	DN 200	1390	3026	1093	1230	D
	CR64-2	3x380-415V, ±5%, PE	11	128	DN 200	1390	3026	1335	1446	C
	CR64-3-1	3x380-415V, ±5%, PE	15	168	DN 200	1390	3026	1417	1787	C
	CR64-4-2	3x380-415V, ±5%, PE	18.5	207	DN 200	1390	3026	1504	1928	C
	CR64-4	3x380-415V, ±5%, PE	22	249	DN 200	1390	3026	1570	2135	C
	CR64-5-1	3x380-415V, ±5%, PE	30	336	DN 200	1390	3026	1762	2750	C

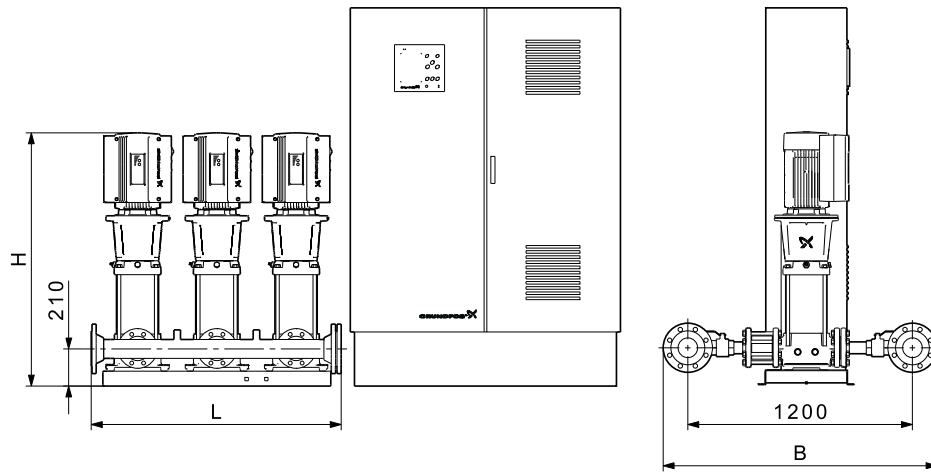
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

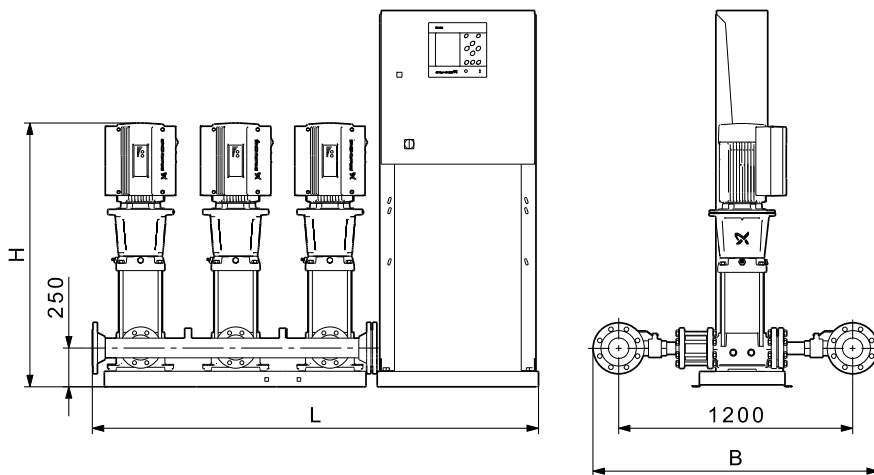
Dimensions may vary by ± 10 mm.

Hydro MPC with CR(E) 90



TM03 3046 2209

Fig. 51 Dimensional sketch of a Hydro MPC booster system with a floor-mounted control cabinet (design C)



TM03 1190 2209

Fig. 52 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CRE 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CRE90-2-2	3x380-415V, ±5%, PE	11	64	DN 200	1540	1526	1354	733	D
	CRE90-2	3x380-415V, ±5%, PE	15	84	DN 200	1540	1526	1354	754	D
	CRE90-3-2	3x380-415V, ±5%, PE	18.5	102	DN 200	1540	1526	1490	982	D
	CRE90-3	3x380-415V, ±5%, PE	22	126	DN 200	1540	1526	1516	957	D
	CR90-4-2	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1713	1434	C
	CR90-4	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1718	1521	C
	CR90-5-2	3x380-415V, ±5%, PE	37	216	DN 200	1540	1526	1862	1790	C
4	CRE90-2-2	3x380-415V, ±5%, PE	11	86	DN 250	1605	2026	1354	984	D
	CRE90-2	3x380-415V, ±5%, PE	15	112	DN 250	1605	2026	1354	1020	D
	CRE90-3-2	3x380-415V, ±5%, PE	18.5	136	DN 250	1605	2026	1490	1324	D
	CRE90-3	3x380-415V, ±5%, PE	22	168	DN 250	1605	2026	1516	1257	D
	CR90-4-2	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1713	2082	C
	CR90-4	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1718	2198	C
	CR90-5-2	3x380-415V, ±5%, PE	37	288	DN 250	1605	2026	1862	2253	C
5	CRE90-2-2	3x380-415V, ±5%, PE	11	107	DN 250	1605	2526	1354	1367	D
	CRE90-2	3x380-415V, ±5%, PE	15	140	DN 250	1605	2526	1354	1406	D
	CRE90-3-2	3x380-415V, ±5%, PE	18.5	170	DN 250	1605	2526	1490	1786	D
	CRE90-3	3x380-415V, ±5%, PE	22	210	DN 250	1605	2526	1516	1718	D
	CR90-4-2	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1713	2664	C
	CR90-4	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1718	2809	C
	CR90-5-2	3x380-415V, ±5%, PE	37	360	DN 250	1605	2526	1862	3072	C
6	CRE90-2-2	3x380-415V, ±5%, PE	11	128	DN 250	1605	3026	1354	1619	D
	CRE90-2	3x380-415V, ±5%, PE	15	168	DN 250	1605	3026	1354	1637	D
	CRE90-3-2	3x380-415V, ±5%, PE	18.5	204	DN 250	1605	3026	1490	2107	D
	CRE90-3	3x380-415V, ±5%, PE	22	252	DN 250	1605	3026	1516	2012	D
	CR90-4-2	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1713	3082	C
	CR90-4	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1718	3257	C
	CR90-5-2	3x380-415V, ±5%, PE	37	432	DN 250	1605	3026	1862	3727	C

Hydro MPC-F with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR90-2-2	3x380-415V, ±5%, PE	11	64	DN 200	1540	1526	1354	805	C
	CR90-2	3x380-415V, ±5%, PE	15	84	DN 200	1540	1526	1361	838	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	104	DN 200	1540	1526	1490	1010	C
	CR90-3	3x380-415V, ±5%, PE	22	125	DN 200	1540	1526	1466	1194	C
	CR90-4-2	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1713	1445	C
	CR90-4	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1718	1531	C
	CR90-5-2	3x380-415V, ±5%, PE	37	216	DN 200	1540	1526	1862	1745	C
4	CR90-2-2	3x380-415V, ±5%, PE	11	86	DN 250	1605	2026	1354	1045	C
	CR90-2	3x380-415V, ±5%, PE	15	112	DN 250	1605	2026	1361	1079	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	138	DN 250	1605	2026	1490	1309	C
	CR90-3	3x380-415V, ±5%, PE	22	166	DN 250	1605	2026	1466	1528	C
	CR90-4-2	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1713	1849	C
	CR90-4	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1718	1963	C
	CR90-5-2	3x380-415V, ±5%, PE	37	288	DN 250	1605	2026	1862	2390	C
5	CR90-2-2	3x380-415V, ±5%, PE	11	107	DN 250	1605	2526	1354	1452	C
	CR90-2	3x380-415V, ±5%, PE	15	140	DN 250	1605	2526	1361	1464	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	173	DN 250	1605	2526	1490	1862	C
	CR90-3	3x380-415V, ±5%, PE	22	208	DN 250	1605	2526	1466	1996	C
	CR90-4-2	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1713	2762	C
	CR90-4	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1718	2905	C
	CR90-5-2	3x380-415V, ±5%, PE	37	360	DN 250	1605	2526	1862	2981	C
6	CR90-2-2	3x380-415V, ±5%, PE	11	128	DN 250	1605	3026	1354	1686	C
	CR90-2	3x380-415V, ±5%, PE	15	168	DN 250	1605	3026	1361	1694	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	207	DN 250	1605	3026	1490	2150	C
	CR90-3	3x380-415V, ±5%, PE	22	249	DN 250	1605	3026	1466	2314	C
	CR90-4-2	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1713	3162	C
	CR90-4	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1718	3334	C
	CR90-5-2	3x380-415V, ±5%, PE	37	432	DN 250	1605	3026	1862	3419	C

Hydro MPC-S with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR90-2-2	3x380-415V, ±5%, PE	11	64	DN 200	1540	1526	1354	763	D
	CR90-2	3x380-415V, ±5%, PE	15	84	DN 200	1540	1526	1361	767	D
	CR90-3-2	3x380-415V, ±5%, PE	18.5	104	DN 200	1540	1526	1490	938	D
	CR90-3	3x380-415V, ±5%, PE	22	125	DN 200	1540	1526	1466	1016	D
	CR90-4-2	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1713	1252	D
	CR90-4	3x380-415V, ±5%, PE	30	168	DN 200	1540	1526	1718	1336	D
	CR90-5-2	3x380-415V, ±5%, PE	37	216	DN 200	1540	1526	1862	1479	C
4	CR90-2-2	3x380-415V, ±5%, PE	11	86	DN 250	1605	2026	1354	1002	D
	CR90-2	3x380-415V, ±5%, PE	15	112	DN 250	1605	2026	1361	1021	D
	CR90-3-2	3x380-415V, ±5%, PE	18.5	138	DN 250	1605	2026	1490	1272	C
	CR90-3	3x380-415V, ±5%, PE	22	166	DN 250	1605	2026	1466	1353	C
	CR90-4-2	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1713	1720	C
	CR90-4	3x380-415V, ±5%, PE	30	224	DN 250	1605	2026	1718	1833	C
	CR90-5-2	3x380-415V, ±5%, PE	37	288	DN 250	1605	2026	1862	2002	C
5	CR90-2-2	3x380-415V, ±5%, PE	11	107	DN 250	1605	2526	1354	1384	D
	CR90-2	3x380-415V, ±5%, PE	15	140	DN 250	1605	2526	1361	1426	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	173	DN 250	1605	2526	1490	1712	C
	CR90-3	3x380-415V, ±5%, PE	22	208	DN 250	1605	2526	1466	1893	C
	CR90-4-2	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1713	2338	C
	CR90-4	3x380-415V, ±5%, PE	30	280	DN 250	1605	2526	1718	2479	C
	CR90-5-2	3x380-415V, ±5%, PE	37	360	DN 250	1605	2526	1862	2590	C
6	CR90-2-2	3x380-415V, ±5%, PE	11	128	DN 250	1605	3026	1354	1647	C
	CR90-2	3x380-415V, ±5%, PE	15	168	DN 250	1605	3026	1361	1653	C
	CR90-3-2	3x380-415V, ±5%, PE	18.5	207	DN 250	1605	3026	1490	2077	C
	CR90-3	3x380-415V, ±5%, PE	22	249	DN 250	1605	3026	1466	2200	C
	CR90-4-2	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1713	2758	C
	CR90-4	3x380-415V, ±5%, PE	30	336	DN 250	1605	3026	1718	2927	C
	CR90-5-2	3x380-415V, ±5%, PE	37	432	DN 250	1605	3026	1862	3026	C

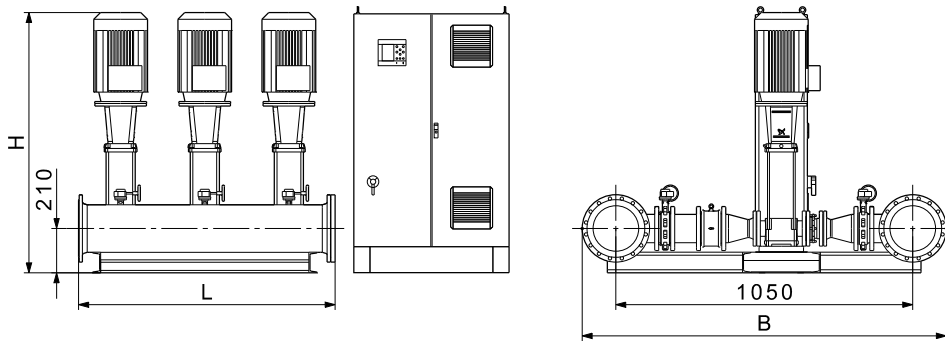
Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

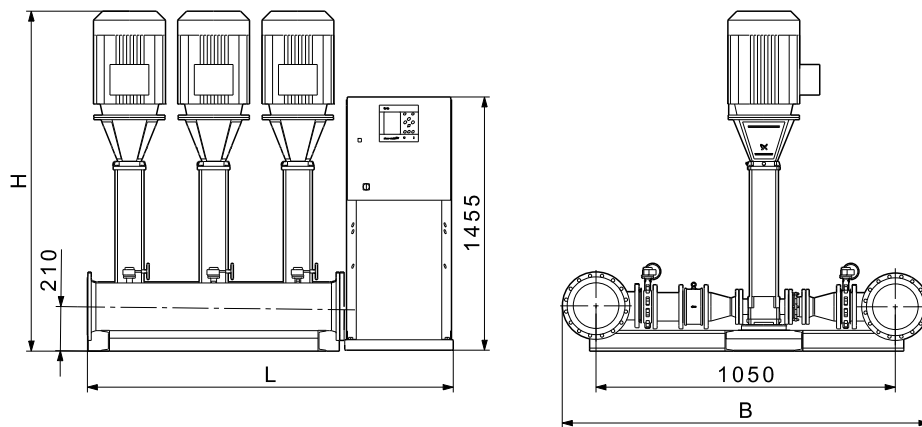
Dimensions may vary by ± 10 mm.

Hydro MPC with CR(E) 120 / CR(E) 150



TM04 4826 2209

Fig. 53 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design C)



TM04 4460 2009

Fig. 54 Dimensional sketch of a Hydro MPC booster system with a control cabinet mounted on a separate base frame (design D)

Electrical data, dimensions and weights

Hydro MPC-E with CR(E) 120

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CRE120-2-1	3x380-415V, ±5%, PE	22	126	DN 300	2632	1978	1675	1841	D
	CRE120-2	3x380-415V, ±5%, PE	22	126	DN 300	2632	1978	1701	1958	D
	CR120-3	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	1961	2499	C
	CR120-4-1	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	2174	2618	C
	CR120-5-1	3x380-415V, ±5%, PE	45	264	DN 300	2632	1978	2335	2943	C
4	CRE120-2-1	3x380-415V, ±5%, PE	22	168	DN 300	2632	2628	1675	2483	D
	CRE120-2	3x380-415V, ±5%, PE	22	168	DN 300	2632	2628	1701	2639	D
	CR120-3	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	1961	3246	C
	CR120-4-1	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	2174	3405	C
	CR120-5-1	3x380-415V, ±5%, PE	45	352	DN 300	2632	2628	2335	4036	C
5	CRE120-2-1	3x380-415V, ±5%, PE	22	210	DN 300	2632	3278	1675	3022	D
	CRE120-2	3x380-415V, ±5%, PE	22	210	DN 300	2632	3278	1701	3217	D
	CR120-3	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	1961	4087	C
	CR120-4-1	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	2174	4285	C
	CR120-5-1	3x380-415V, ±5%, PE	45	440	DN 300	2632	3278	2335	4826	C
6	CRE120-2-1	3x380-415V, ±5%, PE	22	252	DN 300	2632	3928	1675	3550	D
	CRE120-2	3x380-415V, ±5%, PE	22	252	DN 300	2632	3928	1701	3783	D
	CR120-3	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	1961	4921	C
	CR120-4-1	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	2174	5159	C
	CR120-5-1	3x380-415V, ±5%, PE	45	528	DN 300	2632	3928	2335	5814	C

Hydro MPC-F with CR 120

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR120-2-1	3x380-415V, ±5%, PE	18.5	104	DN 300	2632	1978	1678	1675	C
	CR120-2	3x380-415V, ±5%, PE	22	125	DN 300	2632	1978	1770	2059	C
	CR120-3	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	1961	2453	C
	CR120-4-1	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	2174	2572	C
	CR120-5-1	3x380-415V, ±5%, PE	45	264	DN 300	2632	1978	2335	2885	C
4	CR120-2-1	3x380-415V, ±5%, PE	18.5	138	DN 300	2632	2628	1678	2242	C
	CR120-2	3x380-415V, ±5%, PE	22	166	DN 300	2632	2628	1770	2728	C
	CR120-3	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	1961	3381	C
	CR120-4-1	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	2174	3539	C
	CR120-5-1	3x380-415V, ±5%, PE	45	352	DN 300	2632	2628	2335	3944	C
5	CR120-2-1	3x380-415V, ±5%, PE	18.5	173	DN 300	2632	3278	1678	2801	C
	CR120-2	3x380-415V, ±5%, PE	22	208	DN 300	2632	3278	1770	3267	C
	CR120-3	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	1961	3993	C
	CR120-4-1	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	2174	4192	C
	CR120-5-1	3x380-415V, ±5%, PE	45	440	DN 300	2632	3278	2335	4700	C
6	CR120-2-1	3x380-415V, ±5%, PE	18.5	207	DN 300	2632	3928	1678	3251	C
	CR120-2	3x380-415V, ±5%, PE	22	249	DN 300	2632	3928	1770	3814	C
	CR120-3	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	1961	4608	C
	CR120-4-1	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	2174	4847	C
	CR120-5-1	3x380-415V, ±5%, PE	45	528	DN 300	2632	3928	2335	5465	C

Hydro MPC-S with CR 120

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR120-2-1	3x380-415V, ±5%, PE	18.5	104	DN 300	2632	1978	1678	1603	D
	CR120-2	3x380-415V, ±5%, PE	22	125	DN 300	2632	1978	1770	1880	D
	CR120-3	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	1961	2186	C
	CR120-4-1	3x380-415V, ±5%, PE	37	216	DN 300	2632	1978	2174	2305	C
	CR120-5-1	3x380-415V, ±5%, PE	45	264	DN 300	2632	1978	2335	2641	C
4	CR120-2-1	3x380-415V, ±5%, PE	18.5	138	DN 300	2632	2628	1678	2205	C
	CR120-2	3x380-415V, ±5%, PE	22	166	DN 300	2632	2628	1770	2553	C
	CR120-3	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	1961	2992	C
	CR120-4-1	3x380-415V, ±5%, PE	37	288	DN 300	2632	2628	2174	3151	C
	CR120-5-1	3x380-415V, ±5%, PE	45	352	DN 300	2632	2628	2335	3538	C
5	CR120-2-1	3x380-415V, ±5%, PE	18.5	173	DN 300	2632	3278	1678	2651	C
	CR120-2	3x380-415V, ±5%, PE	22	208	DN 300	2632	3278	1770	3165	C
	CR120-3	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	1961	3600	C
	CR120-4-1	3x380-415V, ±5%, PE	37	360	DN 300	2632	3278	2174	3798	C
	CR120-5-1	3x380-415V, ±5%, PE	45	440	DN 300	2632	3278	2335	4286	C
6	CR120-2-1	3x380-415V, ±5%, PE	18.5	207	DN 300	2632	3928	1678	3177	C
	CR120-2	3x380-415V, ±5%, PE	22	249	DN 300	2632	3928	1770	3700	C
	CR120-3	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	1961	4213	C
	CR120-4-1	3x380-415V, ±5%, PE	37	432	DN 300	2632	3928	2174	4452	C
	CR120-5-1	3x380-415V, ±5%, PE	45	528	DN 300	2632	3928	2335	5045	C

Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

Dimensions may vary by ± 10 mm.

Hydro MPC-E with CR(E) 150

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CRE150-2-1	3x380-415V, ±5%, PE	22	126	DN350	2850	1980	1701	2158	D
	CR150-3-2	3x380-415V, ±5%, PE	30	168	DN350	2850	1980	1961	2451	C
	CR150-3	3x380-415V, ±5%, PE	37	216	DN350	2850	1980	2018	2790	C
	CR150-4-1	3x380-415V, ±5%, PE	45	264	DN350	2850	1980	2180	3114	C
	CR150-5-2	3x380-415V, ±5%, PE	55	315	DN350	2850	1980	2403	3556	C
4	CRE150-2-1	3x380-415V, ±5%, PE	22	168	DN350	2850	2630	1701	2920	D
	CR150-3-2	3x380-415V, ±5%, PE	30	224	DN350	2850	2630	1961	3500	C
	CR150-3	3x380-415V, ±5%, PE	37	288	DN350	2850	2630	2018	3648	C
	CR150-4-1	3x380-415V, ±5%, PE	45	352	DN350	2850	2630	2180	4279	C
	CR150-5-2	3x380-415V, ±5%, PE	55	420	DN350	2850	2630	2403	4865	C
5	CRE150-2-1	3x380-415V, ±5%, PE	22	210	DN350	2850	3280	1701	3541	D
	CR150-3-2	3x380-415V, ±5%, PE	30	280	DN350	2850	3280	1961	4182	C
	CR150-3	3x380-415V, ±5%, PE	37	360	DN350	2850	3280	2018	4562	C
	CR150-4-1	3x380-415V, ±5%, PE	45	440	DN350	2850	3280	2180	5102	C
	CR150-5-2	3x380-415V, ±5%, PE	55	525	DN350	2850	3280	2403	5836	C
6	CRE150-2-1	3x380-415V, ±5%, PE	22	252	DN350	2850	3930	1701	4150	D
	CR150-3-2	3x380-415V, ±5%, PE	30	336	DN350	2850	3930	1961	4858	C
	CR150-3	3x380-415V, ±5%, PE	37	432	DN350	2850	3930	2018	5469	C
	CR150-4-1	3x380-415V, ±5%, PE	45	528	DN350	2850	3930	2180	6123	C
	CR150-5-2	3x380-415V, ±5%, PE	55	630	DN350	2850	3930	2403	7000	C

Hydro MPC-F with CR 150

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR150-2-1	3x380-415V, ±5%, PE	22	125	DN350	2850	1980	1770	2259	C
	CR150-3-2	3x380-415V, ±5%, PE	30	168	DN350	2850	1980	1961	2461	C
	CR150-3	3x380-415V, ±5%, PE	37	216	DN350	2850	1980	2018	2744	C
	CR150-4-1	3x380-415V, ±5%, PE	45	264	DN350	2850	1980	2180	3056	C
	CR150-5-2	3x380-415V, ±5%, PE	55	315	DN350	2850	1980	2403	3496	C
4	CR150-2-1	3x380-415V, ±5%, PE	22	166	DN350	2850	2630	1770	3009	C
	CR150-3-2	3x380-415V, ±5%, PE	30	224	DN350	2850	2630	1961	3265	C
	CR150-3	3x380-415V, ±5%, PE	37	288	DN350	2850	2630	2018	3782	C
	CR150-4-1	3x380-415V, ±5%, PE	45	352	DN350	2850	2630	2180	4187	C
	CR150-5-2	3x380-415V, ±5%, PE	55	420	DN350	2850	2630	2403	4769	C
5	CR150-2-1	3x380-415V, ±5%, PE	22	208	DN350	2850	3280	1770	3591	C
	CR150-3-2	3x380-415V, ±5%, PE	30	280	DN350	2850	3280	1961	4277	C
	CR150-3	3x380-415V, ±5%, PE	37	360	DN350	2850	3280	2018	4468	C
	CR150-4-1	3x380-415V, ±5%, PE	45	440	DN350	2850	3280	2180	4976	C
	CR150-5-2	3x380-415V, ±5%, PE	55	525	DN350	2850	3280	2403	5713	C
6	CR150-2-1	3x380-415V, ±5%, PE	22	249	DN350	2850	3930	1770	4181	C
	CR150-3-2	3x380-415V, ±5%, PE	30	336	DN350	2850	3930	1961	4934	C
	CR150-3	3x380-415V, ±5%, PE	37	432	DN350	2850	3930	2018	5157	C
	CR150-4-1	3x380-415V, ±5%, PE	45	528	DN350	2850	3930	2180	5775	C
	CR150-5-2	3x380-415V, ±5%, PE	55	630	DN350	2850	3930	2403	6658	C

Hydro MPC-S with CR 150

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I _N [A]	Connection	B [mm]	L [mm]	H [mm]	Weight [kg]	Design
3	CR150-2-1	3x380-415V, ±5%, PE	22	125	DN350	2850	1980	1770	2080	D
	CR150-3-2	3x380-415V, ±5%, PE	30	168	DN350	2850	1980	1961	2266	D
	CR150-3	3x380-415V, ±5%, PE	37	216	DN350	2850	1980	2018	2477	C
	CR150-4-1	3x380-415V, ±5%, PE	45	264	DN350	2850	1980	2180	2812	C
	CR150-5-2	3x380-415V, ±5%, PE	55	315	DN350	2850	1980	2403	3249	C
4	CR150-2-1	3x380-415V, ±5%, PE	22	166	DN350	2850	2630	1770	2834	C
	CR150-3-2	3x380-415V, ±5%, PE	30	224	DN350	2850	2630	1961	3134	C
	CR150-3	3x380-415V, ±5%, PE	37	288	DN350	2850	2630	2018	3394	C
	CR150-4-1	3x380-415V, ±5%, PE	45	352	DN350	2850	2630	2180	3780	C
	CR150-5-2	3x380-415V, ±5%, PE	55	420	DN350	2850	2630	2403	4362	C
5	CR150-2-1	3x380-415V, ±5%, PE	22	208	DN350	2850	3280	1770	3489	C
	CR150-3-2	3x380-415V, ±5%, PE	30	280	DN350	2850	3280	1961	3851	C
	CR150-3	3x380-415V, ±5%, PE	37	360	DN350	2850	3280	2018	4075	C
	CR150-4-1	3x380-415V, ±5%, PE	45	440	DN350	2850	3280	2180	4562	C
	CR150-5-2	3x380-415V, ±5%, PE	55	525	DN350	2850	3280	2403	5291	C
6	CR150-2-1	3x380-415V, ±5%, PE	22	249	DN350	2850	3930	1770	4067	C
	CR150-3-2	3x380-415V, ±5%, PE	30	336	DN350	2850	3930	1961	4525	C
	CR150-3	3x380-415V, ±5%, PE	37	432	DN350	2850	3930	2018	4762	C
	CR150-4-1	3x380-415V, ±5%, PE	45	528	DN350	2850	3930	2180	5355	C
	CR150-5-2	3x380-415V, ±5%, PE	55	630	DN350	2850	3930	2403	6227	C

Design C: Hydro MPC booster system with a floor-mounted control cabinet.

Design D: Hydro MPC booster system with a control cabinet mounted on a separate base frame.

All pumps are fitted with three-phase motors.

Dimensions may vary by ± 10 mm.

All optional equipment, if required, must be specified when ordering the Hydro MPC booster system, as it must be fitted from factory prior to delivery.

Diaphragm tank



TM02 9027 1904

Fig. 55 Diaphragm tanks

In buildings it is usually necessary to install a diaphragm tank on the discharge side of the booster system.

As standard, the Hydro MPC booster system is designed for a maximum system pressure of 16 bar. A standard Hydro MPC booster system includes pressure transmitters and one pressure gauge with a nominal pressure of 16 bar (full scale).

Hydro MPC booster systems designed for PN 16

Diaphragm tanks up to 33 litres are mounted on the manifold on the discharge side of the booster system.

For information about diaphragm tanks larger than 25 litres, see Diaphragm tank on page 81.

Description	Max. system pressure [bar]	Volume [litres]	Connection	Product number
Diaphragm tank and Hydro MPC booster system designed for PN 16	16	8	G 3/4	96020346
		12	G 3/4	96020347
		25	G 3/4	96020348

Redundant primary sensor



TM04 4125 0809

Fig. 56 Redundant primary sensor

In order to increase the reliability, a redundant primary sensor can be connected as backup sensor for the primary sensor.

Note: The redundant primary sensor must be of the same type as the primary sensor.

Description	Range [bar]	Product number
Redundant primary sensor ¹⁾	10	96741462
	16	96020350

¹⁾ The redundant primary sensor is normally connected to analog input AI3 of the CU 351. If this input is used for another function, such as "External setpoint", the redundant sensor must be connected to analog input AI2. If, however, this input is also occupied, the number of analog inputs must be increased by installing an IO 351B module. See page 78.

Dry-running protection

The booster system must be protected against dry-running.

The inlet conditions determine the type of dry-running protection:

- If the system draws from a tank or a pit, select an electrode relay for dry-running protection.
- If the system has an inlet pressure, select a pressure transmitter or a pressure switch for dry-running protection.

Description	Range [bar]	Product number
Dry-running protection by means of electrode relay (without electrodes and electrode cable) ¹⁾	-	96020079
	2	96020071
	4	96020070
	8	96020072
Pressure switch ¹⁾	16	96020065
	1	96155335
	4	96020074
Inlet pressure sensor ²⁾	6	96020066
	10	96020075
	16	96020067

¹⁾ Only one type of dry-running protection can be selected, as it must be connected to the same digital input of the CU 351. This also applies to level switches. For further information about the CU 351, see page 10.

²⁾ The inlet pressure sensor is normally connected to analog input AI2 of the CU 351. If this input is used for another function, such as "External setpoint", the sensor must be connected to analog input AI3. If, however, this input is also occupied, the number of analog inputs must be increased by installing an IO 351B module, see page 78. For further information about the IO 351B, see page 10.

Pilot pump



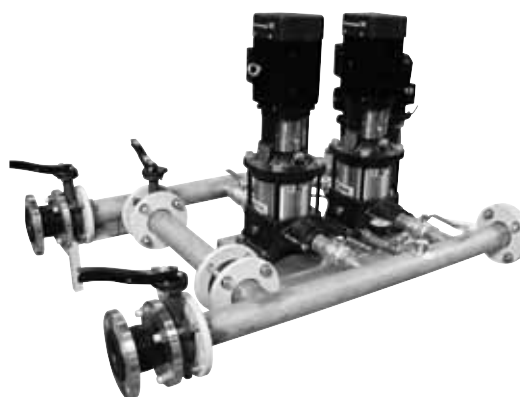
TM04 4197 1009

Fig. 57 Pilot pump

The pilot pump takes over the operation from the main pumps in periods when the consumption is so small that the stop function of the main pumps is activated. A pilot pump is typically used in booster systems as from 5.5 kW. Pilot pumps are available for all control variants.

Pilot pump	Supply voltage [V]	Total height [mm]	Product number
CRIE 3-7 (0.55 kW)	1 x 200-240 V	520	96546720
CRIE 3-10 (0.75 kW)	1 x 200-240 V	620	96546721
CRIE 5-8 (1.1 kW)	1 x 200-240 V	656	96546726
CRIE 5-10 (1.5 kW)	3 x 380-480 V	776	96545430

Bypass connection



TM04 4126 0809

Fig. 58 Booster system with bypass connection

A bypass connection is a pipe diversion consisting of a manifold, two isolating valves and a non-return valve. The bypass connection allows water to bypass the pumps from the suction to the discharge manifold.

We offer bypass connections for the following Hydro MPC systems:

Description	Connection	Product number
CRI(E) 3 (2 to 3 pumps) CRI(E) 5 (2 to 3 pumps)	Rp 2	96406097
CRI(E) 3 (4 to 6 pumps) CRI(E) 5 (4 to 6 pumps)	Rp 2 1/2	96406101
CRI(E) 10 (2 to 3 pumps) CRI(E) 10 (4 to 5 pumps)	Rp 2 1/2	96406104
CRI(E) 10 (6 pumps)	DN 80	96406106
CRI(E) 10 (6 pumps)	DN 100	96406107
CRI(E) 15, 20 (2 pumps)	DN 80	96406109
CRI(E) 15, 20 (3 to 4 pumps) CR(E) 32 (2 pumps)	DN 100	96406111
CR(E) 15, 20 (5 to 6 pumps) CR(E) 32 (3 to 6 pumps)	DN 150	96406112
CR(E) 45 (2 pumps) CR(E) 64 (2 pumps)	DN 150	96406113
CR(E) 45 (3 to 6 pumps) CR(E) 64 (3 to 6 pumps)	DN 200	96406114
CR(E) 90 (2 pumps)	DN 150	96417308
CR(E) 90 (3 to 4 pumps)	DN 200	96417306
CR(E) 90 (5 to 6 pumps)	DN 250	96417303

Position of non-return valve

As standard, non-return valves are fitted on the discharge side of the pumps of the booster system.

In installations with suction lift, it is advisable to install non-return valves on the suction side of the pumps to prevent dry running.

Description	Product number
Non-return valve on suction side	96615832

Stainless steel non-return valve

As standard, the Hydro MPC booster system includes non-return valves of polyoxymethylene (POM).

Stainless steel non-return valves are available for pumped liquids containing abrasive particles.

Note: Order 1 valve for each pump.

Description	Connection	Product number
Non-return valve ¹⁾	CRI(E) 3 to CRI(E) 5	96499127
	CRI(E) 10 to CRI(E) 20	96499128
	CR(E) 32 to CR(E) 90	96499129

¹⁾ Max. operating pressure is 25 bar.

Emergency operation switch

The emergency operation switch enables emergency operation if a fault occurs in the CU 351.

Note: The motor protection and the dry-running protection are not activated during emergency operation.

Note: Order 1 switch for each pump.

Description	Location	Product number
CR(I)E pumps		96020100
CR(I) pump with external frequency converter	In control cabinet	96020099
CR(I) pump for mains operation		96020098

Repair switch

By means of a repair switch fitted to the individual pumps of the Hydro MPC booster system, the supply voltage to the pump can be switched off during repair, etc.

Note: Order 1 switch for each pump.

Description	Motor current/ starting method	Location	Product number
Repair switch	≤ 16 A, DOL	On the pump	96020262
	> 16 A < 25 A, DOL		96020263
	> 25 A < 40 A, DOL		96020264
	> 40 A < 63 A, DOL		96020265
	> 63 A < 80 A, DOL		96616871
	> 80 A < 100 A, DOL		96020267
	> 100 A < 125 A, DOL		96020268
	> 125 A < 175 A, DOL		96020269
	> 175 A < 250 A, DOL		96020282
	≤ 16 A, Y/Δ		96020270
	> 16 A < 25 A, Y/Δ		96020271
	> 25 A < 40 A, Y/Δ		96020272
	> 40 A < 63 A, Y/Δ		96020273
	> 63 A < 80 A, Y/Δ		96020274
	> 80 A < 100 A, Y/Δ		96020275
	> 100 A < 125 A, Y/Δ		96020276
	> 125 A < 175 A, Y/Δ		96020277
	> 175 A < 250 A, Y/Δ		96020283

Isolating switch

By means of an isolating switch fitted inside the control cabinet, the supply voltage to the pump can be switched off during repair etc.

Note: This option only applies to Hydro MPC-F control variants.

Note: Order 1 switch for each pump.

Description	Motor current/ starting method	Location	Product number
Isolating switch	≤ 16 A, DOL	In control cabinet	96020101
	> 16 A < 25 A, DOL		96020102
	> 25 A < 40 A, DOL		96020103
	> 40 A < 63 A, DOL		96020104
	> 63 A < 80 A, DOL		96020105
	> 80 A < 100 A, DOL		96020106
	> 100 A < 125 A, DOL		96020107
	> 125 A < 175 A, DOL		96020108
	≤ 16 A, Y/Δ		96020109
	> 16 A < 25 A, Y/Δ		96020110
	> 25 A < 40 A, Y/Δ		96020111
	> 40 A < 63 A, Y/Δ		96020112
	> 63 A < 80 A, Y/D		96020113
	> 80 A < 100 A, Y/Δ		96020114
	> 100 A < 125 A, Y/Δ		96020115
	> 125 A < 175 A, Y/Δ		96020116

Main switch with switching off of the neutral conductor

Main switch with switching off of the neutral conductor is only used in connection with single-phase motors. This option is to be selected according to the local rules for the installation site. As standard, the main switch does not switch off the neutral conductor.

Description	Nominal current of Hydro MPC [A]	Location	Product number
Main switch with switching off of the neutral conductor	40	In control cabinet	96020023
	100		96020022
	175		96020021
	250		96020020
	400		96020019
	630		96020018
	800		96020017
	1250		96020016
	1750		96020015
	2000		96020014
	2500	96020013	

Operation light, system



TM04 4112 0709

Fig. 59 Operation light, system

The operation light is on when the system is in operation.

Description	Location	Product number
Operation light, system	In door of control cabinet	96020286

Operation light, pump



TM04 4112 0709

Fig. 60 Operation light, system

The operation light is on when the relevant pump is in operation.

Note: Order 1 operation light for each pump.

Description	Operation light for	Location	Product number
Operation light, pump	CR(I)E pump with integrated frequency converter	In door of control cabinet	96020330
	CRI/CR pump with external frequency converter		96020329
	CRI/CR pump in Hydro MPC-F booster systems		96020136
	Mains-operated CR(I) pump		96020139

Example: For a Hydro MPC-ES booster system consisting of 1 CRIE pump with integrated frequency converter and 2 mains-operated CRI pumps, order 1 operation light No 96020330 and 2 operation lights No 96020139.

Fault light, system



TM04 3254 3908

Fig. 61 Fault light, system

The fault light is on if a fault occurs in the system.

Note: Phase failure causes no fault indication.

Description	Location	Product number
Fault light, system	In door of control cabinet	96020132

Fault light, pump



TM04 3254 3908

Fig. 62 Fault light, pump

The fault light is on if a fault occurs in the pump.

Note: Order 1 fault light for each pump.

Description	Fault indicator light for	Location	Product number
Fault light, pump	CR(I)E pump	In door of control cabinet	96020332
	External frequency converter		96020131
	CR(I) pump		96020331
	MLE pump		96020133

Panel light and socket

The panel light is on when the door of the control cabinet is open.

Panel lights for 50 Hz are in accordance with EN 60529/10.91.

Note: The panel light and socket are to be connected to a separate power supply.

Description	Type	Location	Product number
Panel light	14 W, 240 V, 50 Hz, socket	In control cabinet	96020296
	14 W, 220-230 V, 50 Hz, socket		96020126
	14 W, 120 V, 60 Hz, socket		96020076

IO 351B interface



GrA 0815

Fig. 63 IO 351B interface

This option features a factory-fitted and non-programmed IO 351B interface enabling exchange of nine additional digital inputs, seven additional digital outputs and two additional analog inputs.

Note: As standard the CU 351 supports the installation of one IO 351B interface.

Description	Location	Product number
I/O interface via IO 351B	In control cabinet	96020259

Ethernet

The ethernet connection makes it possible to get unlimited access to the setting and monitoring of the Hydro MPC from a remote PC.

Description	Product number
Ethernet	96020338

GENibus module

The GENibus module is an add-on module that enables data communication with external GENibus devices, such as Grundfos CIU communication interfaces.

Description	Location	Product number
GENibus module	In control cabinet	96020339

CIU communication interface



GrA 6118

Fig. 64 Grundfos CIU communication interface

The CIU enables communication of operating data, such as measured values and setpoints, between the Hydro MPC and a building management system.

We offer the following CIU units:

CIU 110

For communication via LON.

CIU 150

For communication via PROFIBUS.

CIU 200

For communication via Modbus RTU.

Note: The CU 351 must be equipped with a GENibus module to enable communication via a CIU unit.

Description	Fieldbus protocol	Location	Product number
CIU 110	LON		96943635
CIU 150	PROFIBUS	In control cabinet	96943636
CIU 200	Modbus RTU		96943637

For further information about data communication via CIU units and fieldbus protocols, see the CIU documentation available in WebCAPS.

Transient voltage protection

The transient voltage protection protects the booster system against high-energy transients.

Description	Range	Product number
Transient voltage protection	3 x 400 V, N, PE, 50/60 Hz	96020181
	3 x 400 V, PE, 50/60 Hz	96020182

Lightning protection

The booster system can be protected against strokes of lightning. The lightning protection is in accordance with IEC 61024-1: 1992-10, class B and C.

Note: Additional earthing facilities must be arranged by the customer at the site of installation.

Description	Range	Product number
Lightning protection	3 x 400 V, N, PE, 50/60 Hz	96020125
	3 x 400 V, PE, 50/60 Hz	96020180

Phase failure monitoring

The booster system should be protected against phase failure.

Note: A potential-free switch is available for external monitoring.

Description	Location	Product number
Phase-failure monitoring	In controller	96020117

Beacon

The beacon is on in case of a system alarm.

Note: Phase failure causes no alarm indication.

Description	Location	Product number
Beacon	On top of control cabinet	96020176
	External ¹⁾	96020177

¹⁾ Cable is not included.

Audible alarm

The audible alarm sounds in case of a system alarm.

Description	Sound pressure level	Location	Product number
Audible alarm	80 dB(A)	In control cabinet	96020178
	100 dB(A)		96020179

Voltmeter

A voltmeter indicates the mains voltage between the mains phases and between the neutral conductor, N, and the mains phases.

Note: Order 1 voltmeter for each pump.

Description	Location	Product number
Voltmeter, 500 V (2 phases)		96020118
Voltmeter, 500 V, with changeover switch (all phases)	In door of control cabinet	96020119

Ammeter

An ammeter indicates the current of one phase per pump.

Note: Order 1 ammeter for each pump.

Description	Current [A]	Location	Product number
Ammeter	6	In door of control cabinet	96020120
	16		96020121
	25		96020284
	40		96020122
	100		96020123
	160		96020124
	250		96020285
	400		96020281

All accessories can be fitted on the Hydro MPC booster system after delivery.

Dry-running protection

The booster system must be protected against dry-running. Dry-running protection by means of level switches is used in installations where the booster system draws water from a tank or well.

Description	Product number
Level switch including 5 metres of cable ¹⁾	96020142

1) The input for level switch is not included. See page 75.
Only one type of dry-running protection can be selected, as it must be connected to the same digital input of the CU 351. This also applies to level switches.

Diaphragm tank



TM02.9027.1904

Fig. 65 Diaphragm tanks

A diaphragm tank must always be installed on the discharge side of the booster system.

Note: The diaphragm tanks are separate tanks without valve, fittings and pipes.

Diaphragm tank, 10 bar

Capacity [litres]	Connection	Product number
8	G 3/4	96528335
12	G 3/4	96528336
18	G 3/4	96528337
24	G 1	96528339
33	G 1	96528340
60	G 1	96528341
80	G 1	96528342
100	G 1	96528343
130	G 1	96528344
170	G 1	96528345
240	G 1	96528346
300	G 1	96528347
450	G 1	96528348
750	G 2	96528349
1000	G 2	96528350
1500	G 2 1/2	96528351
2000	G 2 1/2	96528352
2500	G 2 1/2	96528353
3000	G 2 1/2	96528354

Diaphragm tank, 16 bar

Capacity [litres]	Connection	Product number
8	G 3/4	96573347
12	G 3/4	96573348
25	G 3/4	96573349
80	DN 50	96573358
120	DN 50	96573359
180	DN 50	96573360
300	DN 50	96573361
400	DN 50	96573362
600	DN 50	96573363
800	DN 50	96573364
1000	DN 50	96573365

Foot valve



TM04 4128 0809

Fig. 66 Foot valves

The booster system must be protected against dry running.

Dry-running protection by means of level switches is used in installations where the booster system draws water from a tank or well.

Foot valves are typically used in minor booster systems with suction lift. For example when the Hydro MPC draws water from a break tank placed at a lower geodetic height than the booster system.

Foot valves are designed to ensure optimal suction conditions.

Description	Connection	Product number
Foot valve	Rp 2	956120
	Rp 3	956130
	Rp 4	956449

Machine shoe



TM04 3245 3908

Fig. 67 Machine shoes

Machine shoes reduce any vibrations from the system to the floor, allowing the system to be height-adjusted by ± 20 mm.

Description	Hydro MPC with	Product number
Machine shoe	CRI(E) 1 to CRI(E) 3	96412344
	CRI(E) 10 to CRI(E) 20	96412345
	CR(E) 32 to CR(E) 90	96412347

Note: The product number covers one (1) machine shoe.


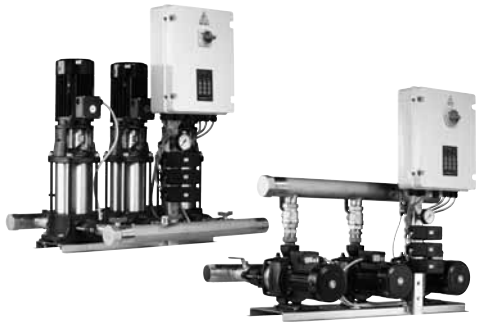

Extra documentation

The documents and publication numbers below refer to printed documentation of Hydro MPC (group versions).

Document	Publication number
Data booklets	
Hydro MPC, 60 Hz	96605940
Installation and operating instruction	
Hydro MPC	96605907
Quick guide	
Hydro MPC	96605941
Catalogue	
Hydro booster systems - Custom-built solutions 50/60 Hz	96881732

In addition to printed documentation, Grundfos offers product documentation in WebCAPS on Grundfos' homepage, www.grundfos.com. See page 84.

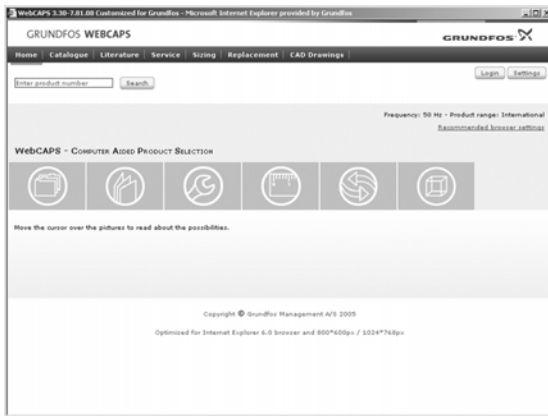
Alternative booster systems

Booster system	Data and features												
<p>Hydro Multi-E</p>  <p style="text-align: right; font-size: small;">GrA0762</p>	<table border="1"> <tr> <td>Max. head</td> <td>10 to 100 m</td> </tr> <tr> <td>Flow rate</td> <td>2 to 85 m³/h</td> </tr> <tr> <td>Max. operating pressure</td> <td>16 bar</td> </tr> <tr> <td>Number of pumps</td> <td>2 to 3</td> </tr> <tr> <td>Pump types</td> <td>CRE</td> </tr> <tr> <td>Features</td> <td> <ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100 % adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100 remote control. </td> </tr> </table>	Max. head	10 to 100 m	Flow rate	2 to 85 m ³ /h	Max. operating pressure	16 bar	Number of pumps	2 to 3	Pump types	CRE	Features	<ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100 % adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100 remote control.
Max. head	10 to 100 m												
Flow rate	2 to 85 m ³ /h												
Max. operating pressure	16 bar												
Number of pumps	2 to 3												
Pump types	CRE												
Features	<ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100 % adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100 remote control. 												
<p>Hydro Multi-S</p>  <p style="text-align: right; font-size: small;">GrA5733 - GrA5734</p>	<table border="1"> <tr> <td>Max. head</td> <td>9 - 103 m</td> </tr> <tr> <td>Flow rate</td> <td>0.5 - 69 m³/h</td> </tr> <tr> <td>Max. operating pressure</td> <td>16 bar</td> </tr> <tr> <td>Number of pumps</td> <td>2 - 3</td> </tr> <tr> <td>Pump types</td> <td>CR, CH</td> </tr> <tr> <td>Features</td> <td> <ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100% adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100, etc. </td> </tr> </table>	Max. head	9 - 103 m	Flow rate	0.5 - 69 m ³ /h	Max. operating pressure	16 bar	Number of pumps	2 - 3	Pump types	CR, CH	Features	<ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100% adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100, etc.
Max. head	9 - 103 m												
Flow rate	0.5 - 69 m ³ /h												
Max. operating pressure	16 bar												
Number of pumps	2 - 3												
Pump types	CR, CH												
Features	<ul style="list-style-type: none"> • Specially designed for water supply in buildings. • 100% adaptation to consumption. • Easy to install and commission. • Small foot print. • Data communication via Grundfos R100, etc. 												
<p>Hydro Solo-E/-S</p>  <p style="text-align: right; font-size: small;">Gr5164 - Gr5165</p>	<table border="1"> <tr> <td>Max. head</td> <td>10 to 100 m</td> </tr> <tr> <td>Flow rate</td> <td>2 to 55 m³/h</td> </tr> <tr> <td>Max. operating pressure</td> <td>16 bar</td> </tr> <tr> <td>Number of pumps</td> <td>1</td> </tr> <tr> <td>Pump types</td> <td>CRE, CR ¹⁾</td> </tr> <tr> <td>Features</td> <td> <ul style="list-style-type: none"> • Easy to install and commission. • Constant pressure. • Data communication via Grundfos R100 remote control. ²⁾ </td> </tr> </table>	Max. head	10 to 100 m	Flow rate	2 to 55 m ³ /h	Max. operating pressure	16 bar	Number of pumps	1	Pump types	CRE, CR ¹⁾	Features	<ul style="list-style-type: none"> • Easy to install and commission. • Constant pressure. • Data communication via Grundfos R100 remote control. ²⁾
Max. head	10 to 100 m												
Flow rate	2 to 55 m ³ /h												
Max. operating pressure	16 bar												
Number of pumps	1												
Pump types	CRE, CR ¹⁾												
Features	<ul style="list-style-type: none"> • Easy to install and commission. • Constant pressure. • Data communication via Grundfos R100 remote control. ²⁾ 												

¹⁾ Hydro Solo-E is equipped with a CRE pump; Hydro Solo-S with a CR pump.

²⁾ Applies only to Hydro Solo-E.

WebCAPS

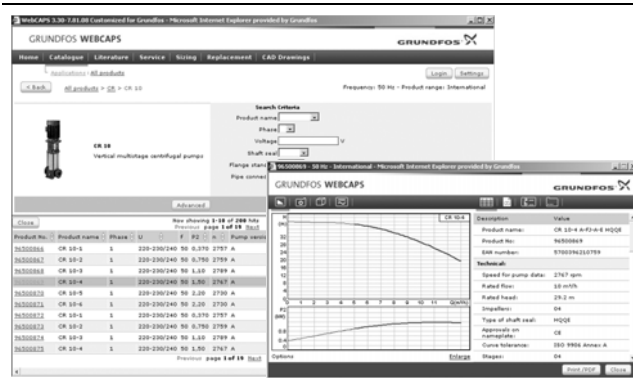


WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into 6 sections:

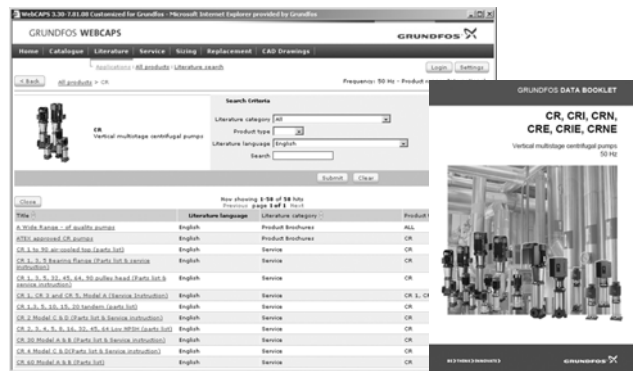
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

With a starting point in areas of applications and pump types, this section contains

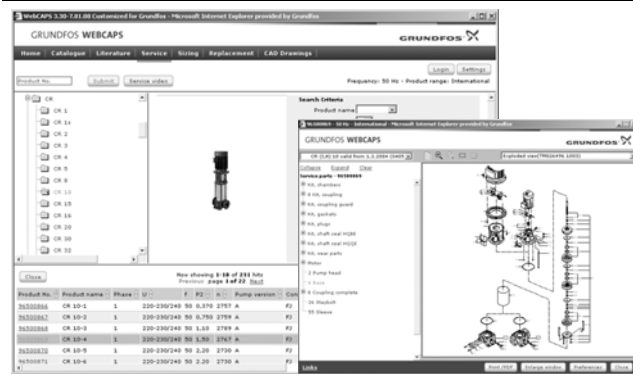
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

In this section you can access all the latest documents of a given pump, such as

- data booklets
- Installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures, etc.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and cancelled Grundfos pumps. Furthermore, this section contains service videos showing you how to replace service parts.



Sizing

With a starting point in different application areas and installation examples, this section gives easy step-by-step instructions in how to

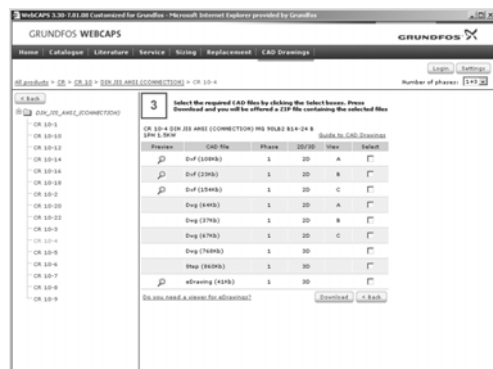
- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, lifecycle costs, etc.
- analyse your selected pump via the built-in lifecycle cost tool
- determine the flow velocity in wastewater applications, etc.



Replacement

In this section you find a guide to select and compare replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump. The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. After having specified the installed pump, the guide suggests a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

The following formats are available in WebCAPS:

2-dimensional drawings

- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings

- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS



Fig. 68 WinCAPS CD-ROM

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 185,000 Grundfos products in more than 20 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no Internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.

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Subject to alterations.