Hydro MPC, ASEAN range

Booster systems with two to six pumps

50/60 Hz

be
think
innovate

GRUNDFOS

Table of contents

1. Product introduction

Applications

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

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

As standard, the booster systems consist of two to six identical CR or CRI pumps connected in parallel and mounted on a common base frame provided with a control cabinet and all the necessary fittings.

You can remove the pumps of the booster system without interfering with the pipework on either side of the manifolds.

The booster systems are available in three control variants. For further information, see *Product range, 50 Hz* on pages 6, *Product range, 60 Hz* on page 8 and *Overview of control variants* on page 14.

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 37 kW, Hydro MPC-E is fitted with CR, CRI pumps connected to Grundfos CUE frequency converters (one per pump).

Hydro MPC-S

Booster systems with two to six identical mains-operated CR, CRI pumps.

Pipework connection from R 2 to DN 350 and motor sizes from 0.37 to 37 kW.

Benefits

Perfect constant-pressure control

Gr1014555

Fig. 1 CU 352

The pumps are controlled individually by the CU 352 multipump control unit which contains application-optimised software and pump curve data. The CU 352 thus knows the exact hydraulic and electrical data of the pumps to be controlled. Furthermore, a log function enables monitoring of the system performance over a period of time.

User-friendliness

Hydro MPC features a built-in startup wizard in a wide range of languages that guides the installer through a series of steps until the system is correctly installed and commissioned. When the installation is complete, the large, user-friendly colour display will ensure that day-to-day operation is equally easy.

Reliability

TM04 4568 1709

Fig. 2 Grundfos CR pumps

The booster system 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 booster system is made by Grundfos. You are thus guaranteed long-lasting technology that requires a minimum of maintenance and provides a maximum of efficiency.

Low energy consumption

All motors used in the booster systems meet the legislative requirements of the EuP IE3 level.

Furthermore, the booster system uses pump curve data to calculate and optimise the cut-in and cut-out of pumps.

High-efficient motors, advanced control in combination with optimised hydraulics for both the CR pump and the manifold ensures that the system uses a minimum of energy.

Flexibility

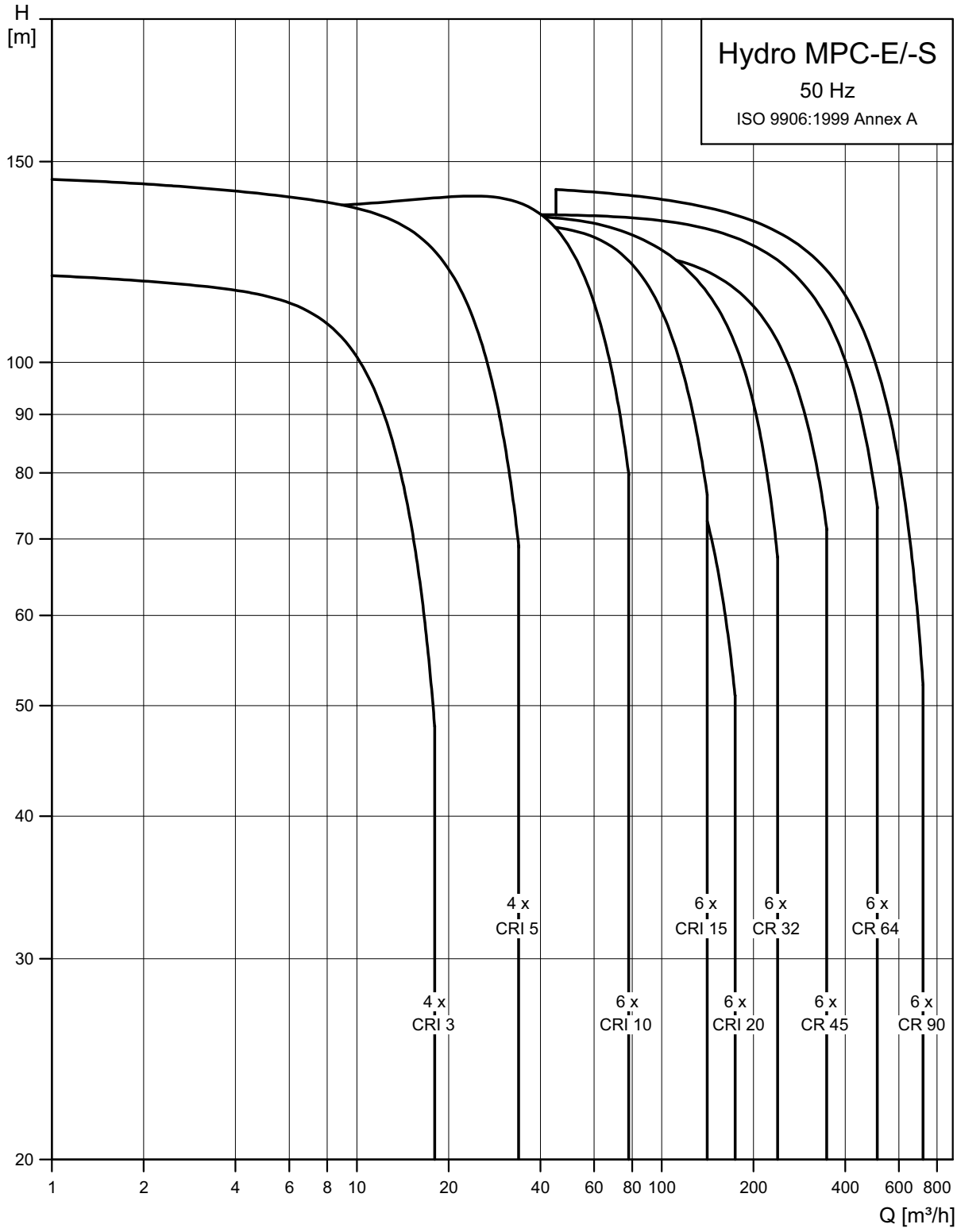
The elements of the booster system can be combined in a number of ways to make sure that we build the perfect solution for you!

Custom-built solutions

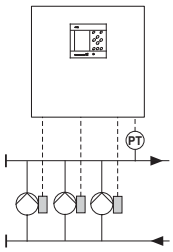
If this data booklet does not provide you with a solution that meets your specific pumping needs, please contact us.

2. Product data

Performance range



Product range, 50 Hz



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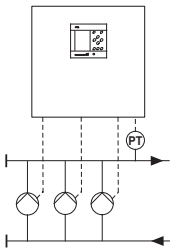

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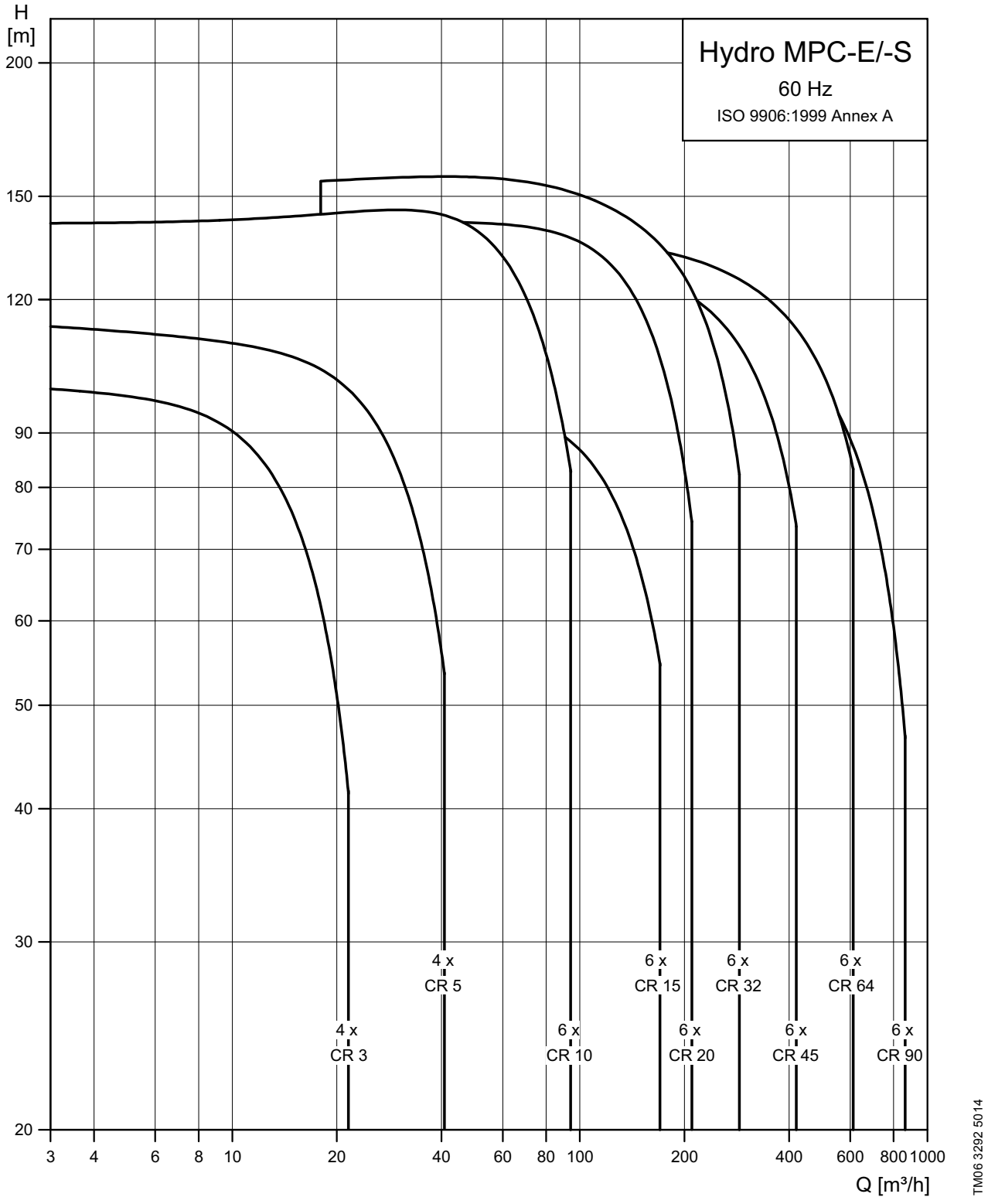
Control variant	Hydro MPC-E	Hydro MPC-S
Frequency	**50 Hz**	**50 Hz**
Hydraulic data		
Maximum head [m]	144	144
Flow rate [m^3/h]	0-720	0-720
Liquid temperature [°C]	0-60[1)]	0-60
Maximum operating pressure [bar]	16[2)]	16[2)]
Motor data		
Number of pumps	2-6	2-6
Motor power [kW]	0.37 - 30	0.37 - 30
Shaft seal		
HQQE (SiC/SiC/EPDM)	●	●
Materials		
CRI/CRN 3 to CRI/CRN 90: Stainless steel EN/DIN 1.4301/AISI 304[6)]	❍	❍
CR 3 to CR 90: Cast iron and stainless steel EN/DIN 1.4301/AISI 304	●	●
Manifold: Stainless steel[5)]	●	●
Pipework connection		
Union connection	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
Functions		
Constant-pressure control	●	●[3)]
Automatic cascade control	●	●
Pump changeover/alternation	●	●
Stop function	●	-
Proportional-pressure control	●	-
Bus communication (external)	❍	❍
Integrated frequency converter (in pump)	●	-
External frequency converter (in cabinet)	●	-
Ethernet connection	●	●
Alternative setpoints	●	●
Redundant primary sensor (option)	●	●
Standby pump	●	●
Emergency run	●	●
Specific energy calculation	●[4)]	-
Log function	●	●
Reduced operation	●	●
Service contact information	●	●
Help texts	●	●

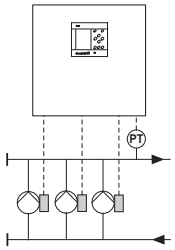
● Available as standard.
❍ Available on request.

1) Higher temperature available on request.
2) Booster systems with a maximum operating pressure higher than 16 bar are available on request.
3) The pressure will be almost constant between H_{set} and H_{stop}. For further information, see page 14.
4) Requires that a flowmeter has been installed and connected.
5) In some regions, galvanised manifolds are available as an option. For further information, contact Grundfos.
6) CRN: EN/DIN 1.4401 / AISI 316.

Performance range



Product range, 60 Hz



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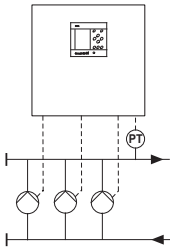

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Control variant	Hydro MPC-E	Hydro MPC-S
Frequency	**60 Hz**	**60 Hz**
Hydraulic data		
Maximum head [m]	144	144
Flow rate [m^3/h]	0-876	0-876
Liquid temperature [°C]	0-60[1)]	0-60[1)]
Maximum operating pressure [bar]	16[2)]	16[2)]
Motor data		
Number of pumps	2-6	2-6
Motor power [kW]	0.37 - 37	0.37 - 37
Shaft seal		
HQQE (SiC/SiC/EPDM)	•	•
Materials		
CRI/CRN 3 to CRI/CRN 90: Stainless steel EN/DIN 1.4301/AISI 304[6)]	•	•
CR 3 to CR 90: Cast iron and stainless steel EN/DIN 1.4301/AISI 304	•	•
Manifold: Stainless steel[5)]	•	•
Pipework connection		
Union connection	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
Functions		
Constant-pressure control	•	•[3)]
Automatic cascade control	•	•
Pump changeover/alternation	•	•
Stop function	•	-
Proportional-pressure control	•	-
Bus communication (external)	❍	❍
Integrated frequency converter (in pump)	•	-
External frequency converter (in cabinet)	•	-
Ethernet connection	•	•
Alternative setpoints	•	•
Redundant primary sensor (option)	•	•
Standby pump	•	•
Emergency run	•	•
Specific energy calculation	•[4)]	-
Log function	•	•
Reduced operation	•	•
Service contact information	•	•
Help texts	•	•

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4) Requires that a flowmeter has been installed and connected.
5) In some regions, galvanised manifolds are available as an option. For further information, contact Grundfos.
6) CRN: EN/DIN 1.4401 / AISI 316.

Type key

Example	Hydro MPC	-E	6	CRE 150-4-5	U1	A-	A-	A-	ABCD

Type range

System type
E: All pumps, E motor or CUE
F: Fixed-speed pumps, one CUE
S: Fixed-speed pumps
X: Customised system pumps

Number of main pumps

Pump type

Voltage code
U1 = 3 x 380-415, N, PE, 50/60 Hz
U2 = 3 x 380-415, PE, 50/60 Hz
U3 = 3 x 380-415, N, PE, 50 Hz
U4 = 3 x 380-415, PE, 50 Hz
U5 = 3 x 380-415, N, PE, 60 Hz
U6 = 3 x 380-415, PE, 60 Hz
U7 = 1 x 200-240, PE, 50/60 Hz
U8 = 1 x 200-240, N, PE, 50/60 Hz
U9 = 3 x 220-240, PE, 60 Hz
UA = 3 x 440-480, PE, 60 Hz
UB = 1 x 220-240, N, PE, 50/60 Hz
UC = 1 x 220-240, N, PE, 50 Hz

Design
A: Systems with the control cabinet mounted on the same base frame as the pumps.
B: Systems with the control cabinet centred on the base frame.
C: Systems with the control cabinet mounted on its own base for floor mounting.*
D: Systems with the control cabinet mounted on its own base frame.*
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and system with the control cabinet mounted on its own base frame.*
I: ASEAN design and systems with the control cabinet prepared for wall mounting.*
W: Systems with the control cabinet prepared for wall mounting.*

Starting method
A: E
N: DOL
C: SD

Material combination
A: Stainless-steel manifold, base frame and standard valves
B: Stainless-steel manifold, base frames and standard valves
C: Galvanised steel manifold and base frame and standard valves
D: Stainless-steel manifold and galvanised steel base frame and standard valves
H: Galvanised steel manifold and base frame painted black and standard valves
I: Stainless-steel manifold and base frame painted black and standard valves
X: Customised material combination

Options
A: Standard hydraulic
B: Pilot pump
C: Bypass
D: Non-return valve
E: Elbow manifold
F: No suction manifold
G: Diaphragm tank
H: Dry-running protection
I: Repair switch
J: Redundant sensor
K: One free position
L: Two free positions
M: Three free positions
S: CSU variant
V: Standard controls with options
W: Special CSU controls
X: More than four options

Design code: E-I is only available in selected countries.
* The control cabinet can be placed up to 2 metres from the pumps.

Operating conditions

Operating pressure

As standard, the maximum operating pressure is 16 bar.

Booster systems with a higher maximum operating pressure are available on request.

Temperature

Liquid temperature: 0 to 60 °C.

Ambient temperature: 0 to 40 °C.

Relative humidity

Maximum relative humidity: 95 %.

3. Construction

Pump

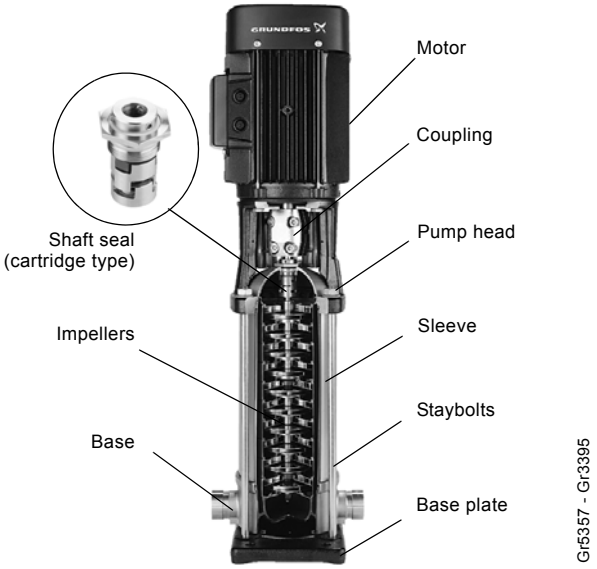

Fig. 3 CR pump

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.

CR pumps have pump head and base of cast iron while CRI 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

The data booklets are available in Grundfos Product Center on www.grundfos.com. See page 110.

For information about the pump's position in the booster system, see fig. 7 on page 13.

Shaft seal

All pumps have 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.

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Fig. 4 Cartridge shaft seal

You can replace the shaft seal without dismantling the pump. You can replace the shaft seal of pumps with motors of 11 kW and up without removing the motor.

For further information, see the data booklet on shaft seals, publication number 96519875. The data booklet is available in Grundfos Product Center on www.grundfos.com. See page 110.

Motors

CR and CRI pumps

CR and CRI pumps are fitted with a totally enclosed, fan-cooled, 2-pole Grundfos standard motor.

Principal dimensions are in accordance with the EN standards.

Electrical tolerances to EN 60034.

	Standard motor
Mounting designation	Up to 4 kW: V18 From 5.5 kW: V1
Insulation class	F
Efficiency class	IE3
Enclosure class	IP55[1)]
Supply voltage, 50 Hz Tolerance: ± 10 %	P2: 0.37 to 1.5 kW: 3 x 220-240/380-415 V, 50 Hz P2: 2.2 to 11 kW: 3 x 380-415 V, 50 Hz P2: 15 to 55 kW: 3 x 380-415/660-690 V, 50 Hz
Supply voltage, 60 Hz Tolerance: ± 10 %	P2: 0.55 to 75 kW: 3 x 220-277/380-480 V, 60 Hz

1) IP65 available on request.

Three-phase Grundfos motors from 3 kW and up have a built-in thermistor (PTC) according to DIN 44082 (IEC 34-11: TP 211).

Manifold

A suction manifold of stainless steel (AISI 304/ EN DIN 1.4301) is fitted on the suction side of the pumps.

Note: In some regions, galvanised manifolds are available as an option. For further information, contact Grundfos.

A discharge manifold of stainless steel (AISI 304/ EN DIN 1.4301) 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.

For information about the position of the suction and discharge manifolds, see fig. 7 on page 13.

Control cabinet

The control cabinet is fitted with all the necessary components. If necessary, the 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:

- **Design E:** ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
- **Design F:** ASEAN design and systems with the control cabinet centred on the base frame.
- **Design G:** ASEAN design and systems with the control cabinet mounted on its own base for floor mounting. You can place the control cabinet up to 2 metres from the pumps.
- **Design H:** ASEAN design and systems with the control cabinet mounted on its own base frame. You can place the control cabinet up to 2 metres from the pumps.
- **Design I**: ASEAN design and systems with the control cabinet prepared for wall mounting. You can place the control cabinet up to 2 metres from the pumps.

Operation lights located in the door of the control cabinet are standard on the Hydro MPC - ASEAN range.

Emergency operation switch

As standard, the emergency operation switches are fitted into the cabinet (one for each pump).
They enable emergency operation if a fault occurs in the CU 352.

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

For further information, see fig. 7 on page 13 and technical data on page 55.

CU 352

The CU 352 multipump control unit of the booster system is located in the door of the control cabinet.

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Fig. 5 CU 352

The CU 352 features a colour 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 352 has application-optimised software for adapting 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 352 and the remaining electrical system via GENIbus. The IO 351 is available in the variants A and B.

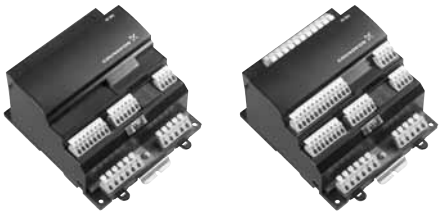

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Fig. 6 IO 351A and IO 351B

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 other external equipment.

Base frame

The pumps in the booster system are mounted on a common base frame. The base frame is made of black painted steel.

System components

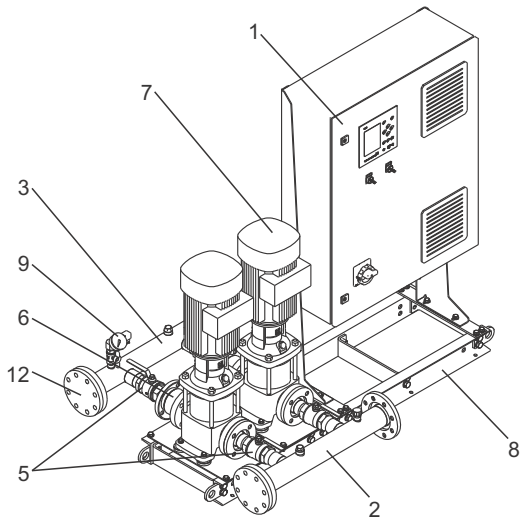
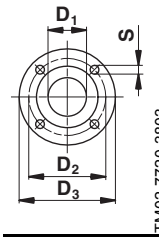


Fig. 7 System components

Pos.	Description	Quantity
1	Control cabinet	1
2	Suction manifold	1
3	Discharge manifold	1
5	Isolating valve	two per pump
6	Non-return valve	one per pump
7	Pump	2-6
8	Base frame	1
9	Pressure transmitter and pressure gauge	1
12	Screw cap or blanking flange	2

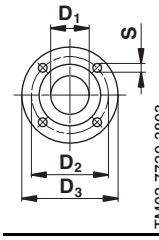
Flange dimensions

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	8 x 19	8 x 19	8 x 19	8 x 23	12 x 23	12 x 28

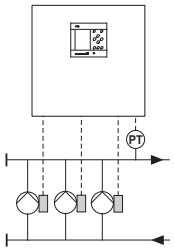
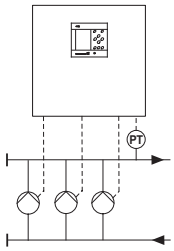
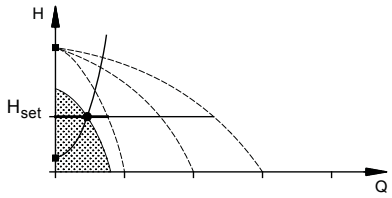
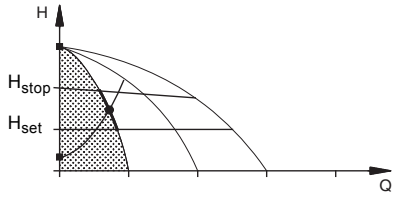
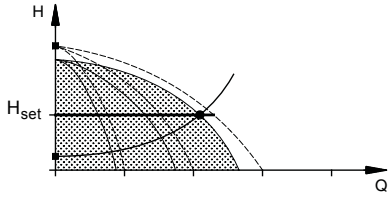
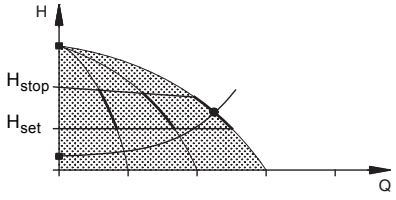
PN 25 flanges



	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	16 x 30	16 x 33

4. Functions

Overview of control variants

Booster systems with speed-controlled pumps	Booster systems with mains-operated pumps
Hydro MPC-E	**Hydro MPC-S**
Hydro MPC booster system with three CR, CRI pumps with one CUE per pump.  TM03 0993 0905	Hydro MPC booster system with three mains-operated CR, CRI pumps.  TM03 0999 0905
One CR, CRI pump in operation.  TM00 7995 2296	One mains-operated CR, CRI pump in operation.  TM03 2045 3505
Three CR, CRIE pumps in operation.  TM00 7996 2296	Three mains-operated CR, CRI pumps in operation.  TM03 2046 3505
• Hydro MPC-E maintains a constant pressure through continuously variable adjustment of the speed of the CR, CRI pumps connected. • The performance is adjusted to the demand through cutting in/out the required number of CR, CRI 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.	• 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 352 control panel

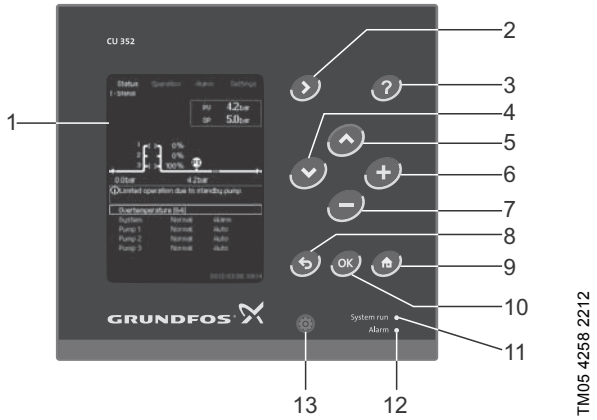


Fig. 8 CU 352 control panel

Key

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

"Status" menu

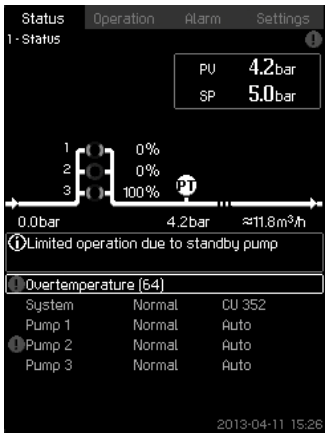


Fig. 9 "Status" menu

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.

"Operation" menu

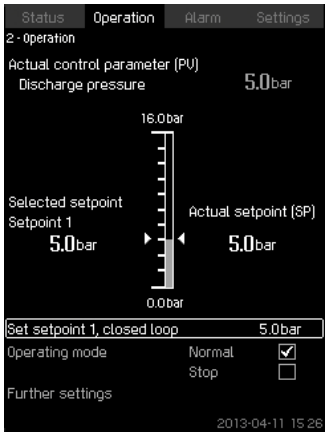


Fig. 10 "Operation" menu

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.

"Alarm" menu

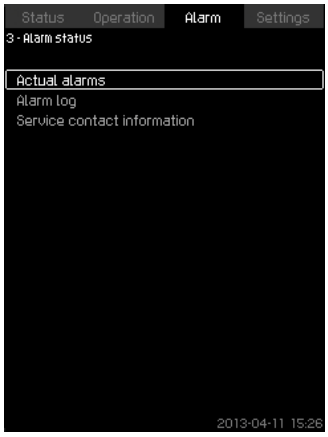


Fig. 11 "Alarm" menu

Description

- Overview of current warnings and alarms in clear text with detailed information:
  - What the cause of the fault is.
  - What the remedy for 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).
  - Whom to contact for service.
- Alarm log with up to 24 warnings and alarms.
- Button (?) for further information.
- Active buttons are illuminated.

"Settings" menu

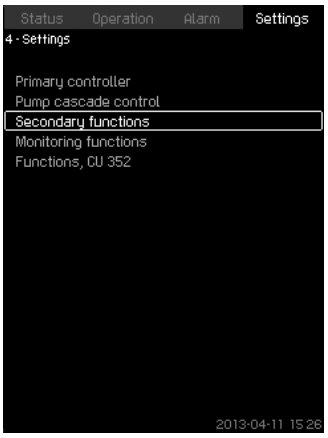


Fig. 12 "Settings" menu

Description

- Various settings:
  - External setpoint influence
  - Redundant primary sensor
  - Standby pumps
  - Stop function
  - Proportional pressure
  - Display language
  - Ethernet, etc.
- Button (?) for further information.
- Active buttons are illuminated.

Overview of functions

	Hydro MPC	
	-E	-S
Functions via the CU 352 control panel		
Constant-pressure control	●	● [1]
Proportional pressure	●	-
Automatic cascade control	●	●
Alternative setpoints	●	●
Redundant primary sensor [4]	●	●
Minimum changeover time	●	●
Number of starts per hour	●	●
Standby pumps	●	●
Forced pump changeover	●	●
Pump test run	●	●
Dry-running protection [4]	●	●
Stop function	●	- [2]
Password	●	●
Clock program	●	●
Pilot pump [4]	●	
Soft pressure build-up	●	●
Emergency run	●	●
Pump curve data	●	●
Flow estimation	●	●
Limit 1 and 2 exceeded	●	●
Pumps outside duty range	●	●
Log function	●	●
Specific energy calculation	● [3]	-
Setpoint ramp	●	●
Reduced operation	●	●
Communication		
Ethernet connection	●	●
Other bus protocols: PROFIBUS, LonWorks, Modbus, GRM, GSM, BACnet MS/TP, Industrial Ethernet via CIM modules. For further information, see *Optional equipment*, page 146.	❍	❍
External GENIbus connection	❍	❍

● Standard.
❍ On request.
- Not available.

1) The pressure will be almost constant between H_{set} and H_{stop}. For further information, see page 14.
2) Hydro MPC-S will have on/off control of all pumps. For further information, see page 21.
3) Requires that a flowmeter has been installed and connected.
4) Hardware not supplied as standard, but the functionality is available in the controller.

Description of selected functions

Constant-pressure control of E-systems

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

When taps are opened, water will be drawn from the diaphragm tank, if installed. The pressure will drop to a set cut-in pressure, and the first speed-controlled pump will start to operate. The speed of the pump in operation will be 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 352 will control the speed of each pump individually according to known pump curve data downloaded into the CU 352.

Furthermore, the CU 352 regularly estimates whether pumps are to be cut in or out to ensure best efficiency.

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

Display language

Fig. 13 Display language

Via the CU 352, you can select the language for the display.

Options:

- English
- German
- Danish
- Spanish
- Finnish
- French
- Greek
- Italian
- Dutch
- Polish
- Portuguese
- Russian
- Swedish
- Chinese
- Korean
- Japanese
- Czech
- Turkish
- Hungarian
- Bulgarian.

Pump curve data

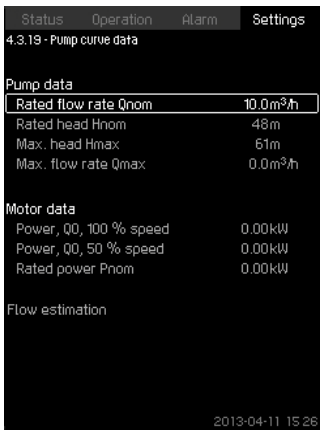


Fig. 14 Pump curve data

As standard, the booster system will help you minimise energy consumption and cut energy costs. By means of pump curve data stored from factory, the CU 352 will know exactly which and how many pumps to control. These pump curve data enables the CU 352 to optimise performance and minimise energy consumption.

Redundant primary sensor

You can install a redundant sensor as backup for the primary sensor in order to increase reliability and prevent stop of operation. The redundant primary sensor is at 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.

Automatic cascade control

Cascade control ensures that the performance of the booster system 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 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.

Log function

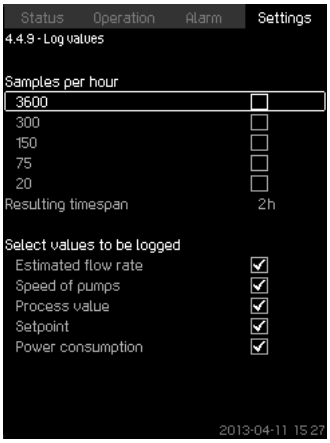


Fig. 15 Log values

The log function enables monitoring of selected parameters. The data can be presented in the display or exported as a .csv file via the built-in Ethernet connection.

Specific energy calculation

For MPC-E systems with a flowmeter connected, the CU 352 can calculate and show the specific energy used. It is shown as two values, the actual value and the average value.

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 352 will calculate when the next pump is allowed to start or stop in order not to exceed the permissible number of starts per hour.

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

Standby pumps

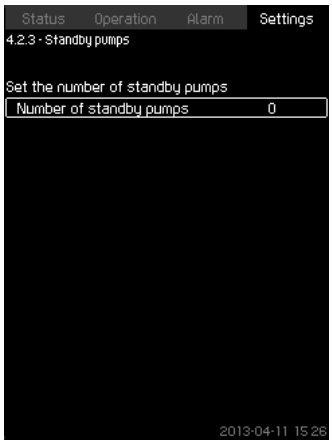


Fig. 16 Standby pumps

You can 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 pumps 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 system can maintain the rated 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

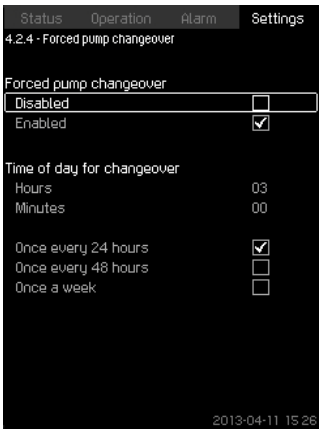


Fig. 17 Forced pump changeover

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 will be stopped and replaced by the pump with the lowest number of operating hours.

Pump test run

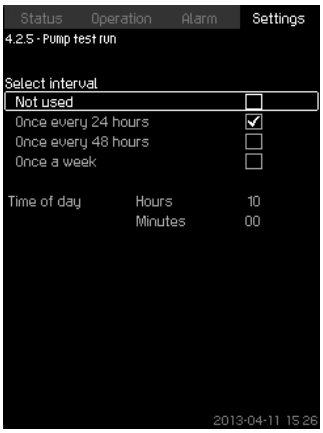


Fig. 18 Pump test run

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 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

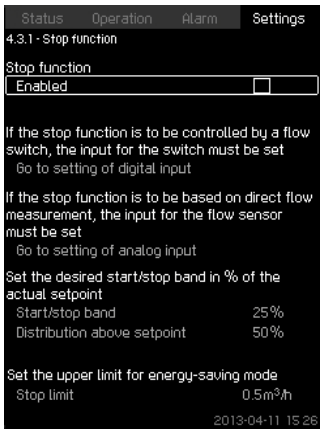


Fig. 19 Stop function

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 enabled, the operation of the system will be continuously monitored to detect a low flow rate. If the CU 352 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.

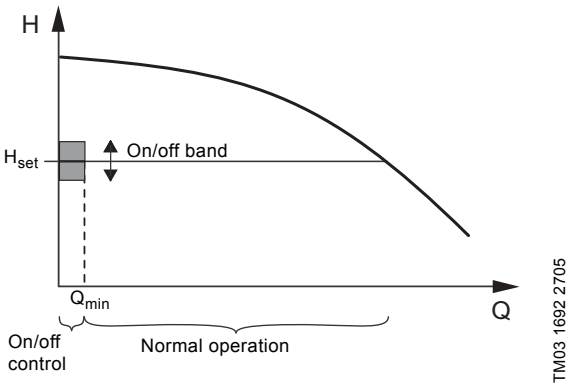


Fig. 20 On/off band

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 352, you can set the booster system to operate as energy-efficiently as possible or with the highest level of comfort.

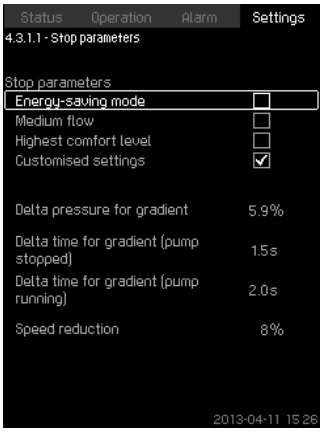


Fig. 21 Stop parameters

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 or stops.
- **Customised settings**
  If you want to make your own settings.

Setpoint ramp

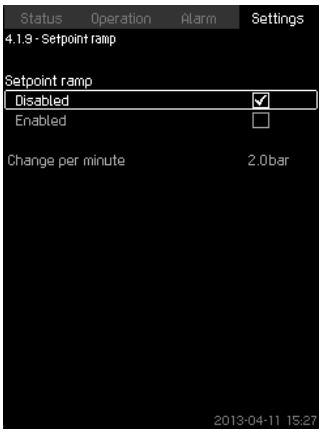


Fig. 22 Setpoint ramp

If this function is enabled, any setpoint change made via the controller, via clock program, when changing between alternative setpoints or via a SCADA system, will be made gradually over time. In this way, smooth setpoint changes can be made, thus causing no discomfort to the consumer.

Pilot pump

The pilot pump will take 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 reduce the necessary size of the diaphragm tank
- to reduce the number of operating hours of the main pumps.

Password

Fig. 23 Password

Passwords make it possible to limit the access to the "Operation" and "Settings" menus in the controller. If the access is limited, you cannot view or set any parameter in the menus.

Clock program

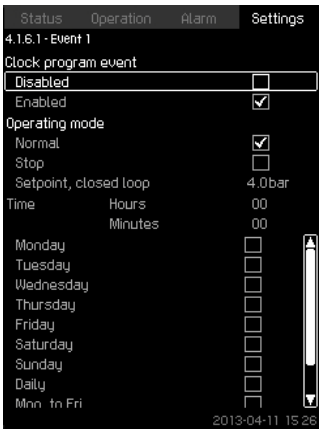


Fig. 24 Clock program

This function makes it possible to set up to ten events with specification of day and time for their activation or deactivation.

An example of application is sprinkling of golf courses at fixed times for the individual greens.

Proportional pressure

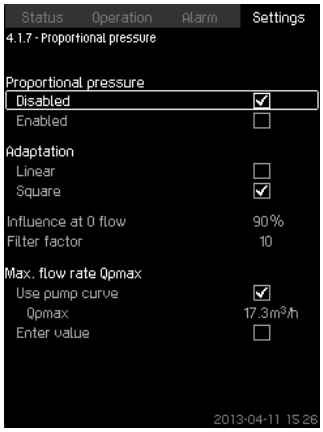


Fig. 25 Proportional pressure

You can use this function in applications with a large pipe system, for instance a village supplied with water from a pumping station or waterworks.

Purpose:

- to deliver the required water at all times
- to compensate for friction loss
- to keep energy consumption at a minimum
- to ensure the highest comfort level at tapping points, etc.
- to minimise water loss from leaks
- to reduce wear and tear on pipes.

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 only 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 excessive system pressure, the proportional-pressure function of the CU 352 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 the tapping point!

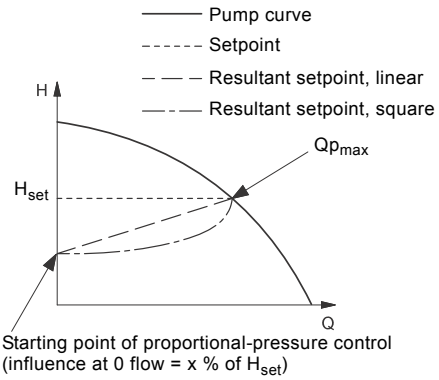


Fig. 26 Proportional-pressure control

Note: Qp_{max} is the expected maximum flow rate. You can either set it to the maximum flow the system can deliver at a determined setpoint, or you can enter a value manually based on a known or assessed maximum flow rate.

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.

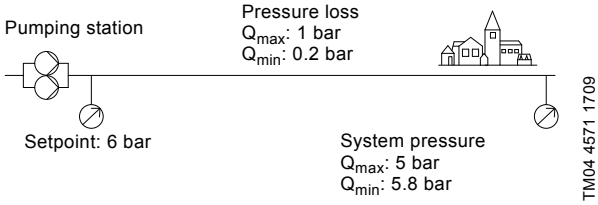


Fig. 27 Without proportional-pressure control

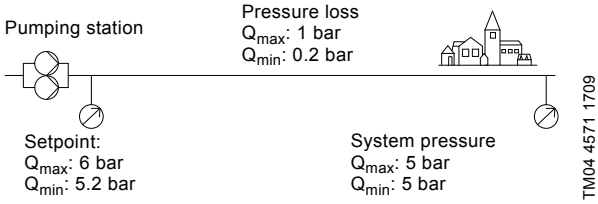


Fig. 28 With proportional-pressure control

Soft pressure build-up

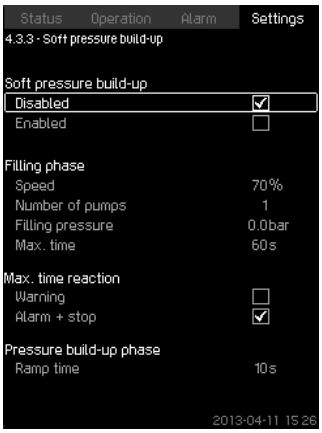


Fig. 29 Soft pressure build-up

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 with water, the pressure is increased until it reaches the setpoint. See fig. 30.

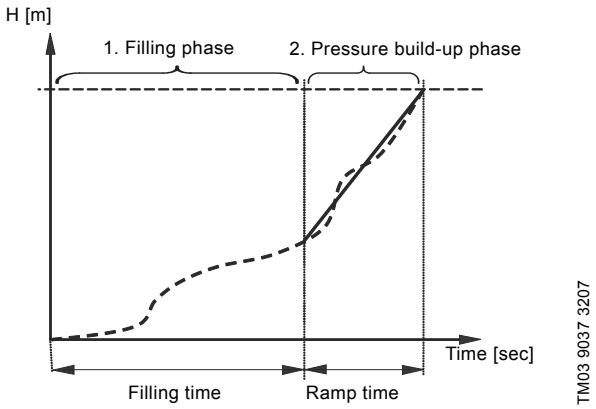


Fig. 30 Filling and pressure build-up phases

You can use the function to prevent water hammer in high-rise buildings with unstable power supply or in irrigation systems.

Emergency run

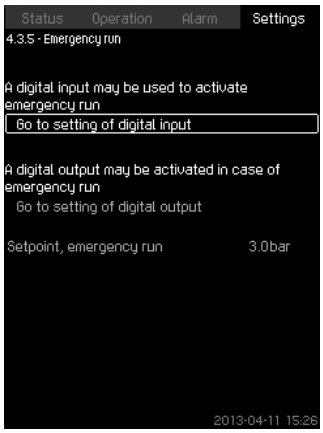


Fig. 31 Emergency run

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

Reduced operation

This function makes it possible to reduce the operation of the system via a digital input. The function is used in applications where the mains power is sometimes switched to generator power. To avoid using more power than the generator can deliver, the system can be derated via a digital input.

5. Installation

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: The booster system 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, we recommend that you fit expansion joints on the suction and discharge pipes to prevent vibration being transmitted through the pipework.

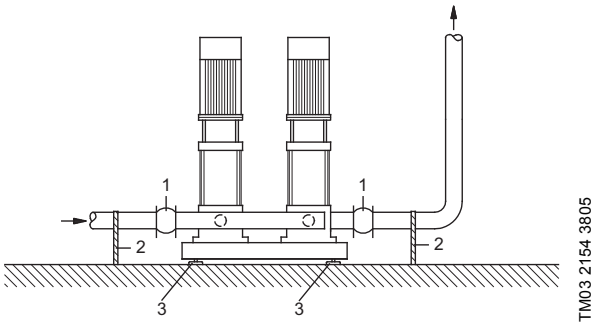


Fig. 32 Schematic view of hydraulic installation

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

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

All nuts must be tightened prior to startup.

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 must be 1.5 x the weight of the booster system.

Dampening

To prevent the transmission of vibrations to buildings, we recommend that you 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.

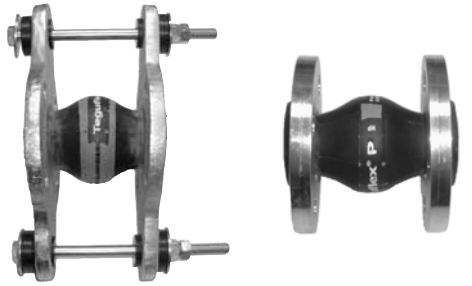
Expansion joints

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. At high water velocities (> 5 m/s), we recommend that you install larger expansion joints corresponding to the pipework.



TM02 4981 1902 - TM02 4979 1902

Fig. 33 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. We always recommend expansion joints with limiting rods for flanges larger than DN 100.

The pipes must 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 must be carried out by authorised staff in accordance with local regulations.

- The electrical installation of the booster system must be carried out in accordance with enclosure class IP54.
- Check that the supply voltage and frequency correspond to the values stated on the nameplate.
- Make sure that the conductor cross-section meets the specifications in the wiring diagram.

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

6. Sizing

When sizing a booster system, take the following 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 the booster systems via Grundfos Product Center or this data booklet.

Sizing in Grundfos Product Center

We recommend that you size your booster system in Grundfos Product Center, which are selection programs offered by Grundfos. For further information, see page 110.

Grundfos Product Center feature a user-friendly and easy-to-use virtual guide which leads you through the selection of the optimum booster system for the application in question.

Sizing via this data booklet

There are seven steps and you find more information about each step on the following pages:

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.

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	$Q(m)_{day}$	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

fd: Maximum consumption factor, day
ft: Maximum consumption factor, hour

Example: Hotel with 540 beds

Number of beds: n

Total annual consumption: Q_{year} x n

Consumption period: d

Average consumption per day: (Q_{year} x n)/d

Day maximum consumption: $Q(m)_{day}$ = fd x Q_{day}

Maximum flow requirement per hour: Q_{max} = Max. flow rate/hour x number of beds

Calculation

n = 540 beds

Q_{year} x n = 180 x 540 = 97,200 m^3/year

d = 365 days/year

(Q_{year} x n)/d = 97,200/365 = 266.3 m^3/day

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

Q_{max} = Max. flow rate/hour x number of beds = 0.125 x 540 = 67.5 m^3/h

Required discharge pressure

You can calculate the required discharge pressure, p_{set}, of the booster system 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 metres

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

$p_{in(min)}$ = Minimum inlet pressure in bar

p_{boost} = Required boost in bar

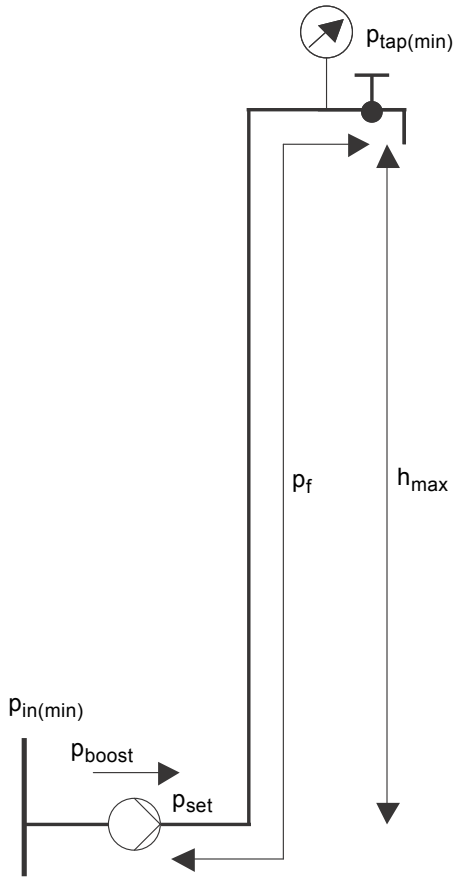


Fig. 34 Calculation of required discharge pressure

Calculation

$p_{tap(min)}$ = 2 bar

p_f = 1.2 bar

h_{max} = 41.5 metres

$p_{in(min)}$ = 2 bar

p_{set} = 2 + 1.2 + (41.5/10.2) = 7.3 bar

p_{boost} = 7.3 - 2 = 5.3 bar

System layout

What is the system layout?

a) Direct boosting
Example: Booster system connected to water mains designed to distribute water from one place to another.

b) Break tank
Example: Booster system connected to a break tank installed before the booster system.

c) Pressure boosting in zones
Example: High-rise building or hilly landscape where the water supply system is divided into zones.

d) Roof tank
Example: Booster system distributes water to a roof tank on top of a high-rise building.

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.

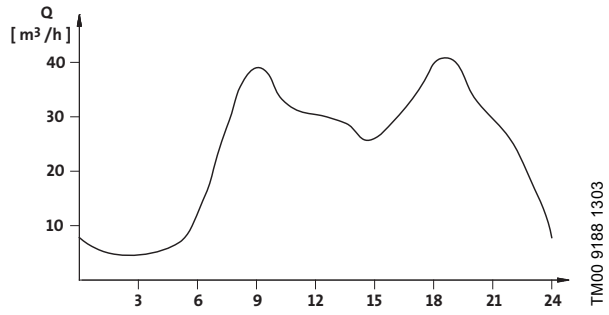


Fig. 35 Example of 24-hour consumption profile

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

Load profile

You can make the load profile when the 24-hour consumption profile has been determined. The load profile gives an overview of how many per cent per day the booster system operates at a specific flow rate.

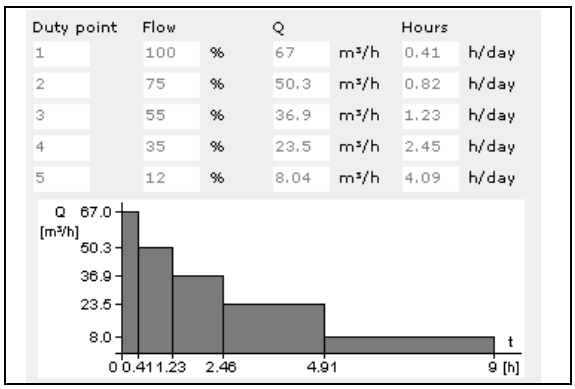
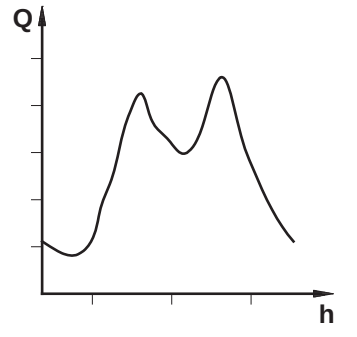
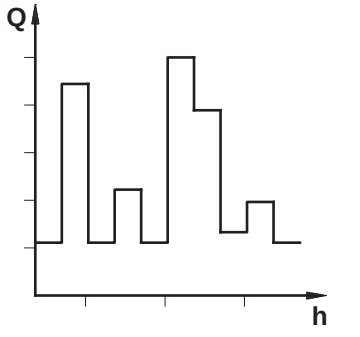
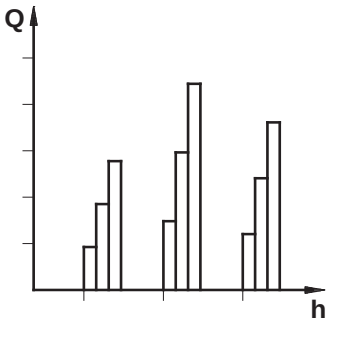
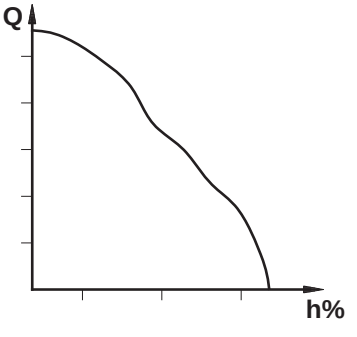
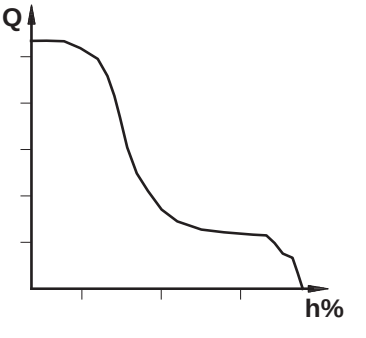
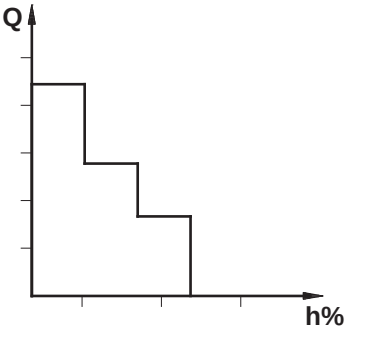


Fig. 36 Load profile

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

	Water supply	Industry	Irrigation
24-hour profile	 TM00 9197 1705	 TM00 9200 1705	 TM00 9198 1705
	Flow rate: Highly variable **Pressure:** Constant	**Flow rate:** Highly variable with sudden changes **Pressure:** Constant	**Flow rate:** Constant and known **Pressure:** Constant
Duty-time profile	 TM00 9201 1705	 TM00 9199 1705	 TM00 9202 1705
	Consumption is highly variable. We recommend continuously variable speed control of the pumps. **Recommended types:** -E and -F	Consumption is highly variable with sudden changes. We recommend continuously variable speed control of the pumps. **Recommended types:** -E and -F	Variations in consumption are regular, yet known. We recommend simple control. **Recommended types:** -S

Inlet pressure

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

If there is a positive inlet pressure, this has to be added to the discharge pressure supplied by the booster system in order to evaluate the resulting maximum discharge pressure.

Example

A Hydro MPC-E booster system with three CRI 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.

Selection of 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.

Accessories

Having selected the optimum 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 water from a tank or a well, select a level switch or 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.

Pilot pump

If you select a pilot pump, it must be sized according to the size of the main pumps in the system. As a rule of thumb, the pilot pump should not be smaller than 1/5 of the flow of a main pump at the desired setpoint.

Diaphragm tank

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

- Due to the stop function, all booster systems in buildings must be equipped with a diaphragm tank.
- Normally, the 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 hammer, a diaphragm tank may be necessary.
- The need for a diaphragm tank for the booster systems in industrial applications should be estimated from situation to situation on the basis of the individual factors on site.

Note: If the 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 pages 146 to 153.

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

You can calculate the size of the obligatory diaphragm tank in litres from the following equations:

Hydro MPC-E

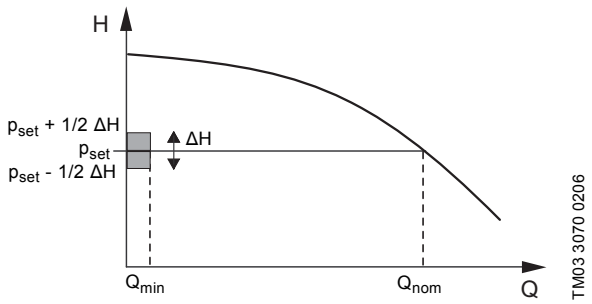
$$V_0 = \frac{k_Q \times Q \times (p_{set} + 1)^2 \times \left(\frac{3600}{N} - 10\right)}{3.6 \times (k_f \times p_{set} + 1) \times k_H \times p_{set}}$$

Hydro MPC-S

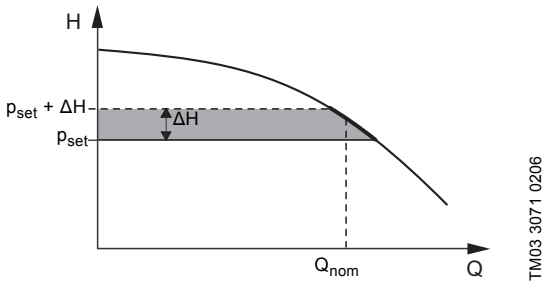
$$V_0 = \frac{1000 \times Q \times (p_{set} + 1) \times (k_H \times p_{set} + p_{set} + 1)}{4 \times N \times (k_f \times p_{set} + 1) \times k_H \times p_{set}}$$

Symbol	Description
V_0	Tank volume [litres]
k_Q	The ratio between rated 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 and -F
N	Maximum number of starts/stops per hour.

Hydro MPC-E



Hydro MPC-S



The tank values are based on the following data:

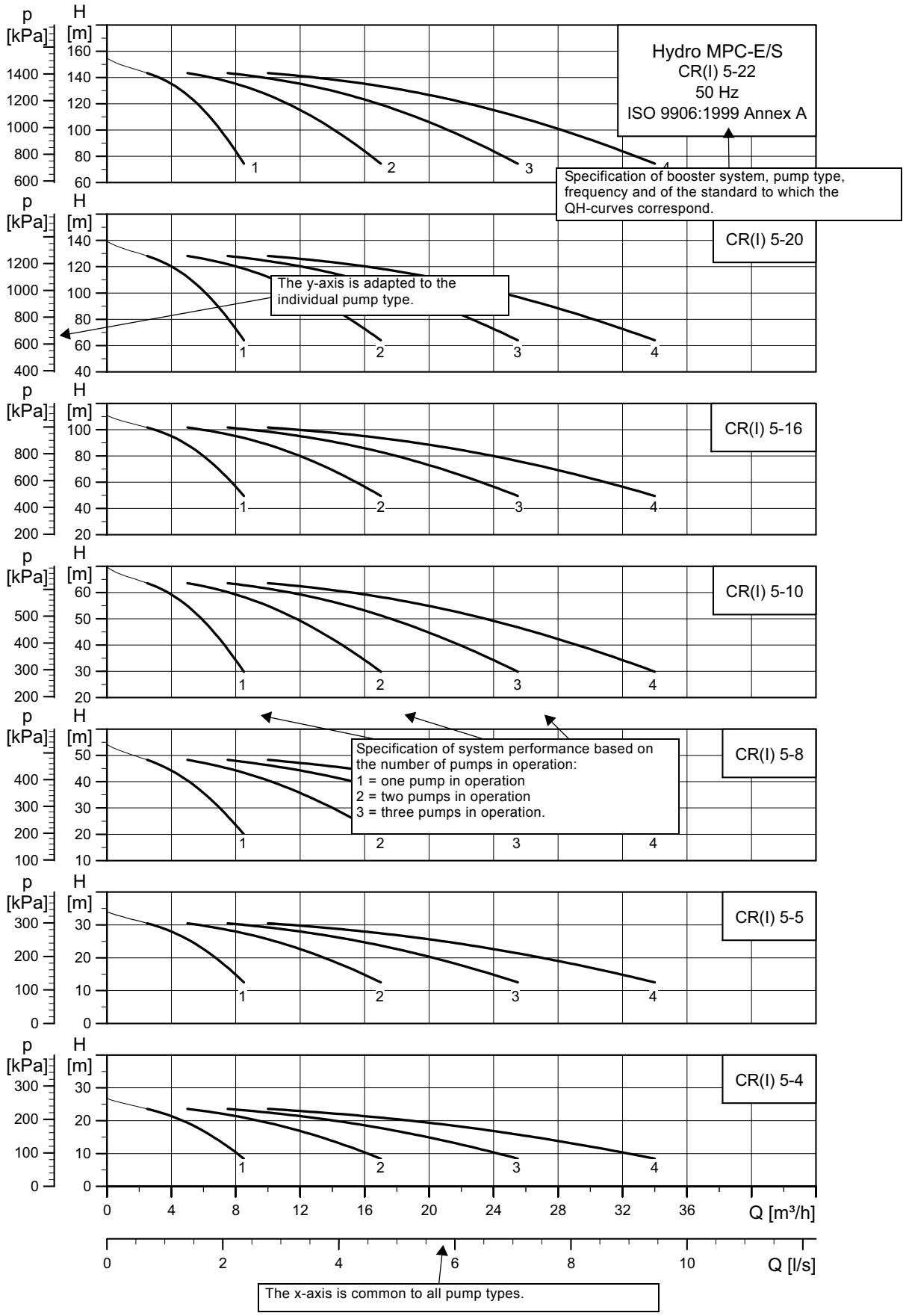
Symbol	Hydro MPC	
	-E	-S
Q	Q_{nom} of one pump	Q_{nom} of one pump
k_Q	10 %	-
p_{set}	4 bar	4 bar
k_H	20 %	25 %
k_f	0.7	0.9

Example of Hydro MPC-E and -S with CRI 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 m^3/h is common to all the curves; the y-axis showing the head (H) in metres has been adapted to the individual pump type.



TM06 2937 4814

Example: How to select a system

- A flow rate of 67.5 m^3/h is required.
- A head of 73 metres is required.

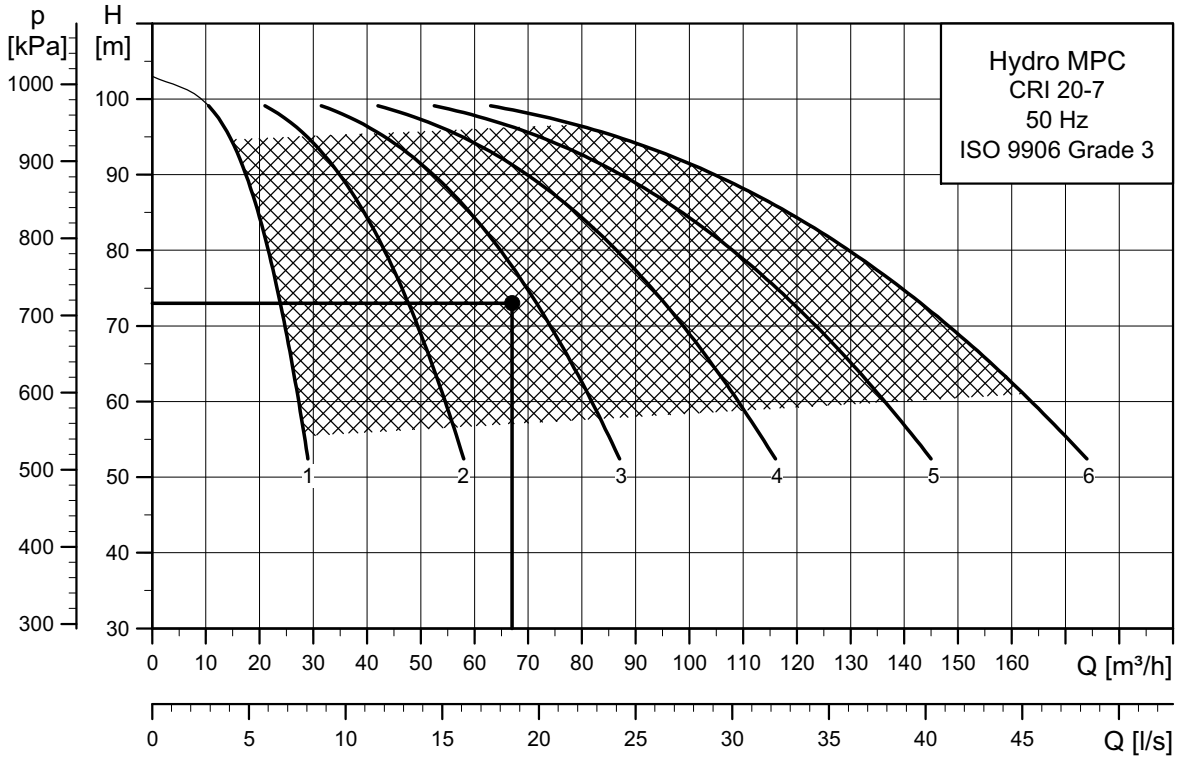
Draw a vertical line from the required flow rate.

Draw a horizontal line from the required head.

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

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

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



TM06 3297 5014

7. Curve conditions

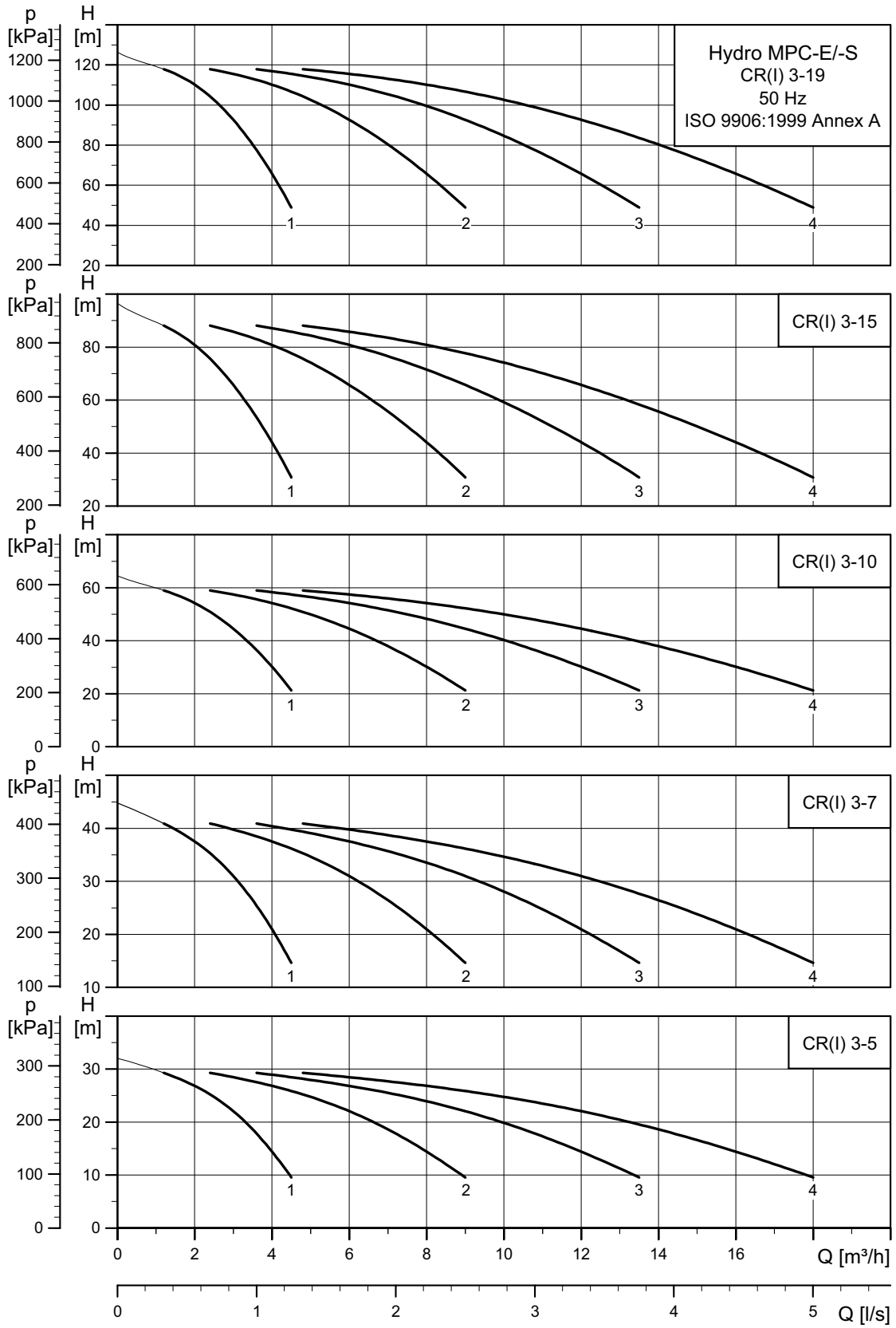
How to read the curve charts

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

- Tolerances to ISO 9906:1999, Annex A, if indicated.
- Measurements have been made with airless water at a temperature of 20 °C.
- The curves apply to the following kinematic viscosity: υ = 1 mm^2/s (1 cSt).
- The QH curves apply to fixed speeds of 2900 min^{-1} (50 Hz) and 3480 min^{-1} (60 Hz).
  Note: The actual speed will in most cases deviate from the above-mentioned speeds. So for realistic curves, please refer to Grundfos Product Center where the pump curves include the characteristics of the selected motor and therefore show curves at actual speeds.
  In Grundfos Product Center, it is also possible to adjust the curves depending on the density and viscosity.
- The conversion between head H (m) and pressure p (kPa) applies to a water density of ρ = 1000 kg/m^3.

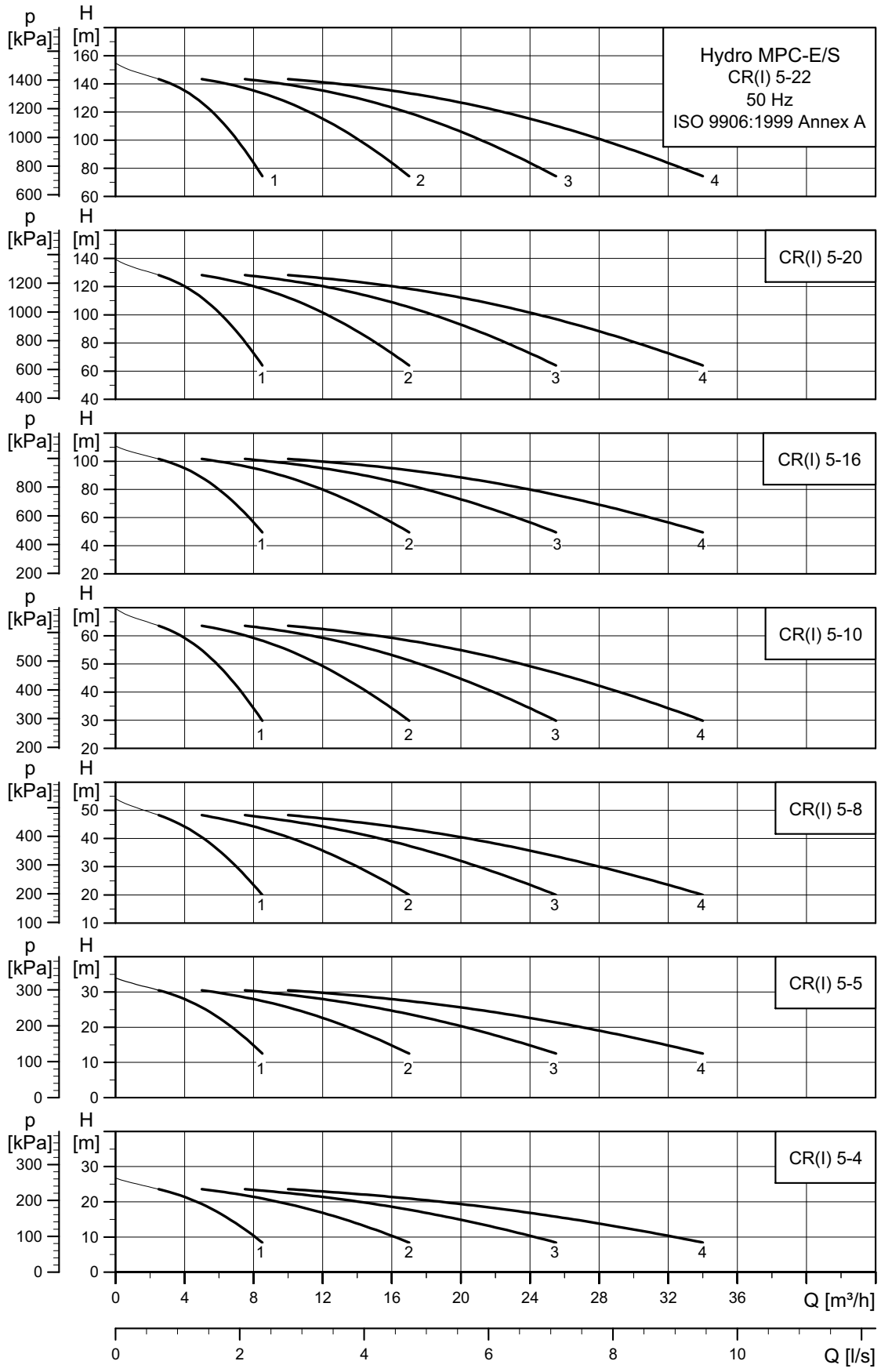
8. Curve charts, Hydro MPC-E/-S (50 Hz)

Hydro MPC-E/-S with CR, CRI 3



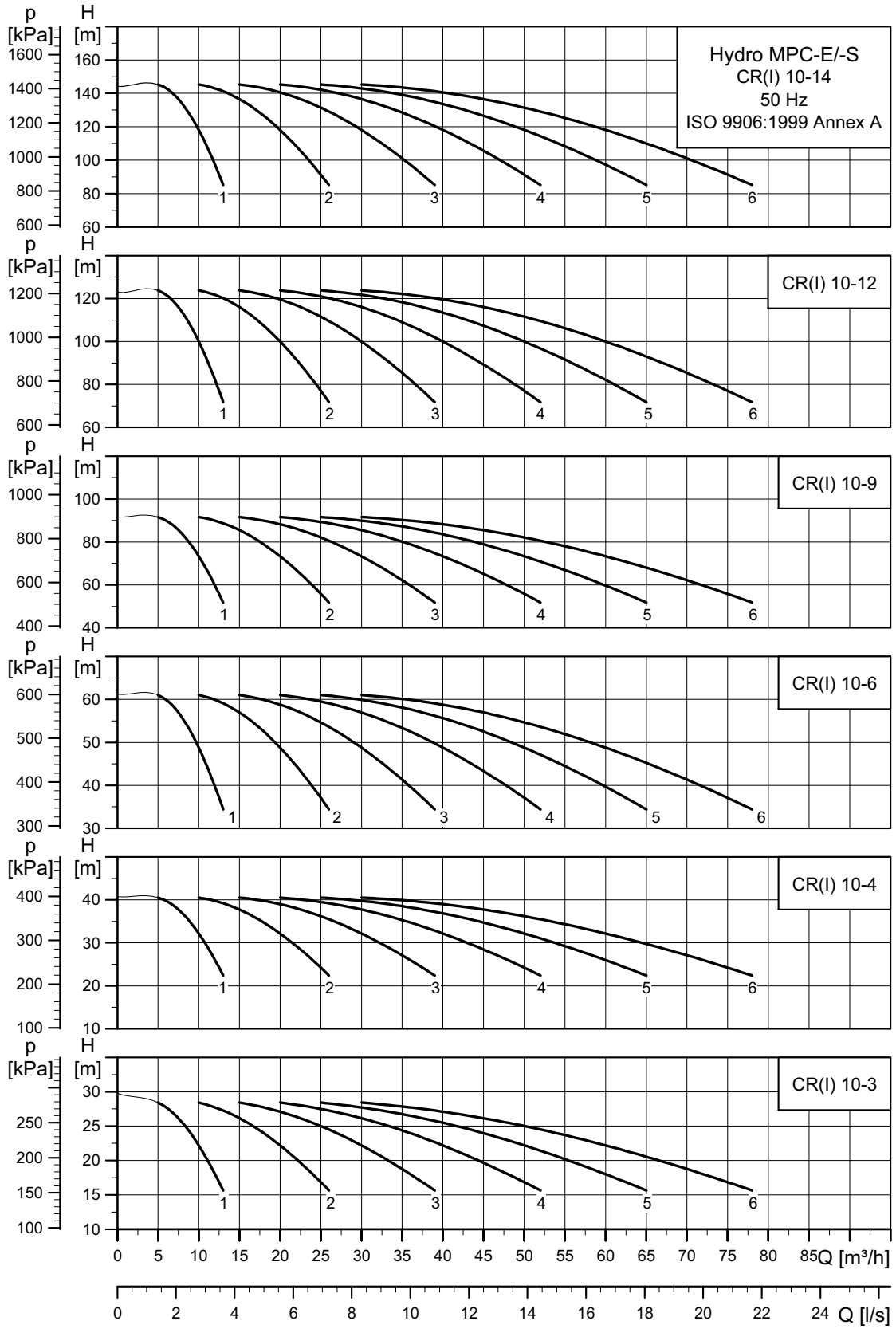
TM06 2936 5014

Hydro MPC-E/-S with CR, CRI 5



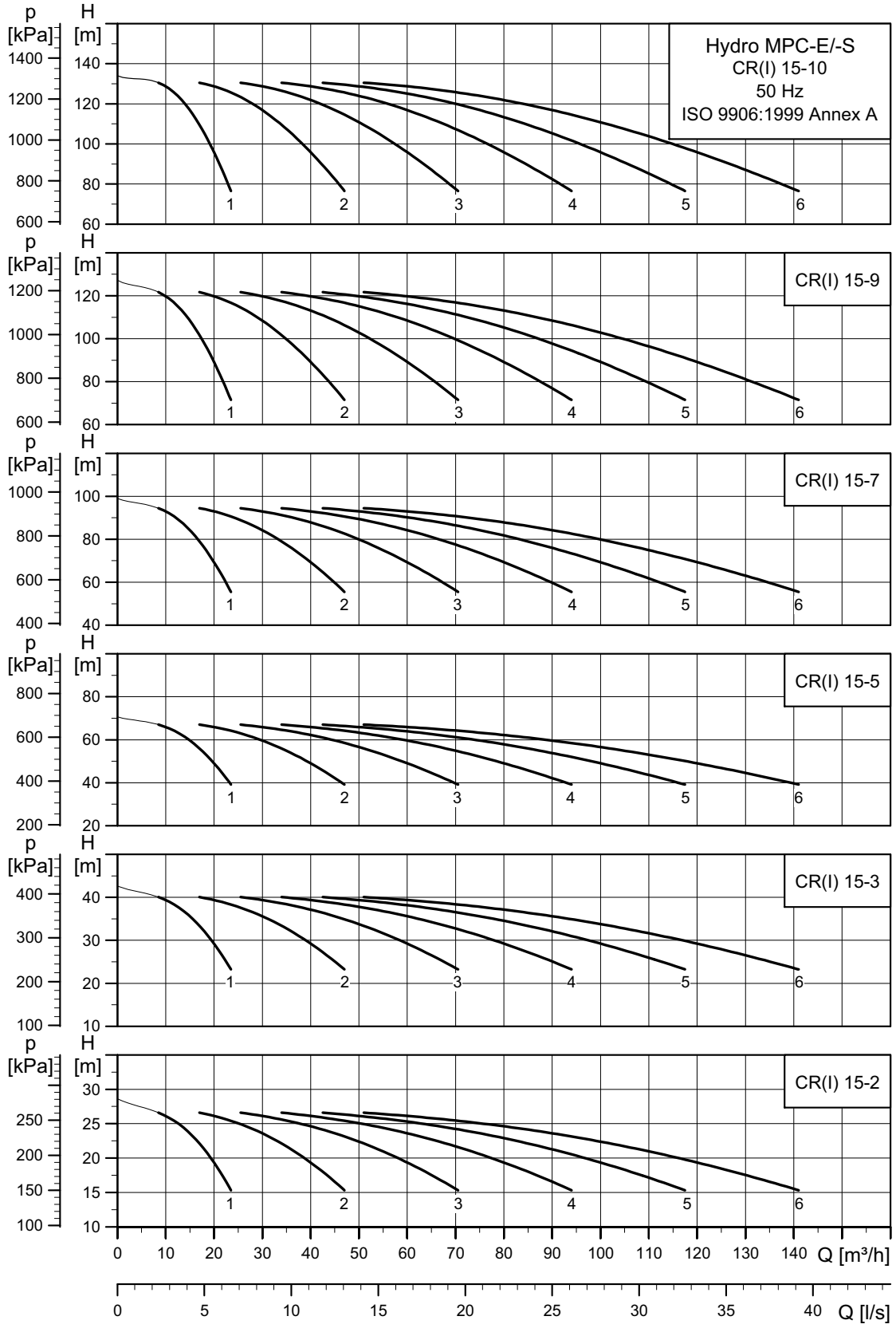
TM06 2937 5014

Hydro MPC-E/-S with CR, CRI 10



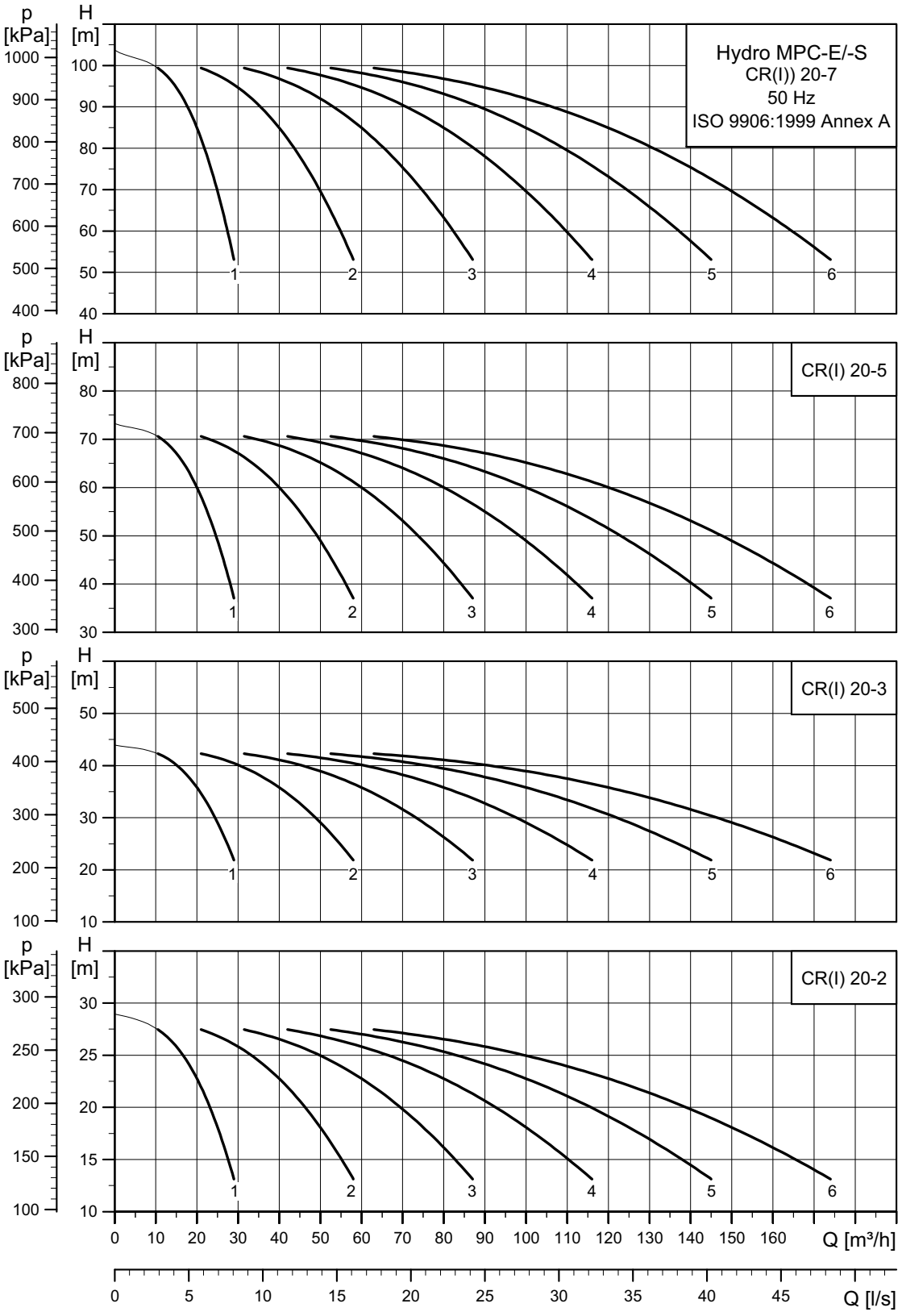
TM06 2938 5014

Hydro MPC-E/-S with CR, CRI 15



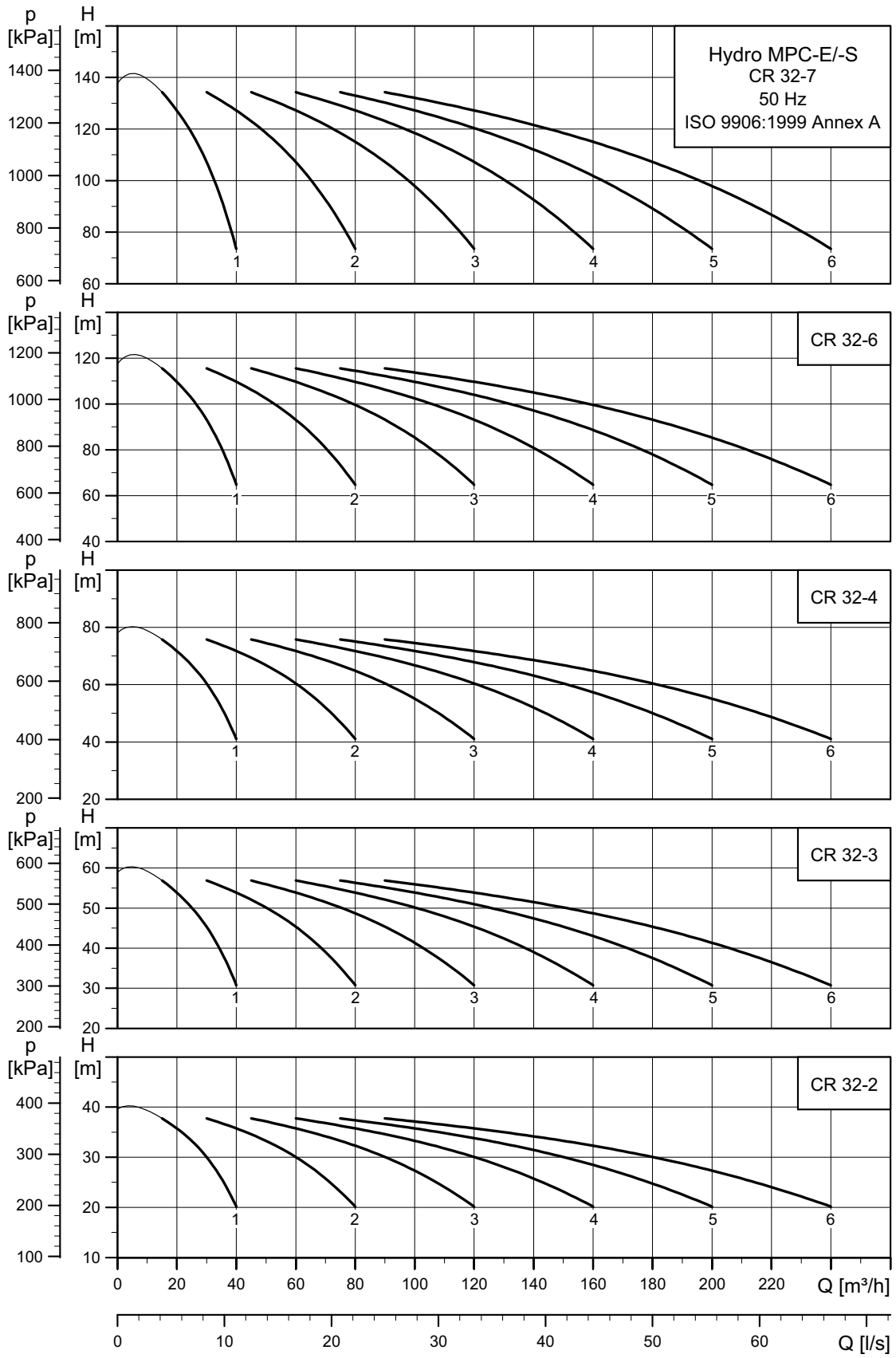
TM06 2939 5014

Hydro MPC-E/-S with CR, CRI 20

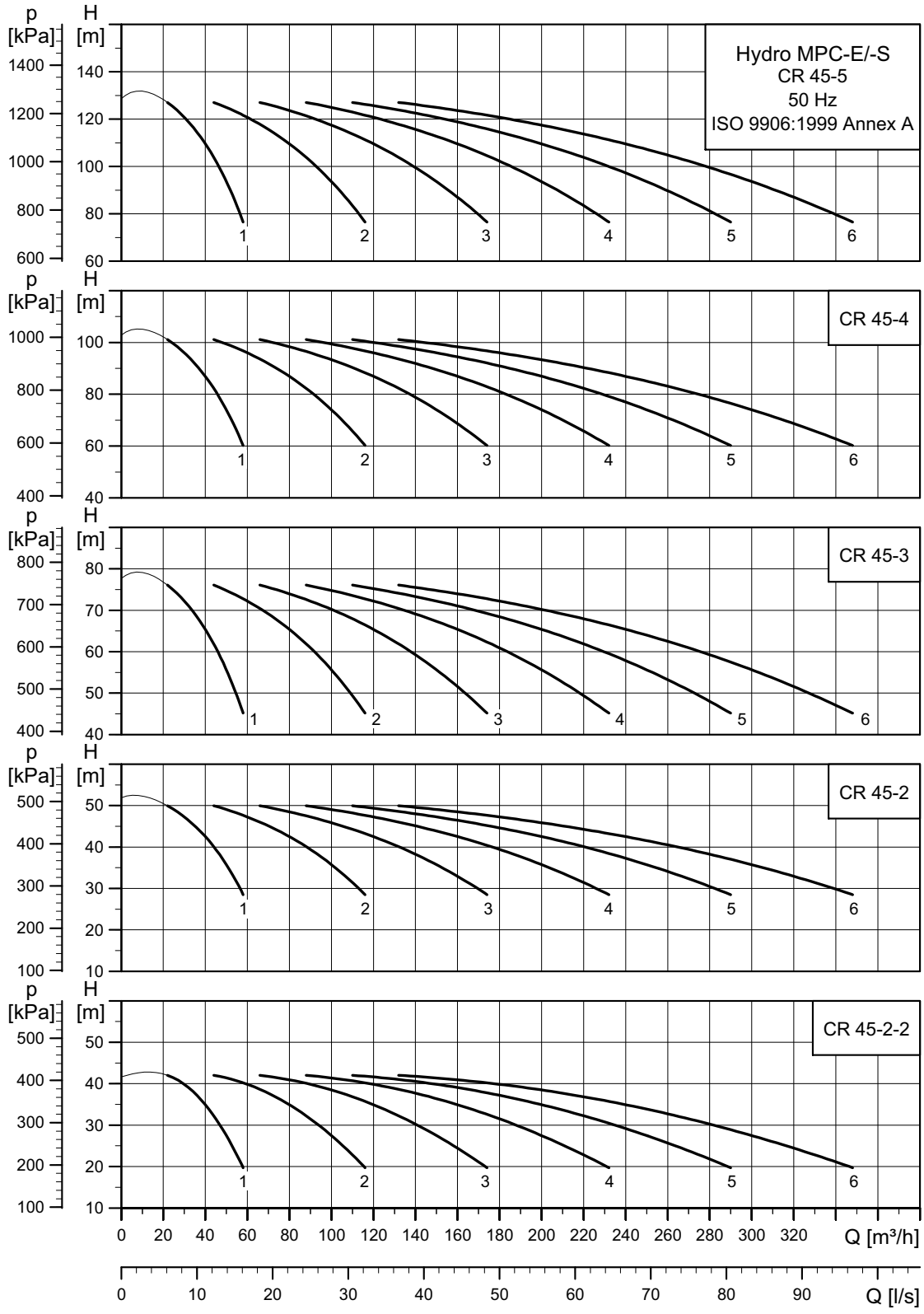


TM06 2940 5014

Hydro MPC-E/-S with CR 32

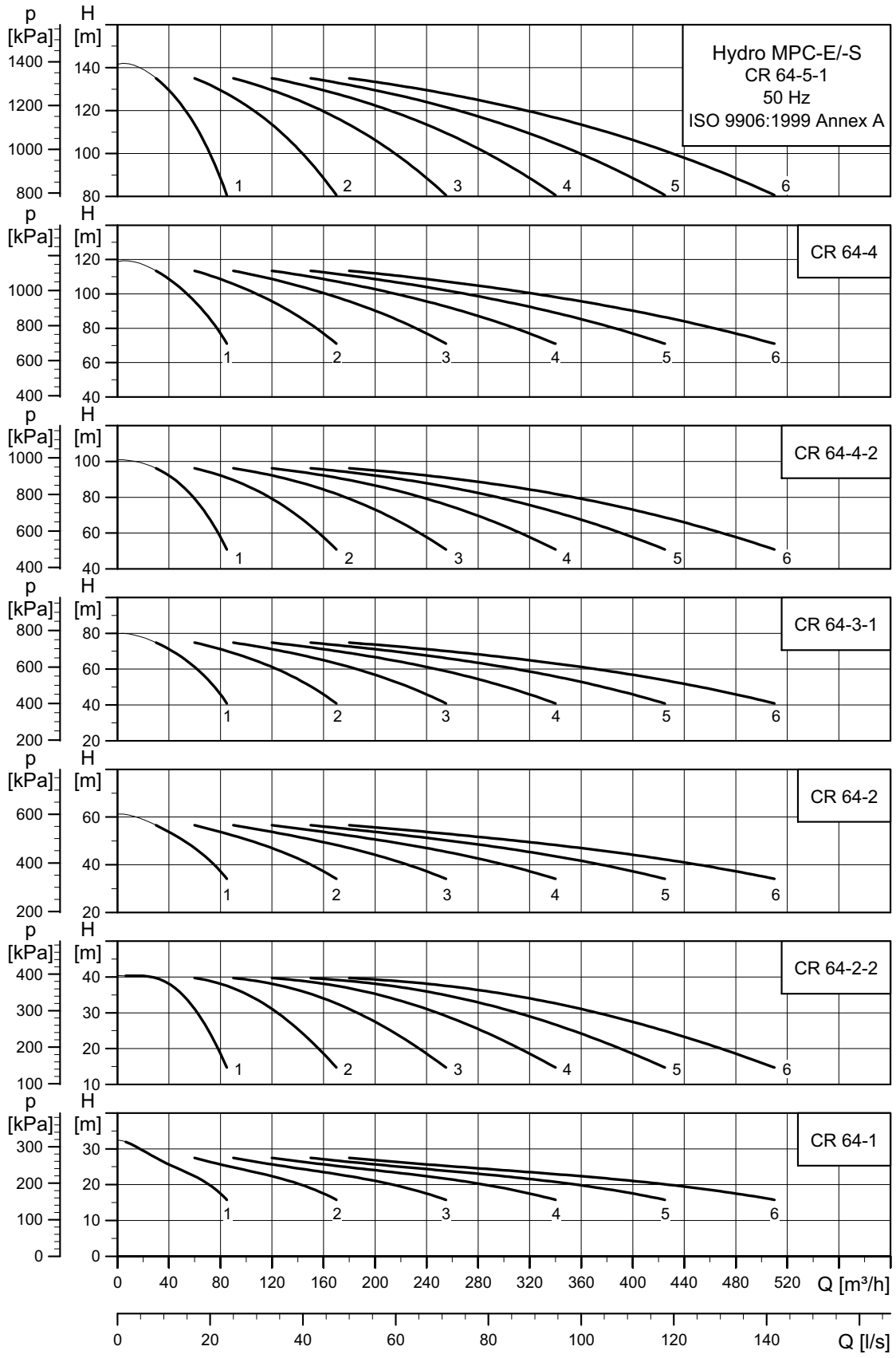


Hydro MPC-E/-S with CR 45



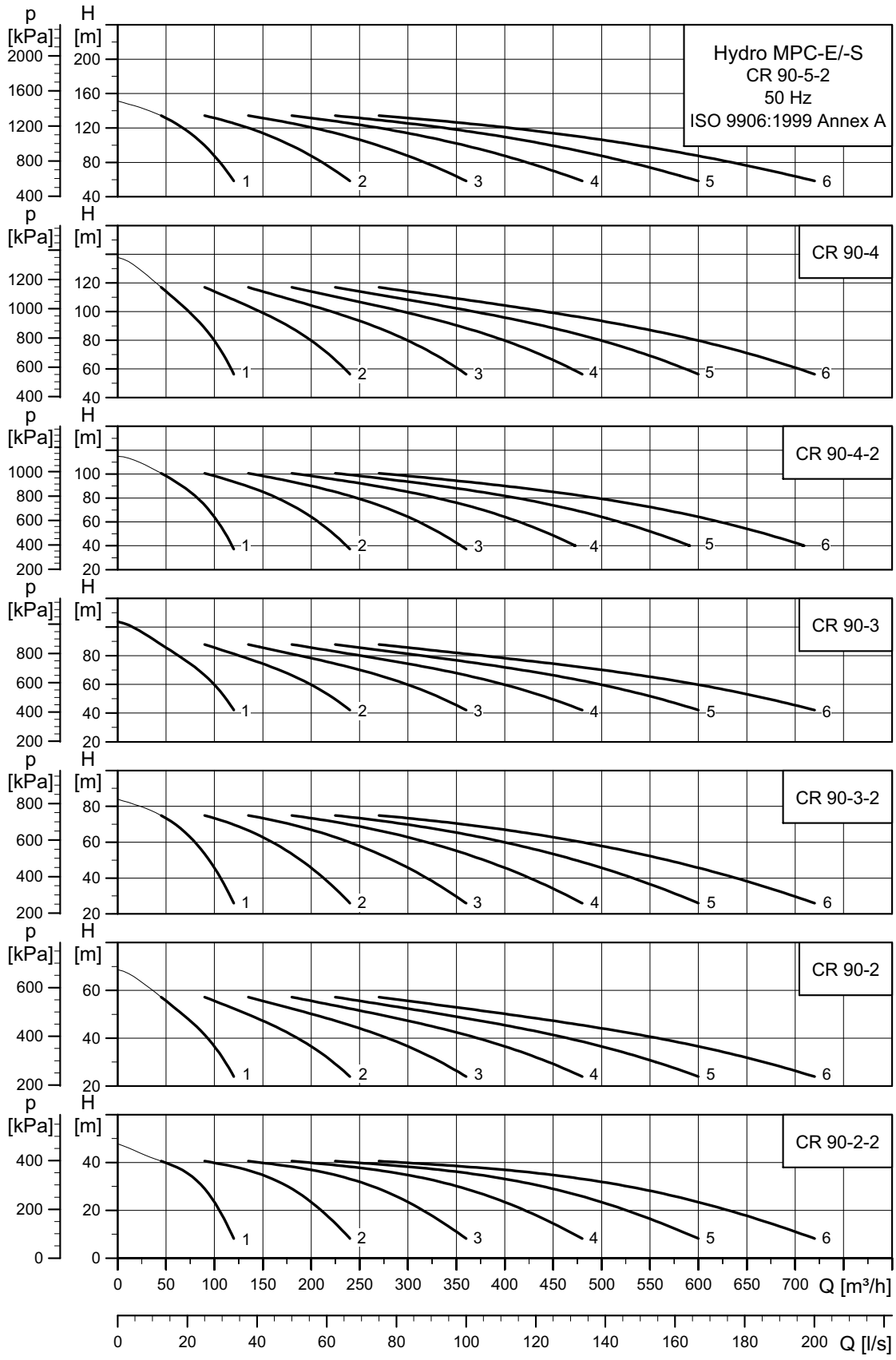
TM06 2942 5014

Hydro MPC-E/-S with CR 64



TM06 2943 5014

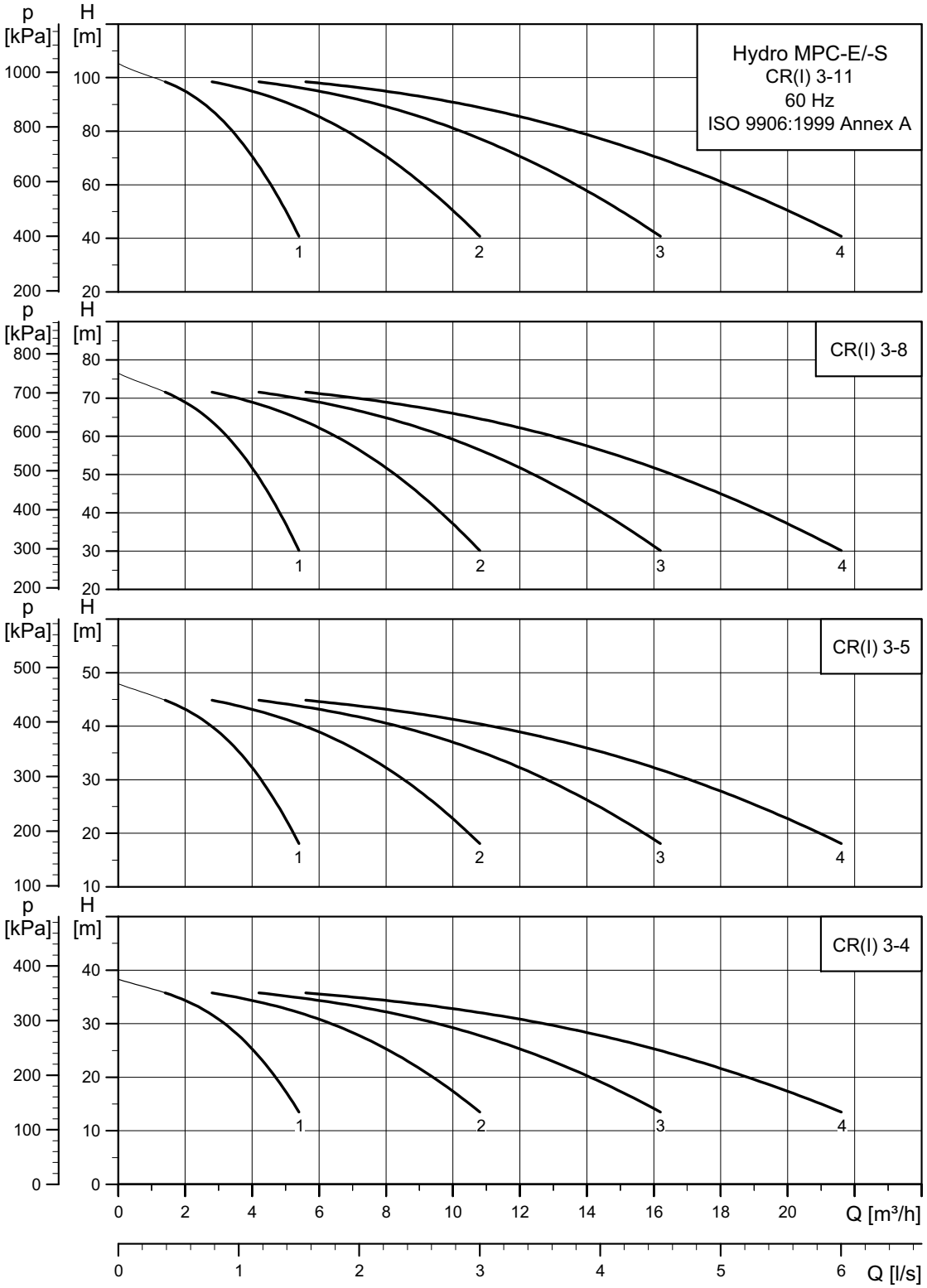
Hydro MPC-E/-S with CR 90



TM06 2944 5014

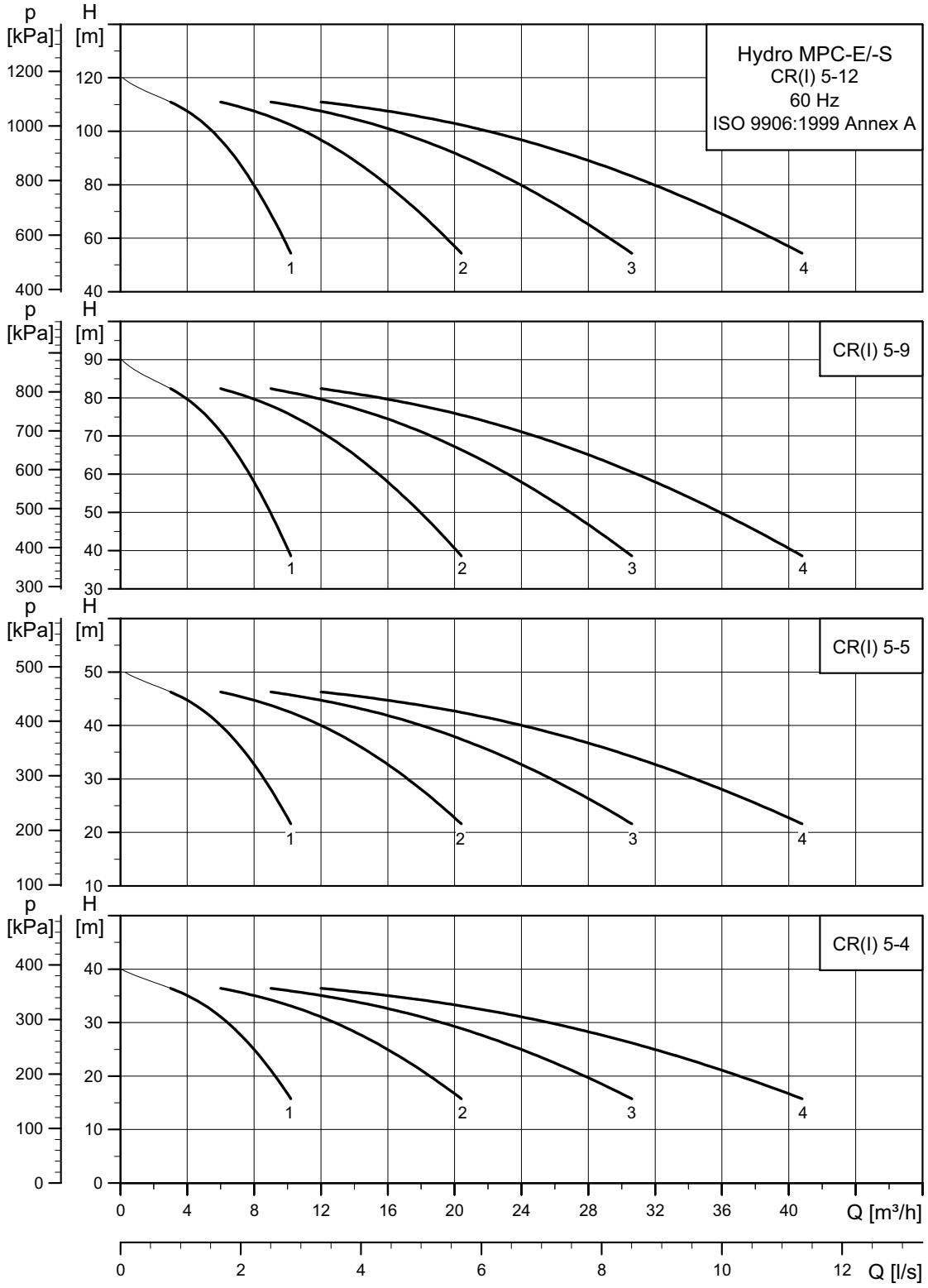
9. Curve charts, Hydro MPC-E/-S (60 Hz)

Hydro MPC-E/-S with CR, CRI 3



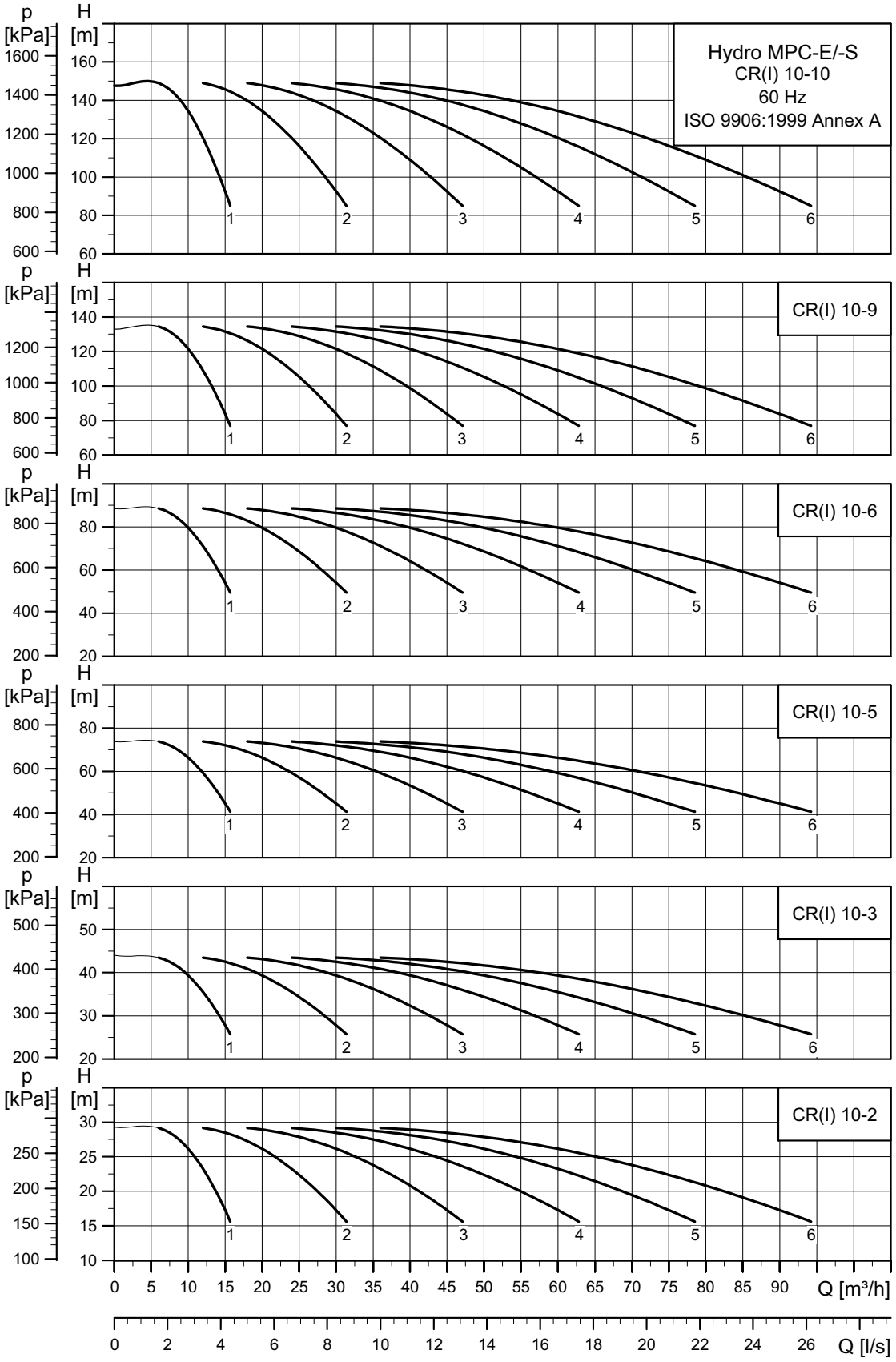
TM06 3240 5014

Hydro MPC-E/-S with CR, CRI 5



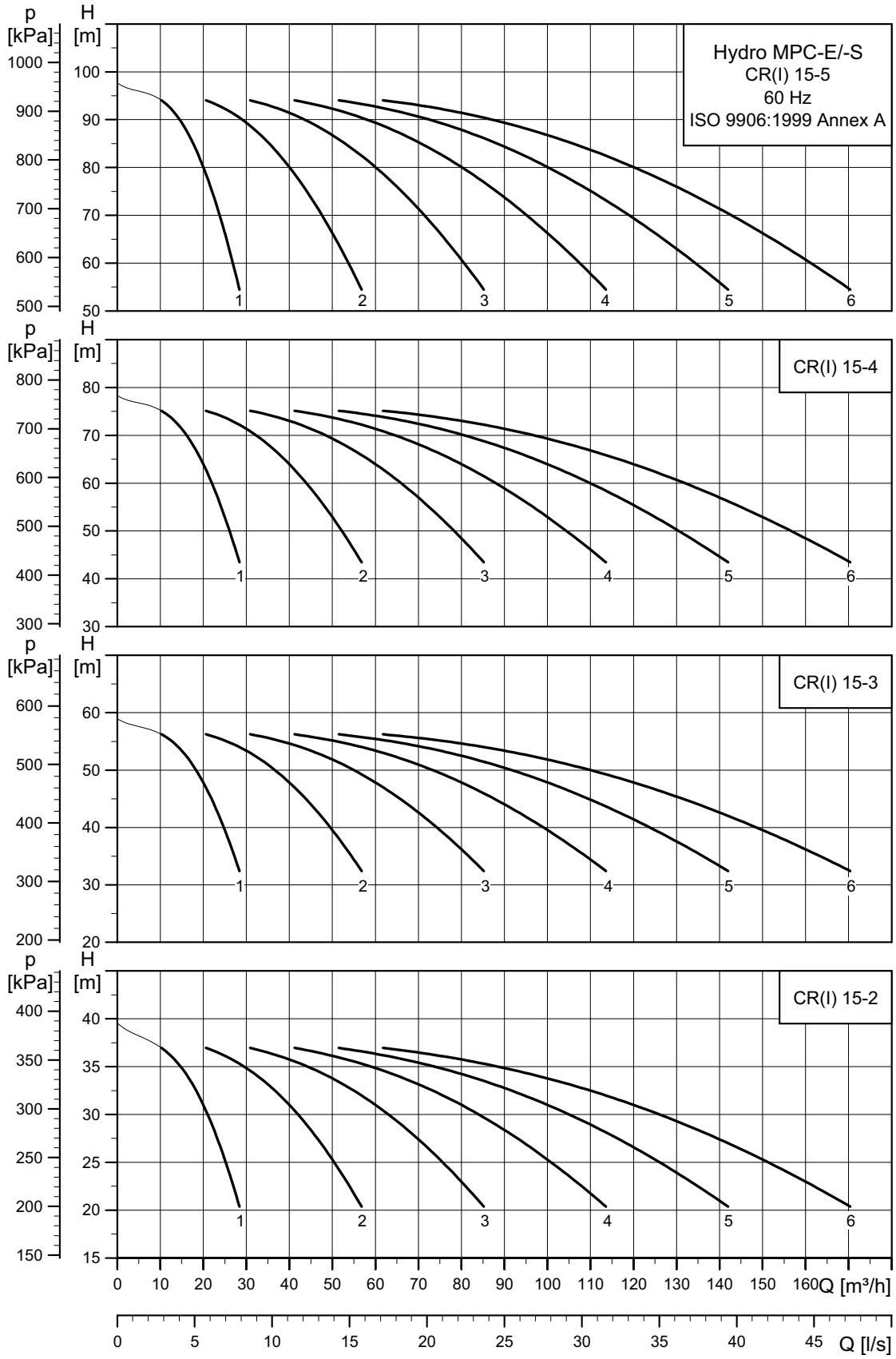
TM06 3241 5014

Hydro MPC-E/-S with CR, CRI 10



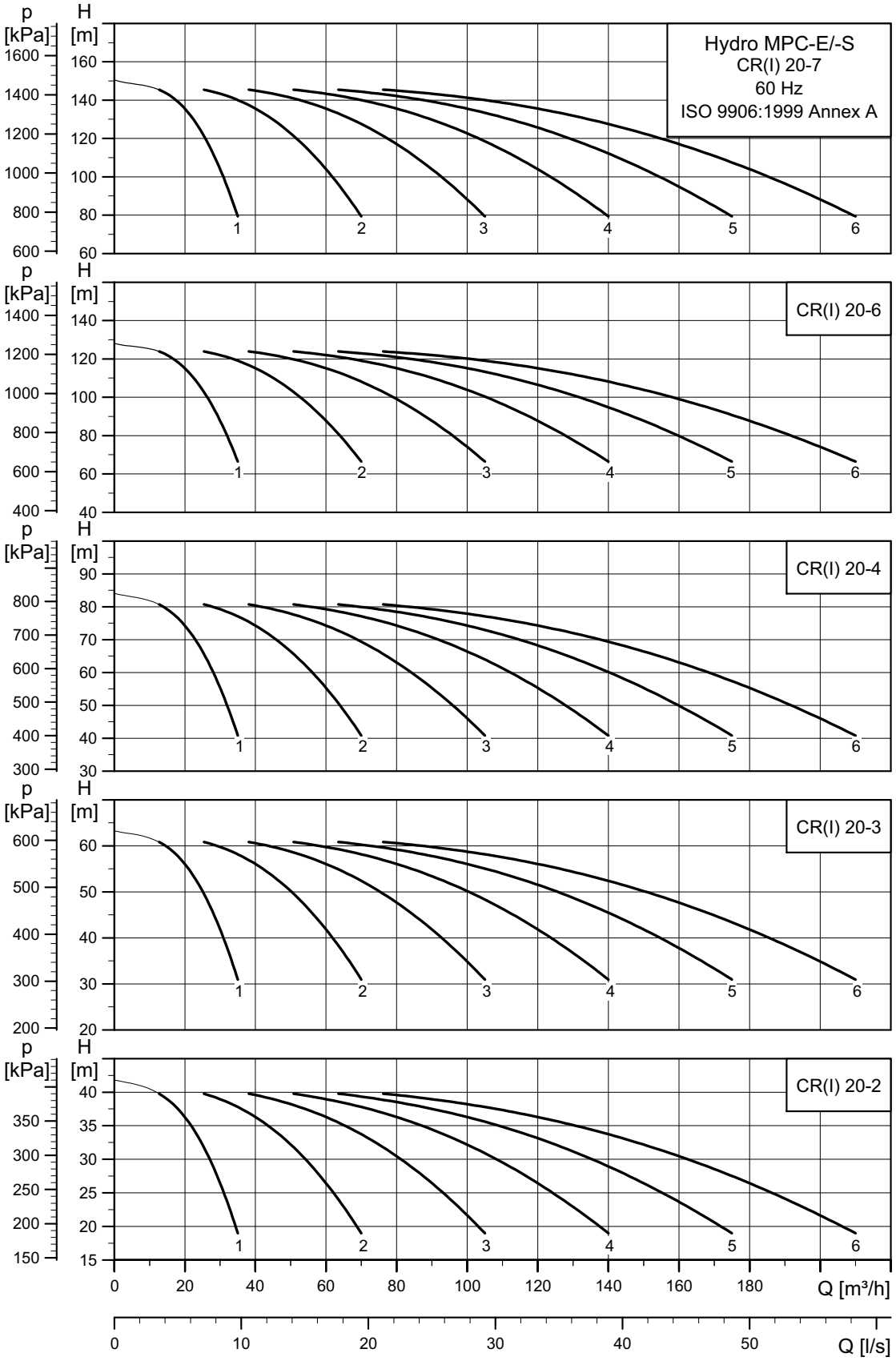
TM06 3242 5014

Hydro MPC-E/-S with CR, CRI 15



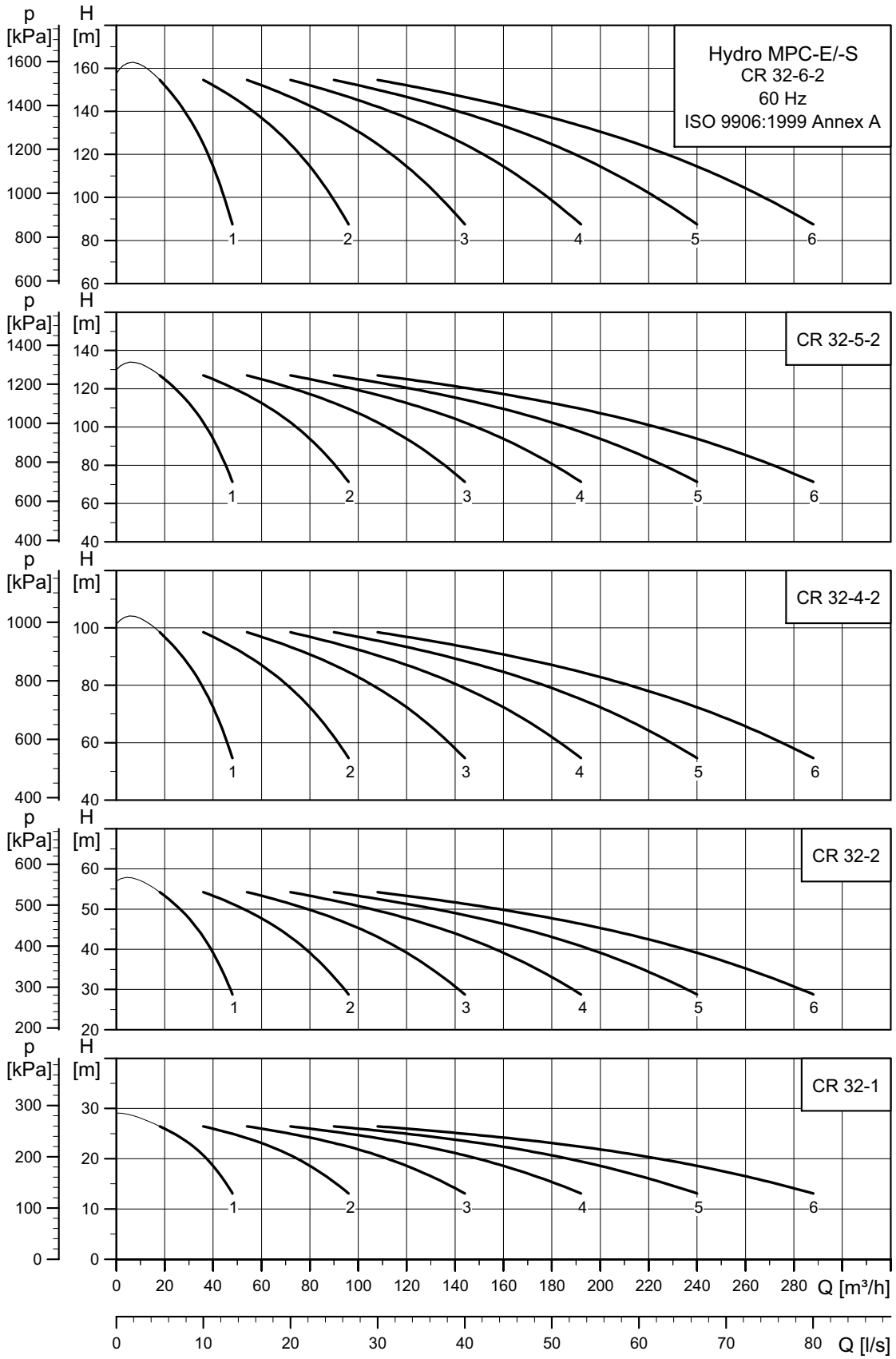
TM06 3243 5014

Hydro MPC-E/-S with CR, CRI 20



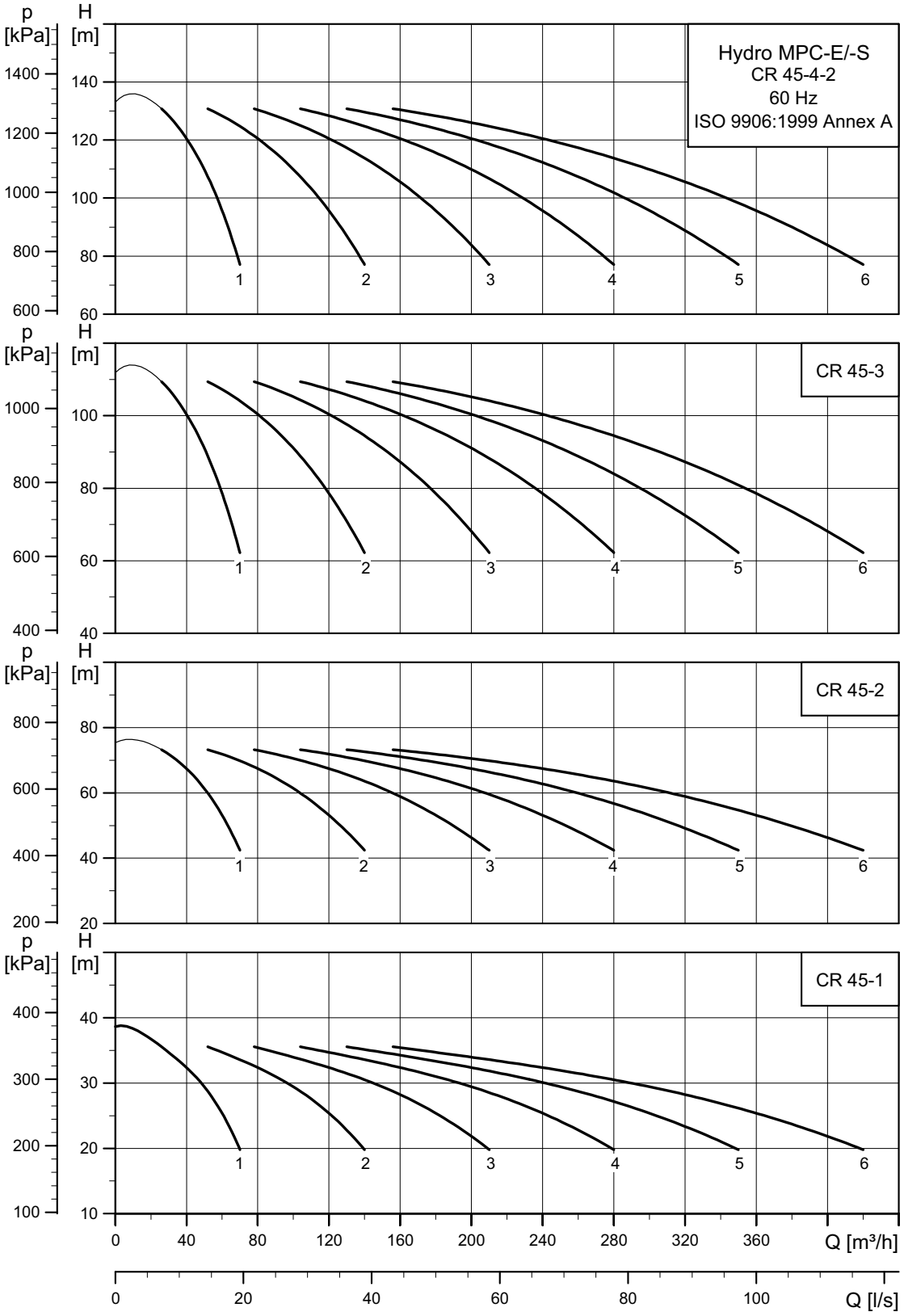
TM06 3244 5014

Hydro MPC-E/-S with CR 32



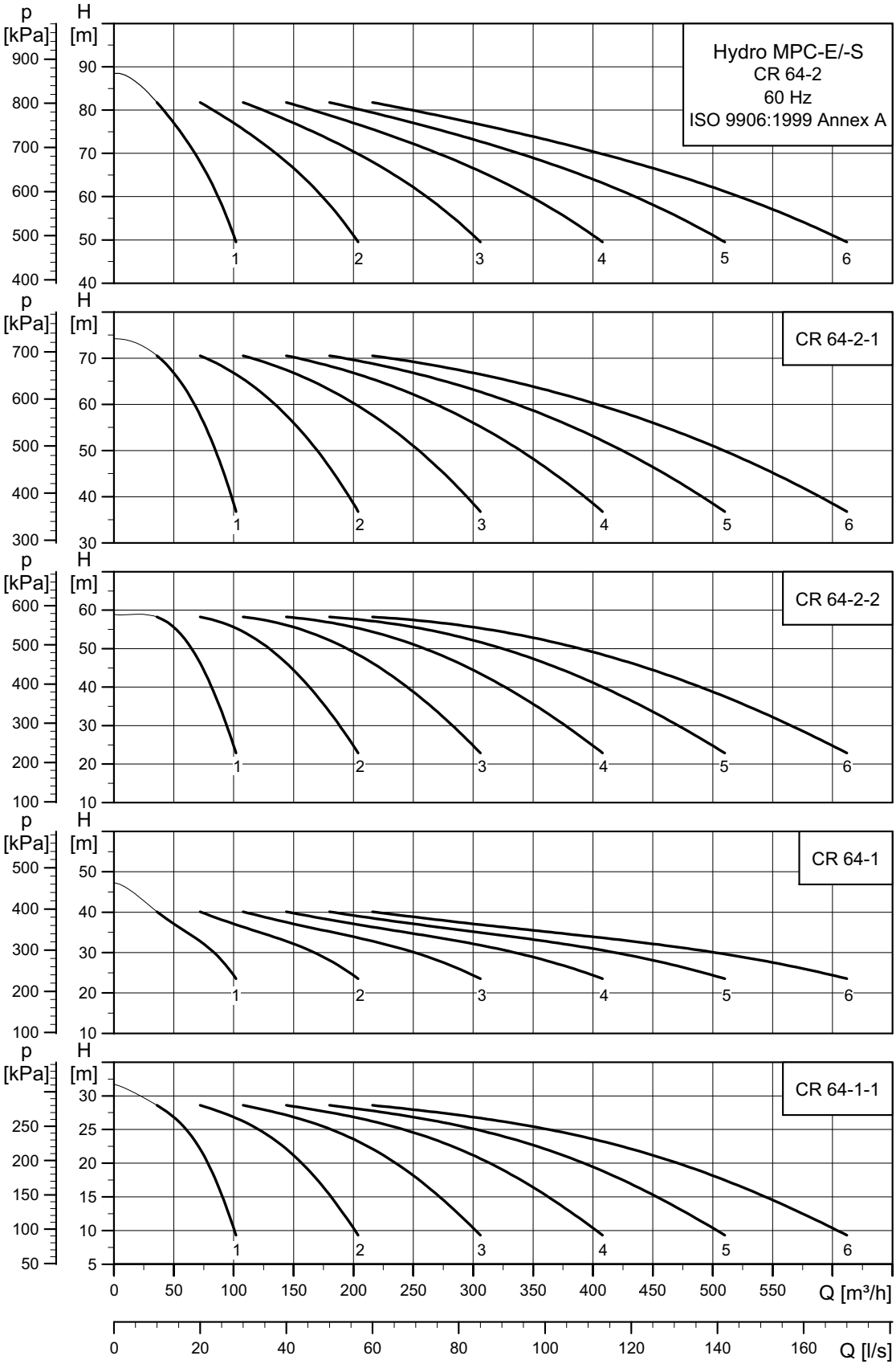
TM06 3245 5014

Hydro MPC-E/-S with CR 45



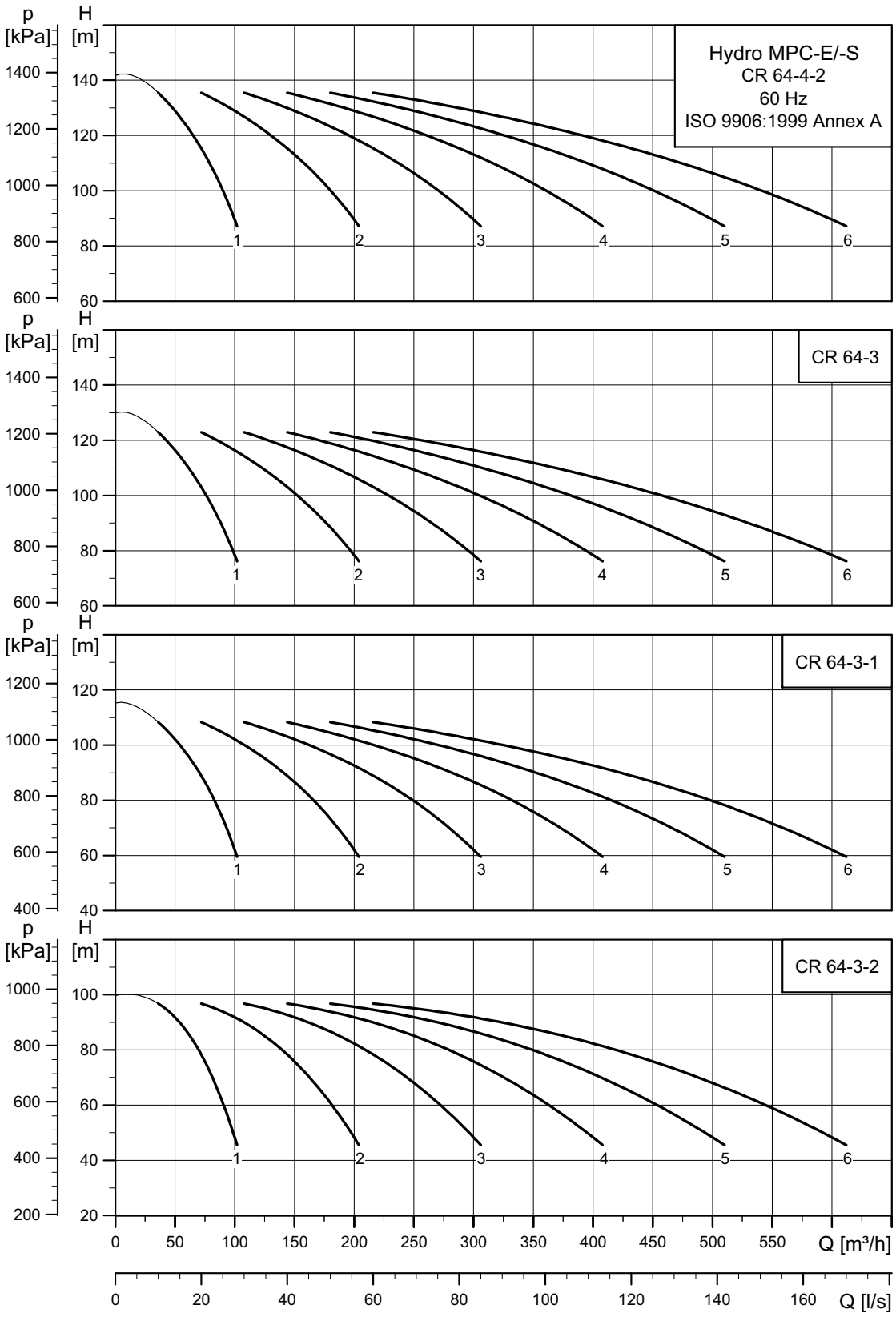
TM06 3246 5014

Hydro MPC-E/-S with CR 64



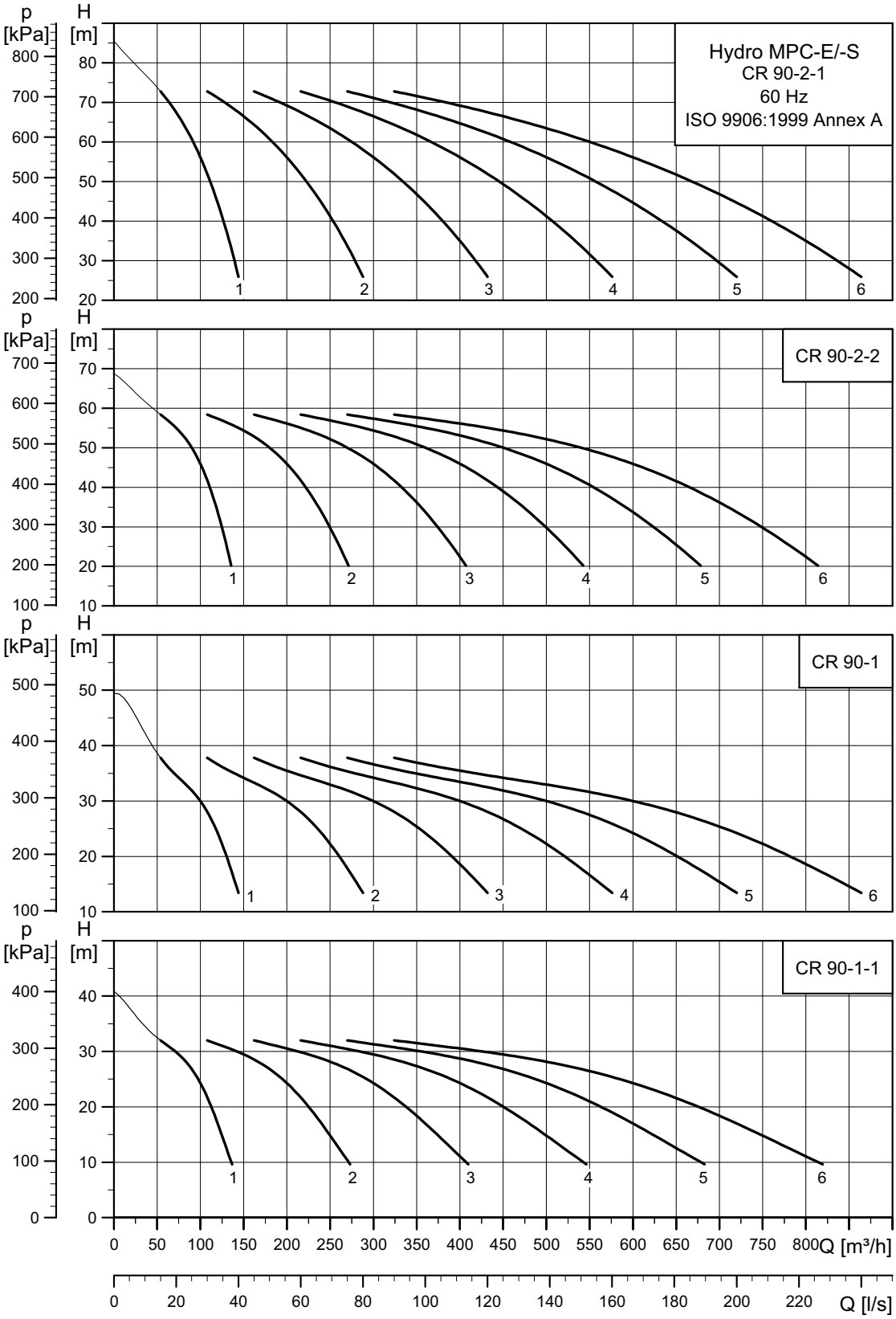
TM06 3247 5014

Hydro MPC-E/-S with CR 64



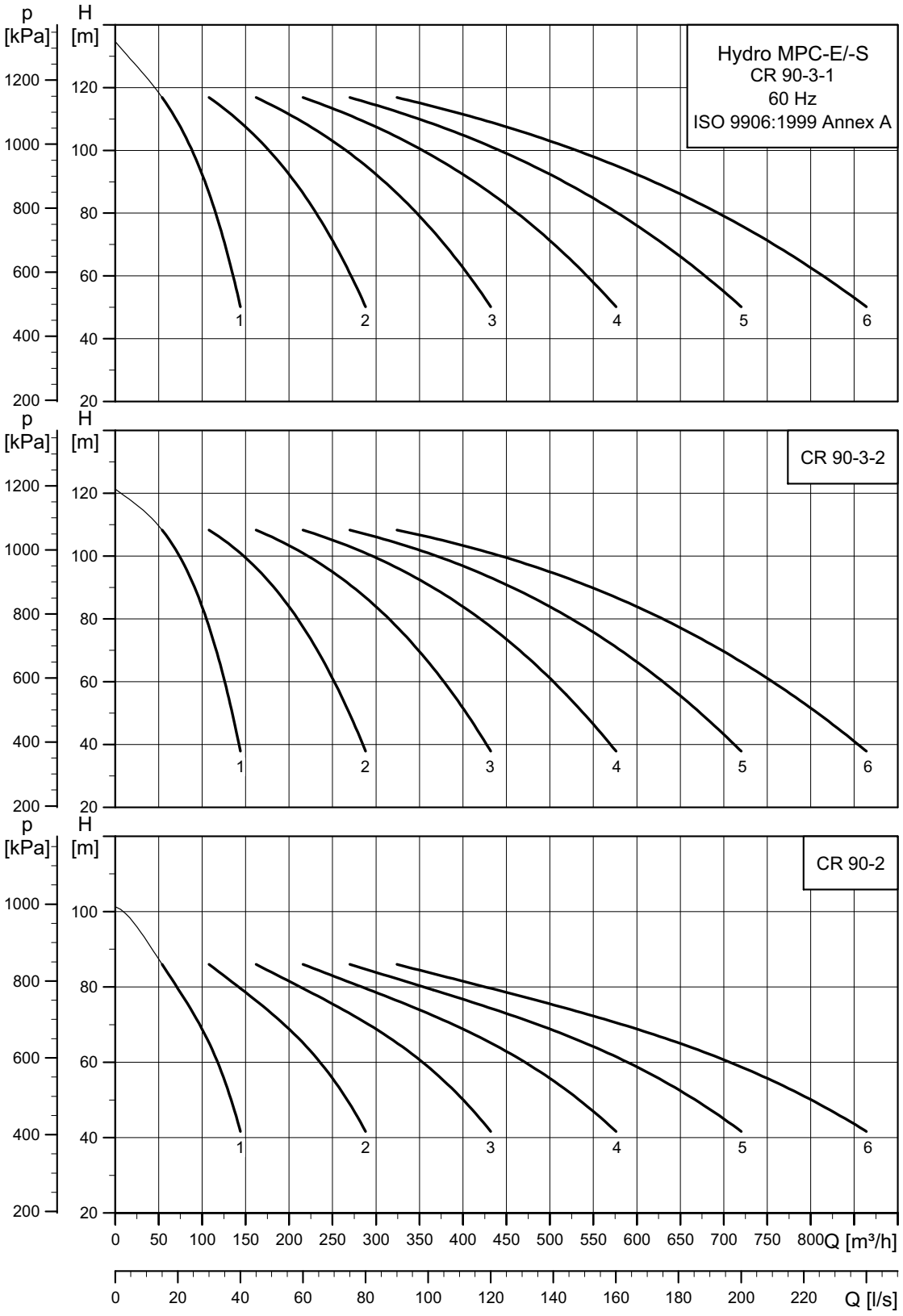
TM06 3248 5014

Hydro MPC-E/-S with CR 90



TM06 3256 5014

Hydro MPC-E/-S with CR 90



TM06 3257 5014

10. Technical data, Hydro MPC-E/-S (50 Hz)

Hydro MPC-E/-S with CR, CRI 3 / CR, CRI 5

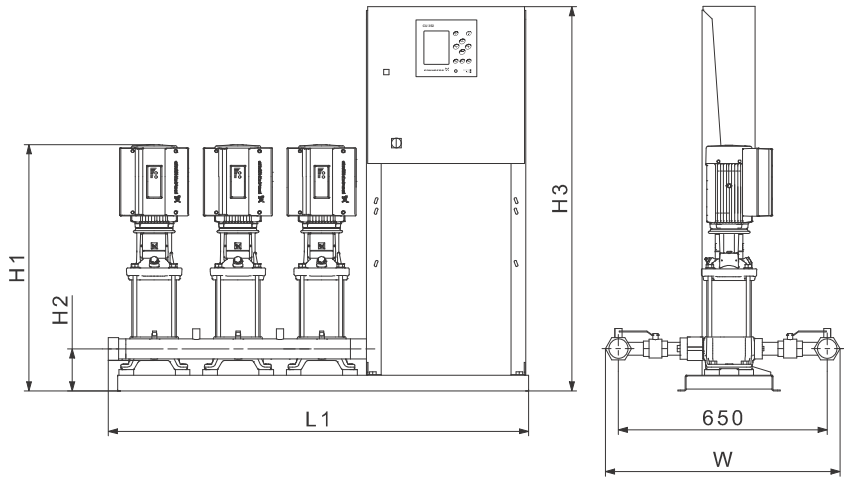


Fig. 37 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.

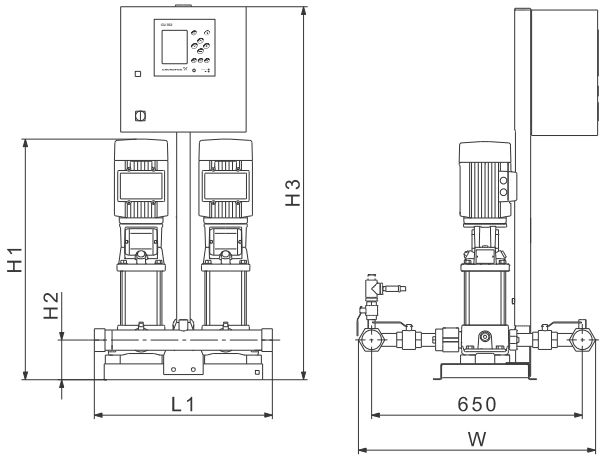


Fig. 38 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.

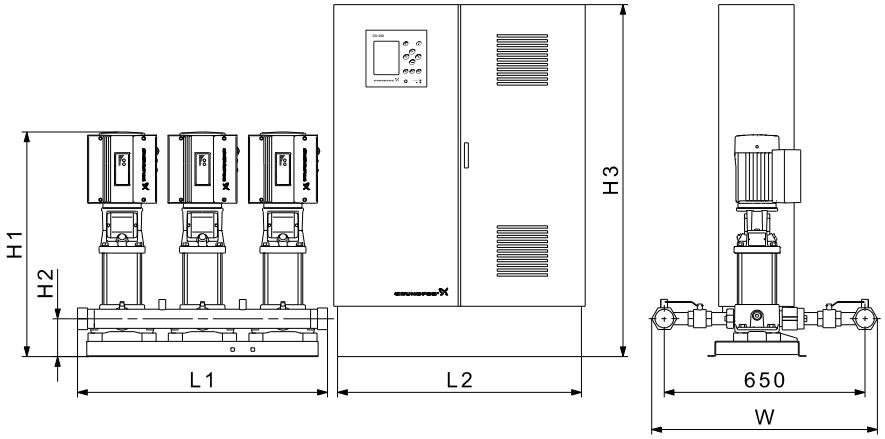


Fig. 39 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 3-7	U4	0.55	1.4	R 2	714	750	800	621	154	1200	174	G
	CR 3-10	U4	0.75	1.9	R 2	714	750	800	721	154	1200	184	G
	CR 3-15	U4	1.1	2.5	R 2	714	750	800	831	154	1200	193	G
	CR 3-19	U4	1.5	3.2	R 2	714	750	800	949	154	1200	211	G
3	CR 3-7	U4	0.55	1.4	R 2	714	1070	800	621	154	1200	216	G
	CR 3-10	U4	0.75	1.9	R 2	714	1070	800	721	154	1200	230	G
	CR 3-15	U4	1.1	2.5	R 2	714	1070	800	831	154	1200	243	G
	CR 3-19	U4	1.5	3.2	R 2	714	1070	800	949	154	1200	271	G
4	CR 3-7	U4	0.55	1.4	R 2 ½	730	1390	800	621	154	1200	259	G
	CR 3-10	U4	0.75	1.9	R 2 ½	730	1390	800	721	154	1200	278	G
	CR 3-15	U4	1.1	2.5	R 2 ½	730	1390	800	831	154	1200	295	G
	CR 3-19	U4	1.5	3.2	R 2 ½	730	1390	800	949	154	1200	333	G

Hydro MPC-S with CR, CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 3-5	U4	0.37	1.0	R 2	714	1200	380	585	154	1505	277	E
	CR 3-7	U4	0.55	1.4	R 2	714	1200	380	621	154	1505	359	E
	CR 3-10	U4	0.75	1.9	DN 200	714	1200	380	721	154	1505	473	E
	CR 3-15	U4	1.1	2.5	DN 100	714	1200	380	831	154	1505	764	E
	CR 3-19	U4	1.5	3.2	DN 100	714	1200	380	949	154	1505	553	E
3	CR 3-5	U4	0.37	1.0	R 2	714	1720	600	585	154	1505	521	E
	CR 3-7	U4	0.55	1.4	R 2	714	1720	600	621	154	1505	160	E
	CR 3-10	U4	0.75	1.9	R 2	714	1720	600	721	154	1505	180	E
	CR 3-15	U4	1.1	2.5	DN 200	714	1720	600	831	154	1505	178	E
	CR 3-19	U4	1.5	3.2	DN 100	714	1720	600	949	154	1505	646	E
4	CR 3-5	U4	0.37	1.0	R 2½	730	2040	600	585	154	1505	226	E
	CR 3-7	U4	0.55	1.4	R 2½	730	2040	600	621	154	1505	249	E
	CR 3-10	U4	0.75	1.9	R 2½	730	2040	600	721	154	1505	290	E
	CR 3-15	U4	1.1	2.5	DN 200	730	2040	600	831	154	1505	346	E
	CR 3-19	U4	1.5	3.2	DN 100	730	2040	600	949	154	1505	670	E

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E with CR, CRI 5

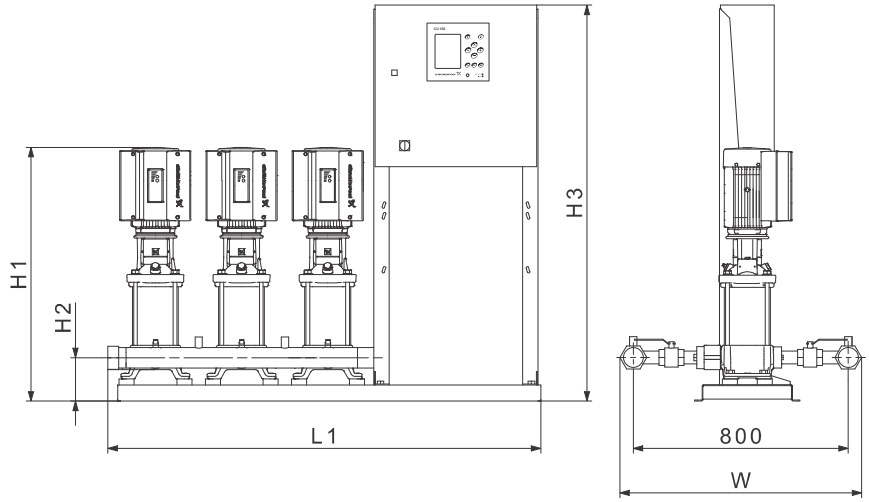
No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 5-4	U4	0.55	1.4	R 2	714	750	800	603	154	1200	173	G
	CR 5-5	U4	0.75	1.9	R 2	714	750	800	676	154	1200	181	G
	CR 5-8	U4	1.1	2.5	R 2	714	750	800	777	154	1200	189	G
	CR 5-10	U4	1.5	3.2	R 2	714	750	800	877	154	1200	207	G
	CR 5-16	U4	2.2	4.5	R 2	714	750	800	1079	154	1200	231	G
	CR 5-20	U4	3	6.3	R 2	714	750	800	1205	154	1200	235	G
3	CR 5-4	U4	0.55	1.4	R 2	714	1070	800	603	154	1200	214	G
	CR 5-5	U4	0.75	1.9	R 2	714	1070	800	676	154	1200	226	G
	CR 5-8U	U4	1.1	2.5	R 2	714	1070	800	777	154	1200	238	G
	CR 5-10	U4	1.5	3.2	R 2	714	1070	800	877	154	1200	264	G
	CR 5-16	U4	2.2	4.5	R 2	714	1070	800	1079	154	1200	285	G
	CR 5-20	U4	3	6.3	R 2	714	1070	800	1205	154	1200	307	G
4	CR 5-4	U4	0.55	1.4	R 2 ½	730	1390	800	603	154	1200	257	G
	CR 5-5	U4	0.75	1.9	R 2 ½	730	1390	800	676	154	1200	274	G
	CR 5-8	U4	1.1	2.5	R 2 ½	730	1390	800	777	154	1200	289	G
	CR 5-10	U4	1.5	3.2	R 2 ½	730	1390	800	877	154	1200	324	G
	CR 5-16	U4	2.2	4.5	R 2 ½	730	1390	800	1079	154	1200	352	G
	CR 5-20	U4	3	6.3	R 2 ½	730	1390	800	1205	154	1200	380	G

Hydro MPC-S with CR, CRI 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 5-4	U4	0.55	1.4	DN 200	714	1200	380	603	154	1505	422	E
	CR 5-5	U4	0.75	1.9	R 2	714	1200	380	676	154	1505	313	E
	CR 5-8	U4	1.1	2.5	R 2	714	1200	380	777	154	1505	248	E
	CR 5-10	U4	1.5	3.2	DN 200	714	1200	380	877	154	1505	484	E
	CR 5-16	U4	2.2	4.5	R 2	714	1400	600	1079	154	1505	315	E
	CR 5-20	U4	3	6.3	R 2	714	1200	380	1205	154	1505	794	E
3	CR 5-4	U4	0.55	1.4	R 2	714	1720	600	603	154	1505	440	E
	CR 5-5	U4	0.75	1.9	R 2	714	1720	600	676	154	1505	131	E
	CR 5-8	U4	1.1	2.5	DN 200	714	1720	600	777	154	1505	614	E
	CR 5-10	U4	1.5	3.2	DN 250	714	1720	600	877	154	1505	243	E
	CR 5-16	U4	2.2	4.5	R 2	714	1720	600	1079	154	1505	106	E
	CR 5-20	U4	3	6.3	R 2	714	1720	600	1205	154	1505	117	E
4	CR 5-4	U4	0.55	1.4	R 2½	730	2040	600	603	154	1505	150	E
	CR 5-5	U4	0.75	1.9	R 2½	730	2040	600	676	154	1505	114	E
	CR 5-8	U4	1.1	2.5	R 2½	730	2040	600	777	154	1505	158	E
	CR 5-10	U4	1.5	3.2	R 2½	730	2040	600	877	154	1505	416	E
	CR 5-16	U4	2.2	4.5	R 2½	730	2040	600	1079	154	1505	751	E
	CR 5-20	U4	3	6.3	R 2½	730	2040	600	1205	154	1505	600	E

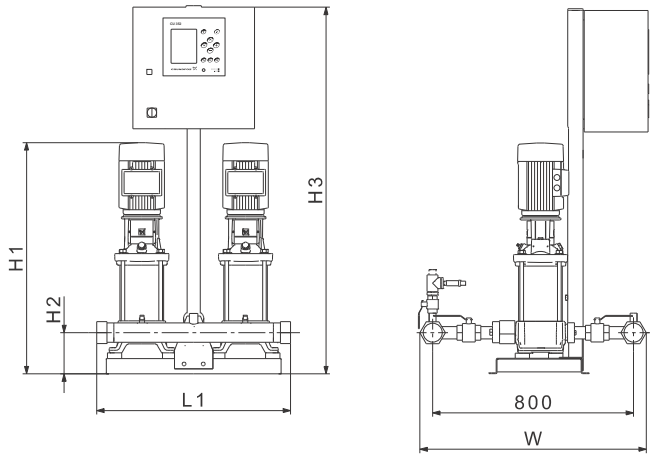
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR, CRI 10



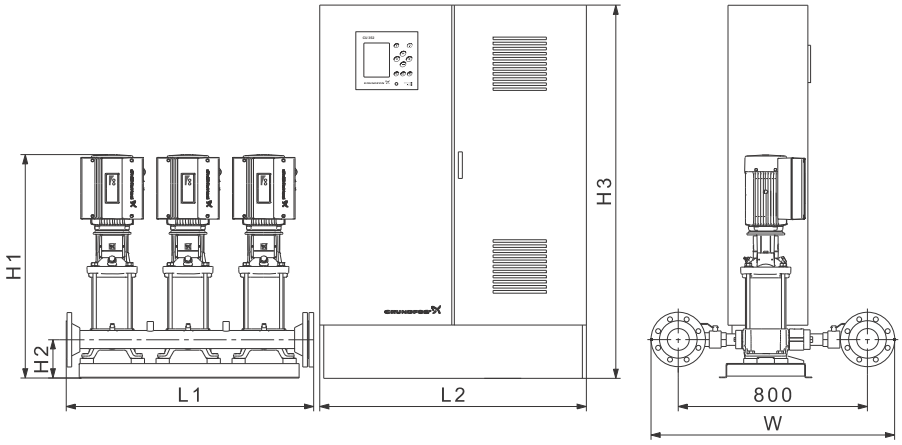
TM03 1182 2310

Fig. 40 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.



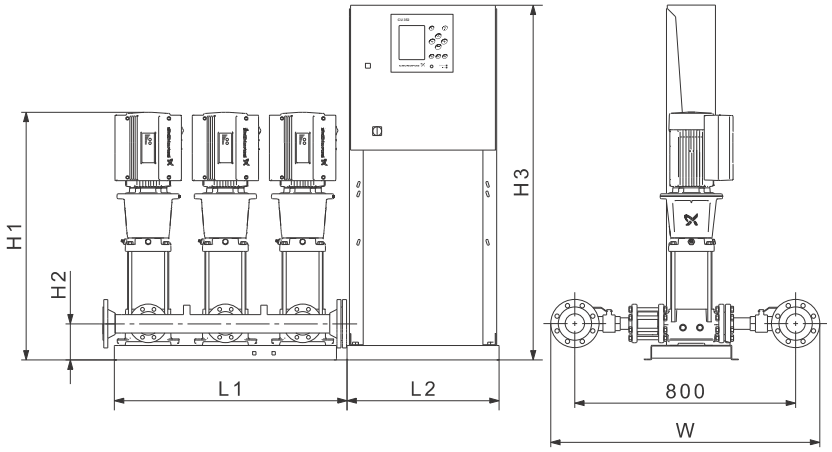
TM03 1183 2310

Fig. 41 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM04 7829 2410

Fig. 42 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM04 7830 2410

Fig. 43 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 10-3	U4	1.1	2.5	R 2 ½	880	750	800	732	184	1200	219	G
	CR 10-4	U4	1.5	3.2	R 2 ½	880	750	800	808	184	1200	237	G
	CR 10-6	U4	2.2	4.5	R 2 ½	880	750	800	908	184	1200	269	G
	CR 10-9	U4	3	6.3	R 2 ½	880	750	800	1017	184	1200	262	G
	CR 10-12	U4	4	7.9	R 2 ½	880	750	800	1144	184	1200	315	G
	CR 10-14	U4	5.5	11.0	R 2 ½	880	750	800	1255	184	1200	318	G
3	CR 10-3	U4	1.1	2.5	DN 80	1000	1070	800	732	184	1200	282	G
	CR 10-4	U4	1.5	3.2	DN 80	1000	1070	800	808	184	1200	309	G
	CR 10-6	U4	2.2	4.5	DN 80	1000	1070	800	908	184	1200	324	G
	CR 10-9	U4	3	6.3	DN 80	1000	1070	800	1017	184	1200	347	G
	CR 10-12	U4	4	7.9	R 2 ½	880	1070	800	1144	184	1200	392	G
	CR 10-14	U4	5.5	11.0	R 2 ½	880	1610	800	1255	184	1200	400	G
4	CR 10-3	U4	1.1	2.5	DN 100	1020	1390	800	732	184	1200	361	G
	CR 10-4	U4	1.5	3.2	DN 100	1020	1390	800	808	184	1200	397	G
	CR 10-6	U4	2.2	4.5	DN 100	1020	1390	800	908	184	1200	418	G
	CR 10-9	U4	3	6.3	DN 100	1020	1390	800	1017	184	1200	447	G
	CR 10-12	U4	4	7.9	DN 100	1020	1390	800	1144	184	1200	510	G
	CR 10-14	U4	5.5	11.0	DN 100	1020	2110	800	1255	184	1800	557	G
5	CR 10-3	U4	1.1	2.5	DN 80	1000	1710	800	732	184	1200	439	G
	CR 10-4	U4	1.5	3.2	DN 80	1000	1710	800	808	184	1200	485	G
	CR 10-6	U4	2.2	4.5	DN 80	1000	1710	800	908	184	1200	510	G
	CR 10-9	U4	3	6.3	DN 80	1000	1710	800	1017	184	1200	550	G
	CR 10-12	U4	4	7.9	DN 80	1000	1710	800	1144	184	1200	630	G
	CR 10-14	U4	5.5	11.0	DN 80	1000	1710	1200	1255	184	1800	744	G
6	CR 10-3	U4	1.1	2.5	DN 100	1020	2030	800	732	184	1200	511	G
	CR 10-4	U4	1.5	3.2	DN 100	1020	2030	800	808	184	1200	567	G
	CR 10-6	U4	2.2	4.5	DN 100	1020	2030	800	908	184	1200	595	G
	CR 10-9	U4	3	6.3	DN 100	1020	2030	800	1017	184	1200	643	G
	CR 10-12	U4	4	7.9	DN 100	1020	2030	800	1144	184	1200	737	G
	CR 10-14	U4	5.5	11.0	DN 100	1020	2030	1200	1255	184	1800	854	G

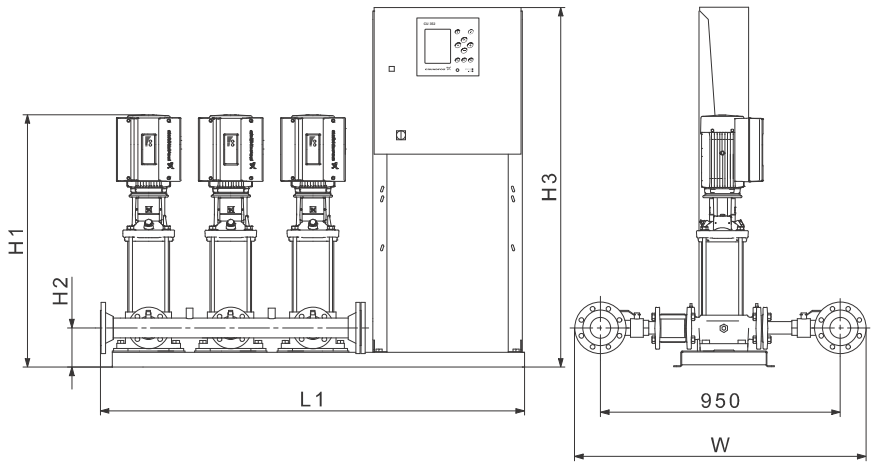
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 10-3	U4	1.1	2.5	DN 200	880	1720	380	732	184	1505	425	E
	CR 10-4	U4	1.5	3.2	R 2½	880	1200	380	808	184	1505	847	E
	CR 10-6	U4	2.2	4.5	DN 200	880	1720	600	908	184	1505	514	E
	CR 10-9	U4	3	6.3	R 2½	880	1200	380	1017	184	1505	919	E
	CR 10-12	U4	4	7.9	R 2½	880	1400	600	1144	184	1505	601	E
	CR 10-14	U4	5.5	11.0	DN 80	880	1400	600	1255	184	1505	189	E
3	CR 10-3	U4	1.1	2.5	DN 250	1000	1720	600	732	184	1505	413	E
	CR 10-4	U4	1.5	3.2	R 2½	1000	1720	600	808	184	1505	838	E
	CR 10-6	U4	2.2	4.5	DN 250	1000	1720	600	908	184	1505	487	E
	CR 10-9	U4	3	6.3	DN 80	1000	1720	600	1017	184	1505	805	E
	CR 10-12	U4	4	7.9	DN 80	880	1720	600	1144	184	1505	920	E
	CR 10-14	U4	5.5	11.0	DN 80	880	2460	760	1255	184	1505	169	E
4	CR 10-3	U4	1.1	2.5	R 2½	1020	2040	600	732	184	1505	799	E
	CR 10-4	U4	1.5	3.2	R 2½	1020	2040	600	808	184	1505	776	E
	CR 10-6	U4	2.2	4.5	DN 100	1020	2040	600	908	184	1505	872	E
	CR 10-9	U4	3	6.3	DN 100	1020	2040	600	1017	184	1505	253	E
	CR 10-12	U4	4	7.9	DN 100	1020	2040	600	1144	184	1505	283	E
	CR 10-14	U4	5.5	11.0	DN 80	1020	2960	760	1255	184	1505	193	E
5	CR 10-3	U4	1.1	2.5	DN 100	1000	2360	600	732	184	1505	323	H
	CR 10-4	U4	1.5	3.2	DN 100	1000	2360	600	808	184	1505	405	H
	CR 10-6	U4	2.2	4.5	DN 100	1000	2360	600	908	184	1505	452	H
	CR 10-9	U4	3	6.3	DN 80	1000	2360	600	1017	184	1505	347	E
	CR 10-12	U4	4	7.9	DN 80	1000	2360	600	1144	184	1505	471	E
	CR 10-14	U4	5.5	11.0	DN 80	1000	1710	760	1255	184	1505	626	E
6	CR 10-3	U4	1.1	2.5	DN 100	1020	2680	600	732	184	1505	265	H
	CR 10-4	U4	1.5	3.2	DN 150	1020	2680	600	808	184	1505	385	H
	CR 10-6	U4	2.2	4.5	DN 150	1020	2680	600	908	184	1505	443	H
	CR 10-9	U4	3	6.3	DN 150	1020	2680	600	1017	184	1505	544	H
	CR 10-12	U4	4	7.9	DN 200	1020	2680	600	1144	184	1505	120	H
	CR 10-14	U4	5.5	11.0	DN 200	1020	2880	800	1255	184	1505	195	H

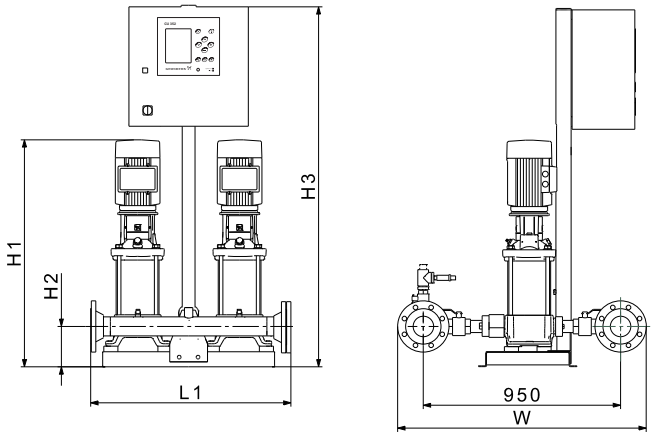
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Maximum current in neutral conductor, Max. I_0 [A], applies to booster systems with single-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR, CRI 15 / CR, CRI 20



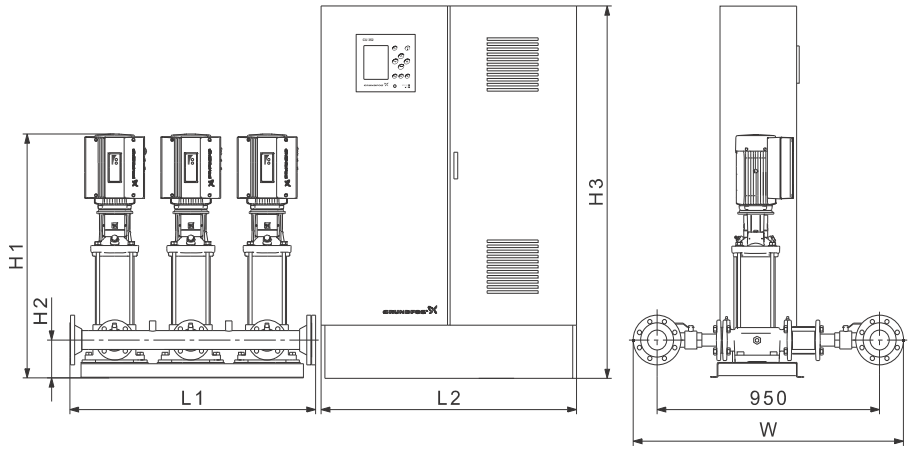
TM03 1184 2310

Fig. 44 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.



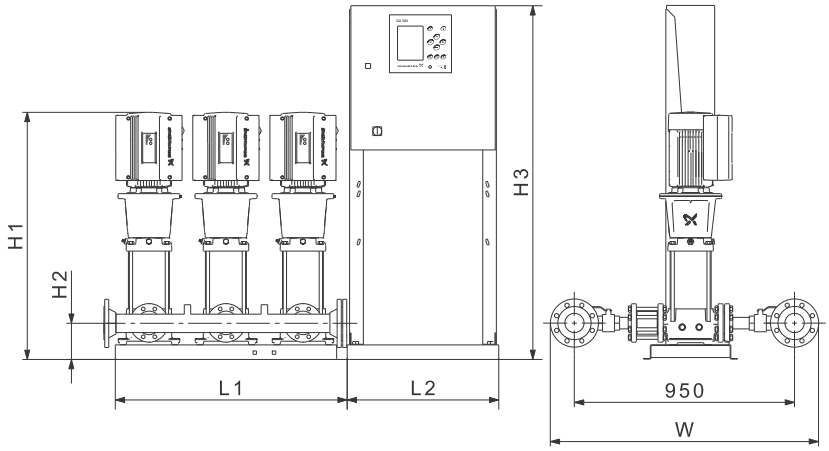
TM04 7831 2410

Fig. 45 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 3045 0106

Fig. 46 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM04 7832 2410

Fig. 47 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 15-2	U4	2.2	4.5	DN 80	1150	750	800	840	194	1200	290	G
	CR 15-3	U4	3	6.3	DN 80	1150	750	800	904	194	1200	280	G
	CR 15-5	U4	4	7.9	DN 80	1150	750	800	1031	194	1200	321	G
	CR 15-7	U4	5.5	11.0	DN 80	1150	750	800	1172	194	1200	355	G
	CR 15-9	U4	7.5	14.2	DN 80	1150	750	800	1250	194	1200	384	G
	CR 15-10	U4	11	20.2	DN 80	1150	750	800	1464	194	1200	396	G
3	CR 15-2	U4	2.2	4.5	DN 100	1170	1070	800	840	194	1200	353	G
	CR 15-3	U4	3	6.3	DN 100	1170	1070	800	904	194	1200	370	G
	CR 15-5	U4	4	7.9	DN 100	1170	1070	800	1031	194	1200	415	G
	CR 15-7	U4	5.5	11.0	DN 100	1170	1070	800	1172	194	1200	484	G
	CR 15-9	U4	7.5	14.2	DN 100	1170	1070	800	1250	194	1200	523	G
	CR 15-10	U4	11	20.2	DN 100	1170	1070	800	1464	194	1200	541	G
4	CR 15-2	U4	2.2	4.5	DN 100	1170	1390	800	840	194	1200	434	G
	CR 15-3	U4	3	6.3	DN 100	1170	1390	800	904	194	1200	455	G
	CR 15-5	U4	4	7.9	DN 100	1170	1390	800	1031	194	1200	518	G
	CR 15-7	U4	5.5	11.0	DN 100	1170	1390	800	1172	194	1800	651	G
	CR 15-9	U4	7.5	14.2	DN 100	1170	1390	800	1250	194	1800	705	G
	CR 15-10	U4	11	20.2	DN 100	1170	1390	800	1464	194	1800	729	G
5	CR 15-2	U4	2.2	4.5	DN 150	1235	1710	800	840	194	1200	554	G
	CR 15-3	U4	3	6.3	DN 150	1235	1710	800	904	194	1200	583	G
	CR 15-5	U4	4	7.9	DN 150	1235	1710	800	1031	194	1200	663	G
	CR 15-7	U4	5.5	11.0	DN 150	1235	1710	1200	1172	194	1800	889	G
	CR 15-9	U4	7.5	14.2	DN 150	1235	1710	1200	1250	194	1800	930	G
	CR 15-10	U4	11	20.2	DN 150	1235	1710	1200	1464	194	1800	960	G
6	CR 15-2	U4	2.2	4.5	DN 150	1235	2030	800	840	194	1200	634	G
	CR 15-3	U4	3	6.3	DN 150	1235	2030	800	904	194	1200	670	G
	CR 15-5	U4	4	7.9	DN 150	1235	2030	800	1031	194	1200	764	G
	CR 15-7	U4	5.5	11.0	DN 150	1235	2030	1200	1172	194	1800	1058	G
	CR 15-9	U4	7.5	14.2	DN 150	1235	2030	1200	1250	194	1800	1073	G
	CR 15-10	U4	11	20.2	DN 150	1235	2030	1200	1464	194	1800	1110	G

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 15-2	U4	2.2	4.5	DN 100	1150	1200	600	840	194	1505	1181	H
	CR 15-3	U4	3	6.3	DN 100	1150	1200	380	904	194	1505	782	H
	CR 15-5	U4	4	7.9	DN 100	1150	1200	600	1031	194	1505	1107	H
	CR 15-7	U4	5.5	11.0	DN 100	1150	1200	600	1172	194	1505	997	H
	CR 15-9	U4	7.5	14.2	DN 100	1150	1200	600	1250	194	1505	1133	H
	CR 15-10	U4	11	20.2	DN 100	1150	1200	600	1464	194	1505	1130	H
3	CR 15-2	U4	2.2	4.5	DN 100	1170	1720	600	840	194	1505	1118	H
	CR 15-3	U4	3	6.3	DN 100	1170	1720	600	904	194	1505	1263	H
	CR 15-5	U4	4	7.9	DN 100	1170	1720	600	1031	194	1505	338	H
	CR 15-7	U4	5.5	11.0	DN 150	1170	1070	960	1172	194	1505	338	E
	CR 15-9	U4	7.5	14.2	DN 150	1170	1070	960	1250	194	1505	362	E
	CR 15-10	U4	11	20.2	DN 150	1170	1070	960	1464	194	1505	415	E
4	CR 15-2	U4	2.2	4.5	DN 150	1170	2040	600	840	194	1505	439	E
	CR 15-3	U4	3	6.3	DN 150	1170	2040	600	904	194	1505	551	E
	CR 15-5	U4	4	7.9	DN 150	1170	2040	600	1031	194	1505	596	E
	CR 15-7	U4	5.5	11.0	DN 150	1170	640	960	1172	194	1505	454	H
	CR 15-9	U4	7.5	14.2	DN 150	1170	640	960	1250	194	1505	562	H
	CR 15-10	U4	11	20.2	DN 150	1170	640	960	1464	194	1505	611	E
5	CR 15-2	U4	2.2	4.5	DN 150	1235	1710	760	840	194	1505	762	E
	CR 15-3	U4	3	6.3	DN 150	1235	1710	760	904	194	1505	278	H
	CR 15-5	U4	4	7.9	DN 150	1235	1710	760	1031	194	1505	229	H
	CR 15-7	U4	5.5	11.0	DN 80	1235	1710	960	1172	194	1505	205	H
	CR 15-9	U4	7.5	14.2	DN 80	1235	1710	960	1250	194	1505	266	H
	CR 15-10	U4	11	20.2	DN 100	1235	1710	960	1464	194	1505	191	H
6	CR 15-2	U4	2.2	4.5	DN 100	1235	960	760	840	194	1505	258	H
	CR 15-3	U4	3	6.3	DN 100	1235	960	760	904	194	1505	231	H
	CR 15-5	U4	4	7.9	DN 100	1235	960	760	1031	194	1505	154	H
	CR 15-7	U4	5.5	11.0	DN 100	1235	960	960	1172	194	1505	215	H
	CR 15-9	U4	7.5	14.2	DN 150	1235	960	960	1250	194	1505	301	H
	CR 15-10	U4	11	20.2	DN 150	1235	960	960	1464	194	1505	190	H

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E with CR, CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 20-2	U4	2.2	4.5	DN 80	1150	750	800	840	194	1200	290	G
	CR 20-3	U4	4	7.6	DN 80	1150	750	800	941	194	1200	315	G
	CR 20-5	U4	5.5	11.0	DN 80	1150	750	800	1082	194	1200	349	G
	CR 20-7	U4	7.5	15.2	DN 80	1150	750	800	1160	194	1200	378	G
3	CR 20-2	U4	2.2	4.5	DN 100	1170	1070	800	840	194	1200	353	G
	CR 20-3	U4	4	7.6	DN 100	1170	1070	800	941	194	1200	406	G
	CR 20-5	U4	5.5	11.0	DN 100	1170	1070	800	1082	194	1200	494	G
	CR 20-7	U4	7.5	15.2	DN 100	1170	1070	800	1160	194	1200	514	G
4	CR 20-2	U4	2.2	4.5	DN 100	1170	1390	800	840	194	1200	434	G
	CR 20-3	U4	4	7.6	DN 100	1170	1390	800	941	194	1200	506	G
	CR 20-5	U4	5.5	11.0	DN 100	1170	1390	800	1082	194	1800	638	G
	CR 20-7	U4	7.5	15.2	DN 100	1170	1390	800	1160	194	1800	693	G
5	CR 20-2	U4	2.2	4.5	DN 150	1235	1710	800	840	194	1200	554	G
	CR 20-3	U4	4	7.6	DN 150	1235	1710	800	941	194	1200	648	G
	CR 20-5	U4	5.5	11.0	DN 150	1235	1710	1200	1082	194	1800	850	G
	CR 20-7	U4	7.5	15.2	DN 150	1235	1710	1200	1160	194	1800	916	G
6	CR 20-2	U4	2.2	4.5	DN 150	1235	2030	800	840	194	1200	635	G
	CR 20-3	U4	4	7.6	DN 150	1235	2030	800	941	194	1200	746	G
	CR 20-5	U4	5.5	11.0	DN 150	1235	2030	1200	1082	194	1800	1017	G
	CR 20-7	U4	7.5	15.2	DN 150	1235	2030	1200	1160	194	1800	1055	G

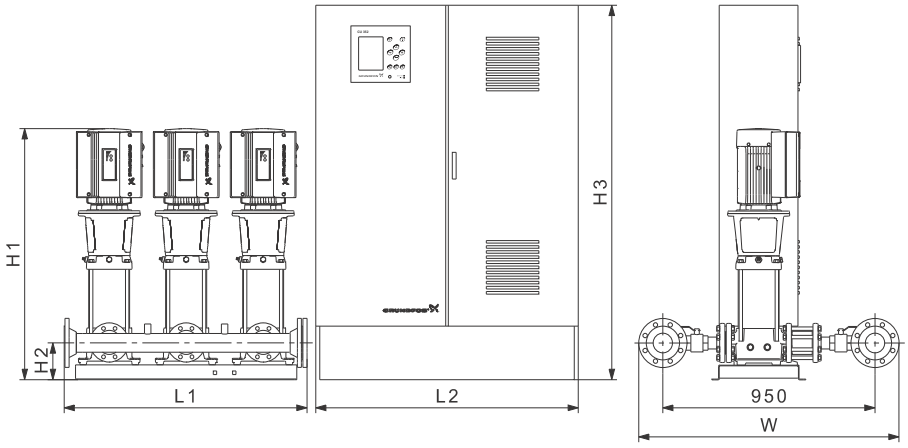
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 20-2	U4	2.2	4.5	DN 100	1150	1400	600	840	194	1505	801	H
	CR 20-3	U4	4	7.9	DN 80	1150	1400	600	992	194	1505	214	H
	CR 20-5	U4	5.5	11.2	DN 200	1150	1400	600	1082	194	1505	465	H
	CR 20-7	U4	7.5	15.2	DN 80	1150	1400	600	1160	194	1505	159	H
3	CR 20-2	U4	2.2	4.5	DN 200	1170	1720	600	840	194	1505	740	H
	CR 20-3	U4	4	7.9	DN 80	1170	1720	600	992	194	1505	195	H
	CR 20-5	U4	5.5	11.2	DN 100	1170	1070	960	1082	194	1505	634	H
	CR 20-7	U4	7.5	15.2	DN 80	1170	1070	960	1160	194	1505	495	H
4	CR 20-2	U4	2.2	4.5	R 2	1170	2040	600	840	194	1505	859	H
	CR 20-3	U4	4	7.9	DN 80	1170	2040	600	992	194	1505	653	H
	CR 20-5	U4	5.5	11.2	DN 80	1170	640	960	1082	194	1505	936	H
	CR 20-7	U4	7.5	15.2	DN 100	1170	640	960	1160	194	1505	729	H
5	CR 20-2	U4	2.2	4.5	DN 250	1235	1710	760	840	194	1505	513	H
	CR 20-3	U4	4	7.9	DN 200	1235	1710	760	992	194	1505	672	H
	CR 20-5	U4	5.5	11.2	DN 100	1235	1710	960	1082	194	1505	990	H
	CR 20-7	U4	7.5	15.2	DN 250	1235	1710	960	1160	194	1505	707	H
6	CR 20-2	U4	2.2	4.5	R 2½	1235	960	760	840	194	1505	633	H
	CR 20-3	U4	4	7.9	DN 200	1235	960	760	992	194	1505	780	H
	CR 20-5	U4	5.5	11.2	DN 100	1235	960	960	1082	194	1505	1067	G
	CR 20-7	U4	7.5	15.2	DN 200	1235	960	960	1160	194	1505	854	H

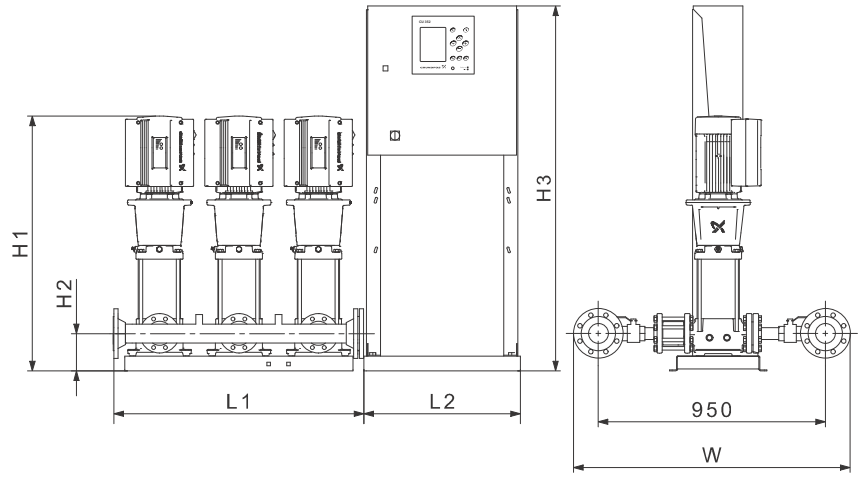
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR 32



TM03 3043 2310

Fig. 48 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1186 2310

Fig. 49 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 32-2	U4	4	7.9	DN 100	1170	1110	800	1051	209	1200	352	G
	CR 32-3	U4	5.5	11.0	DN 100	1170	1110	800	1140	209	1200	373	G
	CR 32-4	U4	7.5	14.2	DN 100	1170	1110	800	1198	209	1200	402	G
	CR 32-6	U4	11	20.2	DN 100	1170	1110	1200	1540	209	1800	676	G
	CR 32-7	U4	15	26.9	DN 100	1170	1110	1200	1610	209	1800	668	G
3	CR 32-2	U4	4	7.9	DN 150	1235	1610	800	1051	209	1200	520	G
	CR 32-3	U4	5.5	11.0	DN 150	1235	1610	800	1140	209	1200	554	G
	CR 32-4	U4	7.5	14.2	DN 150	1235	1610	800	1198	209	1200	593	G
	CR 32-6	U4	11	20.2	DN 150	1235	1610	1200	1540	209	1800	888	G
	CR 32-7	U4	15	26.9	DN 150	1235	1610	1200	1610	209	1800	882	G
4	CR 32-2	U4	4	7.9	DN 150	1235	2110	800	1051	209	1200	656	G
	CR 32-3	U4	5.5	11.0	DN 150	1235	2110	800	1140	209	1800	738	G
	CR 32-4	U4	7.5	14.2	DN 150	1235	2110	800	1198	209	1800	792	G
	CR 32-6	U4	11	20.2	DN 150	1235	2110	1200	1540	209	1800	1414	G
	CR 32-7	U4	15	26.9	DN 150	1235	2110	1200	1610	209	1800	1470	G
5	CR 32-2	U4	4	7.9	DN 150	1235	2610	800	1051	209	1200	803	G
	CR 32-3	U4	5.5	11.0	DN 150	1235	2610	1200	1140	209	1800	959	G
	CR 32-4	U4	7.5	14.2	DN 150	1235	2610	1200	1198	209	1800	1027	G
	CR 32-6	U4	11	20.2	DN 150	1235	2610	1200	1540	209	1800	1648	G
	CR 32-7	U4	15	26.9	DN 150	1235	2610	1200	1610	209	1800	1720	G
6	CR 32-2	U4	4	7.9	DN 150	1235	3110	800	1051	209	1200	931	G
	CR 32-3	U4	5.5	11.0	DN 150	1235	3110	1200	1140	209	1800	1101	G
	CR 32-4	U4	7.5	14.2	DN 150	1235	3110	1200	1198	209	1800	1233	G
	CR 32-6	U4	11	20.2	DN 150	1235	3110	1200	1540	209	1800	1901	G
	CR 32-7	U4	15	26.9	DN 150	1235	3110	1200	1610	209	1800	1876	G

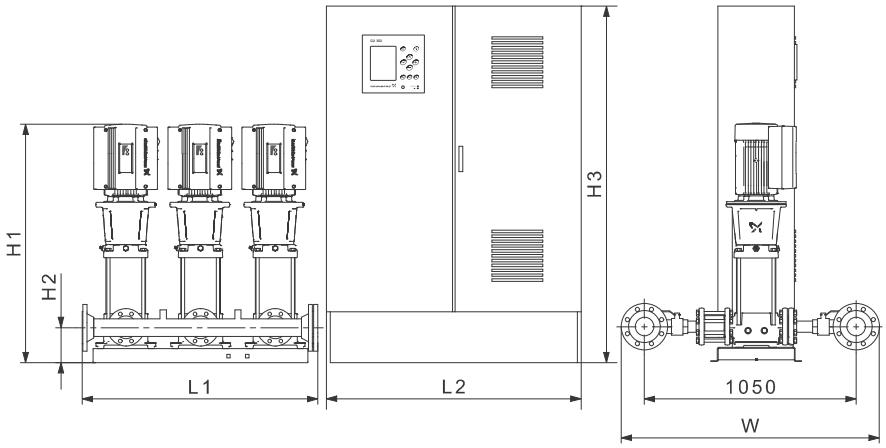
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 32-2	U4	4	7.9	DN 80	1170	1110	760	1051	209	1505	1229	H
	CR 32-3	U4	5.5	11.0	R 2	1170	1110	760	1140	209	1505	1497	H
	CR 32-4	U4	7.5	14.2	DN 200	1170	1110	760	1198	209	1505	979	G
	CR 32-6	U4	11	20.2	DN 150	1170	1110	960	1540	209	1505	944	G
	CR 32-7	U4	15	26.9	DN 150	1170	1110	960	1610	209	1559	2579	H
3	CR 32-2	U4	4	7.9	DN 100	1235	1610	760	1051	209	1505	1465	H
	CR 32-3	U4	5.5	11.0	R 2½	1235	1610	960	1140	209	1505	1356	H
	CR 32-4	U4	7.5	14.2	DN 80	1235	1610	960	1198	209	1505	1352	H
	CR 32-6	U4	11	20.2	DN 150	1235	1610	960	1540	209	1505	1142	H
	CR 32-7	U4	15	26.9	DN 150	1235	1610	960	1610	209	1559	1247	H
4	CR 32-2	U4	4	7.9	DN 150	1235	1000	760	1051	209	1505	952	H
	CR 32-3	U4	5.5	11.0	DN 80	1235	1000	960	1140	209	1505	1662	H
	CR 32-4	U4	7.5	14.2	DN 250	1235	1000	960	1198	209	1505	1205	H
	CR 32-6	U4	11	20.2	DN 150	1235	1000	960	1540	209	1505	767	G
	CR 32-7	U4	15	26.9	DN 100	1235	1000	960	1610	209	1559	1721	H
5	CR 32-2	U4	4	7.9	R 2	1235	2610	760	1051	209	1505	1080	H
	CR 32-3	U4	5.5	11.0	DN 100	1235	2610	960	1140	209	1505	1502	H
	CR 32-4	U4	7.5	14.2	R 2	1235	2610	960	1198	209	1505	637	G
	CR 32-6	U4	11	20.2	DN 150	1235	2610	960	1540	209	1505	973	G
	CR 32-7	U4	15	26.9	DN 150	1235	2610	800	1610	209	1200	2186	H
6	CR 32-2	U4	4	7.9	R 2	1235	1500	760	1051	209	1505	1281	H
	CR 32-3	U4	5.5	11.0	DN 100	1235	1500	960	1140	209	1505	1755	G
	CR 32-4	U4	7.5	14.2	R 2	1235	1500	960	1198	209	1505	747	G
	CR 32-6	U4	11	20.2	DN 150	1235	3110	800	1540	209	1200	1192	G
	CR 32-7	U4	15	26.9	DN 150	1235	3110	800	1610	209	1200	2626	H

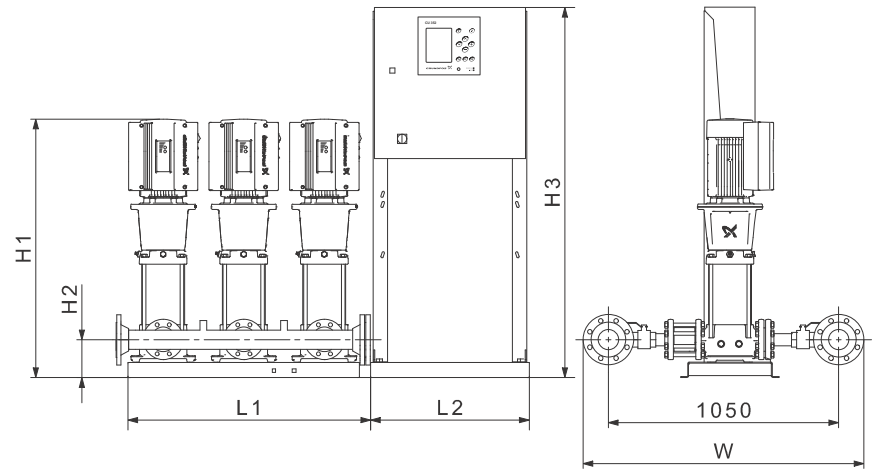
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-F/-S with CR 45 / CR 64



TM03 1693 2310

Fig. 50 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1187 2310

Fig. 51 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 45-2-2	U4	5.5	11.0	DN 200	1390	1610	800	1134	244	1200	615	G
	CR 45-2	U4	7.5	14.2	DN 200	1390	1610	800	1122	244	1200	644	G
	CR 45-3	U4	11	20.2	DN 200	1390	1610	1200	1404	244	1800	933	G
	CR 45-4	U4	15	26.9	DN 200	1390	1610	1200	1484	244	1800	981	G
	CR 45-5	U4	18.5	33.4	DN 200	1390	1610	1200	1608	244	1800	1033	G
4	CR 45-2-2	U4	5.5	11.0	DN 200	1390	2110	800	1134	244	1800	814	G
	CR 45-2	U4	7.5	14.2	DN 200	1390	2110	800	1122	244	1800	856	G
	CR 45-3	U4	11	20.2	DN 200	1390	2110	1200	1404	244	1800	1469	G
	CR 45-4	U4	15	26.9	DN 200	1390	2110	1200	1484	244	1800	1110	G
	CR 45-5	U4	18.5	33.4	DN 200	1390	2110	1200	1608	244	1800	1611	G
5	CR 45-2-2	U4	5.5	11.0	DN 200	1390	1610	1200	1134	244	1800	1054	G
	CR 45-2	U4	7.5	14.2	DN 200	1390	2610	1200	1122	244	1800	1107	G
	CR 45-3	U4	11	20.2	DN 200	1390	2610	1200	1404	244	1800	1719	G
	CR 45-4	U4	15	26.9	DN 200	1390	2610	1200	1484	244	1800	1829	G
	CR 45-5	U4	18.5	33.4	DN 200	1390	2610	1200	1608	244	1800	1916	G
6	CR 45-2-2	U4	5.5	11.0	DN 200	1390	3110	1200	1134	244	1800	1212	G
	CR 45-2	U4	7.5	14.2	DN 200	1390	3110	1200	1122	244	1800	1326	G
	CR 45-3	U4	11	20.2	DN 200	1390	3110	1200	1404	244	1800	2035	G
	CR 45-4	U4	15	26.9	DN 200	1390	3110	1200	1484	244	1800	2075	G
	CR 45-5	U4	18.5	33.4	DN 200	1390	3110	1200	1608	244	1800	2150	G

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 45-2-2	U4	5.5	11.0	DN 150	1390	1610	960	1134	244	1505	1476	H
	CR 45-2	U4	7.5	14.2	DN 150	1390	1610	960	1122	244	1505	1683	H
	CR 45-3	U4	11	20.2	R 2	1390	1610	960	1404	244	1505	826	H
	CR 45-4	U4	15	26.9	DN 100	1390	1610	960	1484	244	1505	1139	H
	CR 45-5	U4	18.5	33.4	DN 150	1390	1610	960	1608	244	1559	1842	H
4	CR 45-2-2	U4	5.5	11.0	DN 100	1390	1000	960	1134	244	1505	1310	H
	CR 45-2	U4	7.5	14.2	DN 150	1390	1000	960	1122	244	1505	963	H
	CR 45-3	U4	11	20.2	R 2½	1390	1000	960	1404	244	1505	994	H
	CR 45-4	U4	15	26.9	DN 150	1390	1000	960	1484	244	1505	1532	H
	CR 45-5	U4	18.5	33.4	DN 100	1390	1000	960	1608	244	1200	1302	H
5	CR 45-2-2	U4	5.5	11.0	DN 150	1390	1610	960	1134	244	1505	1566	G
	CR 45-2	U4	7.5	14.2	R 2	1390	2610	960	1122	244	1505	880	G
	CR 45-3	U4	11	20.2	R 2½	1390	2610	960	1404	244	1505	501	G
	CR 45-4	U4	15	26.9	DN 150	1390	2610	960	1484	244	1200	1801	H
	CR 45-5	U4	18.5	33.4	DN 150	1390	2610	800	1608	244	1200	1724	H
6	CR 45-2-2	U4	5.5	11.0	DN 150	1390	1500	960	1134	244	1505	1421	H
	CR 45-2	U4	7.5	14.2	R 2	1390	1500	960	1122	244	1505	1103	G
	CR 45-3	U4	11	20.2	DN 80	1390	3110	800	1404	244	1200	692	G
	CR 45-4	U4	15	26.9	DN 150	1390	3110	800	1484	244	1200	1541	G
	CR 45-5	U4	18.5	33.4	DN 150	1390	3110	1000	1608	244	1800	2213	G

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 64-1	U4	5.5	11.0	DN 200	1390	1610	800	1056	244	1200	612	G
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	1610	800	1127	244	1200	655	G
	CR 64-2	U4	11	20.2	DN 200	1390	1610	1200	1329	244	1800	932	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	1610	1200	1411	244	1800	982	G
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	1610	1200	1538	244	1800	1035	G
	CR 64-4	U4	22	39.5	DN 200	1390	1610	1200	1564	244	1800	1419	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	1610	1200	1716	244	1800	1798	G
4	CR 64-1	U4	5.5	11.0	DN 200	1390	2110	800	1056	244	1800	811	G
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	2110	800	1127	244	1800	870	G
	CR 64-2	U4	11	20.2	DN 200	1390	2110	1200	1329	244	1800	1468	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	2110	1200	1411	244	1800	1570	G
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	2110	1200	1538	244	1800	1616	G
	CR 64-4	U4	22	39.5	DN 200	1390	2110	1200	1564	244	1800	1711	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	2110	1200	1716	244	1800	2232	G
5	CR 64-1	U4	5.5	11.0	DN 200	1390	2610	1200	1056	244	1800	1050	G
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	2610	1200	1127	244	1800	1123	G
	CR 64-2	U4	11	20.2	DN 200	1390	2610	1200	1329	244	1800	1715	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	2610	1200	1411	244	1800	1868	G
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	2610	1200	1538	244	1800	1924	G
	CR 64-4	U4	22	39.5	DN 200	1390	2610	1200	1564	244	1800	2025	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	2610	1200	1716	244	1800	2677	G
6	CR 64-1	U4	5.5	11.0	DN 200	1390	3110	1200	1056	244	1800	1207	G
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	3110	1200	1127	244	1800	1301	G
	CR 64-2	U4	11	20.2	DN 200	1390	3110	1200	1329	244	1800	1979	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	3110	1200	1411	244	1800	2115	G
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	3110	1200	1538	244	1800	2262	G
	CR 64-4	U4	22	39.5	DN 200	1390	3110	1200	1564	244	1800	2347	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	3110	1200	1716	244	1800	2671	G

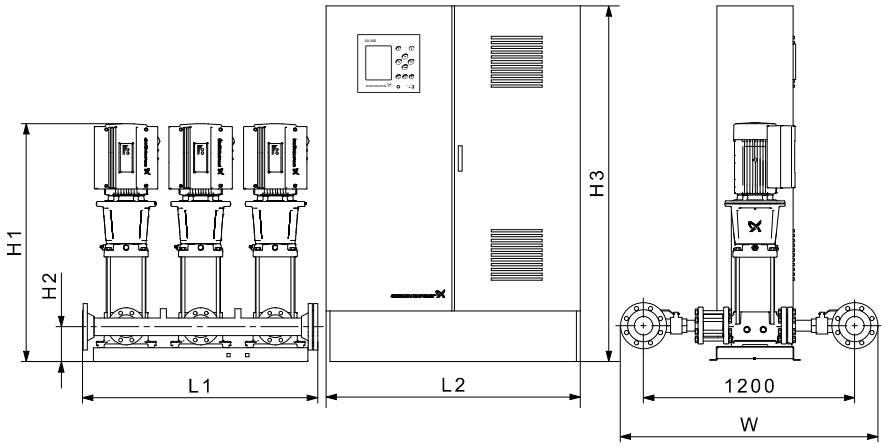
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 64-1	U4	5.5	11.0	DN 200	1390	1610	960	1056	244	1505	2376	H
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	1610	960	1127	244	1505	2577	H
	CR 64-2	U4	11	20.2	DN 200	1390	1610	960	1329	244	1505	2566	G
	CR 64-3-1	U4	15	26.9	DN 150	1390	1610	960	1411	244	1505	1427	G
	CR 64-4-2	U4	18.5	33.4	DN 150	1390	1610	960	1538	244	1505	1810	G
	CR 64-4	U4	22	39.5	DN 200	1390	1610	960	1564	244	1559	2987	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	1610	800	1716	244	1505	2987	G
4	CR 64-1	U4	5.5	11.0	DN 200	1390	1000	960	1056	244	1505	2810	H
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	1000	960	1127	244	1505	3010	H
	CR 64-2	U4	11	20.2	DN 200	1390	1000	960	1329	244	1505	3013	H
	CR 64-3-1	U4	15	26.9	DN 200	1390	1000	960	1411	244	1505	2403	H
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	2110	800	1538	244	1200	2829	H
	CR 64-4	U4	22	39.5	DN 200	1390	2110	800	1564	244	1200	2959	H
	CR 64-5-1	U4	30	53.5	DN 200	1390	2110	800	1716	244	1800	2959	H
5	CR 64-1	U4	5.5	11.0	DN 200	1390	2610	960	1056	244	1505	1456	H
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	2610	960	1127	244	1505	1456	G
	CR 64-2	U4	11	20.2	DN 200	1390	2610	960	1329	244	1505	2966	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	2610	800	1411	244	1200	1399	G
	CR 64-4-2	U4	18.5	33.4	DN 200	1390	2610	800	1538	244	1200	1724	G
	CR 64-4	U4	22	39.5	DN 200	1390	2610	1000	1564	244	1800	2966	H
	CR 64-5-1	U4	30	53.5	DN 200	1390	2610	1200	1716	244	1800	2966	G
6	CR 64-1	U4	5.5	11.0	DN 200	1390	1500	960	1056	244	1505	2076	G
	CR 64-2-2	U4	7.5	14.2	DN 200	1390	1500	960	1127	244	1505	2076	G
	CR 64-2	U4	11	20.2	DN 200	1390	3110	800	1329	244	1200	2929	G
	CR 64-3-1	U4	15	26.9	DN 200	1390	3110	800	1411	244	1200	1711	G
	CR 64-4	U4	18.5	33.4	DN 200	1390	3110	1000	1538	244	1800	1297	G
	CR 64-4	U4	22	39.5	DN 200	1390	3110	1000	1564	244	1800	2929	G
	CR 64-5-1	U4	30	53.5	DN 200	1390	3110	1600	1716	244	1800	2929	G

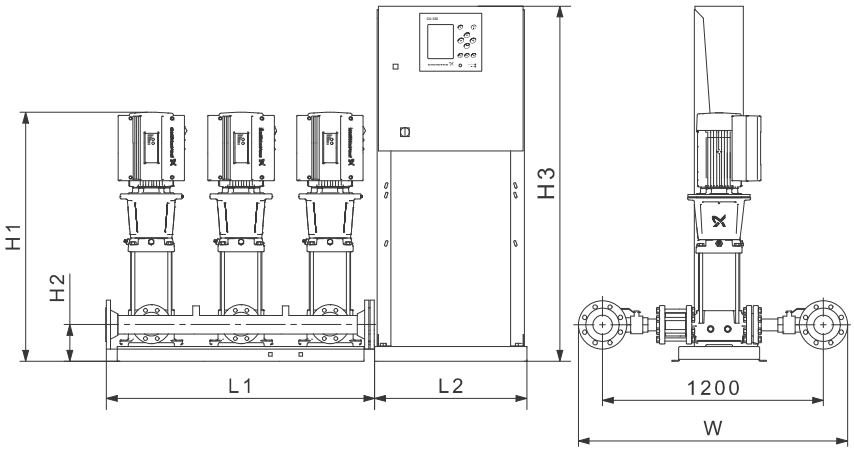
U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR 90



TM03 3046 2310

Fig. 52 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1190 2310

Fig. 53 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 90-2-2	U4	11	22.2	DN 200	1540	1610	1200	1348	244	1800	958	G
	CR 90-2	U4	15	29.6	DN 200	1540	1610	1200	1348	244	1800	994	G
	CR 90-3-2	U4	18.5	36.6	DN 200	1540	1610	1200	1484	244	1800	1050	G
	CR 90-3	U4	22	43.5	DN 200	1540	1610	1200	1510	244	1800	1433	G
	CR 90-4	U4	30	56.0	DN 200	1540	1610	1200	1672	244	1800	1813	G
	CR 90-4-2	U4	30	56.0	DN 200	1540	1610	1200	1672	244	1800	1813	G
4	CR 90-2-2	U4	11	22.2	DN 250	1605	2110	1200	1348	244	1800	1599	G
	CR 90-2	U4	15	29.6	DN 250	1605	2110	1200	1348	244	1800	1652	G
	CR 90-3-2	U4	18.5	36.6	DN 250	1605	2110	1200	1484	244	1800	1706	G
	CR 90-3	U4	22	43.5	DN 250	1605	2110	1200	1510	244	1800	1836	G
	CR 90-4	U4	30	56.0	DN 250	1605	2110	1200	1672	244	1800	2349	G
	CR 90-4-2	U4	30	56.0	DN 250	1605	2110	1200	1672	244	1800	2349	G
5	CR 90-2-2	U4	11	22.2	DN 250	1605	2610	1200	1348	244	1800	1909	G
	CR 90-2	U4	15	29.6	DN 250	1605	2610	1200	1348	244	1800	2003	G
	CR 90-3-2	U4	18.5	36.6	DN 250	1605	2610	1200	1484	244	1800	2096	G
	CR 90-3	U4	22	43.5	DN 250	1605	2610	1200	1510	244	1800	2280	G
	CR 90-4	U4	30	56.0	DN 250	1605	2610	1200	1672	244	1800	2934	G
	CR 90-4-2	U4	30	56.0	DN 250	1605	2610	1200	1672	244	1800	2854	G
6	CR 90-2-2	U4	11	22.2	DN 250	1605	3110	1200	1348	244	1800	2191	G
	CR 90-2	U4	15	29.6	DN 250	1605	3110	1200	1348	244	1800	2262	G
	CR 90-3-2	U4	18.5	36.6	DN 250	1605	3110	1200	1484	244	1800	2346	G
	CR 90-3	U4	22	43.5	DN 250	1605	3110	1200	1510	244	1800	2619	G
	CR 90-4	U4	30	56.0	DN 250	1605	3110	1200	1672	244	1800	3425	G
	CR 90-4-2	U4	30	56.0	DN 250	1605	3110	1200	1672	244	1800	2853	G

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 90-2-2	U4	11	20.2	DN 200	1540	1610	960	1348	244	1505	2985	G
	CR 90-2	U4	15	26.9	DN 200	1540	1610	960	1348	244	1505	2985	G
	CR 90-3-2	U4	18.5	33.4	DN 200	1540	1610	960	1484	244	1505	2985	G
	CR 90-3	U4	22	39.5	DN 200	1540	1610	960	1510	244	1505	1560	H
	CR 90-4	U4	30	53.5	DN 200	1540	1610	800	1672	244	1559	951	H
	CR 90-4-2	U4	30	53.5	DN 200	1540	1610	800	1672	244	1559	2985	H
4	CR 90-2-2	U4	11	20.2	DN 250	1605	1000	960	1348	244	1505	2991	H
	CR 90-2	U4	15	26.9	DN 250	1605	1000	960	1348	244	1505	2991	H
	CR 90-3-2	U4	18.5	33.4	DN 250	1605	2110	800	1484	244	1200	2937	G
	CR 90-3	U4	22	39.5	DN 200	1605	2110	800	1510	244	1200	1767	G
	CR 90-4	U4	30	53.5	DN 200	1605	2110	800	1672	244	1800	1260	G
	CR 90-4-2	U4	30	53.5	DN 250	1605	2110	800	1672	244	1800	2937	G
5	CR 90-2-2	U4	11	20.2	DN 250	1605	2610	960	1348	244	1505	2958	H
	CR 90-2	U4	15	26.9	DN 250	1605	2610	800	1348	244	1200	2957	G
	CR 90-3-2	U4	18.5	33.4	DN 250	1605	2610	800	1484	244	1200	2957	G
	CR 90-3	U4	22	39.5	DN 200	1605	2610	1000	1510	244	1800	1604	G
	CR 90-4	U4	30	53.5	DN 200	1605	2610	1200	1672	244	1800	1980	G
	CR 90-4-2	U4	30	53.5	DN 250	1605	2610	1200	1672	244	1800	2957	G
6	CR 90-2-2	U4	11	20.2	DN 250	1605	3110	800	1348	244	1200	2927	G
	CR 90-2	U4	15	26.9	DN 250	1605	3110	800	1348	244	1200	2927	G
	CR 90-3-2	U4	18.5	33.4	DN 250	1605	3110	1000	1484	244	1800	2927	G
	CR 90-3	U4	22	39.5	DN 200	1605	3110	1000	1510	244	1800	1931	G
	CR 90-4	U4	30	53.5	DN 200	1605	3110	1600	1672	244	1800	1803	G
	CR 90-4-2	U4	30	53.5	DN 250	1605	3110	1600	1672	244	1800	2927	G

U4 = 3 x 380-415, PE, 50 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
All pumps are fitted with three-phase motors.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

11. Technical data, Hydro MPC-E/-S (60 Hz)

Hydro MPC-E/-S with CR, CRI 3 / CR, CRI 5

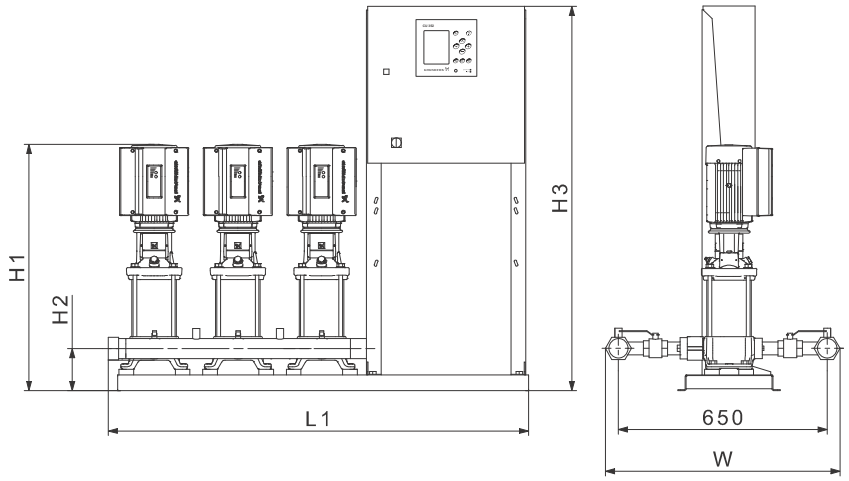


Fig. 54 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.

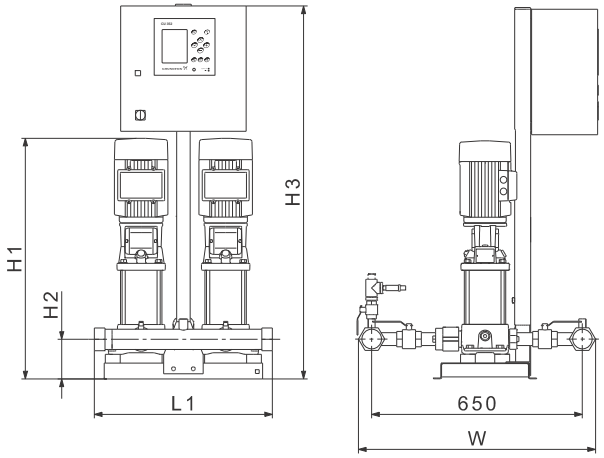


Fig. 55 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.

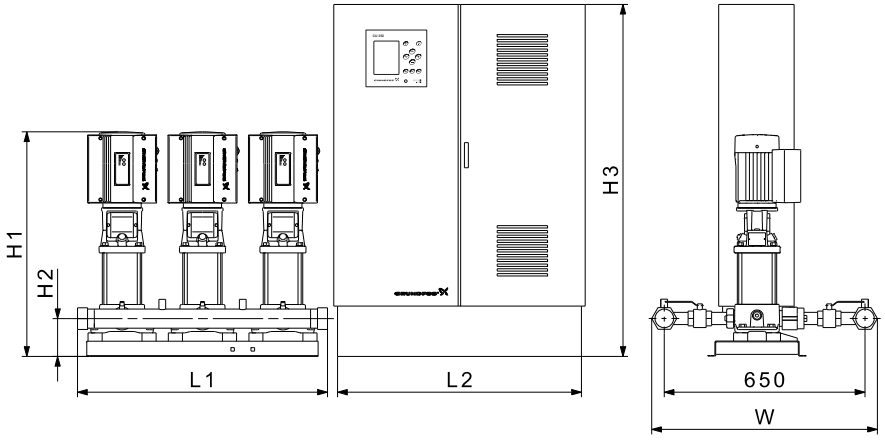


Fig. 56 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Design	Connection	W [mm]	L1 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 3-4	U4	0.55	1.2	R 2	714	750	800	567	154	1200	713	G
	CR 3-5	U4	0.75	1.6	R 2	714	3110	800	631	154	1200	178	G
	CR 3-8	U4	1.1	2.3	R 2	714	1110	800	705	154	1200	189	G
	CR 3-11	U4	1.5	2.9	R 2	714	2610	800	805	154	1200	202	G
3	CR 3-4	U4	0.55	1.2	R 2	714	1070	800	567	154	1200	431	G
	CR 3-5	U4	0.75	1.6	R 2	714	2110	800	631	154	1200	228	G
	CR 3-8	U4	1.1	2.3	R 2	714	2610	800	705	154	1200	245	G
	CR 3-11	U4	1.5	2.9	R 2	714	1610	800	805	154	1200	264	G
4	CR 3-4	U4	0.55	1.2	R 2½	730	1390	800	567	154	1200	402	G
	CR 3-5	U4	0.75	1.6	R 2½	730	1610	800	631	154	1200	265	G
	CR 3-8	U4	1.1	2.3	R 2½	730	2110	800	705	154	1200	272	G
	CR 3-11	U4	1.5	2.9	R 2½	730	3110	800	805	154	1200	311	G

Hydro MPC-S with CR, CRI 3

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 3-4	U6	0.55	1.2	R 2	714	1200	380	567	154	1505	369	E
	CR 3-5	U6	0.75	1.7	R 2	714	1200	380	631	154	1505	106	E
	CR 3-8	U6	1.1	2.4	R 2	714	1200	380	705	154	1505	140	E
	CR 3-11	UA	1.5	3.0	R 2	714	1200	380	805	154	1505	95	E
3	CR 3-4	U6	0.55	1.2	R 2	714	1720	600	567	154	1505	441	E
	CR 3-5	U6	0.75	1.7	R 2	714	1720	600	631	154	1505	215	E
	CR 3-8	U6	1.1	2.4	R 2	714	1720	600	705	154	1505	161	E
	CR 3-11	UA	1.5	3.0	R 2	714	1720	600	805	154	1505	164	E
4	CR 3-4	U6	0.55	1.2	R 2½	730	2040	600	567	154	1505	389	E
	CR 3-5	U6	0.75	1.7	R 2½	730	2040	600	631	154	1505	199	E
	CR 3-8	U6	1.1	2.4	R 2½	730	2040	600	705	154	1505	224	E
	CR 3-11	UA	1.5	3.0	R 2½	730	2040	600	805	154	1505	271	E

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E with CR, CRI 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Design	Connection	W [mm]	L1 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 5-4	U4	1.1	2.3	R 2	714	2110	800	669	154	1200	188	G
	CR 5-5	U4	1.5	2.9	R 2	714	2610	800	742	154	1200	342	G
	CR 5-9	U4	2.2	4.0	R 2	714	2610	800	890	154	1200	232	G
	CR 5-12	U4	3	5.7	R 2	714	1610	800	989	154	1200	223	G
3	CR 5-4	U4	1.1	2.3	R 2	714	2610	800	669	154	1200	233	G
	CR 5-5	U4	1.5	2.9	R 2	714	1070	800	742	154	1200	369	G
	CR 5-9	U4	2.2	4.0	R 2	714	3110	800	890	154	1200	269	G
	CR 5-12	U4	3	5.7	R 2	714	3110	800	989	154	1200	285	G
4	CR 5-4	U4	1.1	2.3	R 2½	730	3110	800	669	154	1200	338	G
	CR 5-5	U4	1.5	2.9	R 2½	730	1610	800	742	154	1200	432	G
	CR 5-9	U4	2.2	4.0	R 2½	730	2110	800	890	154	1200	311	G
	CR 5-12	U4	3	5.7	R 2½	730	2610	800	989	154	1200	311	G

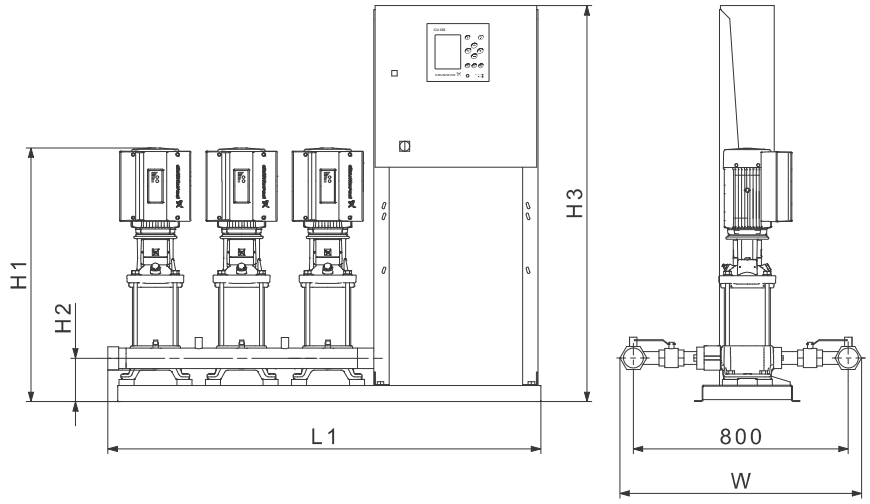
Hydro MPC-S with CR, CRI 5

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 5-4	U6	1.1	2.4	R 2	714	1200	380	669	154	1505	148	E
	CR 5-5	U6	1.5	3.0	R 2	714	1200	380	742	154	1505	180	E
	CR 5-9	UA	2.2	4.3	R 2	714	1400	600	890	154	1505	407	E
	CR 5-12	UA	3	6.0	R 2	714	1200	380	989	154	1505	104	E
3	CR 5-4	U6	1.1	2.4	R 2	714	1720	600	669	154	1505	504	E
	CR 5-5	U6	1.5	3.0	R 2	714	1720	600	742	154	1505	414	E
	CR 5-9	UA	2.2	4.3	R 2	714	1720	600	890	154	1505	663	E
	CR 5-12	UA	3	6.0	R 2	714	1720	600	989	154	1505	196	E
4	CR 5-4	U6	1.1	2.4	R 2½	730	2040	600	669	154	1505	117	E
	CR 5-5	U6	1.5	3.0	R 2½	730	2040	600	742	154	1505	178	E
	CR 5-9	UA	2.2	4.3	R 2½	730	2040	600	890	154	1505	276	E
	CR 5-12	UA	3	6.0	R 2½	730	2040	600	989	154	1505	246	E

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

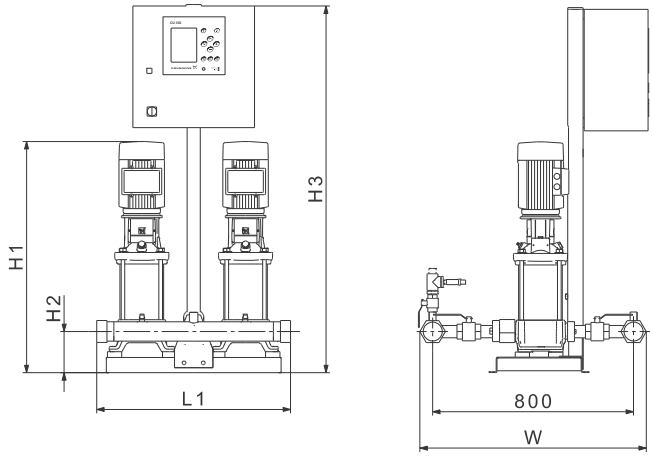
Hydro MPC-E/-S with CR, CRI 10

Note: The manifold connection is either R thread or DIN flange. For further details, see the relevant table on page 84 or 85.



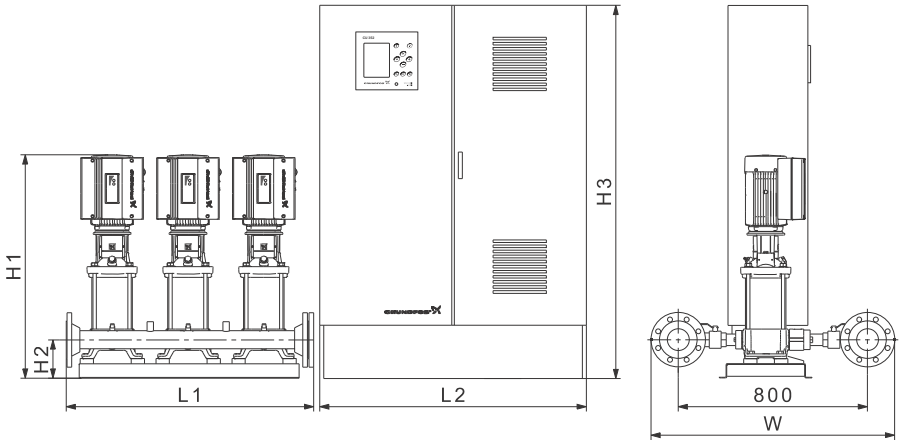
TM03 1182 2310

Fig. 57 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1183 2310

Fig. 58 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM04 7829 2410

Fig. 59 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.

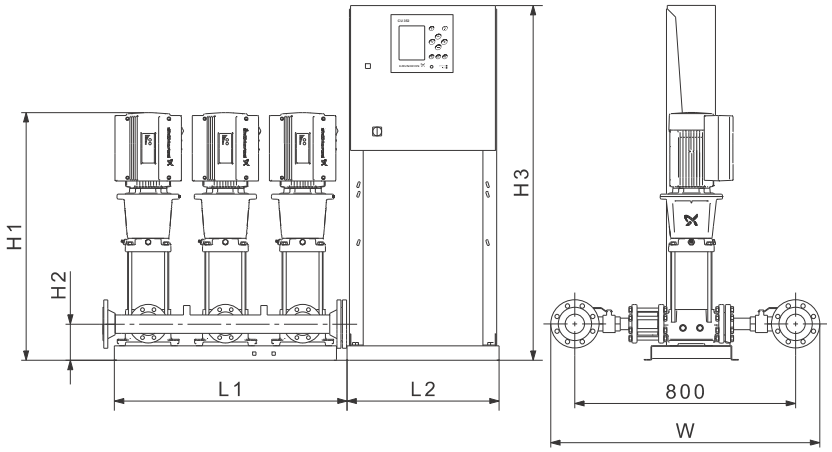


Fig. 60 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Design	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Design
2	CR 10-2	U4	1.5	2.9	R 2½	880	2030	800	748	184	1200	231	G
	CR 10-3	U4	2.2	4.0	R 2½	880	3110	800	818	184	1200	415	G
	CR 10-5	U4	3	5.7	R 2½	880	1710	800	897	184	1200	251	G
	CR 10-6	U4	4	7.2	R 2½	880	2030	800	964	184	1200	298	G
	CR 10-9	U4	5.5	9.8	R 2½	880	750	800	1105	184	1200	399	G
3	CR 10-2	U4	1.5	2.9	DN 80	1000	1610	800	748	184	1200	327	G
	CR 10-3	U4	2.2	4.0	DN 80	1000	1070	800	818	184	1200	509	G
	CR 10-5	U4	3	5.7	DN 80	1000	2110	800	897	184	1200	403	G
	CR 10-6	U4	4	7.2	DN 80	1000	2610	800	964	184	1200	397	G
	CR 10-9	U4	5.5	9.8	DN 80	1000	1610	800	1105	184	1200	531	G
4	CR 10-2	U4	1.5	2.9	DN 100	1020	2610	800	748	184	1200	396	G
	CR 10-3	U4	2.2	4.0	DN 100	1020	3110	800	818	184	1200	527	G
	CR 10-5	U4	3	5.7	DN 100	1020	2610	800	897	184	1200	527	G
	CR 10-6	U4	4	7.2	DN 100	1020	3110	800	964	184	1200	579	G
	CR 10-9	U4	5.5	9.8	DN 100	1020	2110	800	1105	184	1800	628	G
5	CR 10-2	U4	1.5	2.9	DN 80	1000	1710	800	748	184	1200	891	G
	CR 10-3	U4	2.2	4.0	DN 80	1000	1710	800	818	184	1200	946	G
	CR 10-5	U4	3	5.7	DN 80	1000	1710	800	897	184	1200	939	G
	CR 10-6	U4	4	7.2	DN 80	1000	1710	800	964	184	1200	1072	G
	CR 10-9	U4	5.5	9.8	DN 80	1000	1710	1200	1105	184	1800	733	G
6	CR 10-2	U4	1.5	2.9	DN 100	1020	2030	800	748	184	1200	920	G
	CR 10-3	U4	2.2	4.0	DN 100	1020	2030	800	818	184	1200	1041	G
	CR 10-5	U4	3	5.7	DN 100	1020	2030	800	897	184	1200	1029	G
	CR 10-6	U4	4	7.2	DN 100	1020	2030	800	964	184	1200	1230	G
	CR 10-9	U4	5.5	9.8	DN 100	1020	2030	1200	1105	184	1800	852	G

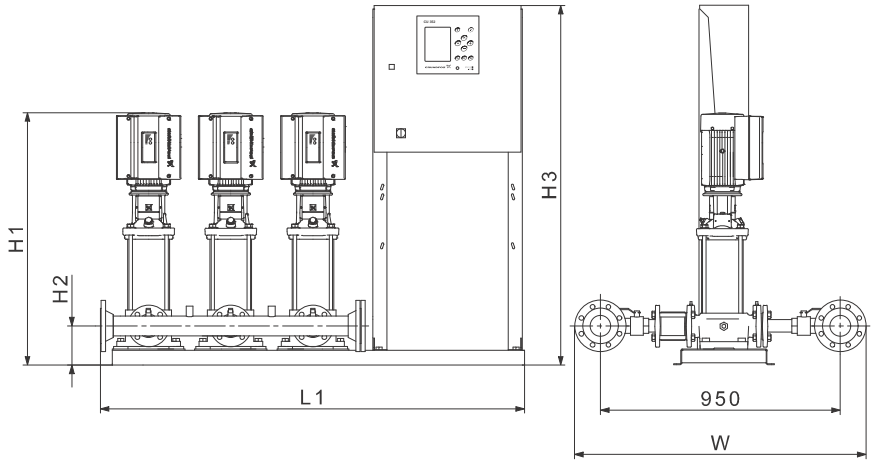
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 10

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 10-2	U6	1.5	3.0	R 2½	880	1200	380	748	184	1505	149	E
	CR 10-3	U6	2.2	4.3	R 2½	880	1400	600	818	184	1505	256	E
	CR 10-5	U6	3	6.0	R 2½	880	1200	380	897	184	1505	169	E
	CR 10-6	U6	4	7.6	R 2½	880	1400	600	964	184	1505	216	E
	CR 10-9	U6	5.5	10.3	R 2½	880	1400	600	1105	184	1505	617	E
3	CR 10-2	U6	1.5	3.0	DN 80	1000	1720	600	748	184	1505	274	E
	CR 10-3	U6	2.2	4.3	DN 80	1000	1720	600	818	184	1505	532	E
	CR 10-5	U6	3	6.0	DN 80	1000	1720	600	897	184	1505	313	E
	CR 10-6	U6	4	7.6	DN 80	1000	1720	600	964	184	1505	420	E
	CR 10-9	U6	5.5	10.3	DN 80	1000	2460	760	1105	184	1505	747	E
4	CR 10-2	U6	1.5	3.0	DN 100	1020	2040	600	748	184	1505	341	E
	CR 10-3	U6	2.2	4.3	DN 100	1020	2040	600	818	184	1505	394	E
	CR 10-5	U6	3	6.0	DN 100	1020	2040	600	897	184	1505	414	E
	CR 10-6	U6	4	7.6	DN 100	1020	2040	600	964	184	1505	526	E
	CR 10-9	U6	5.5	10.3	DN 100	1020	2110	960	1105	184	1505	536	H
5	CR 10-2	U6	1.5	3.0	DN 80	1000	1710	760	748	184	1505	463	H
	CR 10-3	U6	2.2	4.3	DN 80	1000	1710	760	818	184	1505	502	H
	CR 10-5	U6	3	6.0	DN 80	1000	1710	760	897	184	1505	583	H
	CR 10-6	U6	4	7.6	DN 80	1000	1710	760	964	184	1505	410	H
	CR 10-9	U6	5.5	10.3	DN 80	1000	1710	960	1105	184	1505	629	H
6	CR 10-2	U6	1.5	3.0	DN 100	1020	2030	760	748	184	1505	420	H
	CR 10-3	U6	2.2	4.3	DN 100	1020	2030	760	818	184	1505	490	H
	CR 10-5	U6	3	6.0	DN 100	1020	2030	760	897	184	1505	261	H
	CR 10-6	U6	4	7.6	DN 100	1020	2030	760	964	184	1505	514	H
	CR 10-9	U6	5.5	10.3	DN 100	1020	2030	960	1105	184	1505	653	H

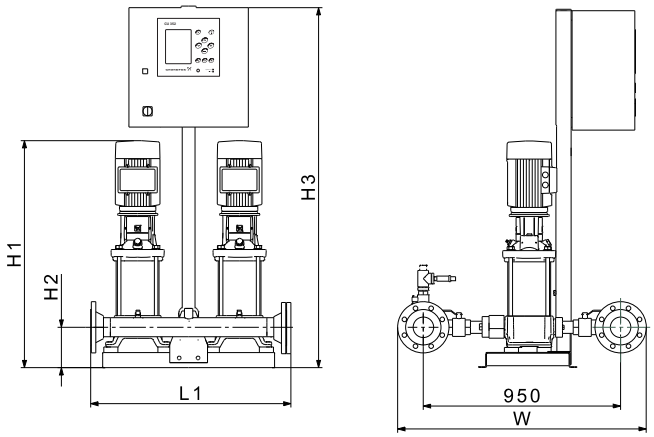
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR, CRI 15 / CR, CRI 20



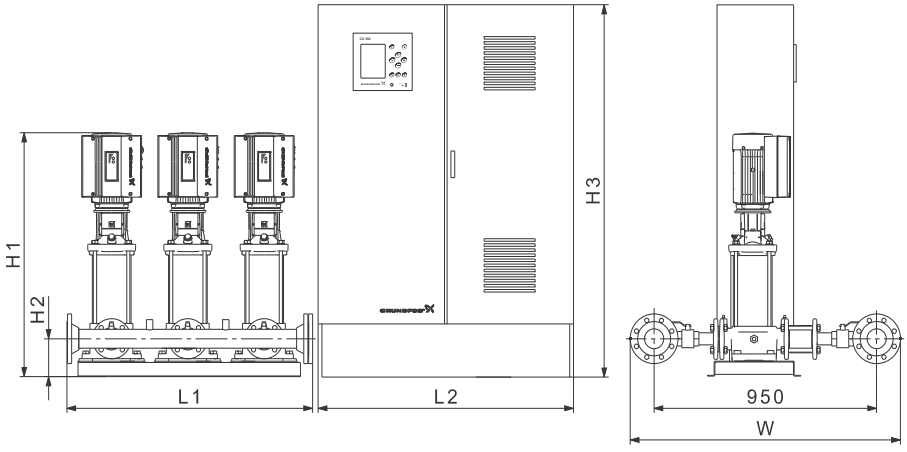
TM03 1184 2310

Fig. 61 Dimensional sketch of a booster system with a control cabinet mounted on the same base frame as the pumps (design E). The booster system is shown as an example. The pumps supplied may differ from the sketch.



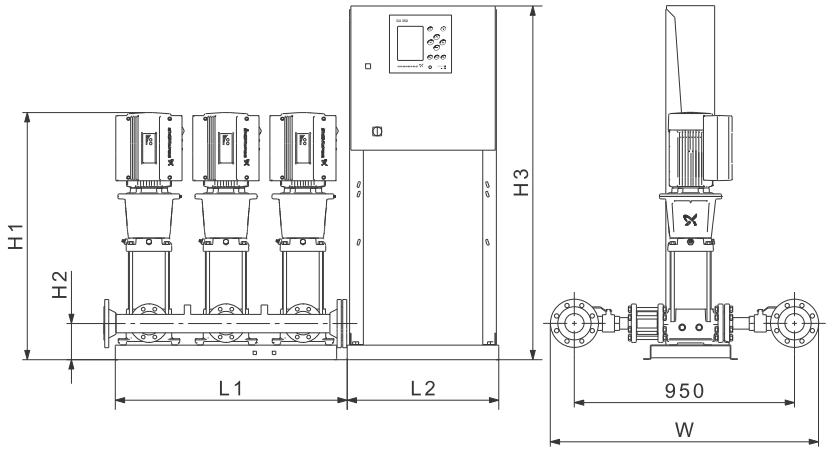
TM04 7831 2410

Fig. 62 Dimensional sketch of a booster system with a control cabinet centred on the base frame (design F). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 3045 0106

Fig. 63 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM04 7832 2410

Fig. 64 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR, CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 15-3	U4	4	7.2	DN 80	1150	1710	800	941	194	1200	322	G
	CR 15-4	U4	5.5	9.8	DN 80	1150	2030	800	1037	194	1200	355	G
	CR 15-5	U4	7.5	12.9	DN 80	1150	2610	800	1070	194	1200	372	G
3	CR 15-3	U4	4	7.2	DN 100	1170	1070	800	941	194	1200	622	G
	CR 15-4	U4	5.5	9.8	DN 100	1170	3110	800	1037	194	1200	493	G
	CR 15-5	U4	7.5	12.9	DN 100	1170	2610	800	1070	194	1200	527	G
4	CR 15-3	U4	4	7.2	DN 100	1170	1610	800	941	194	1200	511	G
	CR 15-4	U4	5.5	9.8	DN 100	1170	2110	800	1037	194	1800	620	G
	CR 15-5	U4	7.5	12.9	DN 100	1170	2610	800	1070	194	1800	665	G
5	CR 15-3	U4	4	7.2	DN 150	1235	1710	800	941	194	1200	780	G
	CR 15-4	U4	5.5	9.8	DN 150	1235	1710	1200	1037	194	1800	710	G
	CR 15-5	U4	7.5	12.9	DN 150	1235	1710	1200	1070	194	1800	790	G
6	CR 15-3	U4	4	7.2	DN 150	1235	2030	800	941	194	1200	1140	G
	CR 15-4	U4	5.5	9.8	DN 150	1235	2030	1200	1037	194	1800	1245	G
	CR 15-5	U4	7.5	12.9	DN 150	1235	2030	1200	1070	194	1800	1031	G

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 15

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 15-2	U6	3	6.0	DN 80	1150	1200	380	859	194	1505	239	E
	CR 15-3	U6	4	7.6	DN 80	1150	1400	600	941	194	1505	280	E
	CR 15-4	U6	5.5	10.3	DN 80	1150	1400	600	1037	194	1505	302	E
	CR 15-5	U6	7.5	13.8	DN 80	1150	1400	600	1070	194	1505	237	E
3	CR 15-2	U6	3	6.0	DN 100	1170	1720	600	859	194	1505	453	E
	CR 15-3	U6	4	7.6	DN 100	1170	1720	600	941	194	1505	87	E
	CR 15-4	U6	5.5	10.3	DN 100	1170	1920	760	1037	194	1505	326	E
	CR 15-5	U6	7.5	13.8	DN 100	1170	1920	760	1070	194	1505	450	E
4	CR 15-2	U6	3	6.0	DN 100	1170	2040	600	859	194	1505	571	E
	CR 15-3	U6	4	7.6	DN 100	1170	2040	600	941	194	1505	410	E
	CR 15-4	U6	5.5	10.3	DN 100	1170	1390	960	1037	194	1505	518	H
	CR 15-5	U6	7.5	13.8	DN 100	1170	1390	960	1070	194	1505	567	H
5	CR 15-2	U6	3	6.0	DN 150	1235	1710	760	859	194	1505	780	H
	CR 15-3	U6	4	7.6	DN 150	1235	1710	760	941	194	1505	848	H
	CR 15-4	U6	5.5	10.3	DN 150	1235	1710	960	1037	194	1505	623	H
	CR 15-5	U6	7.5	13.8	DN 150	1235	1710	960	1070	194	1505	768	H
6	CR 15-2	U6	3	6.0	DN 150	1235	2030	760	859	194	1505	709	H
	CR 15-3	U6	4	7.6	DN 150	1235	2030	760	941	194	1505	531	H
	CR 15-4	U6	5.5	10.3	DN 150	1235	2030	960	1037	194	1505	643	H
	CR 15-5	U6	7.5	13.8	DN 150	1235	2030	960	1070	194	1505	703	H

Hydro MPC-E with CR, CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 20-2	U4	4	7.2	DN 80	1150	3110	800	896	194	1200	315	G
	CR 20-3	U4	5.5	9.8	DN 80	1150	750	800	992	194	1200	410	G
	CR 20-4	U4	7.5	12.9	DN 80	1150	2610	800	1025	194	1200	370	G
	CR 20-6	U4	11	18.6	DN 80	1150	3110	1200	1284	194	1800	500	G
3	CR 20-2	U4	4	7.2	DN 100	1170	3110	800	896	194	1200	413	G
	CR 20-3	U4	5.5	9.8	DN 100	1170	1070	800	992	194	1200	916	G
	CR 20-4	U4	7.5	12.9	DN 100	1170	2610	800	1025	194	1200	527	G
	CR 20-6	U4	11	18.6	DN 100	1170	3110	1200	1284	194	1800	795	G
4	CR 20-2	U4	4	7.2	DN 100	1170	3110	800	896	194	1200	627	G
	CR 20-3	U4	5.5	9.8	DN 100	1170	1610	800	992	194	1800	696	G
	CR 20-4	U4	7.5	12.9	DN 100	1170	2110	800	1025	194	1800	744	G
	CR 20-6	U4	11	18.6	DN 100	1170	2610	1200	1284	194	1800	856	G
5	CR 20-2	U4	4	7.2	DN 150	1235	1710	800	896	194	1200	1052	G
	CR 20-3	U4	5.5	9.8	DN 150	1235	1710	1200	992	194	1800	859	G
	CR 20-4	U4	7.5	12.9	DN 150	1235	1710	1200	1025	194	1800	1307	G
	CR 20-6	U4	11	18.6	DN 150	1235	2610	1200	1284	194	1800	1009	G
6	CR 20-2	U4	4	7.2	DN 150	1235	2030	800	896	194	1200	1183	G
	CR 20-3	U4	5.5	9.8	DN 150	1235	2030	1200	992	194	1800	1302	G
	CR 20-4	U4	7.5	12.9	DN 150	1235	2030	1200	1025	194	1800	882	G
	CR 20-6	U4	11	18.6	DN 150	1235	3110	1200	1284	194	1800	1264	G

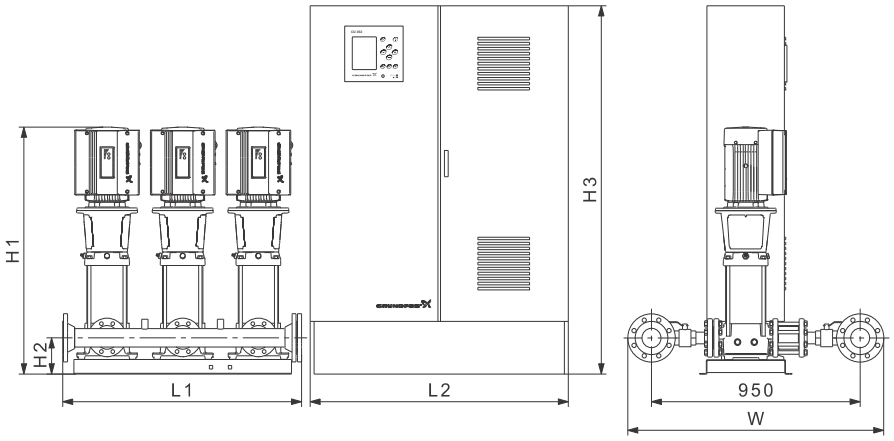
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and system with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR, CRI 20

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 20-2	UA	4	7.6	DN 80	1150	1400	600	896	194	1505	300	E
	CR 20-3	UA	5.5	10.3	DN 80	1150	1400	600	992	194	1505	329	E
	CR 20-4	U6	7.5	13.8	DN 80	1150	1400	600	1025	194	1505	429	E
	CR 20-6	U6	11	20.1	DN 80	1150	1110	960	1284	194	1505	120	H
3	CR 20-2	UA	4	7.6	DN 100	1170	1720	600	896	194	1505	605	E
	CR 20-3	UA	5.5	10.3	DN 100	1170	1920	760	992	194	1505	136	E
	CR 20-4	U6	7.5	13.8	DN 100	1170	1920	760	1025	194	1505	184	E
	CR 20-6	U6	11	20.1	DN 100	1170	1610	960	1284	194	1505	148	H
4	CR 20-2	UA	4	7.6	DN 100	1170	2040	600	896	194	1505	751	E
	CR 20-3	UA	5.5	10.3	DN 100	1170	1390	960	992	194	1505	230	H
	CR 20-4	U6	7.5	13.8	DN 100	1170	1390	960	1025	194	1505	182	H
	CR 20-6	U6	11	20.1	DN 100	1170	2110	960	1284	194	1505	203	H
5	CR 20-2	UA	4	7.6	DN 150	1235	1710	760	896	194	1505	842	H
	CR 20-3	UA	5.5	10.3	DN 150	1235	1710	960	992	194	1505	1203	H
	CR 20-4	U6	7.5	13.8	DN 150	1235	1710	960	1025	194	1505	736	H
	CR 20-6	U6	11	20.1	DN 150	1235	2610	960	1284	194	1505	973	H
6	CR 20-2	UA	4	7.6	DN 150	1235	2030	760	896	194	1505	977	H
	CR 20-3	UA	5.5	10.3	DN 150	1235	2030	960	992	194	1505	626	H
	CR 20-4	U6	7.5	13.8	DN 150	1235	2030	960	1025	194	1505	816	H
	CR 20-6	U6	11	20.1	DN 150	1235	3110	800	1284	194	1200	480	G

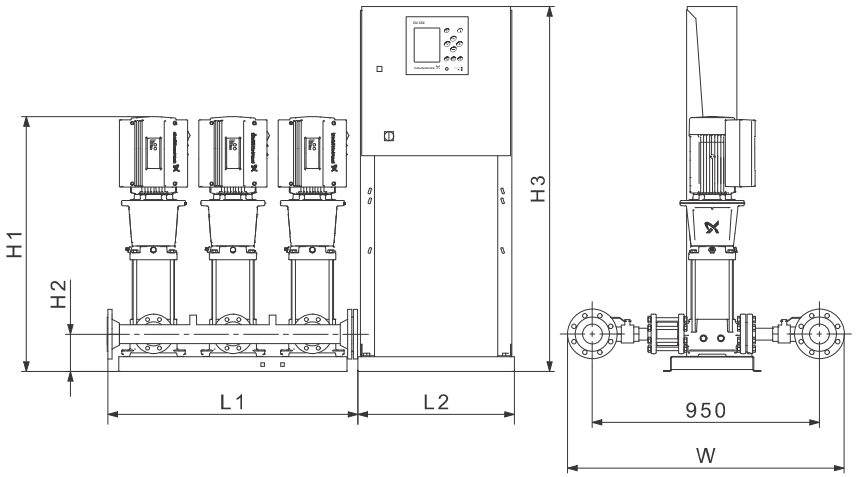
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR 32



TM03 3043 2310

Fig. 65 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1186 2310

Fig. 66 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 32-1	U4	3	5.7	DN 100	1170	1710	800	944	209	1200	306	G
	CR 32-2	U4	7.5	12.9	DN 100	1170	2030	800	1058	209	1200	389	G
	CR 32-4-2	U4	11	18.6	DN 100	1170	1110	1200	1400	209	1800	550	G
	CR 32-5-2	U4	15	24.6	DN 100	1170	1710	1200	1470	209	1800	567	G
3	CR 32-1	U4	3	5.7	DN 150	1235	3110	800	944	209	1200	496	G
	CR 32-2	U4	7.5	12.9	DN 150	1235	1610	800	1058	209	1200	1069	G
	CR 32-4-2	U4	11	18.6	DN 150	1235	1610	1200	1400	209	1800	743	G
	CR 32-5-2	U4	15	24.6	DN 150	1235	2610	1200	1470	209	1800	809	G
4	CR 32-1	U4	3	5.7	DN 150	1235	1610	800	944	209	1200	586	G
	CR 32-2U	U4	7.5	12.9	DN 150	1235	2110	800	1058	209	1800	735	G
	CR 32-4-2	U4	11	18.6	DN 150	1235	2110	1200	1400	209	1800	925	G
	CR 32-5-2	U4	15	24.6	DN 150	1235	2610	1200	1470	209	1800	1045	G
5	CR 32-1	U4	3	5.7	DN 150	1235	2610	800	944	209	1200	675	G
	CR 32-2	U4	7.5	12.9	DN 150	1235	2610	1200	1058	209	1800	855	G
	CR 32-4-2	U4	11	18.6	DN 150	1235	2610	1200	1400	209	1800	1125	G
	CR 32-5-2	U4	15	24.6	DN 150	1235	2610	1200	1470	209	1800	1269	G
6	CR 32-1	U4	3	5.7	DN 150	1235	3110	800	944	209	1200	775	G
	CR 32-2	U4	7.5	12.9	DN 150	1235	3110	1200	1058	209	1800	1017	G
	CR 32-4-2	U4	11	18.6	DN 150	1235	3110	1200	1400	209	1800	1370	G
	CR 32-5-2	U4	15	24.6	DN 150	1235	3110	1200	1470	209	1800	1467	G

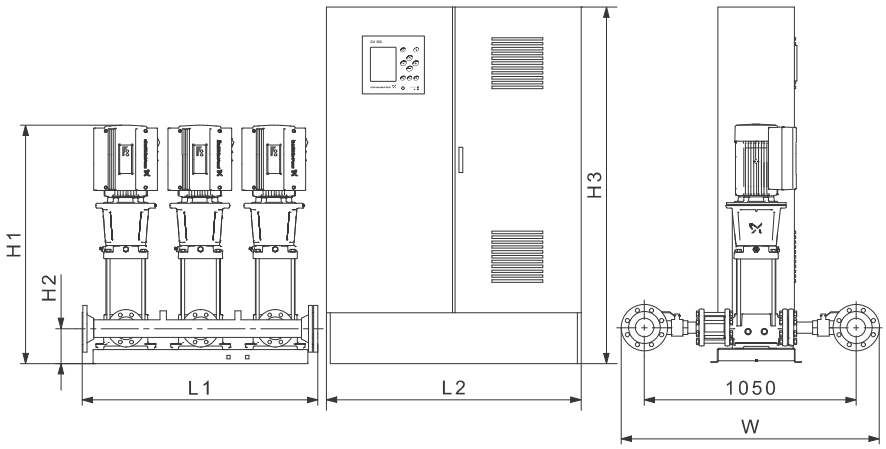
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 32

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
2	CR 32-1	UA	3	6.0	DN 100	1170	1560	380	944	209	1505	266	E
	CR 32-2	U6	7.5	13.8	DN 100	1170	1760	600	1058	209	1505	348	E
	CR 32-4-2	U6	11	20.1	DN 100	1170	1960	760	1400	209	1505	1218	E
	CR 32-5-2	U6	15	26.9	DN 100	1170	1960	760	1470	209	1505	510	E
3	CR 32-1	UA	3	6.0	DN 150	1235	1610	760	944	209	1505	742	H
	CR 32-2	UA	7.5	13.8	DN 150	1235	1610	960	1058	209	1505	166	H
	CR 32-4-2	U6	11	20.1	DN 150	1235	1610	960	1400	209	1505	1430	H
	CR 32-5-2	U6	15	26.9	DN 150	1235	1610	960	1470	209	1505	590	H
4	CR 32-1	UA	3	6.0	DN 150	1235	2110	760	944	209	1505	946	H
	CR 32-2	U6	7.5	13.8	DN 150	1235	2110	960	1058	209	1505	737	H
	CR 32-4-2	U6	11	20.1	DN 150	1235	2110	960	1400	209	1505	908	H
	CR 32-5-2	U6	15	26.9	DN 150	1235	2110	960	1470	209	1505	998	H
5	CR 32-1	UA	3	6.0	DN 150	1235	2610	760	944	209	1505	697	H
	CR 32-2	U6	7.5	13.8	DN 150	1235	2610	960	1058	209	1505	1092	H
	CR 32-4-2	U6	11	20.1	DN 150	1235	2610	960	1400	209	1505	1081	H
	CR 32-5-2	U6	15	26.9	DN 150	1235	2610	800	1470	209	1200	1505	G
6	CR 32-1	UA	3	6.0	DN 150	1235	3110	760	944	209	1505	869	H
	CR 32-2	U6	7.5	13.8	DN 150	1235	3110	960	1058	209	1505	1341	H
	CR 32-4-2	U6	11	20.1	DN 150	1235	3110	800	1400	209	1200	1282	G
	CR 32-5-2	U6	15	26.9	DN 150	1235	3110	800	1470	209	1200	1371	G

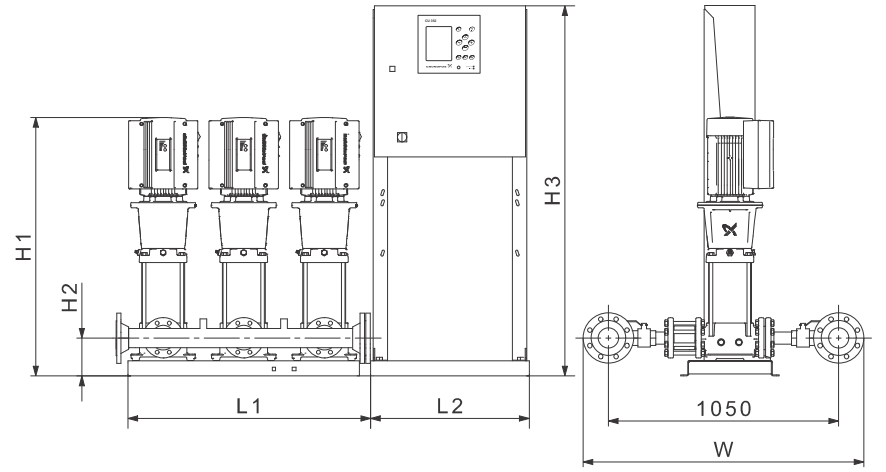
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR 45 / CR 64



TM03 1693 2310

Fig. 67 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1187 2310

Fig. 68 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 45-1	U4	7.5	12.9	DN 200	1390	3110	800	1042	244	1200	669	G
	CR 45-2	U4	15	24.6	DN 200	1390	2610	1200	1324	244	1800	853	G
	CR 45-3	U4	18.5	30.6	DN 200	1390	3110	1200	1448	244	1800	909	G
	CR 45-4-2	U4	22	35.5	DN 200	1390	2610	1200	1554	244	1800	970	G
4	CR 45-1	U4	7.5	12.9	DN 200	1390	3110	800	1042	244	1800	794	G
	CR 45-2	U4	15	24.6	DN 200	1390	1610	1200	1324	244	1800	1082	G
	CR 45-3	U4	18.5	30.6	DN 200	1390	2110	1200	1448	244	1800	1189	G
	CR 45-4-2	U4	22	35.5	DN 200	1390	2610	1200	1554	244	1800	1280	G
5	CR 45-1	U4	7.5	12.9	DN 200	1390	2610	1200	1042	244	1800	953	G
	CR 45-2	U4	15	24.6	DN 200	1390	2610	1200	1324	244	1800	1334	G
	CR 45-3	U4	18.5	30.6	DN 200	1390	2610	1200	1448	244	1800	1453	G
	CR 45-4-2	U4	22	35.5	DN 200	1390	2610	1200	1554	244	1800	1622	G
6	CR 45-1	U4	7.5	12.9	DN 200	1390	3110	1200	1042	244	1800	1139	G
	CR 45-2	U4	15	24.6	DN 200	1390	3110	1200	1324	244	1800	1548	G
	CR 45-3	U4	18.5	30.6	DN 200	1390	3110	1200	1448	244	1800	1742	G
	CR 45-4-2	U4	22	35.5	DN 200	1390	3110	1200	1554	244	1800	1856	G

Hydro MPC-S with CR 45

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 45-1	U6	7.5	13.8	DN 200	1390	1610	960	1042	244	1505	783	H
	CR 45-2	U6	15	26.9	DN 200	1390	1610	960	1324	244	1505	836	H
	CR 45-3	U6	18.5	33.2	DN 200	1390	1610	960	1448	244	1505	908	H
	CR 45-4-2	U6	22	38.5	DN 200	1390	1610	960	1554	244	1505	599	H
4	CR 45-1	U6	7.5	13.8	DN 200	1390	2110	960	1042	244	1505	1074	H
	CR 45-2	U6	15	26.9	DN 200	1390	2110	960	1324	244	1505	1146	H
	CR 45-3	U6	18.5	33.2	DN 200	1390	2110	800	1448	244	1200	748	G
	CR 45-4-2	U6	22	38.5	DN 200	1390	2110	800	1554	244	1200	1073	G
5	CR 45-1	U6	7.5	13.8	DN 200	1390	2610	960	1042	244	1505	1659	H
	CR 45-2	U6	15	26.9	DN 200	1390	2610	800	1324	244	1200	1769	G
	CR 45-3	U6	18.5	33.2	DN 200	1390	2610	800	1448	244	1200	1098	G
	CR 45-4-2	U6	22	38.5	DN 200	1390	2610	1000	1554	244	1800	930	G
6	CR 45-1	U6	7.5	13.8	DN 200	1390	3110	960	1042	244	1505	1509	H
	CR 45-2	U6	15	26.9	DN 200	1390	3110	800	1324	244	1200	923	G
	CR 45-3	U6	18.5	33.2	DN 200	1390	3110	1000	1448	244	1800	746	G
	CR 45-4-2	U6	22	38.5	DN 200	1390	3110	1000	1554	244	1800	1168	G

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 64-1-1	U4	7.5	12.9	DN 200	1390	3110	800	1044	244	1200	673	G
	CR 64-1	U4	11	18.6	DN 200	1390	1610	1200	1246	244	1800	934	G
	CR 64-2-2	U4	15	24.6	DN 200	1390	3110	1200	1329	244	1800	866	G
	CR 64-2-1	U4	18.5	30.6	DN 200	1390	2610	1200	1373	244	1800	899	G
	CR 64-3-2	U4	22	35.5	DN 200	1390	2610	1200	1481	244	1800	976	G
	CR 64-2	U4	22	35.5	DN 200	1390	1610	1200	1399	244	1800	991	G
	CR 64-3-1	U4	30	54.0	DN 200	1390	1610	1200	1551	244	1800	1815	G
	CR 64-3	U4	30	54.0	DN 200	1390	1610	1200	1551	244	1800	1771	G
	CR 64-4-2	U4	37	67.0	DN 200	1390	1610	1200	1659	244	1800	1541	G
4	CR 64-1-1	U4	7.5	12.9	DN 200	1390	3110	800	1044	244	1800	824	G
	CR 64-1	U4	11	18.6	DN 200	1390	2110	1200	1246	244	1800	982	G
	CR 64-2-2	U4	15	24.6	DN 200	1390	2110	1200	1329	244	1800	1140	G
	CR 64-2-1	U4	18.5	30.6	DN 200	1390	1610	1200	1373	244	1800	1209	G
	CR 64-3-2	U4	22	35.5	DN 200	1390	2610	1200	1481	244	1800	1308	G
	CR 64-2	U4	22	35.5	DN 200	1390	2110	1200	1399	244	1800	1348	G
	CR 64-3-1	U4	30	54.0	DN 200	1390	2110	1200	1551	244	1800	2257	G
	CR 64-3	U4	30	54.0	DN 200	1390	2110	1200	1551	244	1800	2228	G
	CR 64-4-2	U4	37	67.0	DN 200	1390	2110	1200	1659	244	1800	2093	G
5	CR 64-1-1	U4	7.5	12.9	DN 200	1390	2610	1200	1044	244	1800	1026	G
	CR 64-1	U4	11	18.6	DN 200	1390	2610	1200	1246	244	1800	1196	G
	CR 64-2-2	U4	15	24.6	DN 200	1390	2610	1200	1329	244	1800	1401	G
	CR 64-2-1	U4	18.5	30.6	DN 200	1390	2610	1200	1373	244	1800	1411	G
	CR 64-2	U4	22	35.5	DN 200	1390	2610	1200	1399	244	1800	1682	G
	CR 64-3-2	U4	22	35.5	DN 200	1390	2610	1200	1481	244	1800	1695	G
	CR 64-3-1	U4	30	54.0	DN 200	1390	2610	1200	1551	244	1800	2325	G
	CR 64-3	U4	30	54.0	DN 200	1390	2610	1200	1551	244	1800	2692	G
	CR 64-4-2	U4	37	67.0	DN 200	1390	2610	1200	1659	244	1800	2552	G
6	CR 64-1-1	U4	7.5	12.9	DN 200	1390	3110	1200	1044	244	1800	1265	G
	CR 64-1	U4	11	18.6	DN 200	1390	3110	1200	1246	244	1800	1500	G
	CR 64-2-2	U4	15	24.6	DN 200	1390	3110	1200	1329	244	1800	1628	G
	CR 64-2-1	U4	18.5	30.6	DN 200	1390	3110	1200	1373	244	1800	1687	G
	CR 64-2	U4	22	35.5	DN 200	1390	3110	1200	1399	244	1800	1901	G
	CR 64-3-2	U4	22	35.5	DN 200	1390	3110	1200	1481	244	1800	2279	G
	CR 64-3-1	U4	30	54.0	DN 200	1390	3110	1200	1551	244	1800	2738	G
	CR 64-3	U4	30	54.0	DN 200	1390	3110	1200	1551	244	1800	2596	G
	CR 64-4-2	U4	37	67.0	DN 200	1390	3110	1200	1659	244	1800	2802	G

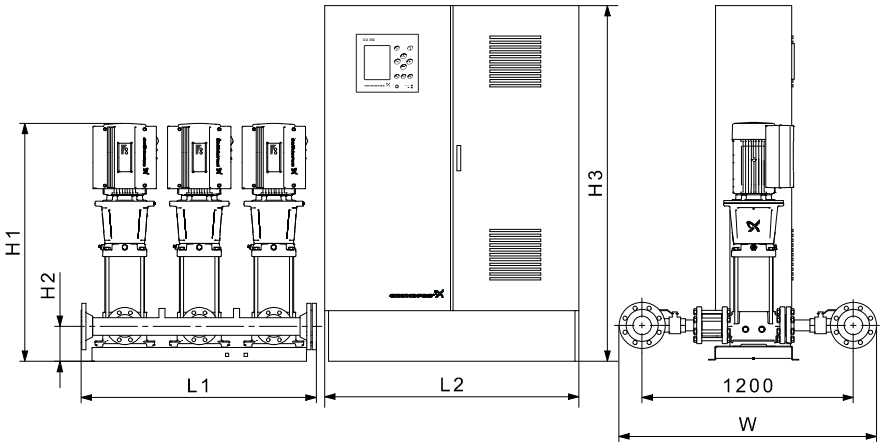
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 64

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 64-1-1	U6	7.5	13.8	DN 200	1390	1610	960	1044	244	1505	835	H
	CR 64-1	U6	11	20.1	DN 200	1390	1610	960	1246	244	1505	1526	H
	CR 64-2-2	U6	15	26.9	DN 200	1390	1610	960	1329	244	1505	909	H
	CR 64-2-1	U6	18.5	33.2	DN 200	1390	1610	960	1373	244	1505	794	H
	CR 64-3-2	U6	22	38.5	DN 200	1390	1610	960	1481	244	1505	806	H
	CR 64-2	U6	22	38.5	DN 200	1390	1610	960	1399	244	1505	1772	H
	CR 64-3-1	U6	30	53.0	DN 200	1390	1610	960	1551	244	1505	1691	H
	CR 64-3	U6	30	53.0	DN 200	1390	1610	960	1551	244	1505	1875	H
	CR 64-4-2	U6	37	65.5	DN 200	1390	1500	800	1659	244	1800	1641	G
4	CR 64-1-1	U6	7.5	13.8	DN 200	1390	2110	960	1044	244	1505	1012	H
	CR 64-1	U6	11	20.1	DN 200	1390	2110	960	1246	244	1505	1369	H
	CR 64-2-2	U6	15	26.9	DN 200	1390	2110	960	1329	244	1505	1145	H
	CR 64-2-1	U6	18.5	33.2	DN 200	1390	2110	800	1373	244	1200	1148	G
	CR 64-3-2	U6	22	38.5	DN 200	1390	2110	800	1481	244	1200	1081	G
	CR 64-2	U6	22	38.5	DN 200	1390	2110	800	1399	244	1200	1272	G
	CR 64-3-1	U6	30	53.0	DN 200	1390	2110	800	1551	244	1800	2153	G
	CR 64-3	U6	30	53.0	DN 200	1390	2110	800	1551	244	1800	2359	G
	CR 64-4-2	U6	37	65.5	DN 200	1390	2110	1200	1659	244	1800	1478	G
5	CR 64-1-1	U6	7.5	13.8	DN 200	1390	2610	960	1044	244	1505	1429	H
	CR 64-1	U6	11	20.1	DN 200	1390	2610	960	1246	244	1505	1658	H
	CR 64-2-2	U6	15	26.9	DN 200	1390	2610	800	1329	244	1200	1130	G
	CR 64-2-1	U6	18.5	33.2	DN 200	1390	2610	800	1373	244	1200	1745	G
	CR 64-2	U6	22	38.5	DN 200	1390	2610	1000	1399	244	1800	1691	G
	CR 64-3-2	U6	22	38.5	DN 200	1390	2610	1000	1481	244	1800	2567	G
	CR 64-3-1	U6	30	53.0	DN 200	1390	2610	1200	1551	244	1800	2567	G
	CR 64-3	U6	30	53.0	DN 200	1390	2610	1200	1551	244	1800	2773	G
	CR 64-4-2	U6	37	65.5	DN 200	1390	2610	1600	1659	244	1800	1711	G
6	CR 64-1-1	U6	7.5	13.8	DN 200	1390	3110	960	1044	244	1505	1301	H
	CR 64-1	U6	11	20.1	DN 200	1390	3110	800	1246	244	1200	896	G
	CR 64-2-2	U6	15	26.9	DN 200	1390	3110	800	1329	244	1200	1489	G
	CR 64-2-1	U6	18.5	33.2	DN 200	1390	3110	1000	1373	244	1800	1511	G
	CR 64-2	U6	22	38.5	DN 200	1390	3110	1000	1399	244	1800	2153	G
	CR 64-3-2	U6	22	38.5	DN 200	1390	3110	1000	1481	244	1800	1272	G
	CR 64-3-1	U6	30	53.0	DN 200	1390	3110	1600	1551	244	1800	1416	G
	CR 64-3	U6	30	53.0	DN 200	1390	3110	1600	1551	244	1800	1368	G
	CR 64-4-2	U6	37	65.5	DN 200	1390	3110	1600	1659	244	1800	1571	G

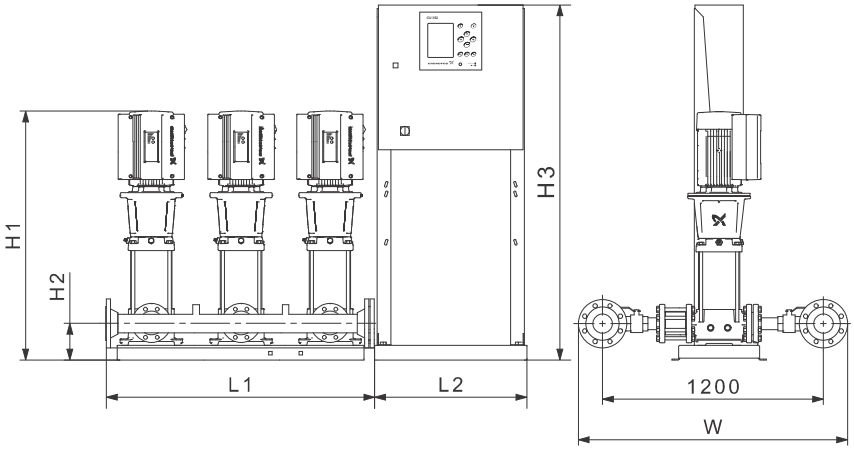
U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-E/-S with CR 90



TM03 3046 2310

Fig. 69 Dimensional sketch of a booster system with a floor-mounted control cabinet (design G). The booster system is shown as an example. The pumps supplied may differ from the sketch.



TM03 1190 2310

Fig. 70 Dimensional sketch of a booster system with a control cabinet mounted on a separate base frame (design H). The booster system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data, dimensions and weights

Hydro MPC-E with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 90-1-1	U4	11	20.5	DN 200	1540	2610	1200	1256	244	1800	838	G
	CR 90-1	U4	15	27.2	DN 200	1540	3110	1200	1256	244	1800	872	G
	CR 90-2-2	U4	18.5	33.8	DN 200	1540	3110	1200	1392	244	1800	929	G
	CR 90-2-1	U4	22	38.9	DN 200	1540	1610	1200	1418	244	1800	1388	G
	CR 90-2	U4	30	54.0	DN 200	1540	1610	1200	1488	244	1800	1379	G
	CR 90-3-2	U4	37	67.0	DN 200	1540	1610	1200	1605	244	1800	1552	G
	CR 90-3-1	U4	37	67.0	DN 200	1540	1610	1200	1605	244	1800	1965	G
4	CR 90-1-1	U4	11	20.5	DN 250	1605	2610	1200	1256	244	1800	1167	G
	CR 90-1	U4	15	27.2	DN 250	1605	3110	1200	1256	244	1800	1252	G
	CR 90-2-2	U4	18.5	33.8	DN 250	1605	3110	1200	1392	244	1800	1345	G
	CR 90-2-1	U4	22	38.9	DN 250	1605	2110	1200	1418	244	1800	1798	G
	CR 90-2	U4	30	54.0	DN 250	1605	2110	1200	1488	244	1800	2022	G
	CR 90-3-2	U4	37	67.0	DN 250	1605	2110	1200	1605	244	1800	2203	G
	CR 90-3-1	U4	37	67.0	DN 250	1605	2110	1200	1605	244	1800	2567	G
5	CR 90-1-1	U4	11	20.5	DN 250	1605	2610	1200	1256	244	1800	1438	G
	CR 90-1	U4	15	27.2	DN 250	1605	2610	1200	1256	244	1800	1560	G
	CR 90-2-2	U4	18.5	33.8	DN 250	1605	2610	1200	1392	244	1800	2101	G
	CR 90-2-1	U4	22	38.9	DN 250	1605	2610	1200	1418	244	1800	2143	G
	CR 90-2	U4	30	54.0	DN 250	1605	2610	1200	1488	244	1800	2518	G
	CR 90-3-2	U4	37	67.0	DN 250	1605	2610	1200	1605	244	1800	2724	G
	CR 90-3-1	U4	37	67.0	DN 250	1605	2610	1200	1605	244	1800	3063	G
6	CR 90-1-1	U4	11	20.5	DN 250	1605	3110	1200	1256	244	1800	1809	G
	CR 90-1	U4	15	27.2	DN 250	1605	3110	1200	1256	244	1800	2203	G
	CR 90-2-2	U4	18.5	33.8	DN 250	1605	3110	1200	1392	244	1800	2040	G
	CR 90-2-1	U4	22	38.9	DN 250	1605	3110	1200	1418	244	1800	1986	G
	CR 90-2	U4	30	54.0	DN 250	1605	3110	1200	1488	244	1800	2781	G
	CR 90-3-2	U4	37	67.0	DN 250	1605	3110	1200	1605	244	1800	3121	G
	CR 90-3-1	U4	37	67.0	DN 250	1605	3110	1200	1605	244	1800	3445	G

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

Hydro MPC-S with CR 90

No. of pumps	Pump type	Supply voltage [V]	Motor [kW]	Max. I_N [A]	Connection	W [mm]	L1 [mm]	L2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Weight [kg]	Design
3	CR 90-1-1	U6	11	20.1	DN 200	1540	1610	960	1256	244	1505	862	H
	CR 90-1	U6	15	26.9	DN 200	1540	1610	960	1256	244	1505	772	H
	CR 90-2-2	U6	18.5	33.2	DN 200	1540	1610	960	1392	244	1505	244	H
	CR 90-2-1	U6	22	38.5	DN 200	1540	1610	960	1418	244	1505	1826	H
	CR 90-2	U6	30	53.0	DN 200	1540	1610	960	1488	244	1505	2006	H
	CR 90-3-2	U6	37	65.5	DN 200	1540	1500	800	1605	244	1800	2006	G
	CR 90-3-1	U6	37	65.5	DN 200	1540	1500	800	1605	244	1800	2954	G
4	CR 90-1-1	U6	11	20.1	DN 250	1605	2110	960	1256	244	1505	301	H
	CR 90-1	U6	15	26.9	DN 250	1605	2110	960	1256	244	1505	1225	H
	CR 90-2-2	U6	18.5	33.2	DN 250	1605	2110	800	1392	244	1200	317	G
	CR 90-2-1	U6	22	38.5	DN 250	1605	2110	800	1418	244	1200	2333	G
	CR 90-2	U6	30	53.0	DN 250	1605	2110	800	1488	244	1800	2534	G
	CR 90-3-2	U6	37	65.5	DN 250	1605	2110	1200	1605	244	1800	2534	G
	CR 90-3-1	U6	37	65.5	DN 250	1605	2110	1200	1605	244	1800	2954	G
5	CR 90-1-1	U6	11	20.1	DN 250	1605	2610	960	1256	244	1505	1872	H
	CR 90-1	U6	15	26.9	DN 250	1605	2610	800	1256	244	1200	1283	G
	CR 90-2-2	U6	18.5	33.2	DN 250	1605	2610	800	1392	244	1200	1960	G
	CR 90-2-1	U6	22	38.5	DN 250	1605	2610	1000	1418	244	1800	2754	G
	CR 90-2	U6	30	53.0	DN 250	1605	2610	1200	1488	244	1800	2954	G
	CR 90-3-2	U6	37	65.5	DN 250	1605	2610	1600	1605	244	1800	2954	G
	CR 90-3-1	U6	37	65.5	DN 250	1605	2610	1600	1605	244	1800	2954	G
6	CR 90-1-1	U6	11	20.1	DN 250	1605	3110	800	1256	244	1200	923	G
	CR 90-1	U6	15	26.9	DN 250	1605	3110	800	1256	244	1200	1691	G
	CR 90-2-2	U6	18.5	33.2	DN 250	1605	3110	1000	1392	244	1800	1286	G
	CR 90-2-1	U6	22	38.5	DN 250	1605	3110	1000	1418	244	1800	1426	G
	CR 90-2	U6	30	53.0	DN 250	1605	3110	1600	1488	244	1800	1426	G
	CR 90-3-2	U6	37	65.5	DN 250	1605	3110	1600	1605	244	1800	2954	H
	CR 90-3-1	U6	37	65.5	DN 250	1605	3110	1600	1605	244	1800	2954	G

U4 = 3 x 380-415, PE, 50 Hz.
U6 = 3 x 380-415, PE, 60 Hz.
UA = 3 x 440-480, PE, 60 Hz.
E: ASEAN design and systems with the control cabinet mounted on the same base frame as the pumps.
F: ASEAN design and systems with the control cabinet centred on the base frame.
G: ASEAN design and systems with the control cabinet mounted on its own base for floor mounting.*
H: ASEAN design and systems with the control cabinet mounted on its own base frame.
Dimensions may vary by ± 10 mm.
L1 dimensions indicates the total length according to the design (not manifold length).

12. Optional equipment

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

Diaphragm tank

TM02 9027 1904

Fig. 71 Diaphragm tanks

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

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

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 106.

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

1) 33 l tank is available as mounted option on PN10 systems.

Redundant primary sensor

TM04 4125 0809

Fig. 72 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]
Redundant primary sensor[1)]	0-10
	0-16

1) The redundant primary sensor is normally connected to analog input AI3 of the CU 352. 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 104.

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 water from a tank or a well, select a level switch or 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]
Dry-running protection by means of electrode relay (without electrodes and electrode cable)[1)]	-
Pressure switch[1)]	0-2
	0-4
	0-8
	0-16
Inlet pressure sensor[2)]	0-1
	0-4
	0-6
	0-10
	0-16

1) Only one type of dry-running protection can be selected, as it must be connected to the same digital input of the CU 352. This also applies to level switches. For further information about the CU 352, see page 12.

2) The inlet pressure sensor is normally connected to analog input AI2 of the CU 352. 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 104. For further information about the IO 351B, see page 12.

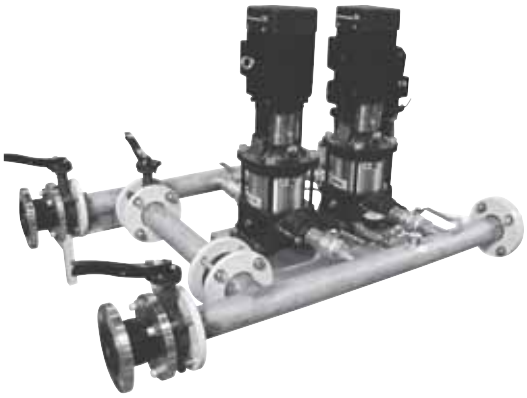
Pilot pump

TM04 4197 1009

Fig. 73 Pilot pump

The pilot pump takes over the operation from the main pumps during 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 Hydro MPC-E and -F control variants.

Bypass connection



TM04 4126 0809

Fig. 74 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 booster systems:

Description	Connection
CR, CRI, CRE, CRIE 3 (two or three pumps) CR, CRI, CRE, CRIE 5 (two or three pumps)	Rp 2
CR, CRI, CRE, CRIE 3 (four to six pumps) CR, CRI, CRE, CRIE 5 (four to six pumps)	Rp 2 1/2
CR, CRI, CRE, CRIE 10 (two or three pumps)	Rp 2 1/2
CR, CRI, CRE, CRIE 10 (four or five pumps)	DN 80
CR, CRI, CRE, CRIE 10 (six pumps)	DN 100
CR, CRI, CRE, CRIE 15, 20 (two pumps)	DN 80
CR, CRI, CRE, CRIE 15, 20 (three or four pumps) CR, CRE 32 (two pumps)	DN 100
CR, CRE 15, 20 (five or six pumps) CR, CRE 32 (three to six pumps)	DN 150
CR, CRE 45 (two pumps) CR, CRE 64 (two pumps)	DN 150
CR, CRE 45 (three to six pumps) CR, CRE 64 (three to six pumps)	DN 200
CR, CRE 90 (two pumps)	DN 150
CR, CRE 90 (three or four pumps)	DN 200
CR, CRE 90 (five or six pumps)	DN 250

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, we recommend that you install non-return valves on the suction side of the pumps to prevent dry running.

Description
Non-return valve on suction side

Stainless-steel non-return valve

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

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

When stainless-steel non-return valves are used, the maximum temperature of the pumped liquid can be higher.

Note: Order one valve for each pump.

Description	Connection
Non-return valve[1)]	CR, CRI, CRE, CRIE 3 and 5
	CR, CRI, CRE, CRIE 10
	CR, CRI, CRE, CRIE 15 to 32
	CR, CRE 45 to 90

[1)] Maximum operating pressure is 25 bar.

Repair switch

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

Note: Order one switch for each pump.

Description	Motor current/starting method	Location
Repair switch	≤ 16 A, DOL	On the pump
	> 16 A < 25 A, DOL	
	> 25 A < 40 A, DOL	
	> 40 A < 63 A, DOL	
	> 63 A < 80 A, DOL	
	> 80 A < 100 A, DOL	
	> 100 A < 125 A, DOL	
	> 125 A < 175 A, DOL	
	> 175 A < 250 A, DOL	
	≤ 16 A, Y/Δ	
	> 16 A < 25 A, Y/Δ	
	> 25 A < 40 A, Y/Δ	
	> 40 A < 63 A, Y/Δ	
	> 63 A < 80 A, Y/Δ	
	> 80 A < 100 A, Y/Δ	
	> 100 A < 125 A, Y/Δ	
	> 125 A < 175 A, Y/Δ	
	> 175 A < 250 A, Y/Δ	

Isolating switch

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

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

Note: Order one switch for each pump.

Description	Motor current/ starting method	Location
Isolating switch	≤ 16 A, DOL	In control cabinet
	> 16 A < 25 A, DOL	
	> 25 A < 40 A, DOL	
	> 40 A < 63 A, DOL	
	> 63 A < 80 A, DOL	
	> 80 A < 100 A, DOL	
	> 100 A < 125 A, DOL	
	> 125 A < 175 A, DOL	
	≤ 16 A, Y/Δ	
	> 16 A < 25 A, Y/Δ	
	> 25 A < 40 A, Y/Δ	
	> 40 A < 63 A, Y/Δ	
	> 63 A < 80 A, Y/Δ	
	> 80 A < 100 A, Y/Δ	
	> 100 A < 125 A, Y/Δ	
	> 125 A < 175 A, Y/Δ	

Main switch for neutral conductor

The main switch for switching off 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
Main switch for switching off the neutral conductor	40	In control cabinet
	100	
	175	
	250	
	400	
	630	
	800	
	1250	
	1750	
	2000	
	2500	

Operating light, system

TM04 4112 0709

Fig. 75 Operating light, system

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

Description	Location
Operating light, system	In door of control cabinet

Fault light, system

TM04 3254 3908

Fig. 76 Fault light, system

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

Note: Phase failure causes no fault indication.

Description	Location
Fault light, system	In door of control cabinet

Fault light, pump

TM04 3254 3908

Fig. 77 Fault light, pump

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

Note: Order one fault light for each pump.

Description	Fault indicator light for	Location
Fault light, pump	Hydro MPC-E	In door of control cabinet
	Hydro MPC-F	
	Hydro MPC-S	

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
Panel light	14 W, 240 V, 50 Hz, socket	In control cabinet
	14 W, 220-230 V, 50 Hz, socket	
	14 W, 120 V, 60 Hz, socket	

IO 351B interface

GrA0815

Fig. 78 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 352 supports the installation of one IO 351B interface.

Description	Location
Input/output interface via the IO 351B	In control cabinet

Backup battery

TM02 7159 2703

The battery is connected to the CU 352 as a backup in case the power supply is interrupted.

Description	Location
Backup battery for CU 352 (7 Ah)	In control cabinet

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
Ethernet

CIM communication interface modules

GrA6121

Fig. 79 Grundfos CIM communication interface module

The CIM modules enable communication of operating data, such as measured values and setpoints, between the booster system and a building management system.

Note: CIM modules must be fitted by authorised staff.

The CIM module enables transfer of data such as:

- operating mode
- setpoint
- control mode
- warnings and alarms
- power/energy consumption.

We offer the following CIM modules:

Module	Fieldbus protocol
CIM 050	GENIbus
CIM 110	LonWorks
CIM 150	PROFIBUS DP
CIM 200	Modbus RTU
CIM 250	GSM
CIM 270	GRM
CIM 300	BACnet MS/TP
CIM 500	Industrial Ethernet

Antennas for CIM 250

Description
Antenna for roof
Antenna for desk

Transient voltage protection

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

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

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 installation site.

Description	Range
Lightning protection	3 x 400 V, N, PE, 50/60 Hz
	3 x 400 V, PE, 50/60 Hz

Phase-failure monitoring

The booster system must be protected against phase failure.

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

Description	Location
Phase-failure monitoring	In control cabinet

Beacon

The beacon is on in case of a system alarm.

Note: Phase failure causes no alarm indication.

Description	Location
Beacon	On top of control cabinet
	External[1)]

1) Cable is not included.

Potential-free contacts

Potential-free contacts to indicate that the pumps in the system are running or that an alarm is present.

Description	Location
Hydro MPC-E/-EC: < 7.5 kW, max. 250 V, NC 1 A, NO 2 A	In control cabinet
Hydro MPC-E/-EC: > 11 kW, max. 250 V, NC 1 A, NO 2 A	
Hydro MPC-F: Max. 250 V, NC 1 A, NO 2 A	
Hydro MPC-S: Max. 250 V, NC 1 A, NO 2 A	

Audible alarm

The audible alarm sounds in case of a system alarm.

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

Voltmeter

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

Note: Order one voltmeter for each pump.

Description	Location
Voltmeter, 500 V (two phases)	In door of control cabinet
Voltmeter, 500 V, with changeover switch (all phases)	

Ammeter

An ammeter indicates the current of one phase per pump.

Note: Order one ammeter for each pump.

Description	Current [A]	Location
Ammeter	6	In door of control cabinet
	16	
	25	
	40	
	100	
	160	
	250	
	400	

13. Accessories

All accessories can be fitted to the 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 the level switch is not included. See page 101. Only one type of dry-running protection can be selected, as it must be connected to the same digital input of the CU 352. This also applies to level switches.

Diaphragm tank

TM02 9097 1904

Fig. 80 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
600	G 1 1/2	96603451
800	G 1 1/2	96603452
1000	G 1 1/2	96603453
1500	DN 65	96573283
2000	DN 65	96573284
3000	DN 65	96573285

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	G 1	96603420
100	G 1	96603421
200	G 1 1/4	96603422
300	G 1 1/2	96603423
400	G 1 1/2	96603424
500	G 1 1/2	96603425
600	G 1 1/2	96603426
800	G 1 1/2	96603427
1000	G 1 1/2	96603428

Foot valve

TM04 4128 0809

Fig. 81 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 booster system draws water from a break tank placed at a lower geodetic height than the booster system.

Foot valves are designed to ensure optimum suction conditions.

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

Machine shoe

TM04 3245 3908

Fig. 82 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	CR, CRI, CRE, CRIE 3 and 5	96412344
	CR, CRI, CRE, CRIE 10 to 20	96412345
	CR, CRE 32 to 90	96412347

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

Grundfos GO

The Grundfos GO is used for wireless infrared or radio communication with the pumps.

Various Grundfos GO variants are available.
The variants are described in the following.

MI 201

The MI 201 is a complete solution, consisting of an Apple iPod touch 4G and a Grundfos cover for infrared and radio communication with Grundfos pumps or systems.

TM05 3886 1712

Fig. 83 MI 201

Supplied with the product:

- Apple iPod touch 4G incl. accessories
- Grundfos MI 201 cover
- battery charger
- quick guide.

MI 202

The MI 202 is an add-on module with built-in infrared and radio communication. The MI 202 can be used in conjunction with Apple iPod Touch 4, iPhone 4 or later.

TM05 3887 1712

Fig. 84 MI 202

Supplied with the product:

- Grundfos MI 202
- quick guide.

MI 301

The MI 301 is a module with built-in infrared and radio communication. The MI 301 must be used in conjunction with an Android or iOS-based Smartphone with a Bluetooth connection. The MI 301 has rechargeable Li-ion battery and must be charged separately.

TM05 3890 1712

Fig. 85 MI 301

Supplied with the product:

- Grundfos MI 301
- battery charger
- quick guide.

Product numbers

Grundfos GO variant	Product number
Grundfos MI 201	98140638
Grundfos MI 202	98046376
Grundfos MI 301	98046408

Supported units

Make	Model	Operating system	MI 201	MI 202	MI 301
Apple	iPod touch 4G	iOS 5.0 or later	•	•	•
	iPhone 4G, 4GS		-	•	•
HTC	Desire S	Android 2.3.3 or later	-	-	•
	Sensation	Android 2.3.4 or later	-	-	•
Samsung	Galaxy S II		-	-	•

Note: Similar Android and iOS-based devices may work as well, but are not supported by Grundfos.

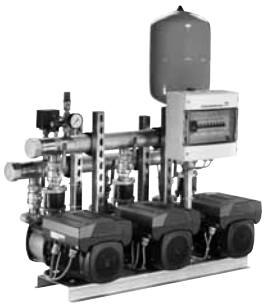
Extra documentation

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

Document	Publication number
Installation and operating instructions	
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 Grundfos Product Center.
See page 110.

14. Alternative booster systems

Booster system		Data and features	
Hydro Multi-E	  TM05 2468 0212 - TM06 3405 025	Maximum head	10 to 100 m
		Flow rate	2 to 85 m^3/h
		Maximum operating pressure	16 bar
		Number of pumps	2 or 3
		Pump types	CRE, CRIE, CME
		Features	• 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 or Grundfos GO.
Hydro Multi-S	  GrA5733 - GrA9833	Maximum head	9 to 103 m
		Flow rate	0.5 to 69 m^3/h
		Maximum operating pressure	16 bar
		Number of pumps	2 or 3
		Pump types	CR, CM, CMV
		Features	• Specially designed for water supply in buildings. • 100 % adaptation to consumption. • Easy to install and commission. • Small foot print.
Hydro Solo-E/-S	  Gr5164 - Gr5165	Maximum head	10 to 100 m
		Flow rate	2 to 55 m^3/h
		Maximum operating pressure	16 bar
		Number of pumps	1
		Pump types	CRE[2)], CR[1)]
		Features	• Easy to install and commission. • Constant pressure.[2)] • Data communication via Grundfos R100 remote control or Grundfos GO.[2)]

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

2) Applies only to Hydro Solo-E.

15. Grundfos Product Center

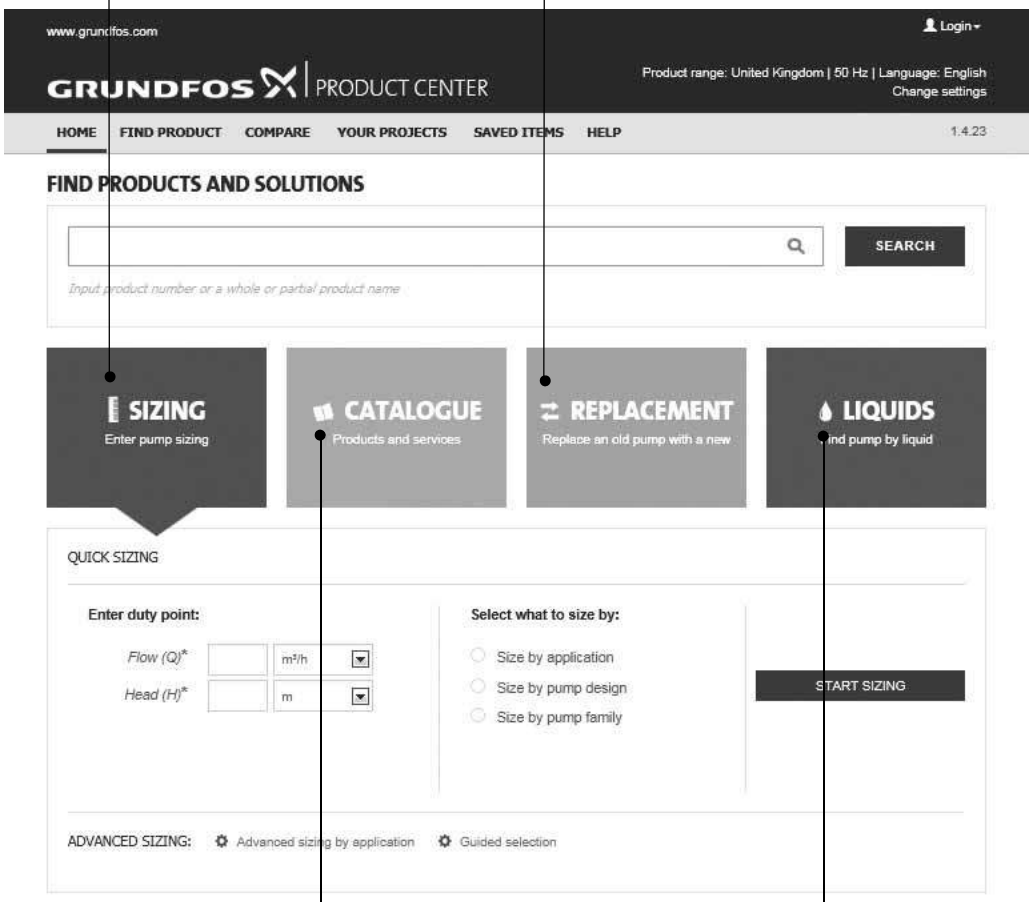
Online search and sizing tool to help you make the right choice.

http://product-selection.grundfos.com

SIZING enables you to size a pump based on entered data and selection choices.

REPLACEMENT enables you to find a replacement product.
Search results will include information on

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.



CATALOGUE gives you access to the Grundfos product catalogue.

LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

Subject to alterations.

be think innovate

98810512 0215
ECM: 1146937

GRUNDFOS A/S
DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00
www.grundfos.com

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