Hydro MPC

Hydro MPC CR, CRE systems with 2 to 6 pumps and Hydro MPC CME systems with 2 and 3 pumps

60 Hz North America

CLASSIFIED
C UL US
WATER QUALITY
Drinking Water System Component
NSF / ANSI 61
NSF / ANSI 372

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GRUNDFOS

Table of contents

1. Product introduction

Applications

Grundfos Hydro MPC pump systems are designed for a wide range of applications, including:

- domestic water pressure boosting systems
- high-rise building pressure boosting
- municipal water supply and transfer applications
- municipal water transfer and boosting
- hydronic water circulation (HVAC)
- redundant pumping applications.

As standard, the Hydro MPC pump systems consist of two to six identical Grundfos CR or CRE pumps connected in parallel and mounted on a common base frame with a control cabinet and all necessary fittings.

The pumps in this system can be removed without interfering with the pipes on either side of the manifolds.

Hydro MPC comes in three control variants. For further information, see the product ranges on page 7 and *Control variants* on page 15.

Hydro MPC-E

Pump systems with two to six identical electronically speed-controlled pumps.

Hydro MPC-E(CRE) is fitted with CRE, pumps with integrated frequency converter.

Hydro MPC-E (CUE) is fitted with CR pumps connected to Grundfos CUE frequency converters; one per pump mounted in the control panel.

Hydro MPC-F

Pump systems with two to six identical CR pumps connected to one Grundfos CUE frequency converter. The speed-controlled operation alternates between the pumps of the pump system.

Hydro MPC-S

Pump systems with two to six identical fixed speed CR pumps.

Pump Energy Index

Pump Energy Index (PEI) was established by the U.S. Department of Energy (DOE) and adopted by Canada as the standard metric used to evaluate pump efficiency. The value is the ratio of the pump efficiency rating (PER) divided by the calculated minimally complaint PER (PER_{STD}) for the pump type. This provides a representation of a pump's actual performance compared to the minimal standard performance required by regulation. The lower the PEI value, the more efficient a pump is at the tested operating points.

PER is determined by defined testing parameters required by the DOE. This includes testing a particular pump model at its best efficiency point (BEP).

For PEI values there are two different versions:

- PEI_{CL} (constant load): Applies to a bare-shaft pump, and a pump sold with a motor
- PEI_{VL} (variable load): Applies to pumps sold with a motor and controller (such as VFD, VSD)

The DOE has set the maximum PEI value as 1.00. Any pump, pump and motor, or pump, motor and controller that exceeds a PEI value of 1.00 can no longer be manufactured after January 26, 2020.

PEI is a generalized efficiency value. PEI cannot be used to determine the efficiency of a pump in a specific application.

Even though packaged systems with advanced control logic can deliver greater savings, the skid packaged system will not have a PEI value, the individual pumps in the system will have a PEI value.

Product type	hp (kW)	Voltage	PEI_{VL}	Impeller diameter [in (mm)]
CRE 10	1 (0.75)	1x200-240	0.42	3.66 (92.9)
		3x440-480	0.41	
	1.5-2 (1.1-1.5)	1x200-240	0.41	
		3x200-240	0.43	
		3x440-480	0.41	
	3-15 (2.2-11)	3x200-240	0.41	
		3x440-480	0.40	
CRE 15	1.5-2 (1.1-1.5)	1x200-240	0.45	4.13 (104.8)
		3x200-240	0.44	
		3x440-480	0.46	
	3-15 (2.2-11)	3x200-240	0.42	
		3x440-480	0.40	
CRE 20	1.5-2 (1.1-1.5)	1x200-240	0.51	
		3x200-240	0.50	
		3x440-480	0.48	
	3-15 (2.2-11)	3x200-240	0.42	
		3x440-480	0.41	
CRE 32	3-15 (2.2-11)	3x200-240	0.41	4.66 (118.4)
		3x440-480	0.40	
	20 (15) and up	3x440-480	0.44	
CRE 45	3-15 (2.2-11)	3x200-240	0.41	5.34 (136)
		3x440-480	0.40	
	20 (15) and up	3x440-480	0.46	
CRE 64	3-15 (2.2-11)	3x440-480	0.43	5.59 (142)
	20 (15) and up	3x440-480	0.46	
CRE 95	3-15 (2.2-11)	3x440-480	0.42	6.07 (154)
	20 (15) and up	3x440-480	0.45	
CRE 125	20 (15) and up	3x440-480	0.59	6.38 (162)
CRE 155	20 (15) and up	3x440-480	0.58	6.64 (169)

Product type	Poles	PEI_{CL} pump with motor	PEI_{VL} pump with motor plus controller*	Impeller diameter [in (mm)]
CR, CRN, CRI 10	2	0.87	0.48	3.66 (92.9)
CR, CRN, CRI 15	2	0.91	0.48	4.13 (104.8)
CR, CRN, CRI 20	2	0.91	0.47	
CR, CRN, 32	2	0.87	0.45	4.66 (118.4)
	4	0.91	0.50	
CR, CRN, 45	2	0.89	0.46	5.34 (136)
	4	0.91	0.47	
CR, CRN, 64	2	0.93	0.46	5.59 (142)
	4	0.94	0.48	
CR, CRN, 95	2	0.93	0.45	6.07 (154)
	4	0.94	0.47	
CR, CRN, 125	2	0.93	0.59	6.38 (162)
	4	0.94	0.47	
CR, CRN, 155	2	0.93	0.59	6.64 (169)
	4	0.95	0.47	

*Grundfos CUE continuous controls

Benefits

Advanced pump system control

Gr1014555

Fig. 1 CU 352

The pumps of the Hydro MPC pump system are controlled individually by the CU 352 multipump control unit which contains application-optimized software and pump-curve data. CU 352 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. The large user-friendly display makes viewing information and making program changes easy to see and accomplish.

Reliability

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Fig. 2 Grundfos CRE and CME pumps

Hydro MPC systems are built on the renowned Grundfos CR pump range and the industrial quality CM pump range. Every vital piece of Hydro MPC 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

The Hydro MPC-E systems with the newest MLE motors from 0.50 to 15 Hp (0.37 to 11 kW) have a combined total VFD/motor efficiency higher than NEMA Premium Efficiency motor alone.

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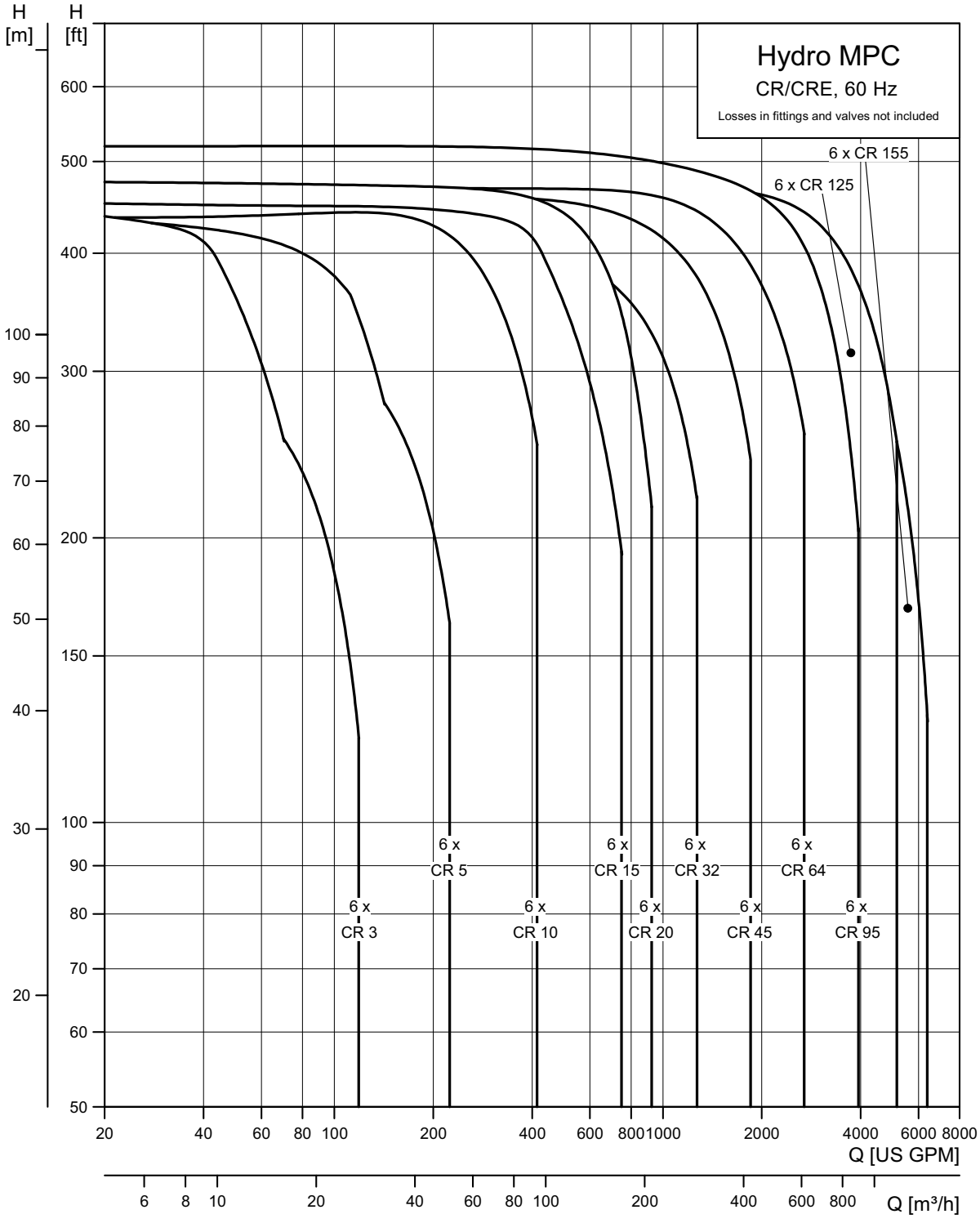
Fig. 3 Range of MLE motors 3x460-480 V, 20-30 Hp are induction style motors and have IE4 efficiency rating. MLE motor with a total efficiency exceeding the EuP IE5 up to 15 Hp (11 kW) and IE4 from 20 Hp (15 kW) to 30 Hp (22 kW) levels according to IEC 60034-30-1.

2. Product data

Hydro MPC Performance range, CR, CRE



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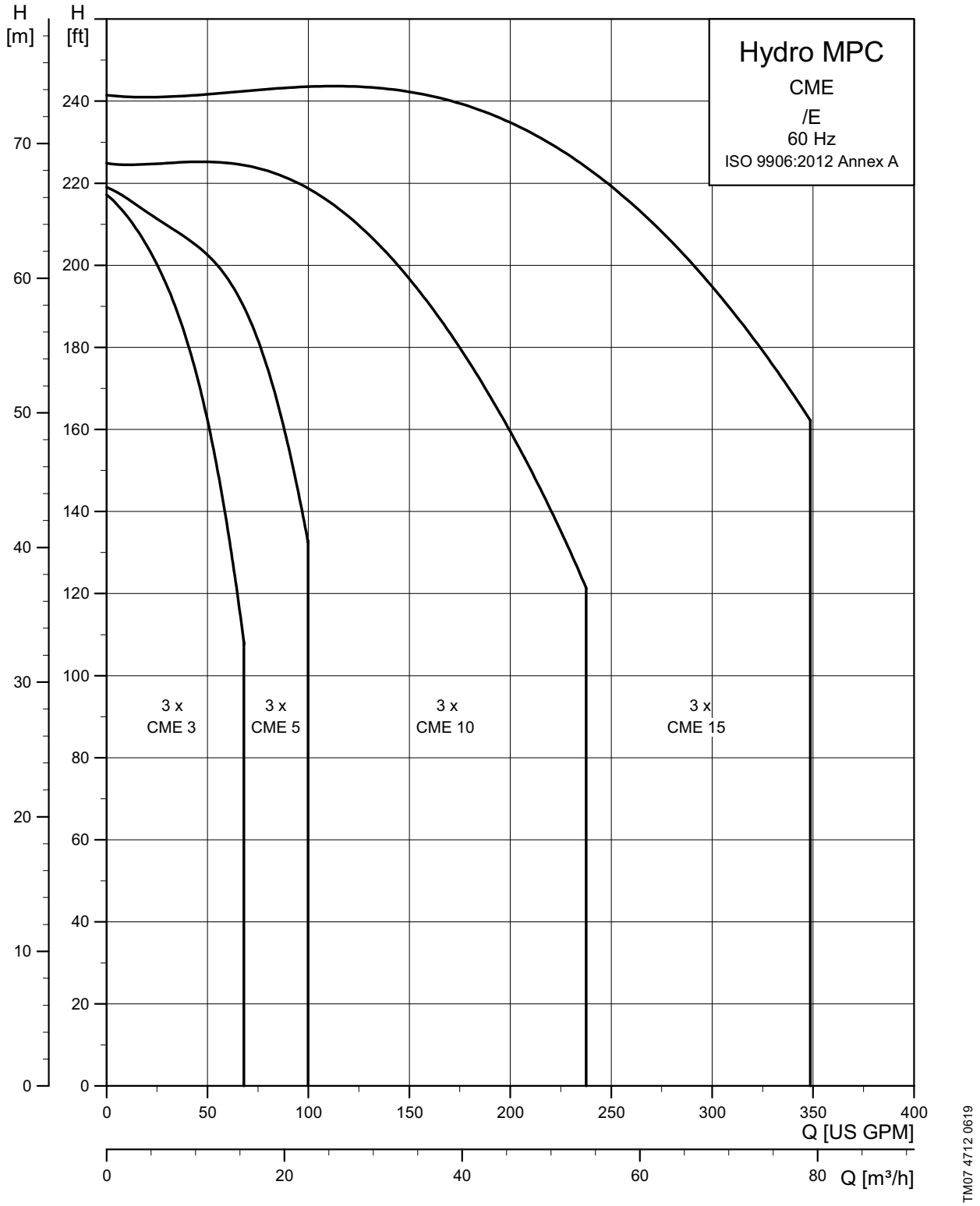
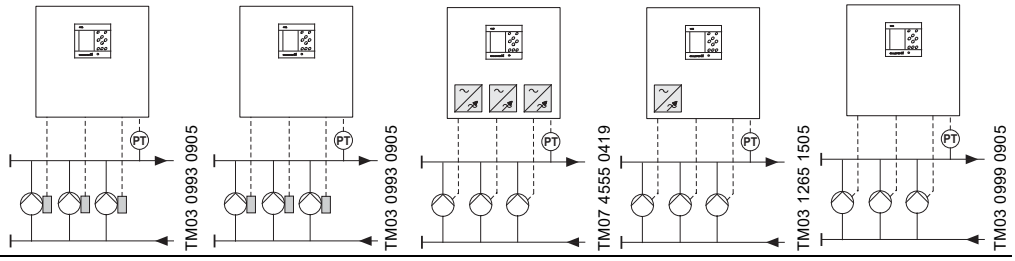
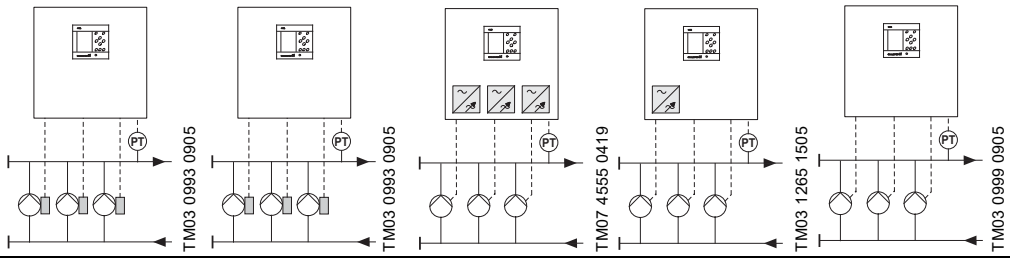
Hydro MPC Performance range, CME



Product range, 60 Hz



Control variant	Hydro MPC-E (CRE)	Hydro MPC-E (CME)	Hydro MPC-E CR (CUE)	Hydro MPC-F	Hydro MPC-S
Frequency	**60 Hz**	**60 Hz**	**60 Hz**	**60 Hz**	**60 Hz**
Hydraulic data					
Maximum head [ft. (m)]	479 (146)	231 (70)	479 (146)	479 (146)	479 (146)
Flow rate [gpm (m^3/h)]	0-4755 (0-1080)	0 to 330 (0 to 75)	0-4755 (0-1080)	0-4755 (0-1080)	0-4755 (0-1080)
Liquid temperature [°F (°C)]	32-140, 180 (0-60, 82)[1]	32 to 140, 180 (0 to +60, 82)[1]	32-140, 180 (0-60, 82)[1]	32-140, 180 (0-60, 82)[1]	32-140, 180 (0-60, 82)[1]
Maximum operating pressure [psi (bar)]	232 (16)[2]	145 (10)	232 (16)[2]	232 (16)[2]	232 (16)[2]
Motor data					
Number of pumps	2-6	2-3	2-6	2-6	2-6
Motor power [Hp (kW)]	0.50-100 (0.37-75)[3]	1.5-7.5 (1.11-5.50)	0.50-100 (0.37-75)[3]	0.75-75 (0.55-55)	0.50-75 (0.37-55)
Shaft seal					
HQQE (SiC/SiC/EPDM)	•		•	•	•
AQQE (SIC/SIC/EPDM)		•			
Materials					
CRE, CRIE 3 to CRE, CRIE 20: stainless steel EN/DIN 1.4301 / AISI 304	•		•	•	•
CR, CRE 32 to CR, CRE 155: cast iron and stainless steel EN/DIN 1.4301 / AISI 304	•		•	•	•
CM, CME 3 to CM, CME 15: A-version CI/304 SS		•			
Manifold: stainless steel[6]	•	•	•	•	•
Pipe connection					
NPT connection	2-3"	1.5-2.5"	2-3"	2-3"	2-3"
ANSI flange connection	4-16"	3-4"	4-16"	4-16"	4-16"



Control variant	Hydro MPC-E (CRE)	Hydro MPC-E (CME)	Hydro MPC-E CR (CUE)	Hydro MPC-F	Hydro MPC-S
Frequency	**60 Hz**	**60 Hz**	**60 Hz**	**60 Hz**	**60 Hz**
Functions					
Constant-pressure control	●	●	●	●	●[4]
Automatic cascade control	●	●	●	●	●
Pump changeover	●	●	●	●	●
Stop function	●	●	●	●	-
Proportional-pressure control	●	●	●	●	-
Multisensor, HVAC	●[7]	●[7]	●[7]	●[7]	●[7]
Bus communication, external	❍	❍	❍	❍	❍
Integrated frequency converter in pump	●	●	●	●	-
External frequency converter in cabinet	●	●	●	●	-
Ethernet connection	●	●	●	●	●
Alternative setpoints	●	●	●	●	●
Redundant primary sensor, option	●	●	●	●	●
Secondary sensor	●[8]	●[8]	●[8]	●[8]	●[8]
Standby pump	●	●	●	●	●
Emergency run	●	●	●	●	●
Specific energy calculation	●[5]	●[5]	●[5]	-	-
Log function	●	●	●	●	●
Monitoring of non-return valve	●[9]	●[9]	●[9]	-	-
Reduced operation	●	●	●	●	●
Service contact information	●	●	●	●	●
Help texts	●	●	●	●	●

● Available as standard.
❍ Available on request.

1 Higher temperature is available on request.
CR, CRE 3 / CR, CRE5 / CME 3 / CME 5 max. liquid temperature is 140 °F (60 °C), 180 °F (82 °C) in standard max. liquid temperatures for all other pump sizes.

2 Pump systems with a maximum operating pressure higher than 232 psi (16 bar) are available on request.

3 The Hydro MPC-E (CRE) pump systems from 0.50 to 30 Hp (0.37 to 22 kW) are fitted with speed-controlled CRE pumps with integrated frequency converters. The Hydro MPC-E (CUE) pump systems from 40 to 100 Hp (30 to 75 kW) are fitted with CR pumps connected to Grundfos CUE frequency converters. MPC-E (CUE) systems are available in Hp range of MPC-E(CRE), if requested.

4 The pressure will be between H_{set} and H_{stop}. For further information, see page 15.

5 Requires that a flowmeter has been installed and connected.

6 In some regions, galvanized manifolds are available as an option. For further information, contact Grundfos.

7 Requires additional sensors.

8 Requires an additional secondary sensor.

9 Systems with MLE motors, 0.50 to 30 Hp (0.37 to 22 kW).

Type key

Hydro MPC

See *12. Optional equipment* for pump system on page 87.

Code	Example	Hydro MPC	-E	6	CRE 95-3	UL	C	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	Customized-system pumps									
	Number of main pumps									
	Pump type									
	Voltage code									
U1	3 x 380-415 V, N, PE, 50/60 Hz									
U2	3 x 380-415 V, PE, 50/60 Hz									
U3	3 x 380-415 V, N, PE, 50 Hz									
U4	3 x 380-415 V, PE, 50 Hz									
U5	3 x 380-415 V, N, PE, 60 Hz									
U6	3 x 380-415 V, PE, 60 Hz									
U7	1 x 200-240 V, PE, 50/60 Hz									
U8	1 x 200-240 V, N, PE, 50/60 Hz									
U9	3 x 220-240 V, PE, 60 Hz									
UA	3 x 440-480 V, PE, 60 Hz									
UB	1 x 220-240 V, N, PE, 50/60 Hz									
UC	1 x 220-240 V, N, PE, 50 Hz									
UD	3 x 440-480 V, N, PE, 60 Hz									
UJ	1 x 208-230 V, PE, 60 Hz									
UK	3 x 208-230 V, PE, 60 Hz									
UL	3 x 460-480 V, PE, 60 Hz									
UX	CSU variant (special voltage rating)									
	Design									
A	Systems with the control cabinet mounted on the same base frame as the pumps									
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*									
W	Systems with the control cabinet prepared for wall mounting*									
	Starting method									
A	E									
B	DOL									
C	SD									
	Material combination									
A	Stainless-steel manifold, base frame and standard valves									
B	Stainless-steel manifold, base frames and valves									
X	Customized material combination									
	Options									
A	Standard hydraulics									
B	Pilot pump									
D	Non-return valve									
E	Elbow manifold									
H	Dry-running protection									
J	Redundant sensor									
K	One free position									
L	Two free positions									
M	Three free positions									
P	Low NPSH pumps									
S	Customized variant									
U	Undersized motor									
V	Standard controls with options									
W	Customized controls									
X	More than four options									

Operating conditions

Operating pressure

Hydro MPC CR/CRE as standard, the maximum operating pressure is 232 psi (16 bar).

Hydro MPC CME as standard, the maximum operating pressure is 145 psi (10 bar).

Hydro MPC CR/CRE pump systems with a higher maximum operating pressure are available on request.

Temperature

Liquid temperature for systems with CR, CRE 3, CR,CRE 5, CME 3, and CME 5 pump models:

- 32-140 °F (0-60 °C).

Liquid temperature for all other pump models:

- 32-180 °F (0-82 °C).

Ambient temperature: 32-104 °F (0-40 °C).

Note: Higher liquid temperature capability is available on request.

Relative humidity

Maximum 95 %.

3. Construction

CR pump

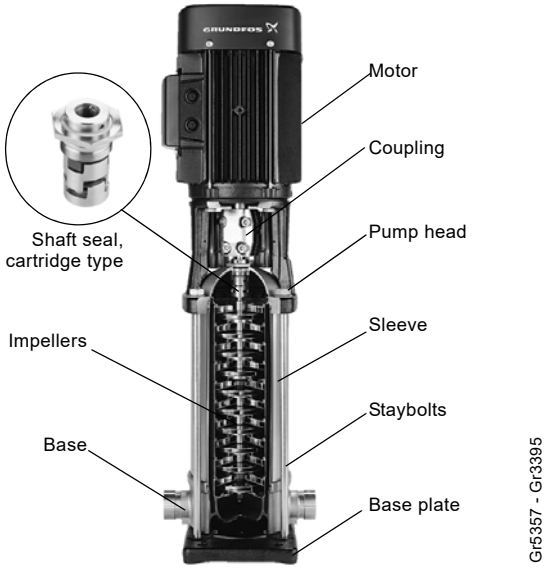


Fig. 4 CR pump

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 inlet and outlet ports at the same level (in line) and of the same port size.

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

CR and CRE pumps have pump head and base of cast iron.

All hydraulic parts are made of stainless steel.

For further information, see the following data booklets by using the QR code or link:

Title	QR code	Publication number
CR, CRI, CRN 60 Hz		98446676
http://net.grundfos.com/qr/i/98446676		
CR, CRI, CRN 60 Hz		99301180
http://net.grundfos.com/qr/i/99301180		
CR, CRI, CRN, CRT, CRE, CRIE, CRNE, CRTE custom-built pumps		96486346
http://net.grundfos.com/qr/i/96486346		
CRE, CRIE, CRNE 50/60 Hz		98423696
http://net.grundfos.com/qr/i/98423696		
Grundfos E-pumps 50/60 Hz		96570076
http://net.grundfos.com/qr/i/96570076		

The data booklets are available in Grundfos Product Center on www.grundfos.com. See page 94.

For information about the pump position in the pump system, see fig. 9 on page 14.

CME pump

Cast-iron version

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Fig. 5 Grundfos CME pumps

The Grundfos CME pumps are non-self-priming, horizontal, multistage, end-suction centrifugal pumps. The pumps are of the close-coupled type.

CME pumps have an integrated frequency converter. CME pumps have mechanical shaft seals.

The compactness of the Hydro MPC CME is achievable due to the unique combination of size and performance offered by the Grundfos CM,CME pumps. Certain dimensions of the CM, CME pumps are 30 % smaller than those of corresponding pumps with identical performance.

For further details on the pumps, see the following data booklets:

Title	Publication number
CM, CME	98435269
Grundfos E-pumps	L-ML-PG-001

Shaft seal

CR, CRE pumps have a maintenance-free mechanical cartridge type HQQE shaft seal. 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. 6 Cartridge shaft seal

The shaft seal can be replaced without dismantling the pump. The shaft seal of pumps with motorsabove 10 Hp can be replaced without removing the motor.

For further information, see the data booklet on shaft seals, publication number 96519875. The data booklet is available in Grundfos Product Center on www.grundfos.com. See page 94.

MLE Motors

CRE CME pumps

CRE and CME pumps are fitted with a totally enclosed, fan-cooled, 2-pole motor with integrated frequency converter.

Principal dimensions are in accordance with EN standards.

Electrical tolerances to EN 60034.

	Motor with integrated frequency converter		
	P2: ≤ 1.5 Hp (1.1 kW)	**P2: 1-15 Hp (0.75-11 kW)**	**P2: 20-30 Hp (15-22 kW)**
Mounting designation	V18	Up to 5 Hp (4 kW): V18 From 7 Hp (5.5 kW): V1	
Insulation class	F		
Efficiency class	Up to 15 Hp (11 kW): exceeding IE5 See section *Low-energy consumption* on page 4. From (20-30 Hp (15-22 kW): IE4		
Enclosure class	IP54		
Power supply Tolerance: ± 10 %	1 x 200-240 V, 50/60 Hz	3 x 380-500 V, 50/60 Hz	3 x 380-480 V, 50/60 Hz

Motors with integrated frequency converter require no external motor protection. The motor incorporates thermal protection against slow overloading and seizure, class TP 211 according to IEC 34-11.

Manifold

A stainless steel inlet manifold (AISI 316Ti/EN DIN 1.4571) is fitted on the inlet side of the pumps.

A stainless steel outlet manifold (AISI 316Ti/EN DIN 1.4571) is fitted on the outlet side of the pumps.

An isolating valve and a non-return valve are fitted between the outlet manifold and the individual pumps. The non-return valve can be fitted on the inlet side on request.

For information about the position of the inlet and outlet manifolds, see fig. 9 on page 14.

Control cabinet

The control cabinet is fitted with all the necessary components. If necessary, the Hydro MPC pump 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 A:** systems with the control cabinet mounted on the same base frame as the pumps.
- **Design C:** systems with the control cabinet mounted on its own base for floor mounting. The control cabinet can be placed up to 6.5 ft. (2 m) from the pumps.
- **Design D:** systems with the control cabinet mounted on its own base frame. The control cabinet can be placed up to 6.5 ft. (2 m) from the pumps.

For further information, see fig. 9 on page 14 and technical data on page 82.

CU 352

The CU 352 multipump control unit of Hydro MPC is located in the door of the control cabinet.

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Fig. 7 CU 352

CU 352 features a color 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.

CU 352 has application-optimized software for adapting the system to the application in question.

IO 351

IO 351 is a module for exchange of digital and analog signals between CU 352, and the remaining electrical system via GENIbus. IO 351 is available in the A and B variants.

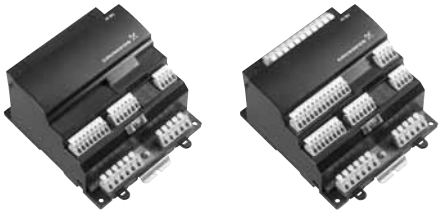

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Fig. 8 IO 351A and IO 351B

IO 351A

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

IO 351B

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 a Hydro MPC system are mounted on a common base frame. The base frame is made of stainless steel AISI 304, except for systems with CR, CRE 95, CR, CRE 125 and CR, CRE 155 pumps which are mounted on a base frame made of powder-coated black (RAL 9005) C-channels.

System components for MPC CRE

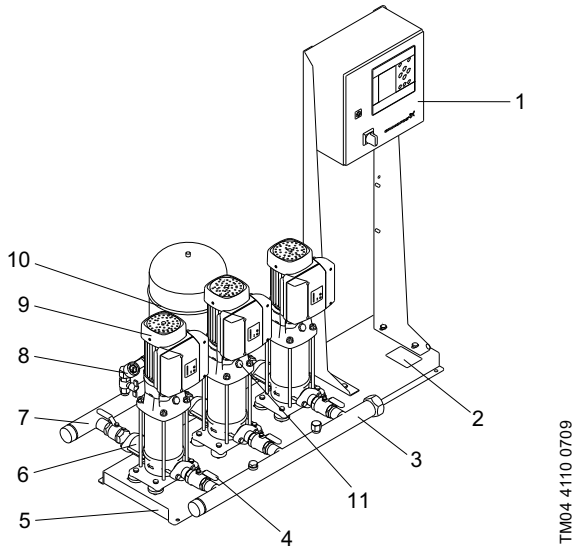


Fig. 9 MPC CRE system components

Pos.	Description	Quantity
1	Control cabinet	1
2	Nameplate	1
3	Inlet manifold	1
4	Isolating valve	2 per pump
5	Base frame	1
6	Non-return valve	1 per pump
7	Outlet manifold	1
8	Pressure transmitter or gauge	1
9	Pump	2-6
10	Diaphragm tank (optional)	1

System components for MPC CME

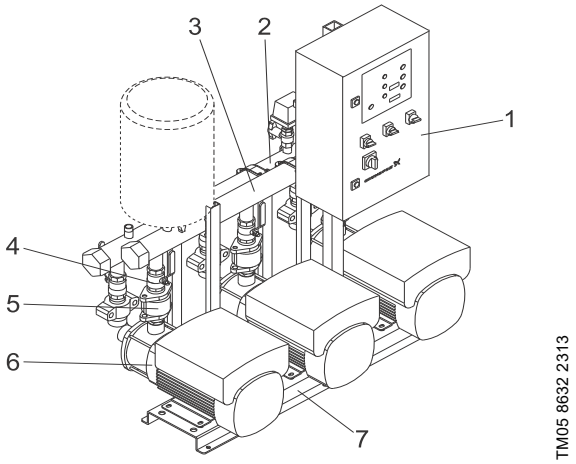


Fig. 10 Front view of the Hydro MPC CME pump system

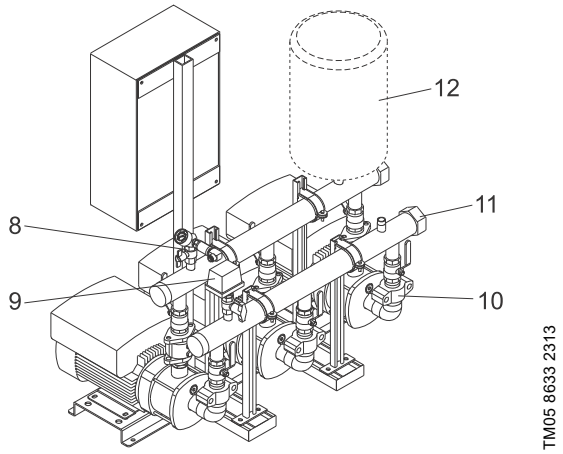
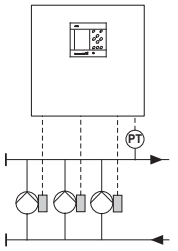
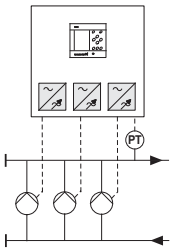
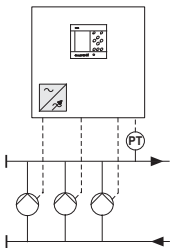
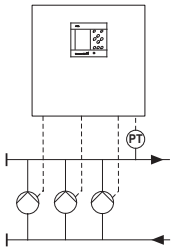
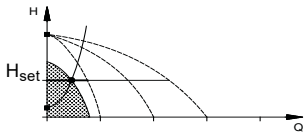
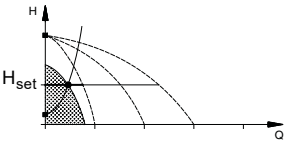
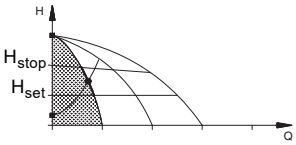
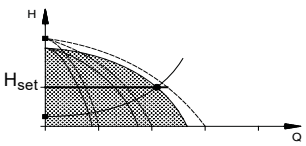
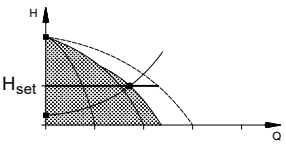
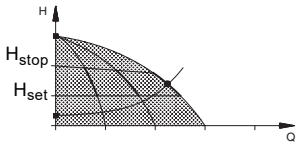


Fig. 11 Rear view of the Hydro MPC CME pump system

Pos.	Description	Quantity
1	Control cabinet	1
2	Inlet manifold (316 SS)	1
3	Outlet manifold (316 SS)	1
4	Isolating valve (nickel plated brass)	2 per pump
5	Non-return valve (Polyacetal (POM))	1 per pump
6	Pump (CME A-version CI/304 SS)	2-3
7	Base frame (304 SS)	1
8	Pressure transmitter and pressure gauge	1
9	Inlet pressure switch and pressure gauge	1
10	Oval flange connection (CME 3 - CME 10)	2 per pump
	Intermediate adapter connection (CME 15)	1 per pump
11	Screw cap or blanking flange	2
12	Optional diaphragm tank, available as an accessory	

4. Functions

Control variants

Pump systems with speed-controlled pumps		Pump systems with pumps connected to one CUE frequency converter	Pump systems with mains-operated pumps
Hydro MPC-E (CRE or CME)	**Hydro MPC-E (CUE)**	**Hydro MPC-F**	**Hydro MPC-S**
Hydro MPC pump system with three CRE, CME pumps.  TM03 0993 0905  TM074555 0419		Hydro MPC pump system with three CR pumps. One of the pumps is connected to a Grundfos CUE frequency converter in the control cabinet. The speed-controlled operation alternates between the pumps of Hydro MPC.  TM03 1265 1505	Hydro MPC pump system with three mains-operated CR, CRI pumps.  TM03 0999 0905
One CRE, CME pump in operation.  TM00 7995 2296		One CR pump connected to a Grundfos CUE frequency converter in operation.  TM00 7995 2296	One mains-operated CR, CRI pump in operation.  TM03 2045 3505
Three CRE, CME pumps in operation.  TM00 7996 2296		One CR pump connected to a Grundfos CUE frequency converter and two mains-operated CR pumps in operation.  TM00 7998 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 CRE, CME pumps connected. • The performance is adjusted to the demand through cutting in/out the required number of CRE, CME 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 run at the same speed.		• Hydro MPC-F maintains a constant pressure through continuously variable adjustment of the speed of the CR pump connected to a Grundfos CUE frequency converter. The speed-controlled operation alternates between the pumps. • One CR pump connected to the Grundfos CUE frequency converter always starts first. If the pump cannot maintain the pressure, one or two mains-operated CR pumps are cut in. • Pump changeover is automatic and depends on load, operating hours and fault.	• Hydro MPC-S maintains pressure between H_{set} and H_{stop} throughfixed speed pumps cutting in/out the required number of pumps. • The operating range of the pumps lies 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

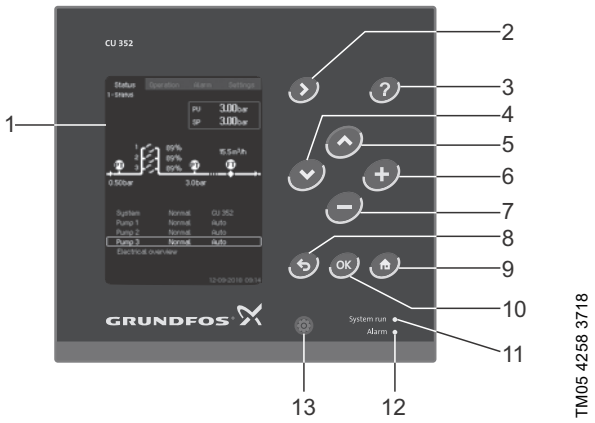


Fig. 12 CU 352 control panel

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

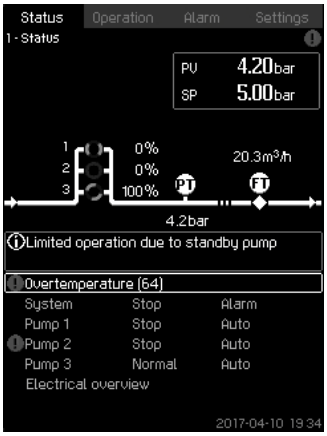


Fig. 13 "Status" menu

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 on.

"Operation" menu

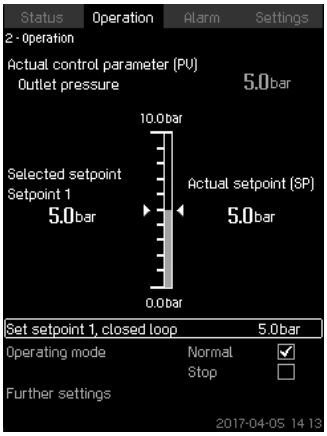


Fig. 14 "Operation" menu

Description

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

"Alarm" menu

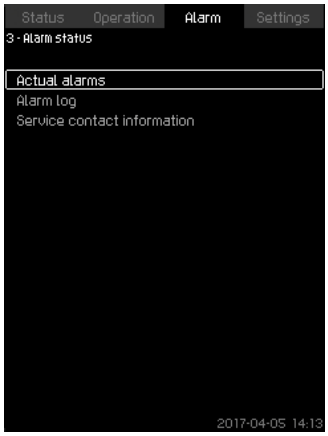


Fig. 15 "Alarm" menu

Description

- Overview of current warnings and alarms in clear text with detailed information:
  - The cause of the fault.
  - The remedy for the fault.
  - 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 on.

"Settings" menu

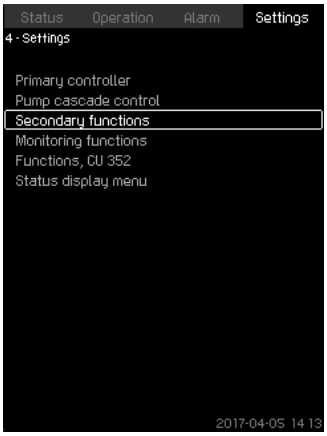


Fig. 16 "Settings" menu

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 on.

Overview of functions

	Hydro MPC		
	-E	-F	-S
Functions via the CU 352 control panel			
Constant-pressure control	●	●	● [1]
Proportional pressure	●	●	-
Automatic cascade control	●	●	●
Alternative setpoints	●	●	●
Multisensor[5]	●	●	●
Redundant primary sensor[4]	●	●	●
Minimum changeover time	●	●	●
Secondary sensor[5]	●	●	●
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 buildup	●	●	●
Emergency run	●	●	●
Pump curve data	●	●	●
Flow estimation	●	●	●
Limit 1 and 2 exceeded	●	●	●
Pumps outside duty range	●	●	●
Log function	●	●	●
Monitoring of non-return valve[5]	●	-	-
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 *12. Optional equipment*, page 87.	❍	❍	❍
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 15.

2 Hydro MPC-S has on/off control of all pumps. For further information, see page 22.

3 Requires that a flowmeter has been installed and connected.

4 Hardware not supplied as standard, but the functionality is available in the controller.

5 Systems with MLE motors, 0.50 - 30 Hp (0.37 - 22 kW).

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 is drawn from the diaphragm tank, if installed. The pressure drops to a set cut-in pressure, and the first speed-controlled pump starts. The speed of the pump in operation is continuously increased to meet the demand. As the consumption rises, more pumps are cut in until the performance of the pumps in operation corresponds to the demand. During operation, CU 352 controls the speed of each pump individually according to known pump curve data downloaded into CU 352.

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

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

Display language

Fig. 17 Display language

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

Options

- English
- Danish
- German
- French
- Italian
- Spanish
- Portuguese
- Greek
- Dutch
- Swedish
- Finnish
- Polish
- Russian
- Korean
- Chinese
- Japanese
- Czech
- [N/A]
- Hungarian
- [N/A]
- Croatian
- Latvian
- Lithuanian
- Romanian
- Slovakian
- Slovenian
- Serbian Latin
- Indonesian
- Malay
- Estonian

Pump curve data

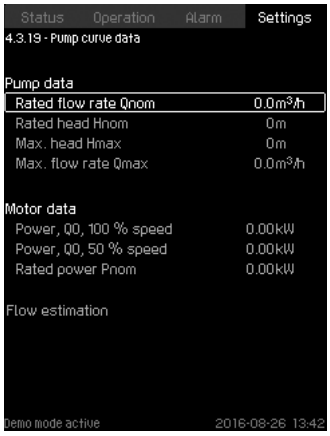


Fig. 18 Pump curve data

Pump curve data is loaded into the CU352 controller on the Hydro MPC pump system at the factory. The controller uses pump curve data along with inlet and outlet pressure information to determine where each pump is operating at. This optimizes performance and minimize energy consumption. The Hydro MPC CU352 controller knows exactly when to stage on and off pumps in operation based on hydraulic efficiency, and provides protection from running pumps outside their duty range.

Redundant primary sensor

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

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

Automatic cascade control

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

Alternative setpoints

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

Example

A Hydro MPC pump 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 outlet pressure is required.

Log values

Fig. 19 Log values

The log function enables monitoring 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 , 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, CU 352 calculates when the next pump is allowed to start or stop 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 are delayed, if necessary, not to exceed the permissible number of starts or stops per hour.

Standby pumps

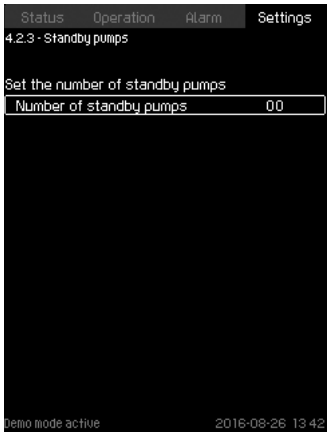


Fig. 20 Standby pumps

It is possible to let one or more pumps function as standby pumps. A pump system with, for instance, four pumps, one having the status of a standby pump, will run like a pump 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 stops due to a fault, the standby pump is cut in. This function ensures that the system can maintain the rated performance even if one of the pumps stops due to a fault.

The status of a standby pump alternates between all pumps of the same type.

Forced pump changeover

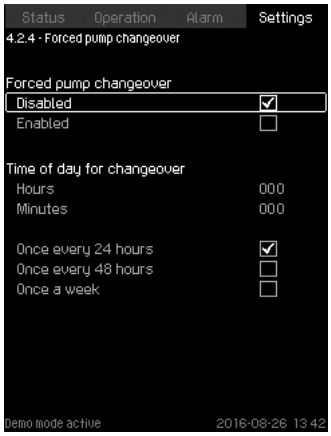


Fig. 21 Forced pump changeover

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 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 stops and is replaced by the pump with the lowest number of operating hours.

Pump test run

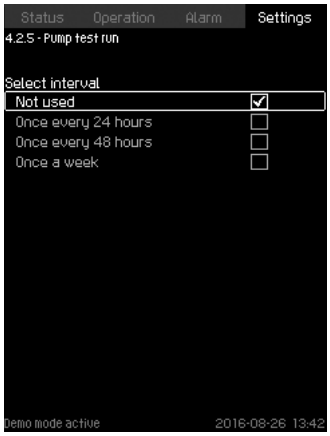


Fig. 22 Pump test run

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 protection functions, as dry running may damage bearings and shaft seals.

The inlet pressure of the system or the level in a tank on the inlet side is monitored. If the inlet pressure or the water level is too low, all pumps stop.

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

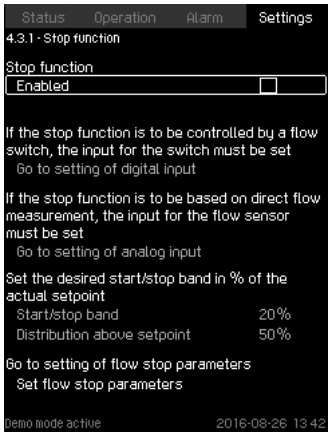


Fig. 23 Stop function

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 the Hydro MPC pump system with variable-speed pumps.

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

When the stop function is enabled, the operation of the system is continuously monitored to detect a low flow rate. If CU 352 detects no or a low flow rate (Q less than Q_{min}), it changes from normal constant-pressure operation to on/off control of the last pump in operation.

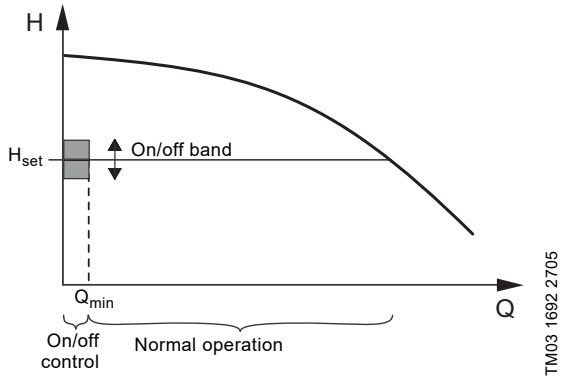


Fig. 24 On/off band

As long as the flow rate is lower than Q_{min}, the pump runs in on/off operation. If the flow rate is increased to above Q_{min}, the system returns to normal operation.

Via CU 352, you can set Hydro MPC to operate as energy-efficiently as possible or with the highest level of comfort.

Stop parameters

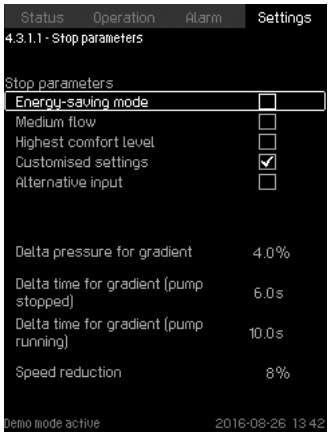


Fig. 25 Stop parameters

Five 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 the 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.
- Alternative input
  If you select this function, you can define the stop flow on the basis of the system setpoint, total tank volume or pre-charge pressure.

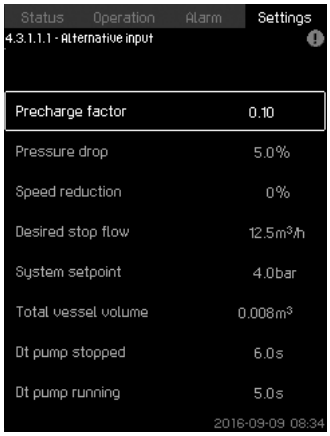


Fig. 26 Alternative input

Setpoint ramp

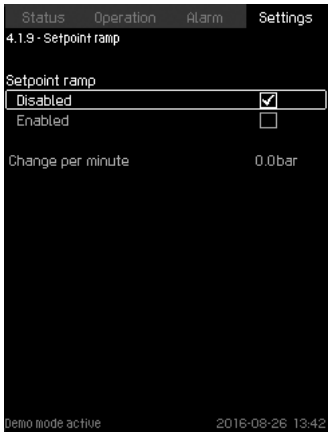


Fig. 27 Setpoint ramp

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

Purpose:

- to reduce the necessary size of the diaphragm tank
- to reduce the number of operating hours of the main pumps.

Password

Fig. 28 Password

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

Clock program

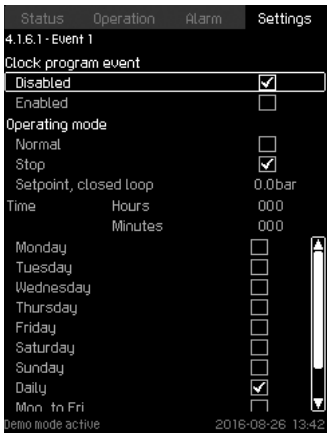


Fig. 29 Clock program

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

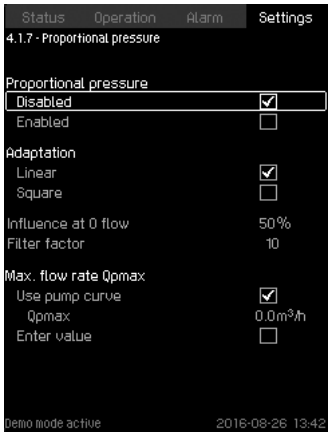


Fig. 30 Proportional pressure

This function can be used in applications to compensate for friction head needed at high flow and not needed at low flows.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 minimize 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. To deliver a system pressure of 72.5 psi (5 bar) in such a situation, the outlet pressure of the system must be set to 87 psi (6 bar) if the pressure loss in the pipe system is 14.5 psi (1 bar).

In a low-flow situation, the pressure loss in the pipe system may only be 2.9 psi (0.2 bar). Here, the system pressure would be 84.1 psi (5.8 bar) if the setpoint was fixed to 87 psi (6 bar). That is 11.6 psi (0.8 bar) too high compared with the peak situation above.

To compensate for this excessive system pressure, the proportional-pressure function of CU 352 automatically adapts the setpoint to the actual flow rate. The adaptation can be linear or square. Such automatic adaptation offers you large energy savings and optimum comfort at the tapping point!

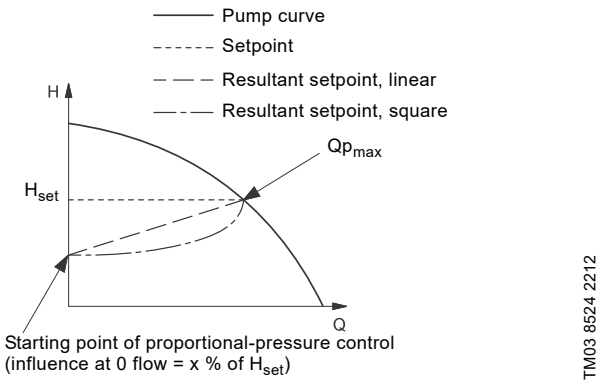


Fig. 31 Proportional-pressure control

Note: Qp_{max} is the expected maximum flow rate. It can either be set to the maximum flow the system can deliver at a determined setpoint, or a value can be entered 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) = 14.5 psi (1 bar) x 100 / 87 psi (6 bar) = 16.67 %.

Setpoint at Q_{min} with proportional-pressure control:

87 psi (6 bar) - (87 psi (6 bar) x 0.1667) = 72.5 psi (5 bar).

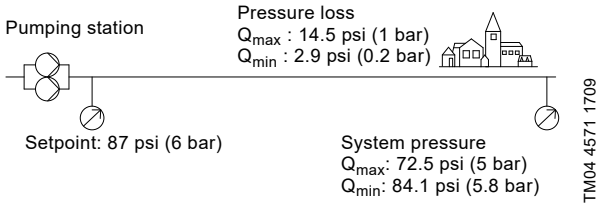


Fig. 32 Without proportional-pressure control

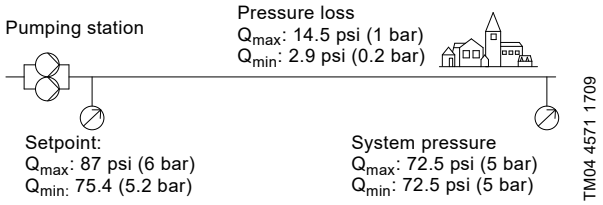


Fig. 33 With proportional-pressure control

Soft pressure build-up

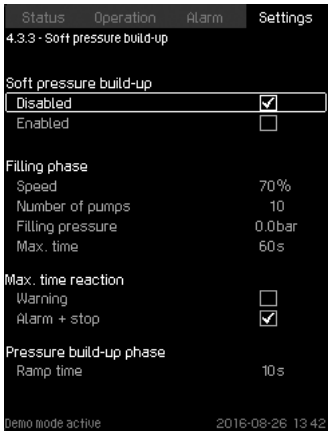


Fig. 34 Soft pressure build-up.

This function ensures a gradual pressure build-up with, for instance, empty pipes.

It has two phases:

1. The pipe is slowly filled with water.
2. When the system's pressure sensor detects that the pipe has been filled with water, the pressure is increased until it reaches the setpoint. See fig. 35.

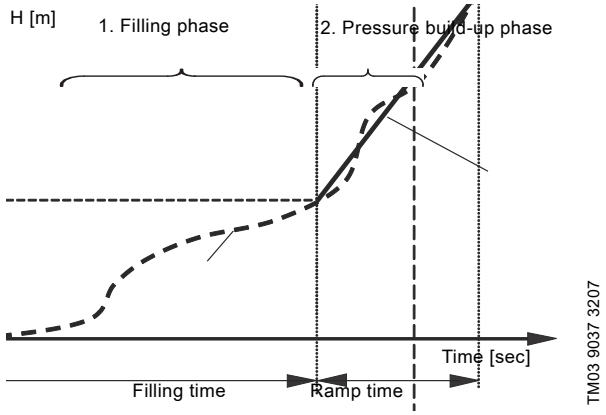


Fig. 35 Filling and pressure build-up phases

The function can be used to prevent water hammer in high-rise buildings with unstable power supply or in irrigation systems.

Emergency run

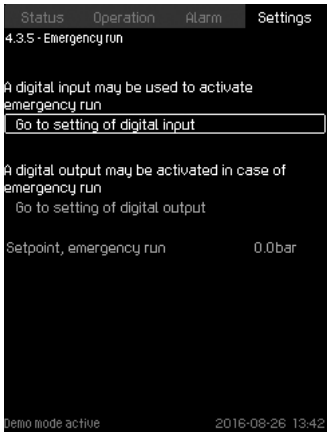


Fig. 36 Emergency run

This function is especially suited for important systems where the operation must not be interrupted. The function keeps all pumps running regardless of warnings or alarms. The pumps 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.

Status display menu

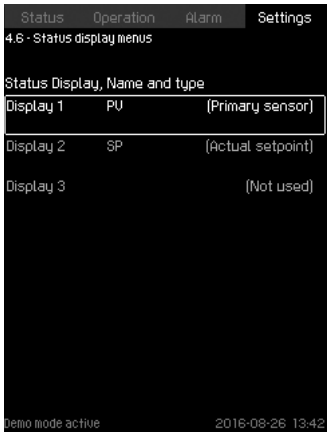


Fig. 37 Status display menu

The main status menu can show up to three status values.

In this menu, you can define each status value and a name for the value. Examples:

PV: process value

SP: setpoint

Q: flow rate.

Setting range

1. Name of each display value.
2. Selection of displays 1 to 3.

Setting the display value

1. Go to the Settings menu.
2. Select "Status display menu".
3. Mark the display and press [ok].
4. Enter a name for the display value.
5. Define the function of the display.

Status display menus

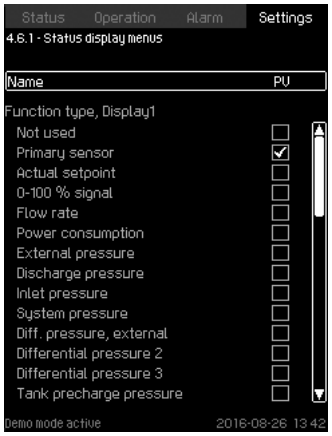


Fig. 38 Status display menus

Factory settings

Display 1: PV, primary sensor.

Display 2: SP, actual setpoint.

Non-return valve

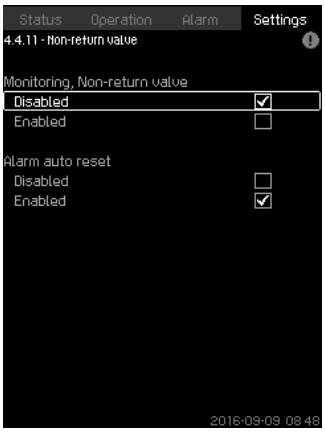


Fig. 39 Non-return valve

This function enables CU 352 to detect if a non-return valve is leaking or in need of replacement.

A small leakage results in a warning after five seconds.

If a non-return valve is in need of replacement, an alarm is given after 10 seconds, and the pump stops. In this case, the pump is not able to overcome the backflow through the pump with the faulty non-return valve.

Note: The function is only valid for MPC-E systems with MLE motors, model G, F, H, I and J.

Multisensor settings

This function is designed to control up to six zones in an HVAC system within a defined differential-pressure band. The function influences the actual setpoint if one of the multisensors is below or above its limits.

Furthermore, the system can optimize the actual setpoint if the energy-saving mode is activated by reducing the actual setpoint until the minimum limit of one of the multisensors is reached.

Multisensor settings

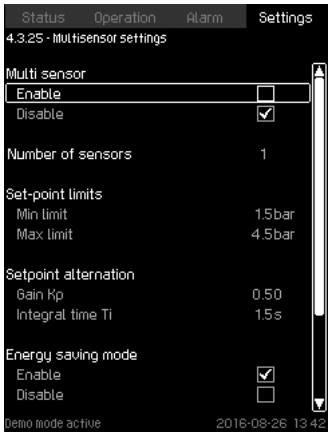


Fig. 40 Multisensor settings

Volume counter

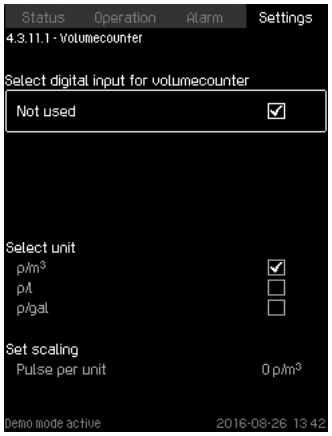


Fig. 41 Volume counter

You can set CU 352 to accumulate a pumped volume from a digital water meter.

Note: This menu only appears if an IO 351B module is connected to CU 352.

5. Installation

Mechanical installation

Location

Install the pump system in a well-ventilated room to ensure sufficient cooling of control cabinet and pumps.

Note: The pump system is not designed for outdoor installation and must not be exposed to direct sunlight.

Place the pump system with a 3 ft (1 m) clearance on front and two sides for inspection and service.

Pipes

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

The pipes connected to the pump system must be of adequate size.

Connect the pipes to the manifolds of the pump 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, fit a blanking flange with gasket.

To optimize operation and minimize noise and vibration, it may be necessary to consider vibration dampening of the pump system.

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

If pump systems are installed in blocks of flats or the first consumer on the line is close to the pump system, we recommend that you fit expansion joints on the inlet and outlet pipes to prevent vibration from being transmitted through the pipes.

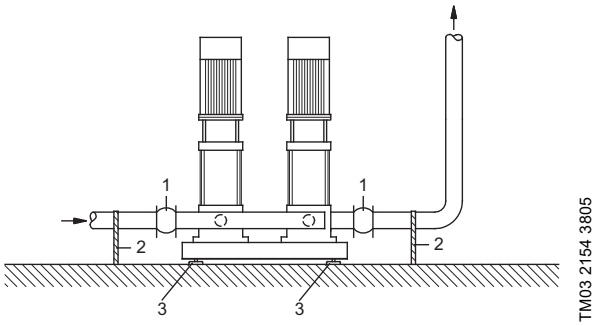


Fig. 42 Schematic view of hydraulic installation

Pos.	Description
1	Expansion joint
2	Pipe support (and good location for system isolation valve)
3	Vibration damper

Note: Expansion joints, pipe supports and machine shoes shown in fig. 42 are not included in a standard pump system.

Tighten all nuts before startup.

Fasten the pipes to parts of the building to ensure that they cannot move or be twisted.

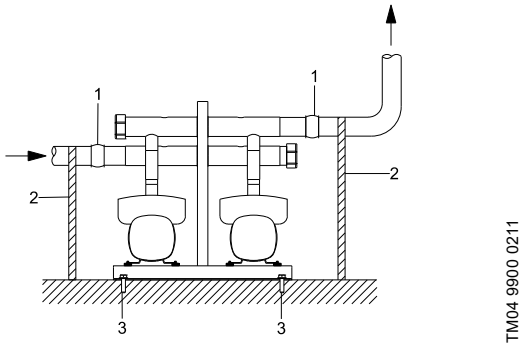


Fig. 43 Example showing the position of expansion joints, pipe supports and mounting bolts

Pos.	Description
1	Expansion joint (recommended accessory) (Good location for system isolating valves.)
2	Pipe support
3	Mounting bolt

Note: Expansion joints, pipe supports and mounting bolts shown in fig. 42 above are not included in a standard booster system.

Fasten the pipes to parts of the building to ensure that they cannot move or be twisted.

Foundation

Position the pump system on an even and solid surface, such as a concrete floor or foundation. If the pump system is not fitted with vibration dampers, bolt it to the floor or foundation.

Note: As a rule of thumb, the weight of a concrete foundation must be 1.5 times the weight of the pump system.

Dampening

To prevent the transmission of vibrations to buildings, it may be necessary to isolate the pump 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 must, therefore, be sized by the supplier.

If you install the pump system on a base frame with vibration dampers, always fit expansion joints on the manifolds. This is important to prevent the pump system from "hanging" in the pipes.

Expansion joints

Expansion joints provide these advantages:

- absorption of thermal expansion and contraction of pipes caused by variations in liquid temperature
- reduction of mechanical influences in connection with pressure surges in the pipes
- isolation of structure-borne noise in the pipes (only rubber bellows expansion joints).

Note: Do not fit expansion joints to compensate for inaccuracies in the pipes, such as center displacement of flanges.

Fit expansion joints at a distance of a minimum of 1 to 1.5 times the nominal flange diameter from the manifold on the inlet as well as on the outlet side. This prevents the development of turbulence in the expansion joints, resulting in better inlet conditions and a minimum pressure loss on the outlet side. At high water velocities of more than 5 m/s, we recommend that you fit larger expansion joints corresponding to the pipes.

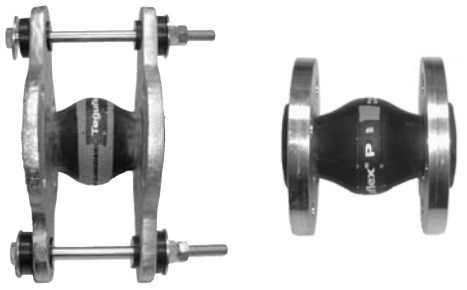


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Fig. 44 Examples of rubber bellows expansion joints with and without limiting rods

Expansion joints with limiting rods can be used to minimize the forces caused by the expansion joints. We recommend that you always use expansion joints with limiting rods for flanges larger than 4 inches.

Anchor the pipes so that they do not stress the expansion joints, manifolds 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 authorized staff in accordance with local regulations and the relevant wiring diagram.

- The electrical installation of the pump system must be carried out in accordance with enclosure class IP54.
- Check that the power supply and frequency correspond to the values stated on the nameplate. Contact Grundfos if you have special voltage requirements.
- Make sure that the conductor cross-section meets the specifications in the wiring diagram.

6. Sizing

Take these parameters into account when sizing a pump system:

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

You can size the Grundfos Hydro MPC pump systems via Grundfos Product Center or this data booklet.

Sizing in Grundfos Product Center (recommended)

We recommend that you size your Hydro MPC pump system in Grundfos Product Center, which is a selection program offered by Grundfos. For further information, see page 94.

Fig. 45 Sizing in Grundfos Product Center

Sizing via this data booklet

There are seven steps:

1. maximum flow requirement
2. required outlet pressure
3. system layout
4. consumption profile and load profile
5. inlet pressure
6. selection of pump system
7. accessories.

1. Maximum flow requirement

The total consumption and the required 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 (m)	Maximum flow rate
		[gal/year (m^3/year)]	[days/year]	[gal-day (m^3/day)]		[m^3/day]		[gpm (m^3/h)]
Residence building	Residence (2.5 persons)	48344 (183)	365	132 (0.5)	1.3	172 (0.65)	1.7 (0.51)	0.20 (0.046)
Office building	Employee	6604 (25)	250	26 (0.1)	1.2	32 (0.12)	3.6 (1.09)	0.08 (0.018)
Shopping centre	Employee	6604 (25)	300	21 (0.08)	1.2	26 (0.1)	4.3 (1.31)	0.08 (0.018)
Supermarket	Employee	21134 (80)	300	71 (0.27)	1.5	11 (0.4)	3.0 (0.91)	0.22 (0.05)
Hotel	Bed	47551 (180)	365	132 (0.5)	1.5	198 (0.75)	4.0 (1.21)	0.55 (0.125)
Hospital	Bed	79252 (300)	365	21 (0.8)	1.2	264 (1.0)	3.0 (0.91)	0.53 (0.12)
School	Pupil	2113 (8)	200	11 (0.04)	1.3	17 (0.065)	2.5 (0.76)	0.03 (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
Yearly maximum consumption:	$Q(m)_{day}$ = fd x Q_{day}
Maximum flow requirement per hour:	Q_{max} = maximum flow rate/hour x number of beds.

Calculation

n	=	540 beds.
Q_{year} x n	=	47551 x 540 = 25,677,540 gal/year (180 x 540 = 97,200 m^3/year).
d	=	365 days/year.
(Q_{year} x n)/d	=	25,677,541/365 = 70,349 gal/day (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}	=	Maximum flow rate/hour x number of beds = 0.55 x 540 = 297 gph (0.125 x 540 = 67.5 m^3/h).

2. Required outlet pressure

The required outlet pressure of Hydro MPC can be calculated with the following equation:

$p_{set} = p_{tap(min)} + p_f + (h_{max}/10.2)$
$p_{boost} = p_{set} - p_{in(min)}$

Key

p_{set} = Required outlet pressure in bar
$p_{tap(min)}$ = Required minimum pressure at the highest tapping point in bar
p_f = Total pipe friction loss in meters
h_{max} = Height from pump outlet port to highest tapping point in meters
$p_{in(min)}$ = Minimum inlet pressure in bar
p_{boost} = Required boost in bar.

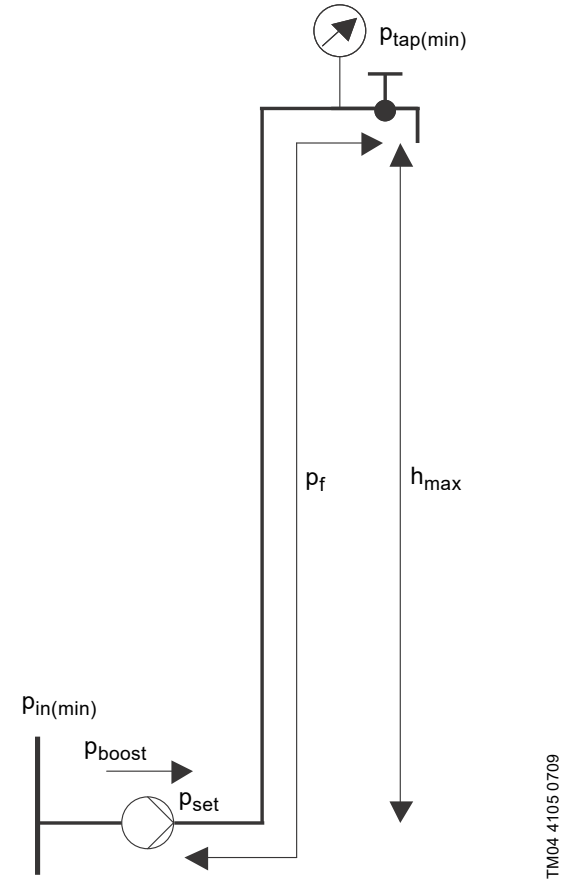

Fig. 46 Calculation of required outlet pressure

Calculation

$p_{tap(min)}$ = 29 psi (2 bar)
p_f = 17.4 psi (1.2 bar)
h_{max} = 136.1 ft. (41.5 m)
$p_{in(min)}$ = 29 psi (2 bar)
p_{set} = 2 + 1.2 + (41.5/10.2) = 105.8 psi (7.3 bar)
p_{boost} = 7.3 - 2 = 76.8 psi (5.3 bar).

3. System layout

What is the system layout?

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

b) Break tank
Example: Hydro MPC connected to a break tank installed before the pump 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: Hydro MPC distributes water to a roof tank on top of a high-rise building.

4. Consumption profile and load profile

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

24-hour consumption profile

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

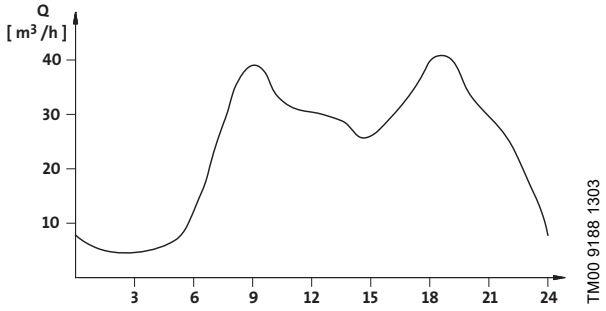

Fig. 47 Example of 24-hour consumption profile

Note: If the consumption is variable, and optimum comfort is required, use pumps with continuously variable speed.

Load profile

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

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

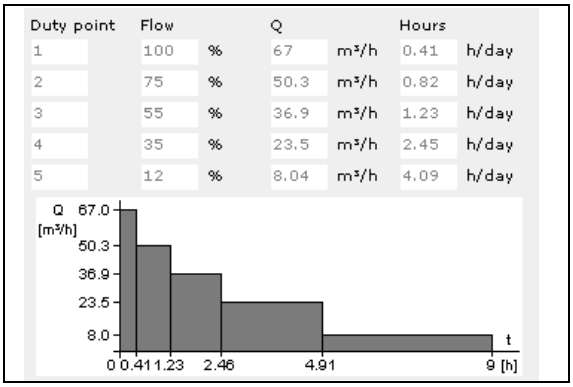

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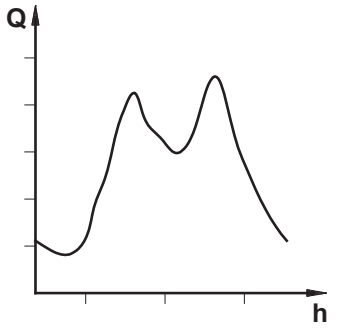
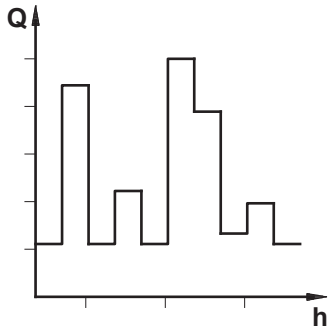
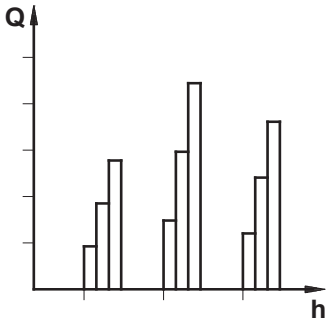
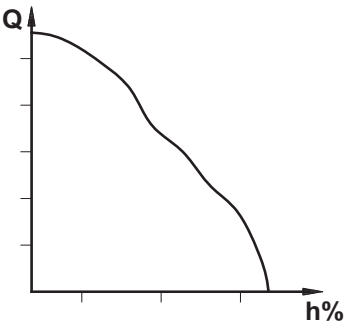
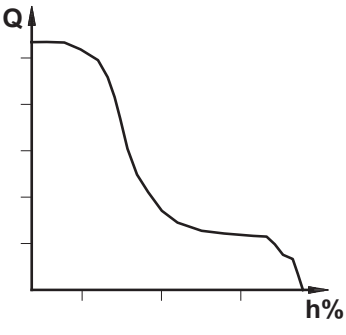
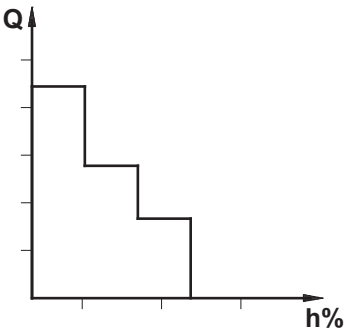
Fig. 48 Load profile

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. Continuously variable speed control of the pumps is recommended. **Recommended types:** -E and -F	Consumption is highly variable with sudden changes. Continuously variable speed control of the pumps is recommended. **Recommended types:** -E and -F	Variations in consumption are regular, yet known. Simple control is recommended. **Recommended types:** -S

5. Inlet pressure

If there is a positive inlet pressure, take the inlet pressure into consideration to ensure safe operation.

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

Example

A Hydro MPC-E pump system with 3 CRE 20-7 pumps has been selected.

Maximum operating pressure: 232 psi (16 bar).

Maximum inlet pressure: 145 psi (10 bar).

Outlet pressure against a closed valve: 145 psi (10 bar).

The selected system is allowed to start at an inlet pressure of a maximum of 84.1 psi (5.8 bar), as the maximum operating pressure is limited to 232 psi (16 bar). If the maximum inlet pressure exceeds 84.1 psi (5.8 bar), select a system rated PN 25.

6. Selection of Hydro MPC pump system

Select the pump system on the basis of these factors: maximum flow requirement, required outlet pressure, load profile, number of pumps required and possible standby pumps.

7. Accessories

When you have selected the optimum Hydro MPC pump system, consider whether you require any of the accessories mentioned below.

Dry-running protection

Every pump 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 a pilot pump is selected, size it according to the size of the main pumps in the system. As a rule of thumb, the pilot pump must not be smaller than one-fifth of the flow of a main pump at the desired setpoint.

Selection of diaphragm tank

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

- All Hydro MPC pump sets in buildings must be equipped with a diaphragm tank due to the stop function.
- Normally, Hydro MPC pump sets in water supply applications require no diaphragm tank as long as piping layouts partly hold the necessary capacity, partly have the elasticity to give sufficient capacity. **Note:** A tank may be necessary to avoid the risk of water hammering a diaphragm.
- The need for a diaphragm tank for Hydro MPC pump sets in industrial applications should be estimated from situation to situation on the basis of the individual factors on site.

Pump type	Recommended diaphragm tank size [gal (L)]			
	-E	-E(CUE)	-F	-S
CR, CRE 3	4.4 (17)	4.4 (17)	4.4 (17)	20 (76)
CR, CRE 5	4.4 (17)	4.4 (17)	4.4 (17)	34 (129)
CR, CRE 10	10.3 (39)	10.3 (39)	10.3 (39)	62 (235)
CR, CRE 15	34 (129)	34 (129)	34 (129)	211 (799)
CR, CRE 20	34 (129)	34 (129)	34 (129)	211 (799)
CR, CRE 32	44 (167)	44 (167)	44 (167)	317 (1200)
CR, CRE 45	86 (326)	86 (326)	86 (326)	528 (1999)
CR, CRE 64	132 (500)	132 (500)	132 (500)	1056 (3997)
CR, CRE 95	132 (500)	132 (500)	132 (500)	1056 (3997)
CR, CRE 125	211 (799)	211 (799)	211 (799)	(2) x 1056 (3997)
CR, CRE 155	211 (799)	211 (799)	211 (799)	(2) x 1056 (3997)

Recommended diaphragm tank size	
Pump type	**Tank size [gal (L)]**
CME 3	4.4 (17)
CME 5	4.4 (17)
CME 10	10.3 (39)
CME 15	34 (129)

The size of the recommended diaphragm tank in gallons can be calculated from the following equations:

Hydro MPC-E, -E(CUE), and -F

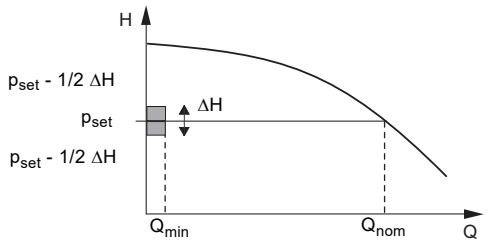
$$V_0 = \frac{k_Q \cdot Q \cdot (p_{set} + 14.5)^2 \cdot \left(\frac{3600}{N} - 10\right)}{60 \cdot (k_f \cdot (p_{set} + 14.5) \cdot k_H \cdot p_{set}}$$

Hydro MPC-S

$$V_0 = \frac{15 \cdot Q \cdot (p_{set} + 14.5) \cdot k_H \cdot p_{set} + p_{set} + 14.5)}{N \cdot (k_f \cdot p_{set} + 14.5) \cdot k_H \cdot p_{set}}$$

Symbol	Description
V_0	Tank volume [gallons]
k_Q	The ratio between nominal flow rate of one pump Q_{nom} and the flow rate Q_{min} at which the pump is to change to on/off operation. $k_Q = Q_{min}/Q_{nom}$, (0.10 for CR Pumps, 10 %)
Q	Mean flow rate, Q_{nom} [gpm]
p_{set}	Setpoint [psi]
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}. $k_f = p_0/pset$. 0.9 for Hydro MPC-S 0.7 for Hydro MPC-E, -E(CUE), and -F
N	Maximum number of starts/stops per hour

Hydro MPC-E, -E (CUE), and -F



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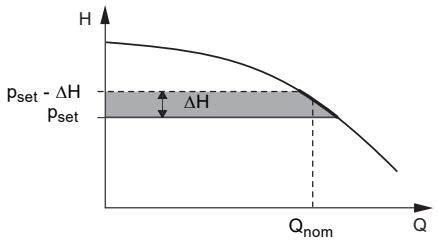
Hydro MPC-S



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The tank values are based on the following data:

Symbol	Hydro MPC	
	-E, -E(CUE), and -F	-S
Q	Q_{nom} of one pump	Q_{nom} of one pump
k_Q	10 %	-
p_{set}	58 psi (4 bar)	58 psi (4 bar)
k_H	20 %	25 %
k_f	0.7	0.9

Example of Hydro MPC-E and -S with CR, CRE 10

Symbol	Hydro MPC-E	Hydro MPC-S
Q [gpm (liter)]	44 (166)	44 (166)
k_Q	10 %	-
k_H	20 %	25 %
p_{set} [psi (bar)]	58 (4 bar)	58 (4 bar)
N [h^{-1}]	200	100
Result		
V_0 [gallons (liter)]	4.83 (18)	43.0 (163)
Selected tank [gallon (liter)]	4.4 or 10.3 (16.65 or 38.61)	44 or 62 gallon (167 or 235)
ΔH [psi (bar)]	11.6 (0.80 bar)	14.5 (1.0 bar)
p_0 [psi (bar)]	40.6 (2.80 bar)	52.2 (3.60 bar)

7. Curve conditions

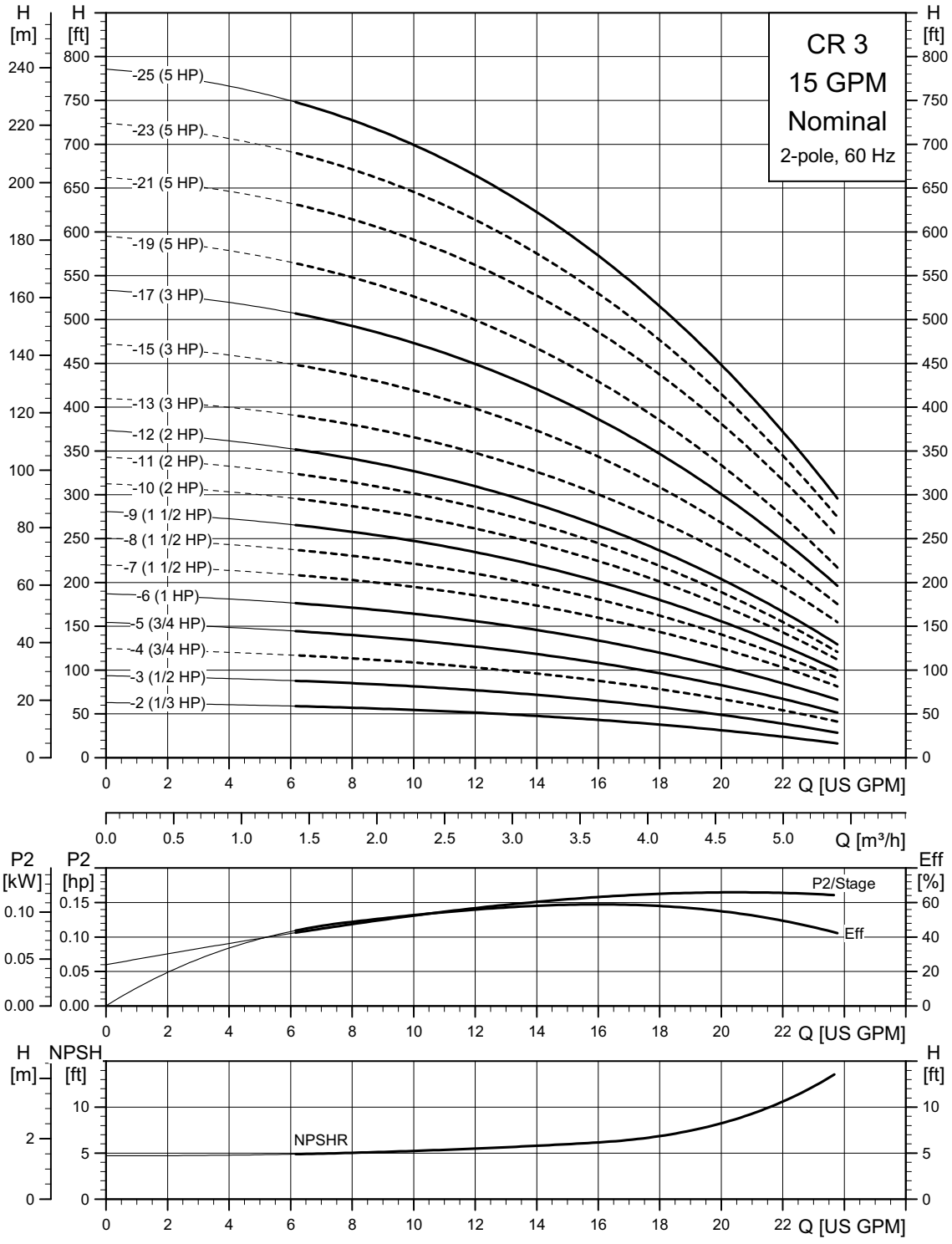
How to read the curve charts

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

- Measurements have been made with airless water at a temperature of 68 °F (20 °C).
- The curves apply to a kinematic viscosity of υ is equal to 1 mm^2/s (1 cSt).
- The QH curves apply to fixed speeds of 2900 min^{-1} at 50 Hz and 3480 min^{-1} at 60 Hz.
  Note: In most cases, the actual speed deviates from the above-mentioned speeds. 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, you can also 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 equal to 1000 kg/m^3.

8. Curve charts, Hydro MPC-E, 60 Hz

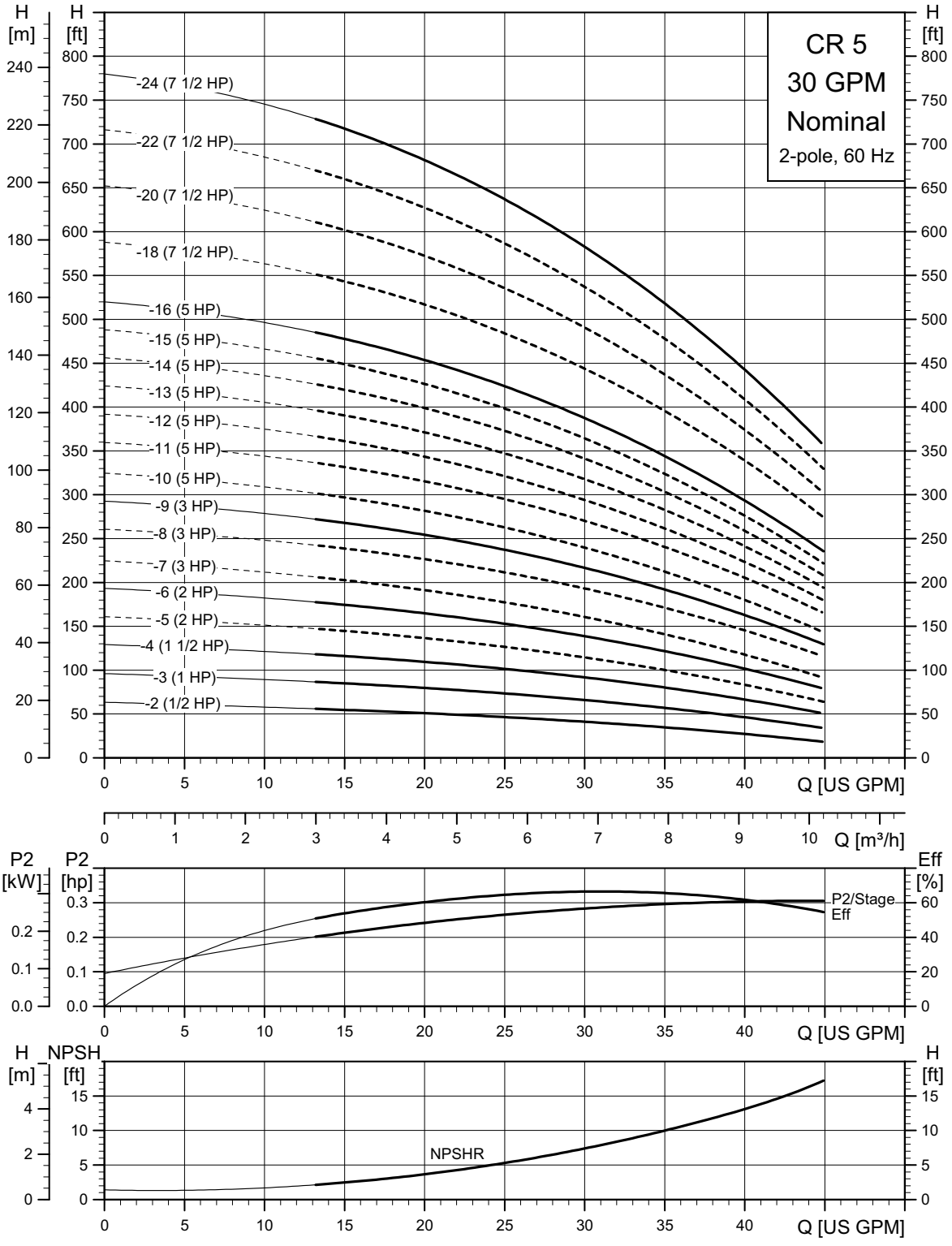
Hydro MPC-E with CR, CRE 3



TM07 4788 0619

Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

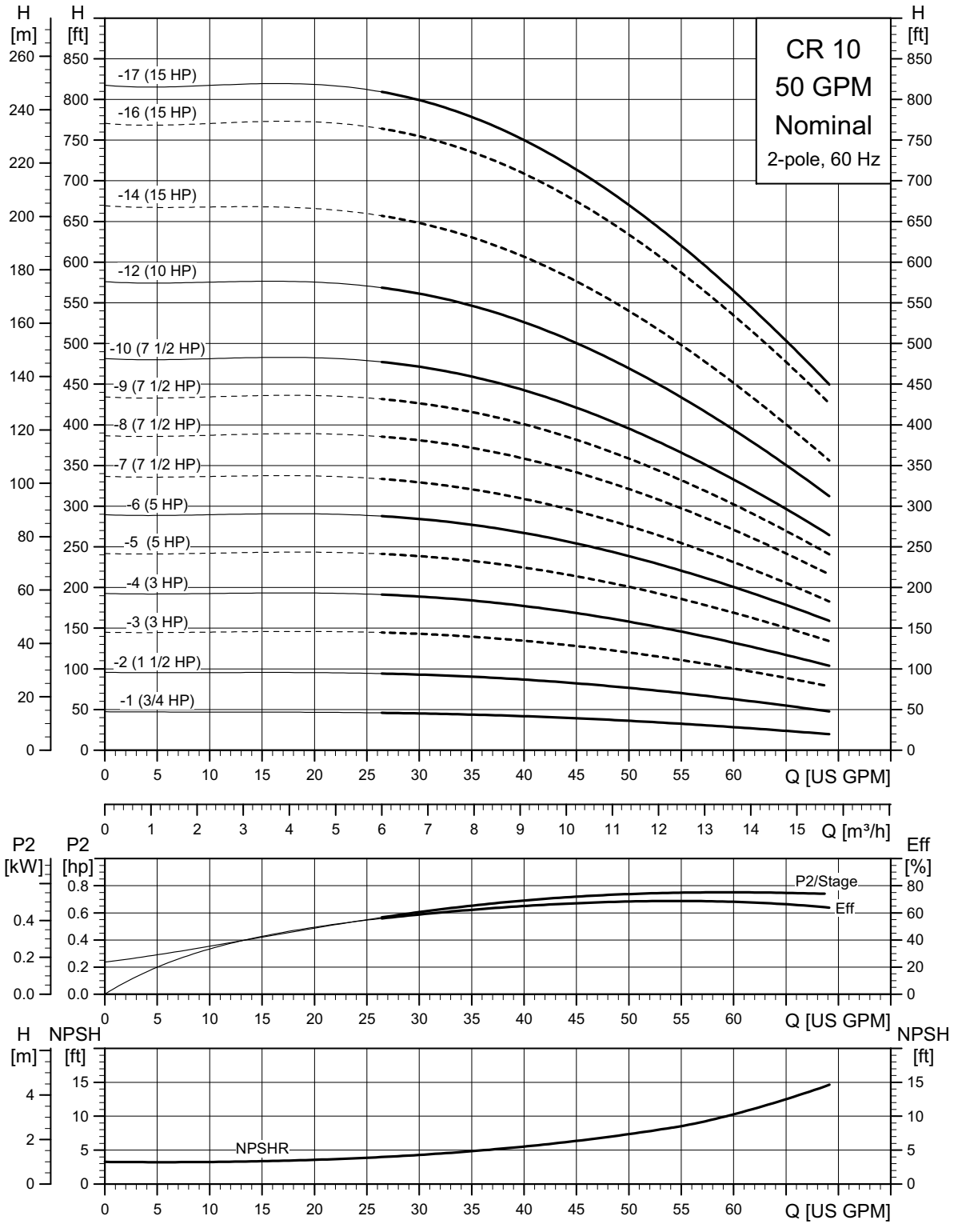
Hydro MPC-E with CR, CRE 5



TM07 4789 0619

Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

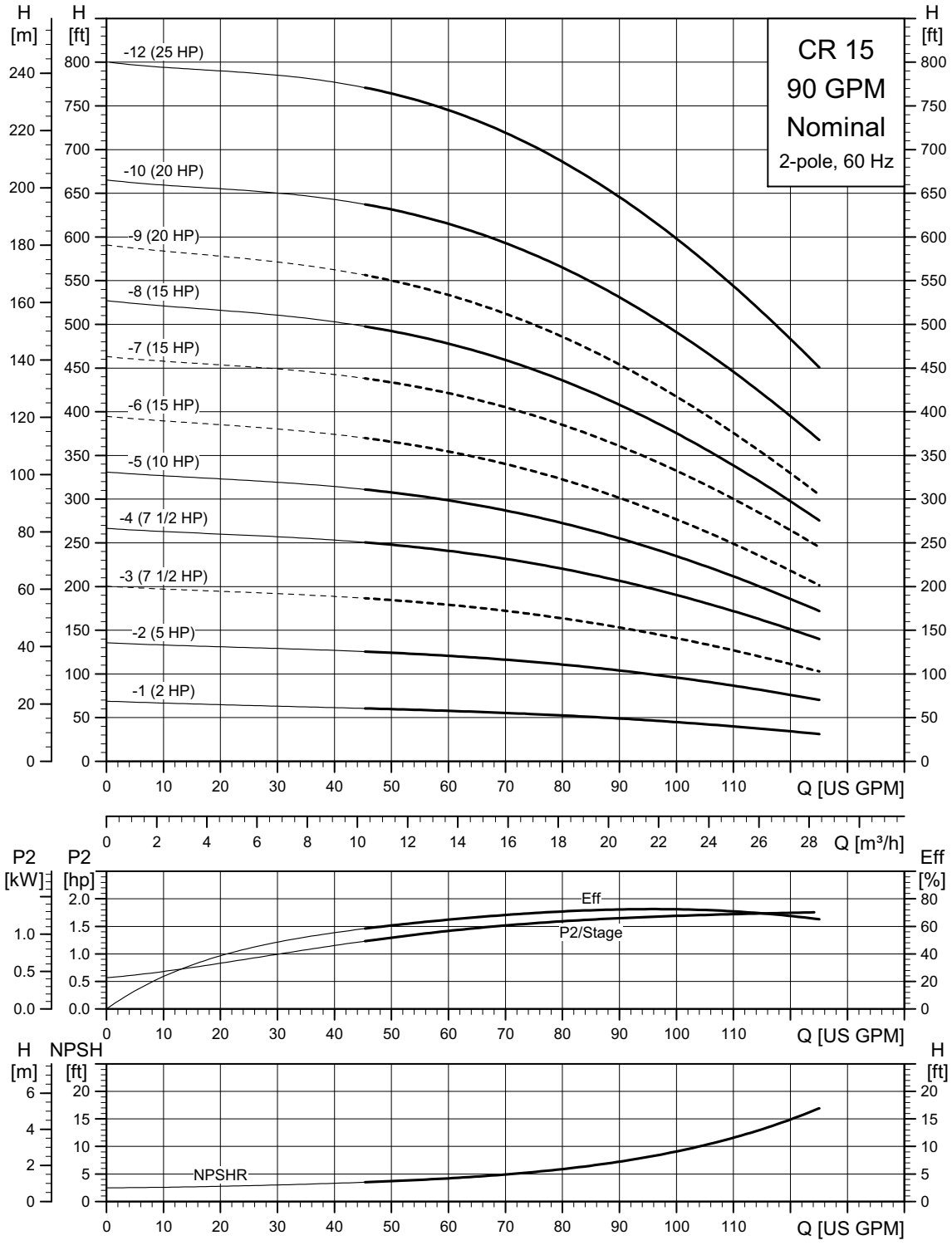
Hydro MPC-E with CR, CRE 10



TM07 4790 0619

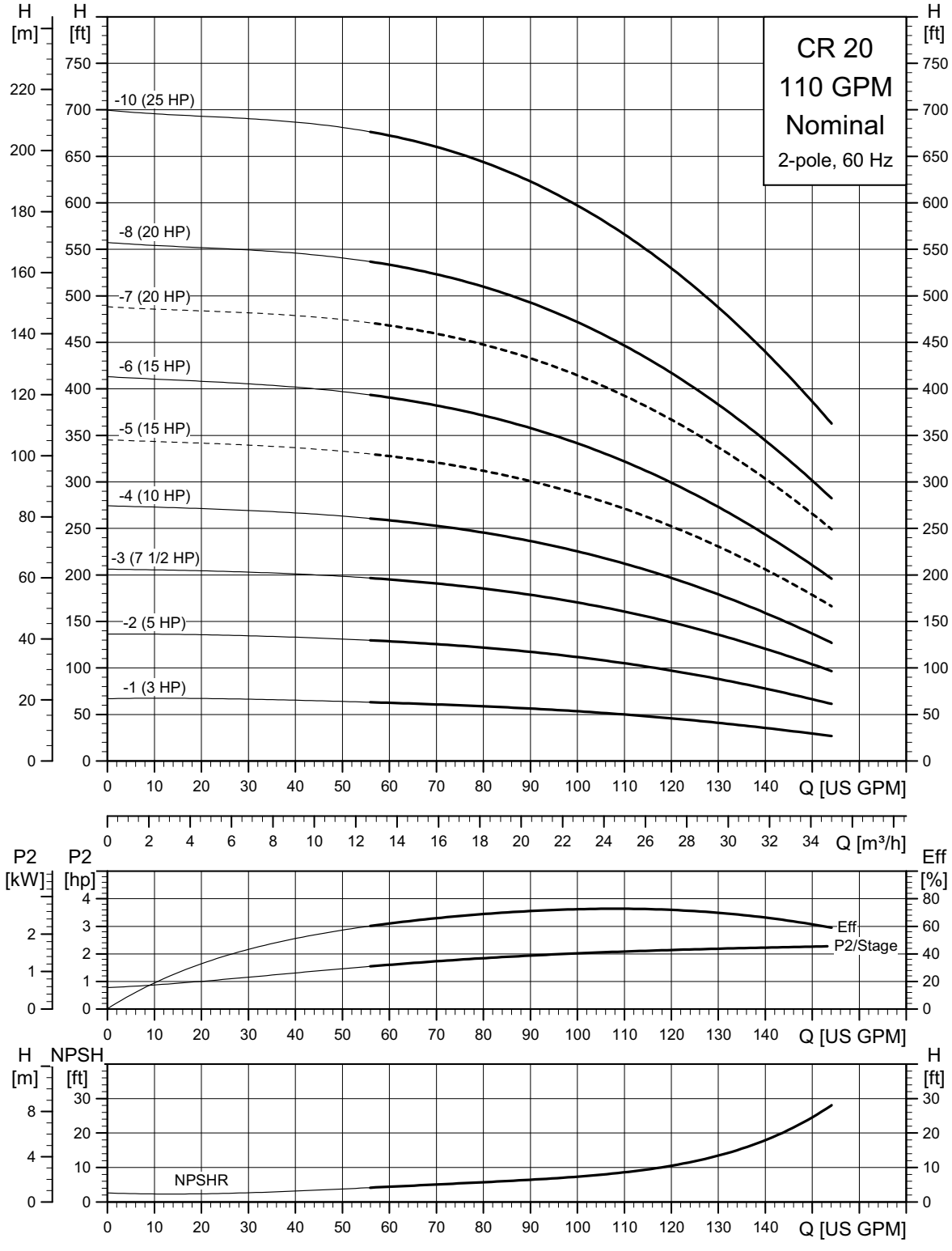
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 15



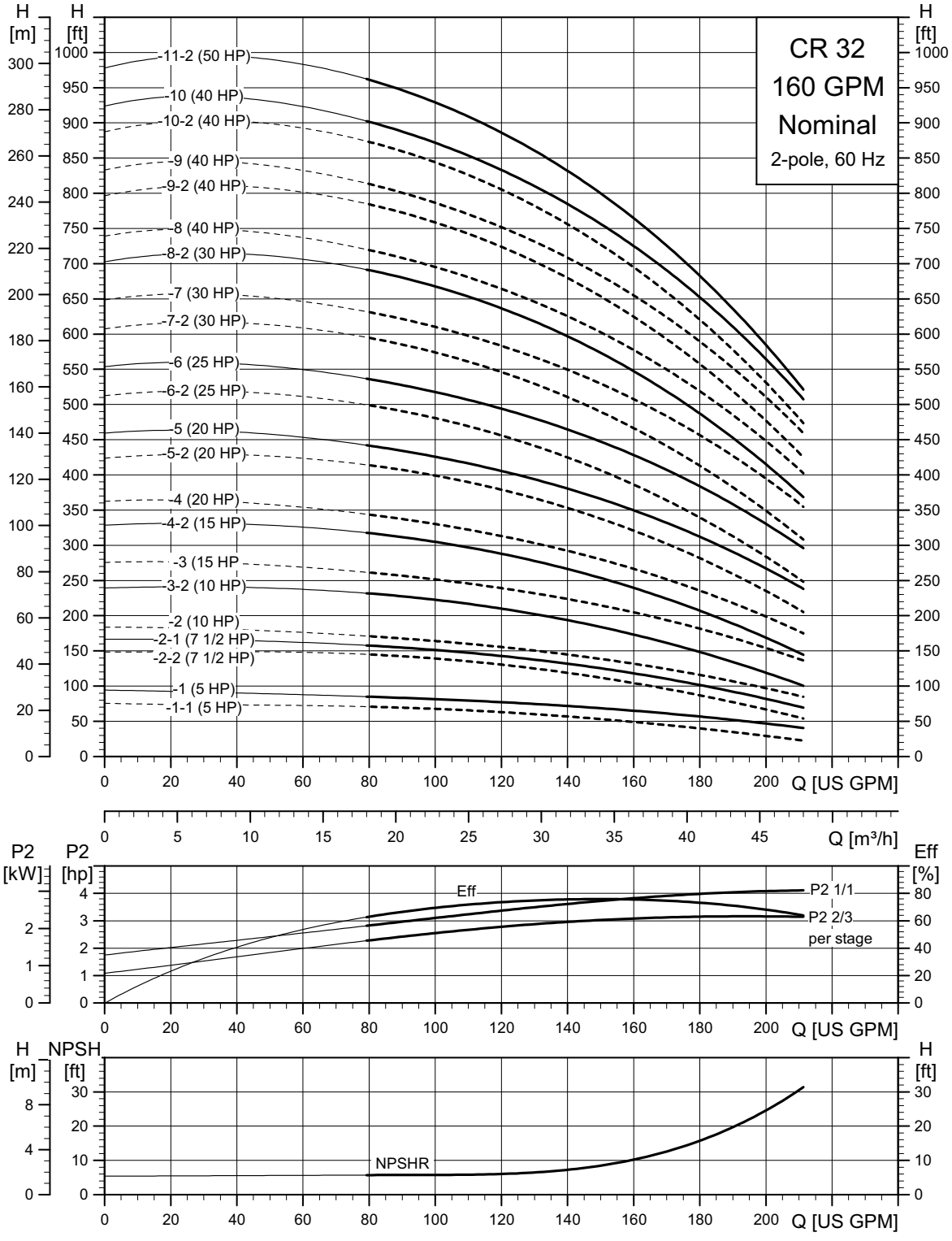
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 20



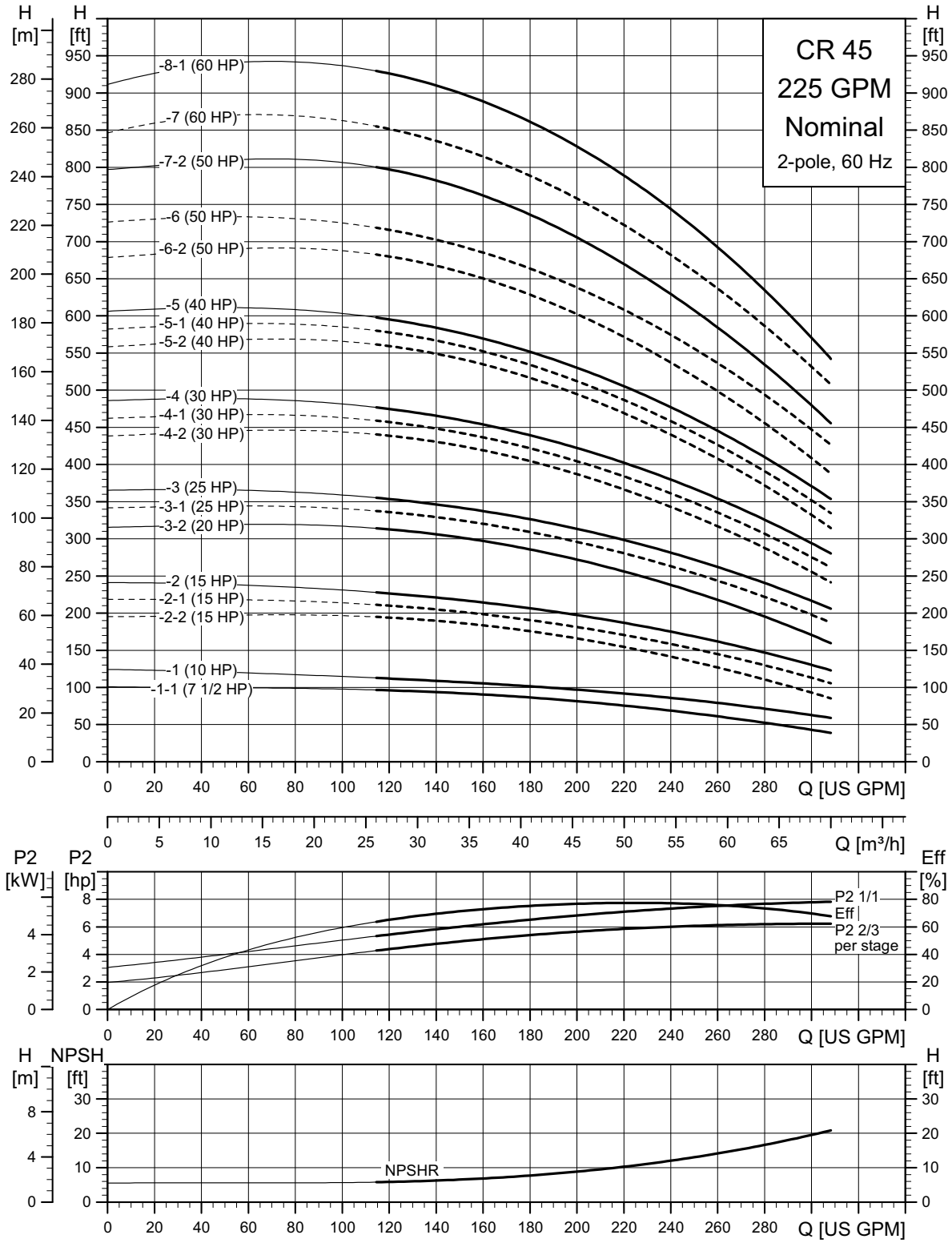
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 32



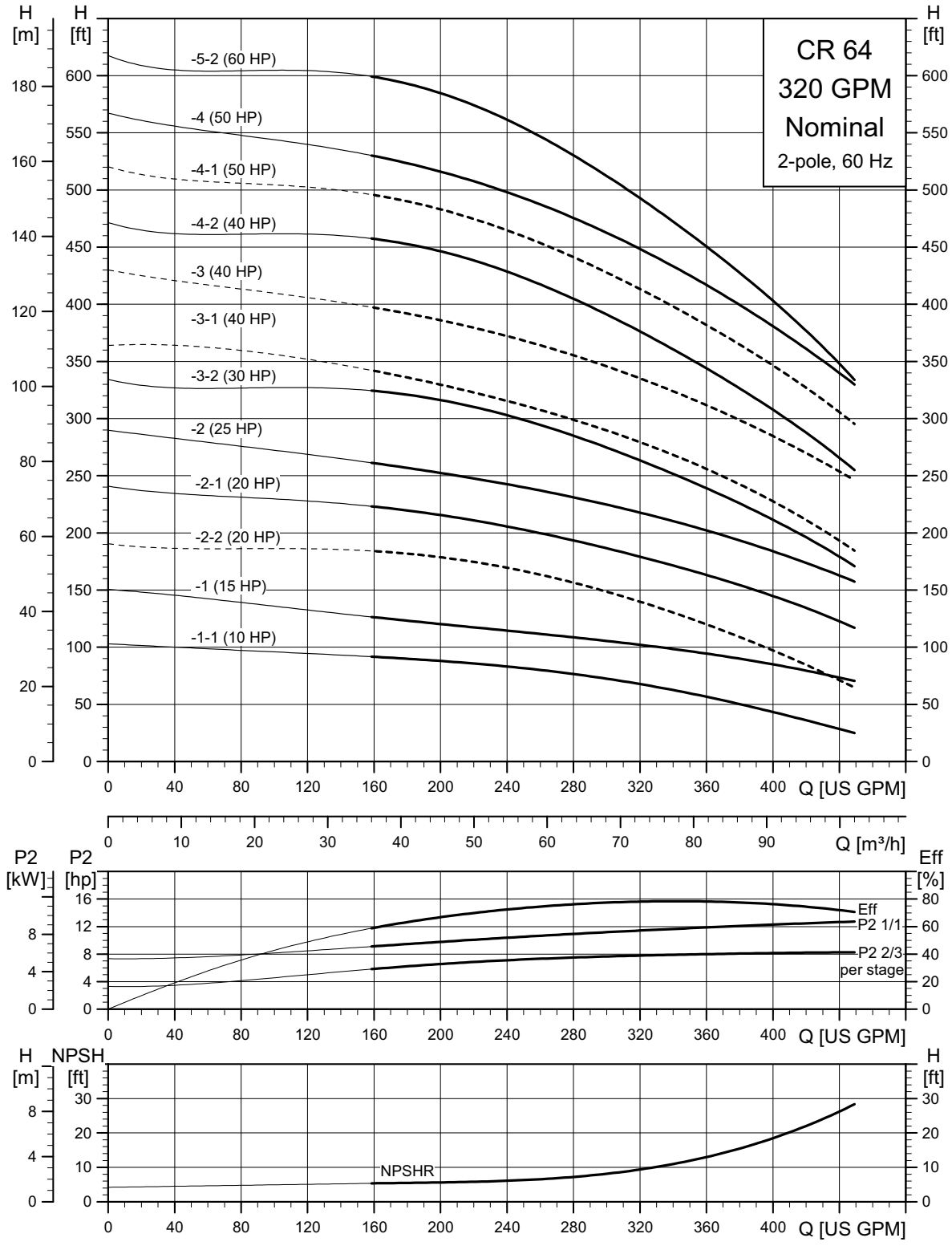
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 45



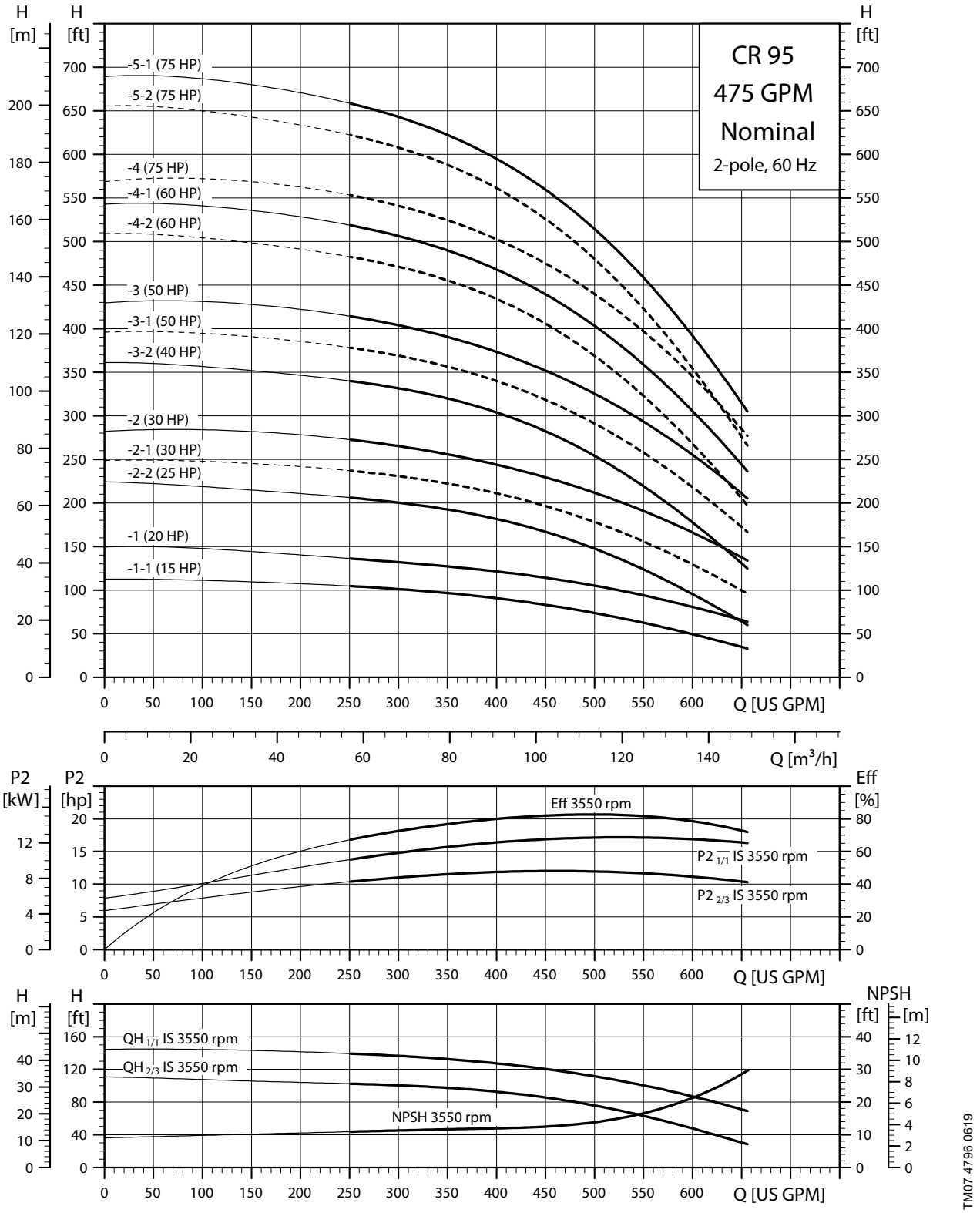
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 64



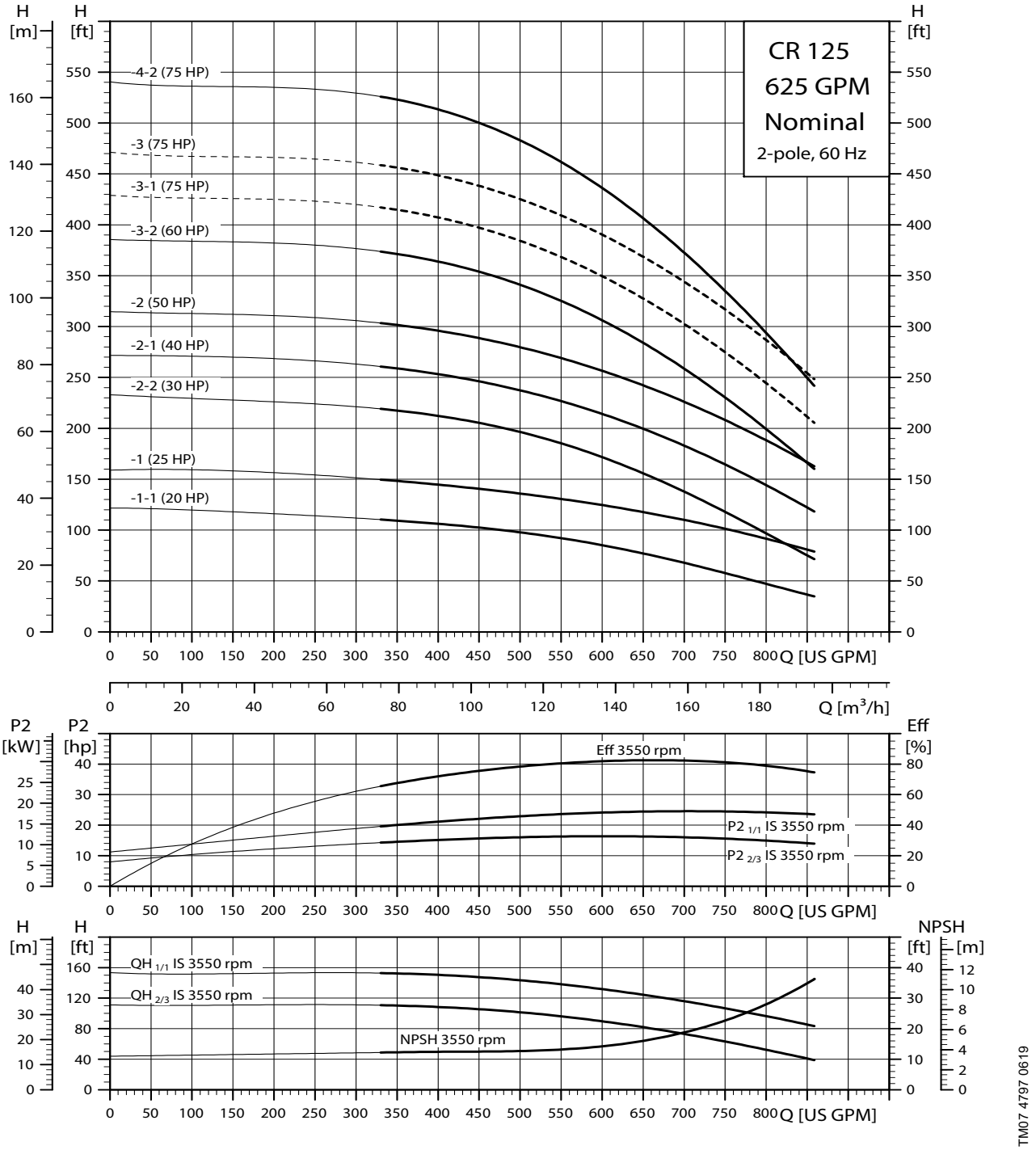
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 95



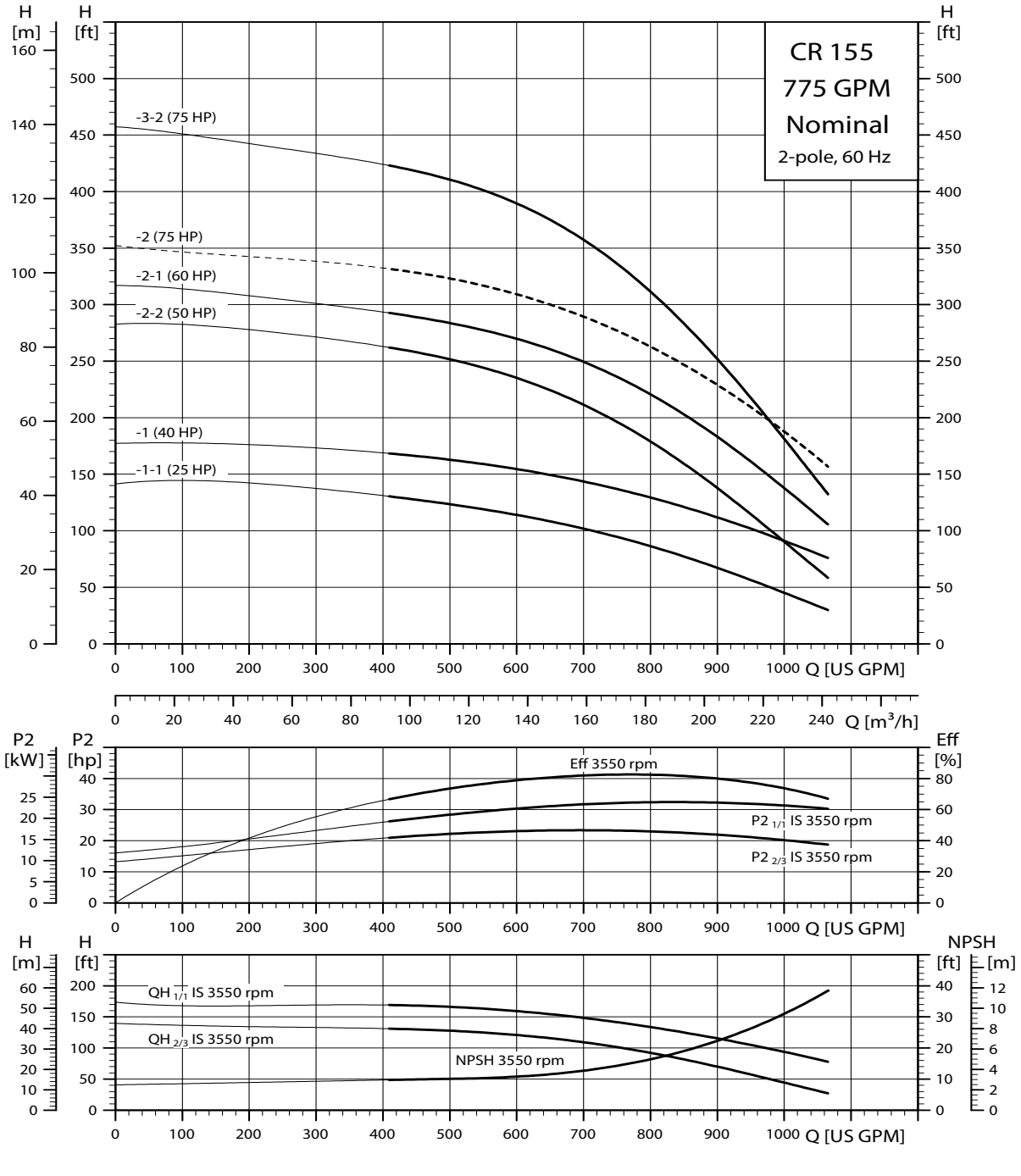
Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 125



Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

Hydro MPC-E with CR, CRE 155

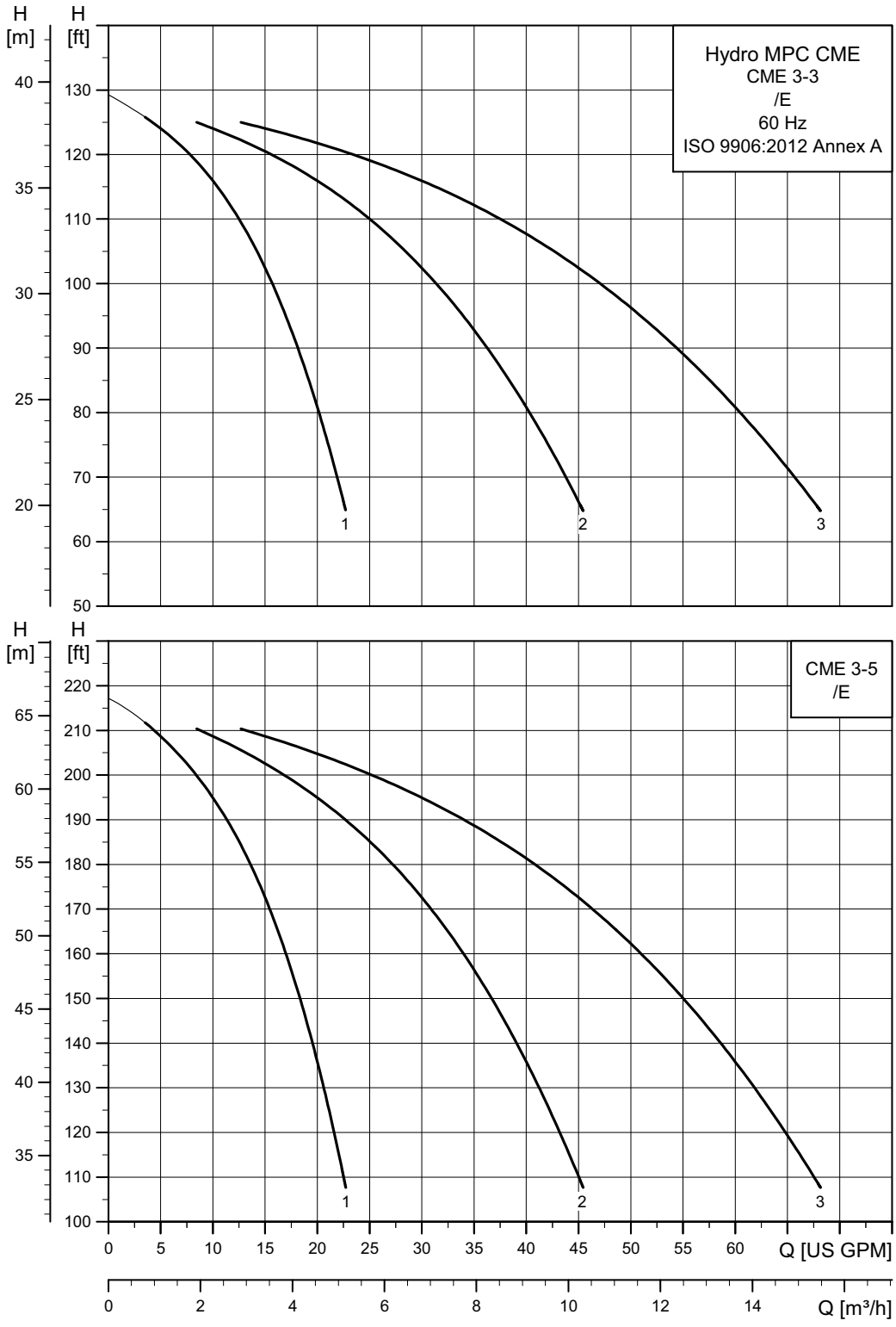


TM07 4798 0619

Note: Irrespective of the input frequency, the 100 % speed of pumps is approximately 3480 min^{-1}.

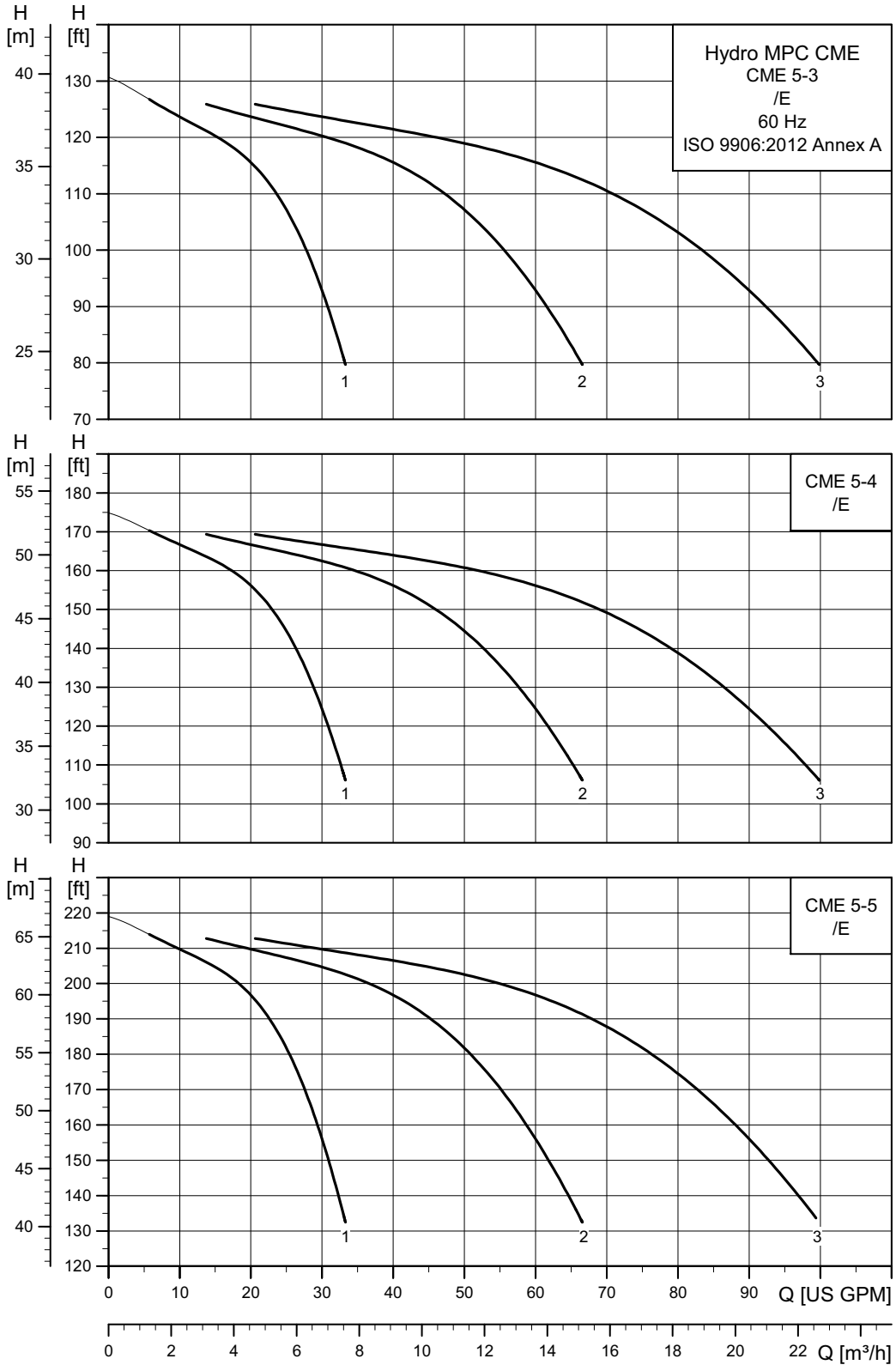
9. Curve charts, Hydro MPC CME, 60 Hz

Hydro MPC with CME 3



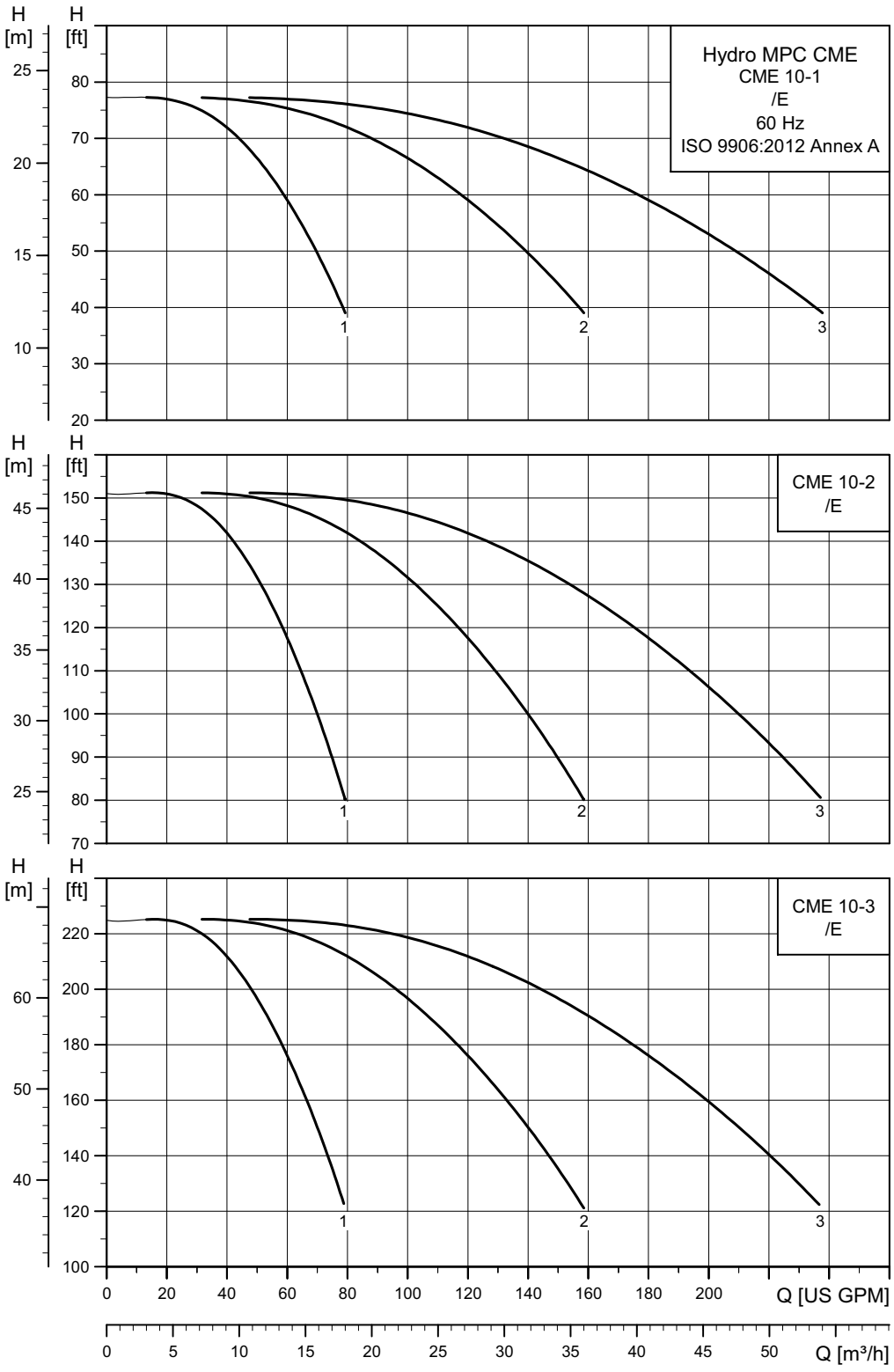
TM07 4908 0619

Hydro MPC with CME 5



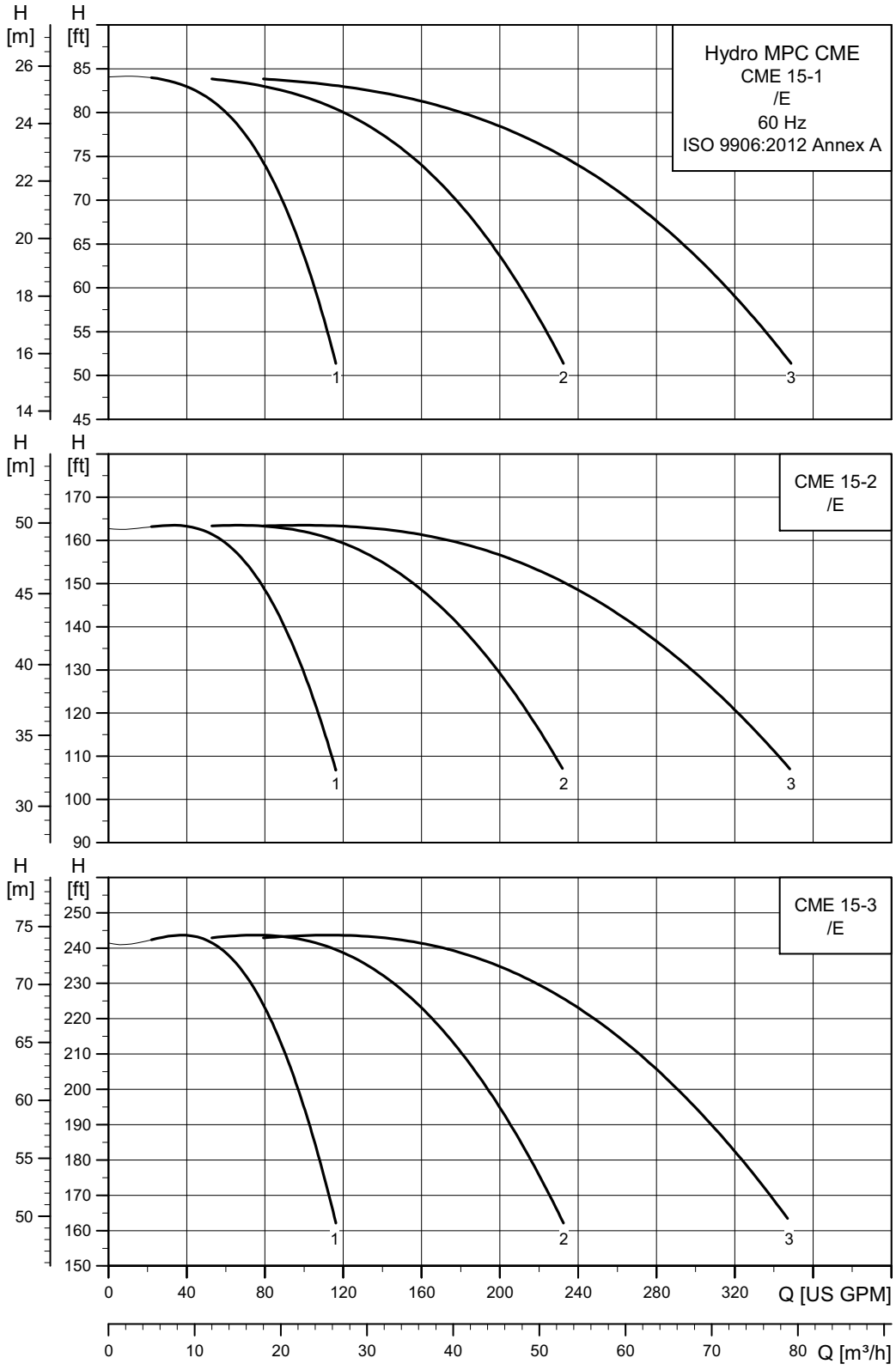
TM07 4909 0619

Hydro MPC with CME 10



TM07 4910 0619

Hydro MPC with CME 15



TM07 4911 0619

10. Technical data, Hydro MPC-E, 60 Hz

Hydro MPC-E with CRE 3 or CRE 5

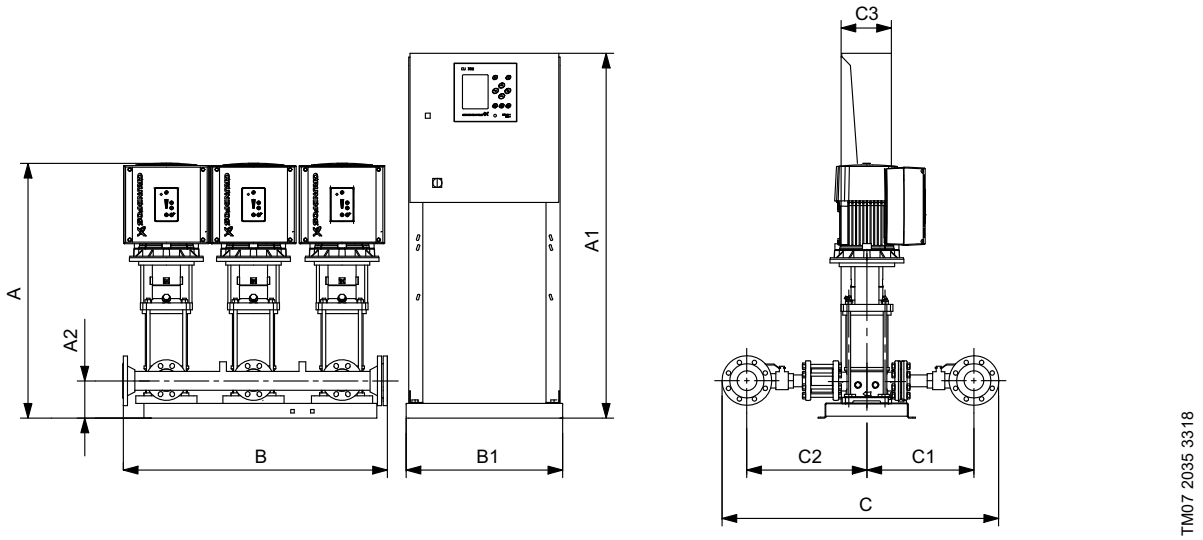


Fig. 49 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 3 or CR 5

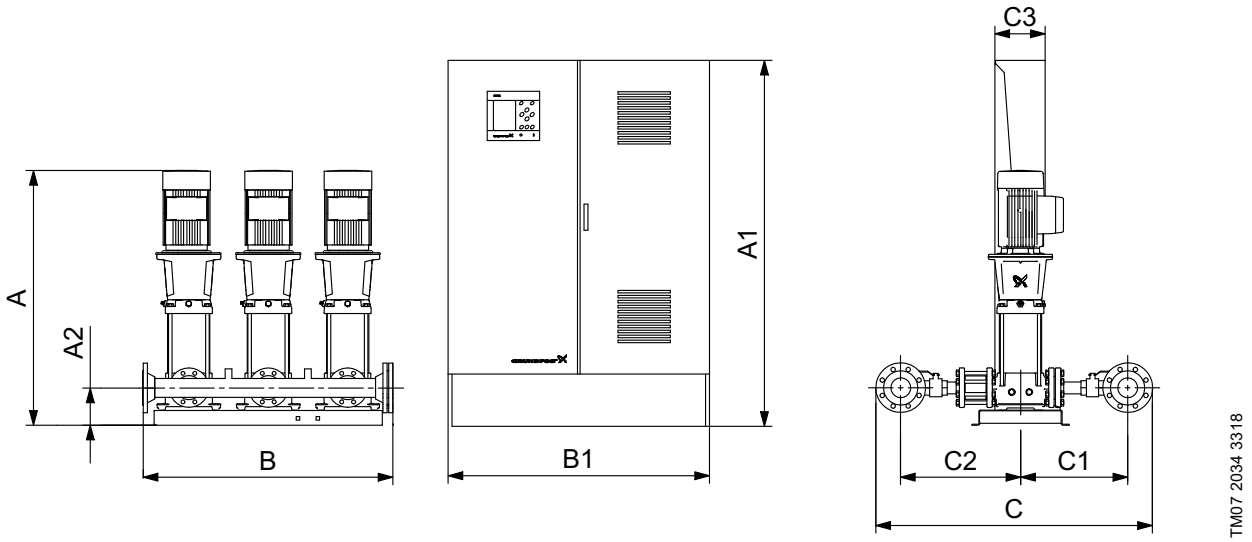


Fig. 50 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 3

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 3-6	1 (0.75)	2" NPT	28.8 (732)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-9	1.5 (1.1)		28 (711)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-12	2 (1.5)		33.1 (841)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-15	3 (2.2)		35.1 (892)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	D
3	CRE 3-6	1 (0.75)	2" NPT	28.8 (732)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-9	1.5 (1.1)		28 (711)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-12	2 (1.5)		33.1 (841)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 3-15	3 (2.2)		35.1 (892)	5.7 (145)	37 (940)	28.3 (719)	14.8 (376)	14.1 (358)	D
4	CRE 3-6	1 (0.75)	2 1/2" NPT	28.8 (732)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-9	1.5 (1.1)		28 (711)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-12	2 (1.5)		33.1 (841)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-15	3 (2.2)		35.1 (892)	5.7 (145)	49.7 (1262)	31.1 (790)	12.87 (327)	15.2 (386)	D
5	CRE 3-6	1 (0.75)	2 1/2" NPT	28.8 (732)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-9	1.5 (1.1)		28 (711)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-12	2 (1.5)		33.1 (841)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-15	3 (2.2)		35.1 (892)	5.7 (145)	62.3 (1582)	31.1 (790)	12.87 (327)	15.2 (386)	D
6	CRE 3-6	1 (0.75)	2 1/2" NPT	28.8 (732)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-9	1.5 (1.1)		28 (711)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-12	2 (1.5)		33.1 (841)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 3-15	3 (2.2)		35.1 (892)	5.7 (145)	74.9 (1902)	31.1 (790)	12.87 (327)	15.2 (386)	D

Hydro MPC-E with CR 3

2	CR 3-6	1 (0.75)	2" NPT	26.4 (671)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-9	1.5 (1.1)		27.9 (709)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-12	2 (1.5)		31.4 (798)	4.7 (732)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-15	3 (2.2)		37.6 (955)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	C
3	CR 3-6	1 (0.75)	2" NPT	26.4 (671)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-9	1.5 (1.1)		27.9 (709)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-12	2 (1.5)		31.6 (803)	4.7 (732)	37 (940)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 3-15	3 (2.2)		37.6 (955)	5.7 (145)	37 (940)	28.3 (719)	14.8 (376)	14.1 (358)	C
4	CR 3-6	1 (0.75)	2 1/2" NPT	26.4 (671)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-9	1.5 (1.1)		27.9 (709)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-12	2 (1.5)		31.6 (803)	4.7 (732)	49.7 (1262)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-15	3 (2.2)		37.6 (955)	5.7 (145)	49.7 (1262)	31.1 (790)	11.1 (282)	15.2 (386)	C

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
5	CR 3-6	1 (0.75)	2 1/2" NPT	26.4 (671)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-9	1.5 (1.1)		27.9 (709)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-12	2 (1.5)		31.6 (803)	4.7 (732)	62.3 (1582)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-15	3 (2.2)		37.6 (955)	5.7 (145)	62.3 (1582)	31.1 (790)	11.1 (282)	15.2 (386)	C
6	CR 3-6	1 (0.75)	2 1/2" NPT	26.4 (671)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-9	1.5 (1.1)		27.9 (709)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-12	2 (1.5)		31.6 (803)	4.7 (732)	74.9 (1902)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 3-15	3 (2.2)		37.6 (955)	5.7 (145)	74.9 (1902)	31.1 (790)	11.1 (282)	15.2 (386)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 5

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 5-4	1.50 (1.1)	2" NPT	25.9 (658)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 5-6	2.0 (1.5)		30.9 (785)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 5-9	3.0 (2.2)		33.1 (841)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	D
	CRE 5-13	5.0 (4.0)		42.9 (1090)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	D
	CRE 5-16	5.0 (4.0)		45.1 (1146)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	D
3	CRE 5-4	1.50 (1.1)	2 1/2" NPT	25.9 (658)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 5-6	2.0 (1.5)		30.9 (785)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 5-9	3.0 (2.2)		33.1 (841)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	D
	CRE 5-13	5.0 (4.0)		42.9 (1090)	5.7 (145)	37.12 (943)	31.1 (790)	12.9 (328)	15.2 (386)	D
	CRE 5-16	5.0 (4.0)		45.1 (1146)	5.7 (145)	37.12 (943)	31.1 (790)	12.9 (328)	15.2 (386)	D
4	CRE 5-4	1.50 (1.1)	3" NPT	25.9 (658)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-6	2.0 (1.5)		30.9 (785)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-9	3.0 (2.2)		33.1 (841)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-13	5.0 (4.0)		42.9 (1090)	5.7 (145)	49.9 (1267)	31.6 (803)	12.9 (328)	15.2 (386)	D
	CRE 5-16	5.0 (4.0)		45.1 (1146)	5.7 (145)	49.9 (1267)	31.6 (803)	12.9 (328)	15.2 (386)	D
5	CRE 5-4	1.50 (1.1)	3" NPT	25.9 (658)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-6	2.0 (1.5)		30.9 (785)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-9	3.0 (2.2)		33.1 (841)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	D
	CRE 5-13	5.0 (4.0)		42.9 (1090)	5.7 (145)	62.5 (1588)	31.6 (803)	12.9 (328)	15.2 (386)	D
	CRE 5-16	5.0 (4.0)		45.1 (1146)	5.7 (145)	62.5 (1588)	31.6 (803)	12.9 (328)	15.2 (386)	D
6	CRE 5-4	1.50 (1.1)	4" ANSI	25.9 (658)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	D
	CRE 5-6	2.0 (1.5)		30.9 (785)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	D
	CRE 5-9	3.0 (2.2)		33.1 (841)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	D
	CRE 5-13	5.0 (4.0)		42.9 (1090)	5.7 (145)	75 (1905)	37.2 (945)	12.9 (328)	15.3 (389)	D
	CRE 5-16	5.0 (4.0)		45.1 (1146)	5.7 (145)	75 (1905)	37.2 (945)	12.9 (328)	15.3 (389)	D

Hydro MPC-E with CR 5

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 5-4	1.50 (1.1)	2" NPT	25.7 (653)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 5-6	2.0 (1.5)		29.5 (749)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 5-9	3.0 (2.2)		35.5 (902)	4.7 (119)	24.4 (620)	24.7 (627)	10 (254)	12.3 (312)	C
	CR 5-13	5.0 (4.0)		42.8 (1087)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	C
	CR 5-16	5.0 (4.0)		44.9 (1140)	5.7 (145)	24.4 (620)	28.3 (719)	11.8 (300)	14.1 (358)	C
3	CR 5-4	1.50 (1.1)	2 1/2" NPT	25.7 (653)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 5-6	2.0 (1.5)		29.5 (749)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 5-9	3.0 (2.2)		35.5 (902)	4.7 (119)	37.12 (943)	27.5 (699)	11.1 (282)	13.4 (340)	C
	CR 5-13	5.0 (4.0)		42.8 (1087)	5.7 (145)	37.12 (943)	31.1 (790)	12.9 (328)	15.2 (386)	C
	CR 5-16	5.0 (4.0)		44.9 (1140)	5.7 (145)	37.12 (943)	31.1 (790)	12.9 (328)	15.2 (386)	C
4	CR 5-4	1.50 (1.1)	3" NPT	25.7 (653)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-6	2.0 (1.5)		29.5 (749)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-9	3.0 (2.2)		35.5 (902)	4.7 (119)	49.9 (1267)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-13	5.0 (4.0)		42.8 (1087)	5.7 (145)	49.9 (1267)	31.6 (803)	12.9 (328)	15.2 (386)	C
	CR 5-16	5.0 (4.0)		44.9 (1140)	5.7 (145)	49.9 (1267)	31.6 (803)	12.9 (328)	15.2 (386)	C
5	CR 5-4	1.50 (1.1)	3" NPT	25.7 (653)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-6	2.0 (1.5)		29.5 (749)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-9	3.0 (2.2)		35.5 (902)	4.7 (119)	62.5 (1588)	28 (711)	11.1 (282)	13.4 (340)	C
	CR 5-13	5.0 (4.0)		42.8 (1087)	5.7 (145)	62.5 (1588)	31.6 (803)	12.9 (328)	15.2 (386)	C
	CR 5-16	5.0 (4.0)		44.9 (1140)	5.7 (145)	62.5 (1588)	31.6 (803)	12.9 (328)	15.2 (386)	C
6	CR 5-4	1.50 (1.1)	4" ANSI	25.7 (653)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	C
	CR 5-6	2.0 (1.5)		29.5 (749)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	C
	CR 5-9	3.0 (2.2)		35.5 (902)	4.7 (119)	75 (1905)	33.6 (853)	11.1 (282)	13.5 (343)	C
	CR 5-13	5.0 (4.0)		42.8 (1087)	5.7 (145)	75 (1905)	37.2 (945)	12.9 (328)	15.3 (389)	C
	CR 5-16	5.0 (4.0)		44.9 (1140)	5.7 (145)	75 (1905)	37.2 (945)	12.9 (328)	15.3 (389)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 10

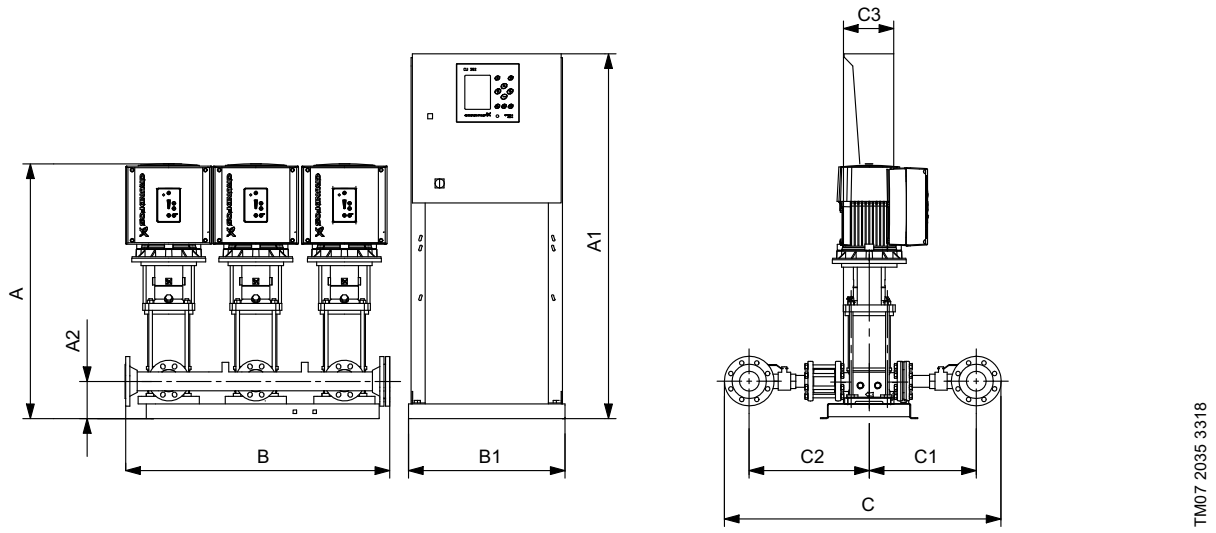


Fig. 51 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 10

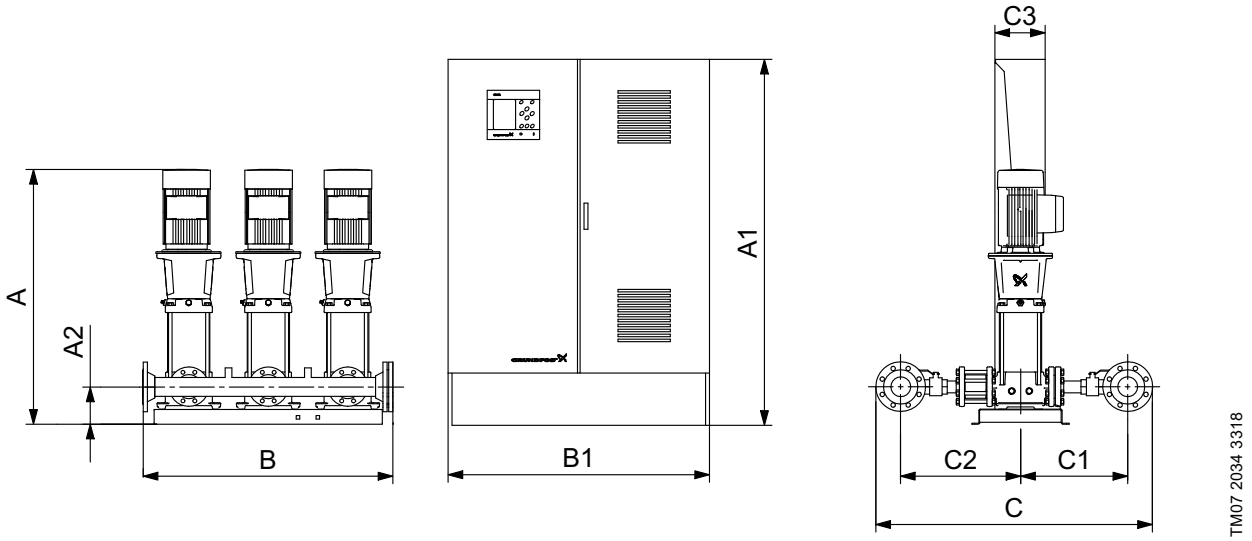


Fig. 52 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 10

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 10-2	1.50 (1.1)	2 1/2" NPT	28.1 (714)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-3	3.0 (2.2)		28.8 (732)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-4	3.0 (2.2)		31.9 (810)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-5	5.0 (4.0)		37.8 (960)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-6	5.0 (4.0)		38.9 (988)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-8	7.5 (5.5)		41.6 (1057)	6.3 (160)	40.3 (1024)	37.6 (955)	15.9 (404)	18.7 (475)	D
	CRE 10-10	7.5 (5.5)		44 (1118)	6.3 (160)	40.3 (1024)	37.6 (955)	15.9 (404)	18.7 (475)	D
3	CRE 10-2	1.50 (1.1)	3" NPT	28.1 (714)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-3	3.0 (2.2)		28.8 (732)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-4	3.0 (2.2)		31.9 (810)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-5	5.0 (4.0)		37.8 (960)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-6	5.0 (4.0)		38.9 (988)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-8	7.5 (5.5)		41.6 (1057)	6.3 (160)	60.1 (1527)	38.2 (970)	16 (406)	18.7 (475)	D
	CRE 10-10	7.5 (5.5)		44 (1118)	6.3 (160)	60.1 (1527)	38.2 (970)	16 (406)	18.7 (475)	D
4	CRE 10-2	1.50 (1.1)	4" ANSI	28.1 (714)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-3	3.0 (2.2)		28.8 (732)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-4	3.0 (2.2)		31.9 (810)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-5	5.0 (4.0)		37.8 (960)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-6	5.0 (4.0)		38.9 (988)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-8	7.5 (5.5)		41.6 (1057)	6.3 (160)	79.8 (2027)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-10	7.5 (5.5)		44 (1118)	6.3 (160)	79.8 (2027)	43.7 (1110)	16 (406)	18.7 (475)	D
5	CRE 10-2	1.50 (1.1)	4" ANSI	28.1 (714)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-3	3.0 (2.2)		28.8 (732)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-4	3.0 (2.2)		31.9 (810)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-5	5.0 (4.0)		37.8 (960)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-6	5.0 (4.0)		38.9 (988)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-8	7.5 (5.5)		41.6 (1057)	6.3 (160)	99.5 (2527)	43.7 (1110)	16 (406)	18.7 (475)	D
	CRE 10-10	7.5 (5.5)		44 (1118)	6.3 (160)	99.5 (2527)	43.7 (1110)	16 (406)	18.7 (475)	D
6	CRE 10-2	1.50 (1.1)	6" ANSI	28.1 (714)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-3	3.0 (2.2)		28.8 (732)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-4	3.0 (2.2)		31.9 (810)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-5	5.0 (4.0)		37.8 (960)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-6	5.0 (4.0)		38.9 (988)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-8	7.5 (5.5)		41.6 (1057)	6.3 (160)	119.2 (3028)	47.9 (1217)	17.1 (434)	19.8 (503)	D
	CRE 10-10	7.5 (5.5)		44 (1118)	6.3 (160)	119.2 (3028)	47.9 (1217)	17.1 (434)	19.8 (503)	D

Hydro MPC-E with CR 10

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 10-2	1.50 (1.1)	2 1/2" NPT	27.9 (709)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-3	3.0 (2.2)		33.2 (843)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-4	3.0 (2.2)		34.4 (874)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-5	5.0 (4.0)		37.6 (955)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-6	5.0 (4.0)		38.8 (986)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-8	7.5 (5.5)		41.7 (1059)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
	CR 10-10	7.5 (5.5)		44.1 (1120)	6.3 (160)	26.9 (683)	37.6 (955)	15.9 (404)	18.7 (475)	C
3	CR 10-2	1.50 (1.1)	3" NPT	27.9 (709)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-3	3.0 (2.2)		33.2 (843)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-4	3.0 (2.2)		34.4 (874)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-5	5.0 (4.0)		37.6 (955)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-6	5.0 (4.0)		38.8 (986)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-8	7.5 (5.5)		41.7 (1059)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
	CR 10-10	7.5 (5.5)		44.1 (1120)	6.3 (160)	39.7 (1008)	38.2 (970)	16 (406)	18.7 (475)	C
4	CR 10-2	1.50 (1.1)	4" ANSI	27.9 (709)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-3	3.0 (2.2)		33.2 (843)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-4	3.0 (2.2)		34.4 (874)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-5	5.0 (4.0)		37.6 (955)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-6	5.0 (4.0)		38.8 (986)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-8	7.5 (5.5)		41.7 (1059)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-10	7.5 (5.5)		44.1 (1120)	6.3 (160)	52.2 (1326)	43.7 (1110)	16 (406)	18.7 (475)	C
5	CR 10-2	1.50 (1.1)	4" ANSI	27.9 (709)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-3	3.0 (2.2)		33.2 (843)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-4	3.0 (2.2)		34.4 (874)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-5	5.0 (4.0)		37.6 (955)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-6	5.0 (4.0)		38.8 (986)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-8	7.5 (5.5)		41.7 (1059)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
	CR 10-10	7.5 (5.5)		44.1 (1120)	6.3 (160)	64.8 (1646)	43.7 (1110)	16 (406)	18.7 (475)	C
6	CR 10-2	1.50 (1.1)	6" ANSI	27.9 (709)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-3	3.0 (2.2)		33.2 (843)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-4	3.0 (2.2)		34.4 (874)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-5	5.0 (4.0)		37.6 (955)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-6	5.0 (4.0)		38.8 (986)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-8	7.5 (5.5)		41.7 (1059)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C
	CR 10-10	7.5 (5.5)		44.1 (1120)	6.3 (160)	77.4 (1966)	47.9 (1217)	17.1 (434)	19.8 (503)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 15

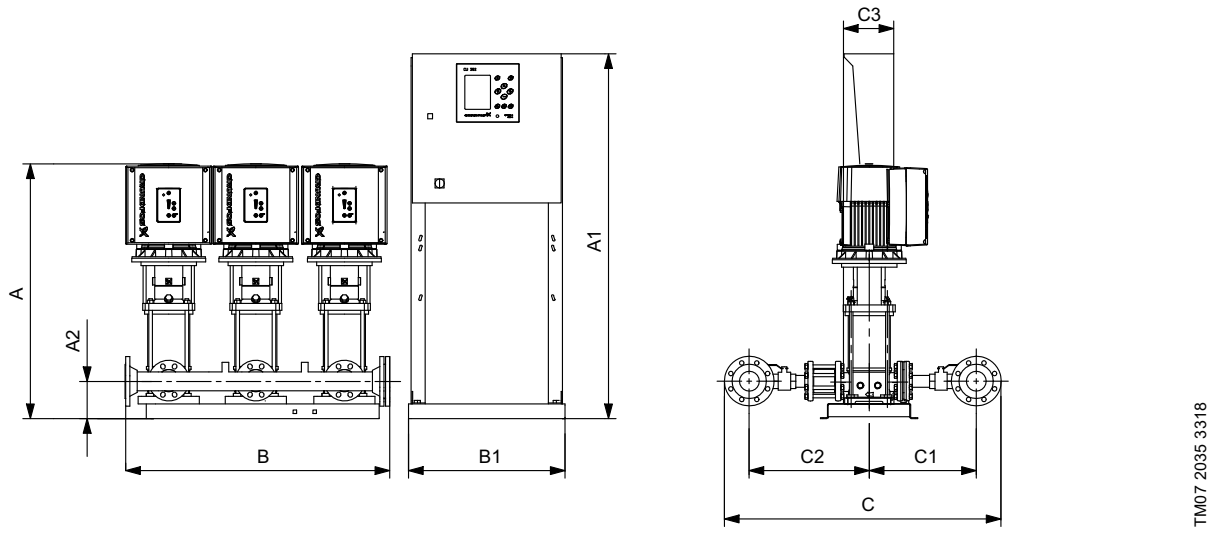


Fig. 53 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 15

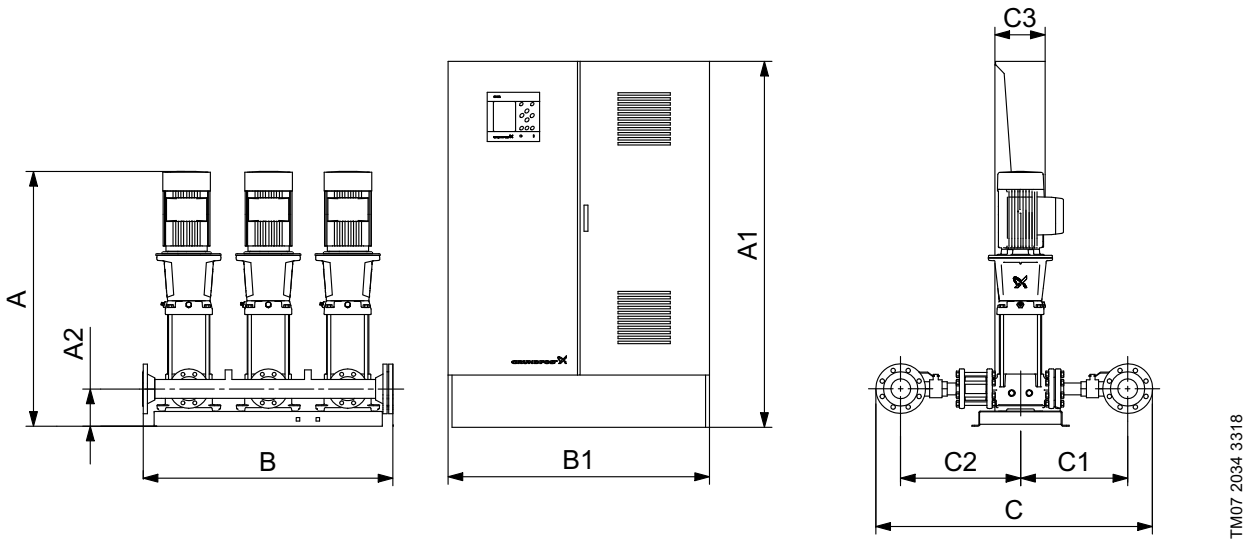


Fig. 54 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 15

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 15-2	5.0 (4.0)	4" ANSI	35.4 (899)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-3	7.5 (5.5)		37.5 (953)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-4	7.5 (5.5)		40.5 (1029)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-5	10.0 (7.5)		50.5 (1283)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-7	15.0 (11.0)		73.6 (1869)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
3	CRE 15-2	5.0 (4.0)	4" ANSI	35.4 (899)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-3	7.5 (5.5)		37.5 (953)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-4	7.5 (5.5)		40.5 (1029)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-5	10.0 (7.5)		50.5 (1283)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 15-7	15.0 (11.0)		73.6 (1869)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
4	CRE 15-2	5.0 (4.0)	6" ANSI	35.4 (899)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-3	7.5 (5.5)		37.5 (953)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-4	7.5 (5.5)		40.5 (1029)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-5	10.0 (7.5)		50.5 (1283)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-7	15.0 (11.0)		73.6 (1869)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
5	CRE 15-2	5.0 (4.0)	6" ANSI	35.4 (899)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-3	7.5 (5.5)		37.5 (953)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-4	7.5 (5.5)		40.5 (1029)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-5	10.0 (7.5)		50.5 (1283)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-7	15.0 (11.0)		73.6 (1869)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	D
6	CRE 15-2	5.0 (4.0)	6" ANSI	35.4 (899)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-3	7.5 (5.5)		37.5 (953)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-4	7.5 (5.5)		40.5 (1029)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-5	10.0 (7.5)		50.5 (1283)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 15-7	15.0 (11.0)		73.6 (1869)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D

Hydro MPC-E with CR 15

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 15-2	5.0 (4.0)	4" ANSI	35.3 (897)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-3	7.5 (5.5)		37.6 (955)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-4	7.5 (5.5)		39.3 (998)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-5	10.0 (7.5)		40.5 (1029)	6.3 (160)	40.37 (1025)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-7	15.0 (11.0)		48 (1219)	6.3 (160)	40.37 (1025)	44.2 (1123)	16.2 (411)	19 (483)	C
3	CR 15-2	5.0 (4.0)	4" ANSI	35.3 (897)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-3	7.5 (5.5)		37.6 (955)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-4	7.5 (5.5)		39.3 (998)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-5	10.0 (7.5)		40.5 (1029)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 15-7	15.0 (11.0)		48 (1219)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	C
4	CR 15-2	5.0 (4.0)	6" ANSI	35.3 (897)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-3	7.5 (5.5)		37.6 (955)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-4	7.5 (5.5)		39.3 (998)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-5	10.0 (7.5)		40.5 (1029)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-7	15.0 (11.0)		48 (1219)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
5	CR 15-2	5.0 (4.0)	6" ANSI	35.3 (897)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-3	7.5 (5.5)		37.6 (955)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-4	7.5 (5.5)		39.3 (998)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-5	10.0 (7.5)		40.5 (1029)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-7	15.0 (11.0)		48 (1219)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	C
6	CR 15-2	5.0 (4.0)	6" ANSI	35.3 (897)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-3	7.5 (5.5)		37.6 (955)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-4	7.5 (5.5)		39.3 (998)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-5	10.0 (7.5)		40.5 (1029)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 15-7	15.0 (11.0)		48 (1219)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 20

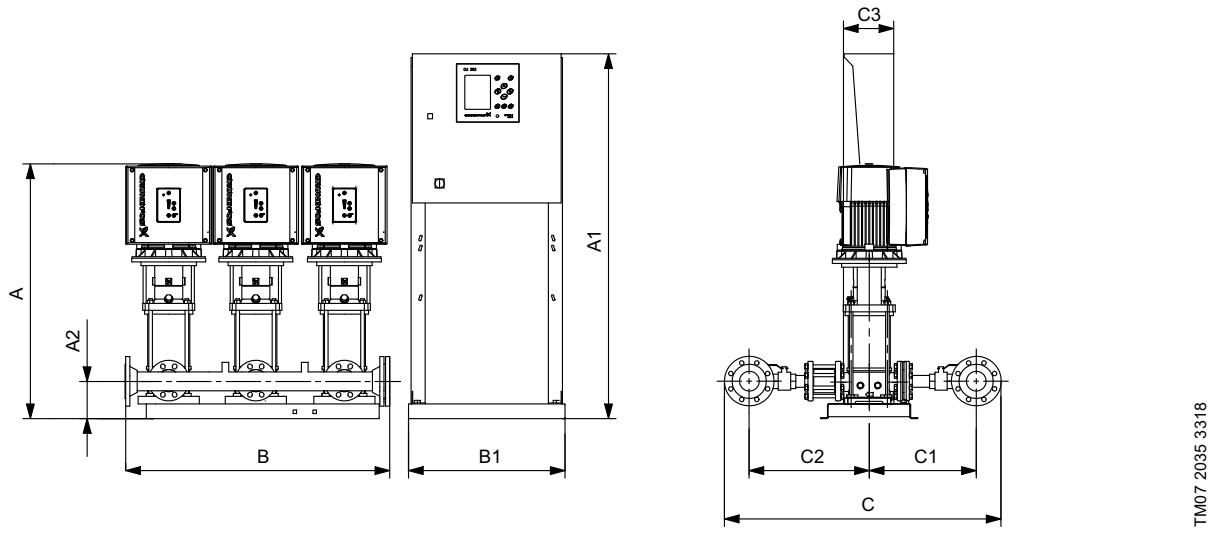


Fig. 55 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 20

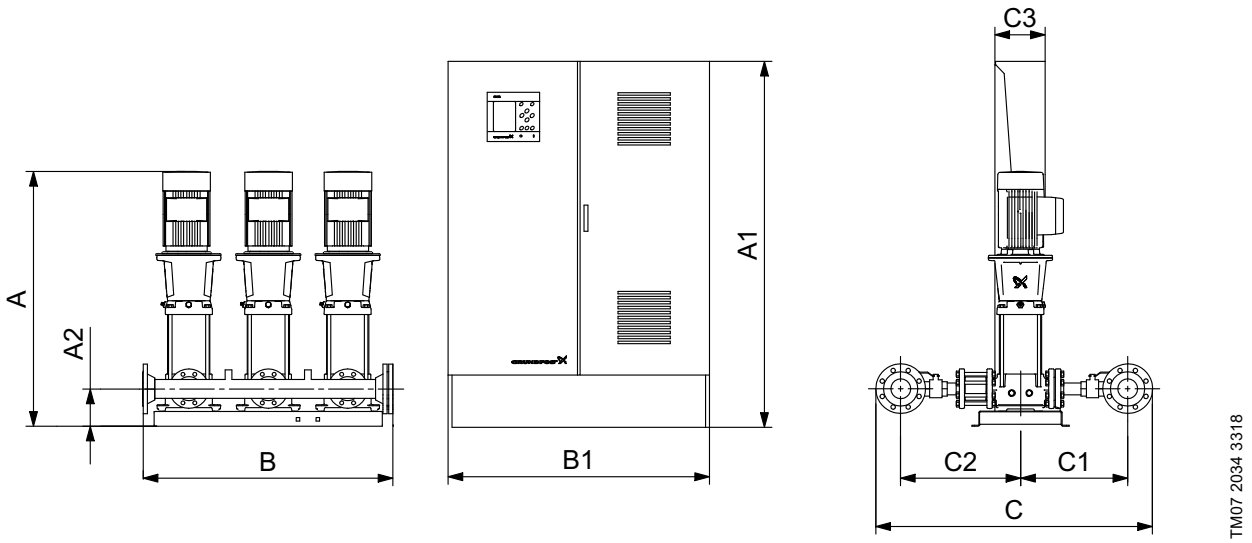


Fig. 56 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 20

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 20-1	3.0 (2.2)	4" ANSI	30.7 (780)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-2	5.0 (4.0)		35.4 (899)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-3	7.5 (5.5)		37.5 (953)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-4	10.0 (7.5)		38.7 (983)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-5	15.0 (11.0)		46.9 (1191)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-6	15.0 (4.0)		48.7 (1237)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	D
3	CRE 20-1	3.0 (2.2)	4" ANSI	30.7 (780)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-2	5.0 (4.0)		35.4 (899)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-3	7.5 (5.5)		37.5 (953)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-4	10.0 (7.5)		38.7 (983)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-5	15.0 (11.0)		46.9 (1191)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
	CRE 20-6	15.0 (4.0)		48.7 (1237)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	D
4	CRE 20-1	3.0 (2.2)	6" ANSI	30.7 (780)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-2	5.0 (4.0)		35.4 (899)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-3	7.5 (5.5)		37.5 (953)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-4	10.0 (7.5)		38.7 (983)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-5	15.0 (11.0)		46.9 (1191)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-6	15.0 (4.0)		48.7 (1237)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
6	CRE 20-1	3.0 (2.2)	6" ANSI	30.7 (780)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-2	5.0 (4.0)		35.4 (899)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-3	7.5 (5.5)		37.5 (953)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-4	10.0 (7.5)		38.7 (983)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-5	15.0 (11.0)		46.9 (1191)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D
	CRE 20-6	15.0 (4.0)		48.7 (1237)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	D

Hydro MPC-E with CR 20

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 20-1	3.0 (2.2)	4" ANSI	33.2 (843)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-2	5.0 (4.0)		35.3 (897)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-3	7.5 (5.5)		37.6 (955)	6.3 (160)	29.4 (747)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-4	10.0 (7.5)		39 (991)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-5	15.0 (11.0)		44.5 (1130)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-6	15.0 (4.0)		46.2 (1173)	6.3 (160)	40.4 (1026)	44.2 (1123)	16.2 (411)	19 (483)	C
3	CR 20-1	3.0 (2.2)	4" ANSI	33.2 (843)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-2	5.0 (4.0)		35.3 (897)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-3	7.5 (5.5)		37.6 (955)	6.3 (160)	42 (1067)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-4	10.0 (7.5)		39 (991)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-5	15.0 (11.0)		44.5 (1130)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	C
	CR 20-6	15.0 (4.0)		46.2 (1173)	6.3 (160)	60.1 (1527)	44.2 (1123)	16.2 (411)	19 (483)	C
4	CR 20-1	3.0 (2.2)	6" ANSI	33.2 (843)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-2	5.0 (4.0)		35.3 (897)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-3	7.5 (5.5)		37.6 (955)	6.3 (160)	54.6 (1387)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-4	10.0 (7.5)		39 (991)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-5	15.0 (11.0)		44.5 (1130)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-6	15.0 (4.0)		46.2 (1173)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
5	CR 20-1	3.0 (2.2)	6" ANSI	33.2 (843)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-2	5.0 (4.0)		35.3 (897)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-3	7.5 (5.5)		37.6 (955)	6.3 (160)	67.2 (1707)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-4	10.0 (7.5)		39 (991)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-5	15.0 (11.0)		44.5 (1130)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-6	15.0 (4.0)		46.2 (1173)	6.3 (160)	99.6 (2530)	46.3 (1176)	16.3 (414)	19 (483)	C
6	CR 20-1	3.0 (2.2)	6" ANSI	33.2 (843)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-2	5.0 (4.0)		35.3 (897)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-3	7.5 (5.5)		37.6 (955)	6.3 (160)	79.8 (2027)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-4	10.0 (7.5)		39 (991)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-5	15.0 (11.0)		44.5 (1130)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	C
	CR 20-6	15.0 (4.0)		46.2 (1173)	6.3 (160)	119.2 (3028)	46.3 (1176)	16.3 (414)	19 (483)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 32

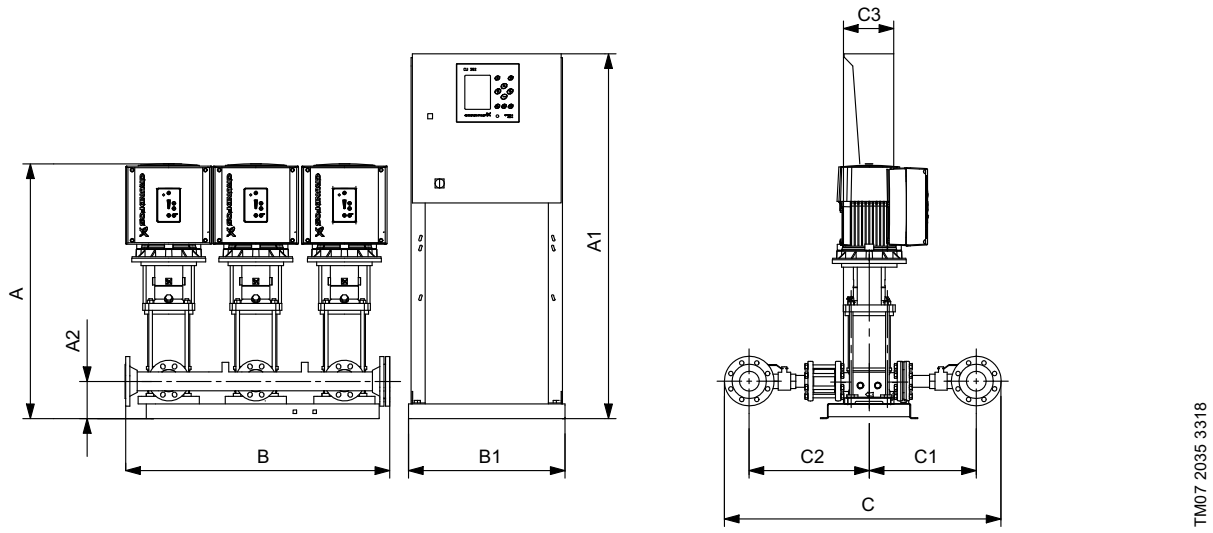


Fig. 57 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 32

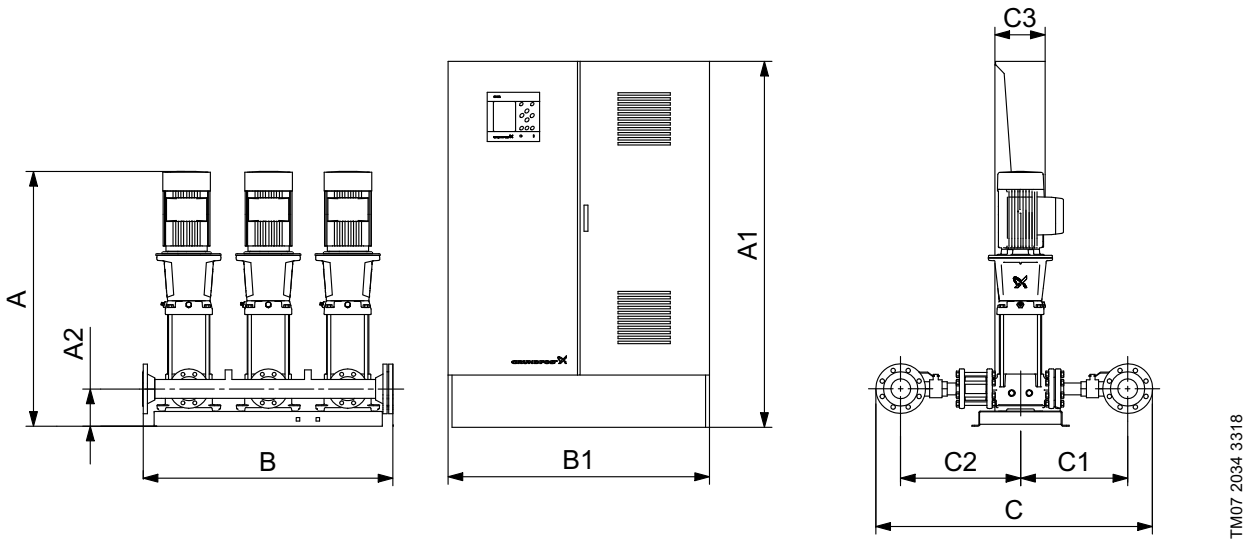


Fig. 58 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 32

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 32-1	5.0 (4.0)	4" ANSI	38.1 (968)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
	CRE 32-2-1	7.5 (5.5)		40.8 (1036)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
	CRE 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
	CRE 32-4-2	15.0 (11.0)		54 (1372)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
	CRE 32-5	20.0 (15.0)		56.8 (1443)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
	CRE 32-6-2	25.0 (18.5)		58.7 (1491)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	D
3	CRE 32-1	5.0 (4.0)	6" ANSI	38.1 (968)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-2-1	7.5 (5.5)		40.8 (1036)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-4-2	15.0 (11.0)		54 (1372)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-5	20.0 (15.0)		56.8 (1443)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-6-2	25.0 (18.5)		58.7 (1491)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	D
4	CRE 32-1	5.0 (4.0)	6" ANSI	38.1 (968)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-2-1	7.5 (5.5)		40.8 (1036)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-4-2	15.0 (11.0)		54 (1372)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-5	20.0 (15.0)		56.8 (1443)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-6-2	25.0 (18.5)		58.7 (1491)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	D
5	CRE 32-1	5.0 (4.0)	8" ANSI	39.7 (1008)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-2-1	7.5 (5.5)		42.4 (1077)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-3-2	10.0 (7.5)		44.7 (1135)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-4-2	15.0 (11.0)		55.6 (1412)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-5	20.0 (15.0)		58.4 (1483)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-6-2	25.0 (18.5)		60.3 (1532)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	D
6	CRE 32-1	5.0 (4.0)	8" ANSI	39.7 (1008)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-2-1	7.5 (5.5)		42.4 (1077)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-3-2	10.0 (7.5)		44.7 (1135)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-4-2	15.0 (11.0)		55.6 (1412)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-5	20.0 (15.0)		58.4 (1483)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D
	CRE 32-6-2	25.0 (18.5)		60.3 (1532)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	D

Hydro MPC-E with CR 32

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 32-1	5.0 (4.0)	4" ANSI	37.9 (963)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
	CR 32-2-1	7.5 (5.5)		40.9 (1039)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
	CR 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
	CR 32-4-2	15.0 (11.0)		51.5 (1308)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
	CR 32-5	20.0 (15.0)		53.2 (1351)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
	CR 32-6-2	25.0 (18.5)		57.1 (1450)	6.9 (175)	40.4 (1026)	47.8 (1214)	14.6 (371)	24.2 (615)	C
3	CR 32-1	5.0 (4.0)	6" ANSI	37.9 (963)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-2-1	7.5 (5.5)		40.9 (1039)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	42 (1067)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-4-2	15.0 (11.0)		51.5 (1308)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-5	20.0 (15.0)		53.2 (1351)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-6-2	25.0 (18.5)		57.1 (1450)	6.9 (175)	60.1 (1527)	49.8 (1265)	14.6 (371)	24.2 (615)	C
4	CR 32-1	5.0 (4.0)	6" ANSI	37.9 (963)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-2-1	7.5 (5.5)		40.9 (1039)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-4-2	15.0 (11.0)		51.5 (1308)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-5	20.0 (15.0)		53.2 (1351)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-6-2	25.0 (18.5)		57.1 (1450)	6.9 (175)	79.8 (2027)	49.8 (1265)	14.6 (371)	24.2 (615)	C
5	CR 32-1	5.0 (4.0)	8" ANSI	37.9 (963)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-2-1	7.5 (5.5)		40.9 (1039)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-4-2	15.0 (11.0)		51.5 (1308)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-5	20.0 (15.0)		53.2 (1351)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-6-2	25.0 (18.5)		57.1 (1450)	6.9 (175)	99.7 (2532)	49.8 (1265)	14.6 (371)	24.2 (615)	C
6	CR 32-1	5.0 (4.0)	6" ANSI	37.9 (963)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-2-1	7.5 (5.5)		40.9 (1039)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-3-2	10.0 (7.5)		43.1 (1095)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-4-2	15.0 (11.0)		51.5 (1308)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-5	20.0 (15.0)		53.2 (1351)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C
	CR 32-6-2	25.0 (18.5)		57.1 (1450)	6.9 (175)	119.4 (3033)	49.8 (1265)	14.6 (371)	24.2 (615)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 45

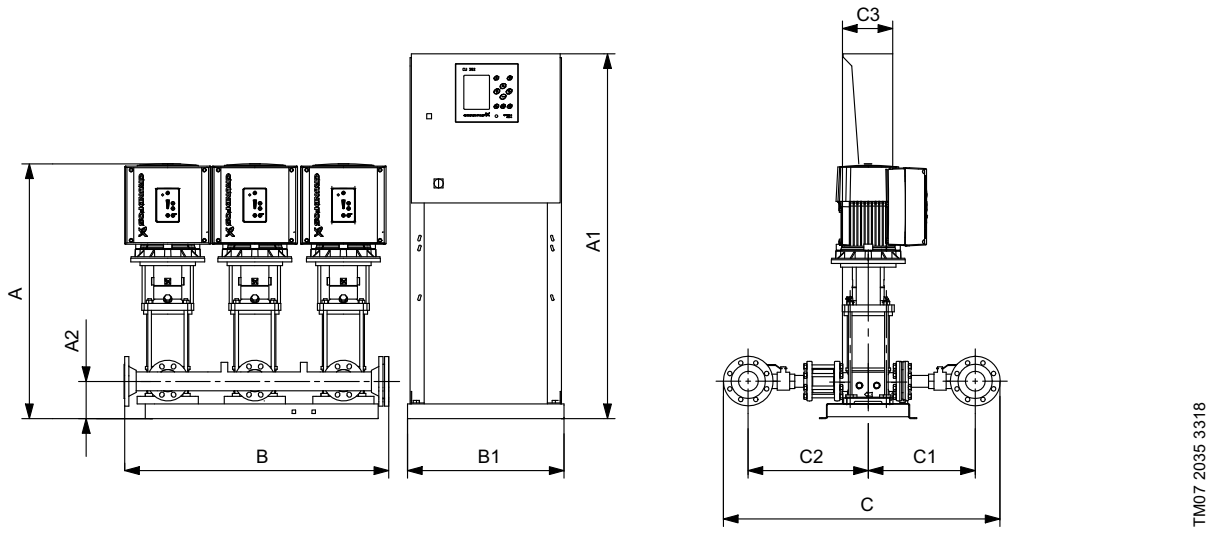


Fig. 59 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 45

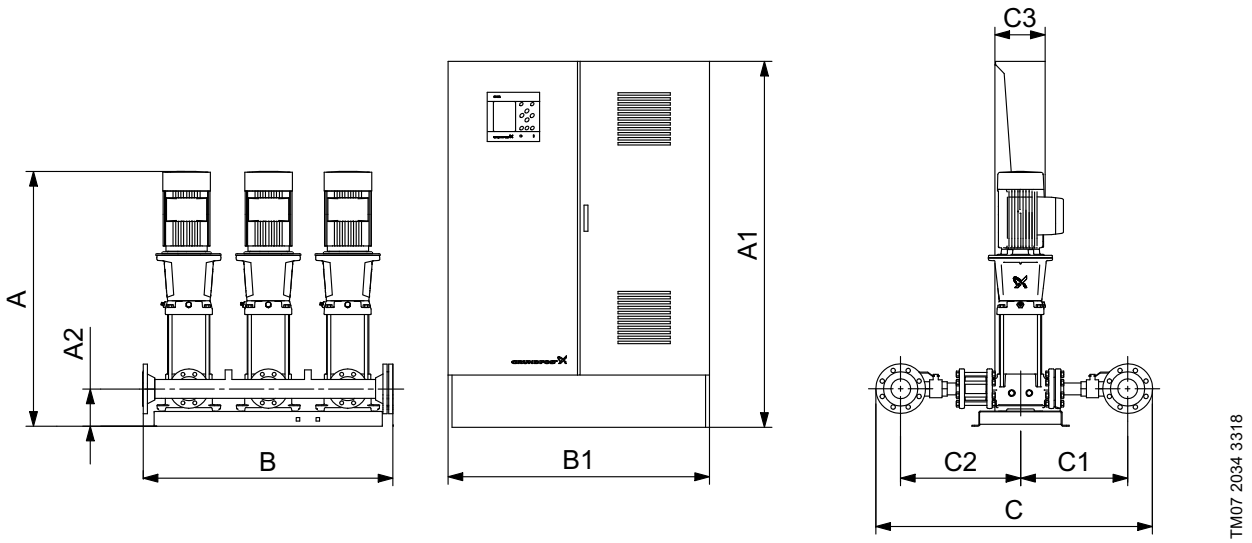


Fig. 60 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 45

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 45-1-1	7.5 (5.5)	6" ANSI	40.2 (1021)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.2 (386)	25.4 (645)	D
	CRE 45-1	10.0 (7.5)		40.2 (1021)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-2	15.0 (11.0)		51 (1295)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-3-2	20.0 (15.0)		54.1 (1374)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-3	25.0 (18.5)		54.2 (1377)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-4	30.0 (22.0)		57.4 (1458)	8.3 (211)	40.4 (1026)	51.6 (1311)	15.5 (394)	25.1 (638)	D
3	CRE 45-1-1	7.5 (5.5)	6" ANSI	40.2 (1021)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.2 (386)	25.4 (645)	D
	CRE 45-1	10.0 (7.5)		40.2 (1021)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-2	15.0 (11.0)		51 (1295)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-3-2	20.0 (15.0)		54.1 (1374)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-3	25.0 (18.5)		54.2 (1377)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.5 (394)	25.1 (638)	D
	CRE 45-4	30.0 (22.0)		57.4 (1458)	8.3 (211)	60.1 (1527)	51.6 (1311)	15.5 (394)	25.1 (638)	D
4	CRE 45-1-1	7.5 (5.5)	8" ANSI	41.8 (1062)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-1	10.0 (7.5)		41.8 (1062)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-2	15.0 (11.0)		52.6 (1336)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-3-2	20.0 (15.0)		55.6 (1412)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-3	25.0 (18.5)		55.7 (1415)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-4	30.0 (22.0)		58.9 (1496)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	D
5	CRE 45-1-1	7.5 (5.5)	8" ANSI	41.8 (1062)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-1	10.0 (7.5)		41.8 (1062)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-2	15.0 (11.0)		52.6 (1336)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-3-2	20.0 (15.0)		55.6 (1412)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-3	25.0 (18.5)		55.7 (1415)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
	CRE 45-4	30.0 (22.0)		58.9 (1496)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	D
6	CRE 45-1-1	7.5 (5.5)	10" ANSI	44.2 (1123)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D
	CRE 45-1	10.0 (7.5)		44.2 (1123)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D
	CRE 45-2	15.0 (11.0)		55.0 (1397)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D
	CRE 45-3-2	20.0 (15.0)		58.0 (1473)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D
	CRE 45-3	25.0 (18.5)		58.1 (1476)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D
	CRE 45-4	30.0 (22.0)		61.3 (1557)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	D

Hydro MPC-E with CR 45

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 45-1-1	7.5 (5.5)	6" ANSI	40.3 (1024)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.2 (386)	25.4 (645)	C
	CR 45-1	10.0 (7.5)		40.3 (1024)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-2	15.0 (11.0)		48.5 (1232)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-3-2	20.0 (15.0)		53.9 (1369)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-3	25.0 (18.5)		55 (1397)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-4	30.0 (22.0)		61.5 (1562)	8.3 (211)	40.4 (1026)	51,6 (1311)	15.5 (394)	25.1 (638)	C
3	CR 45-1-1	7.5 (5.5)	6" ANSI	40.3 (1024)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.2 (386)	25.4 (645)	C
	CR 45-1	10.0 (7.5)		40.3 (1024)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-2	15.0 (11.0)		48.5 (1232)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-3-2	20.0 (15.0)		53.9 (1369)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-3	25.0 (18.5)		55 (1397)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.5 (394)	25.1 (638)	C
	CR 45-4	30.0 (22.0)		61.5 (1562)	8.3 (211)	60.1 (1527)	51,6 (1311)	15.5 (394)	25.1 (638)	C
4	CR 45-1-1	7.5 (5.5)	8" ANSI	41.8 (1062)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-1	10.0 (7.5)		41.8 (1062)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-2	15.0 (11.0)		50 (1270)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-3-2	20.0 (15.0)		55.4 (1407)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-3	25.0 (18.5)		56.5 (1435)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-4	30.0 (22.0)		63 (1600)	9.8 (249)	79.9 (2029)	55.6 (1412)	16.3 (414)	25.9 (658)	C
5	CR 45-1-1	7.5 (5.5)	8" ANSI	41.8 (1062)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-1	10.0 (7.5)		41.8 (1062)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-2	15.0 (11.0)		50 (1270)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-3-2	20.0 (15.0)		55.4 (1407)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-3	25.0 (18.5)		56.5 (1435)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
	CR 45-4	30.0 (22.0)		63 (1600)	9.8 (249)	99.7 (2532)	55.6 (1412)	16.3 (414)	25.9 (658)	C
6	CR 45-1-1	7.5 (5.5)	10" ANSI	44.2 (1123)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C
	CR 45-1	10.0 (7.5)		44.2 (1123)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C
	CR 45-2	15.0 (11.0)		52.5 (1334)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C
	CR 45-3-2	20.0 (15.0)		57.8 (1468)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C
	CR 45-3	25.0 (18.5)		59 (1499)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C
	CR 45-4	30.0 (22.0)		65.5 (1664)	12.2 (310)	119.4 (3033)	60.4 (1534)	17.4 (442)	27.1 (688)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 64

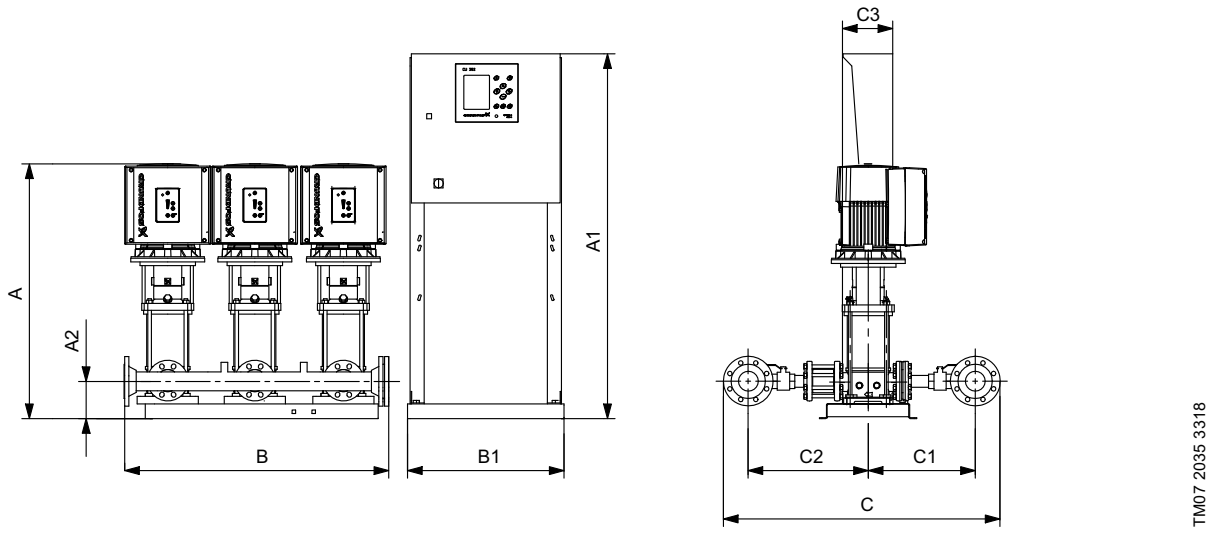


Fig. 61 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 64

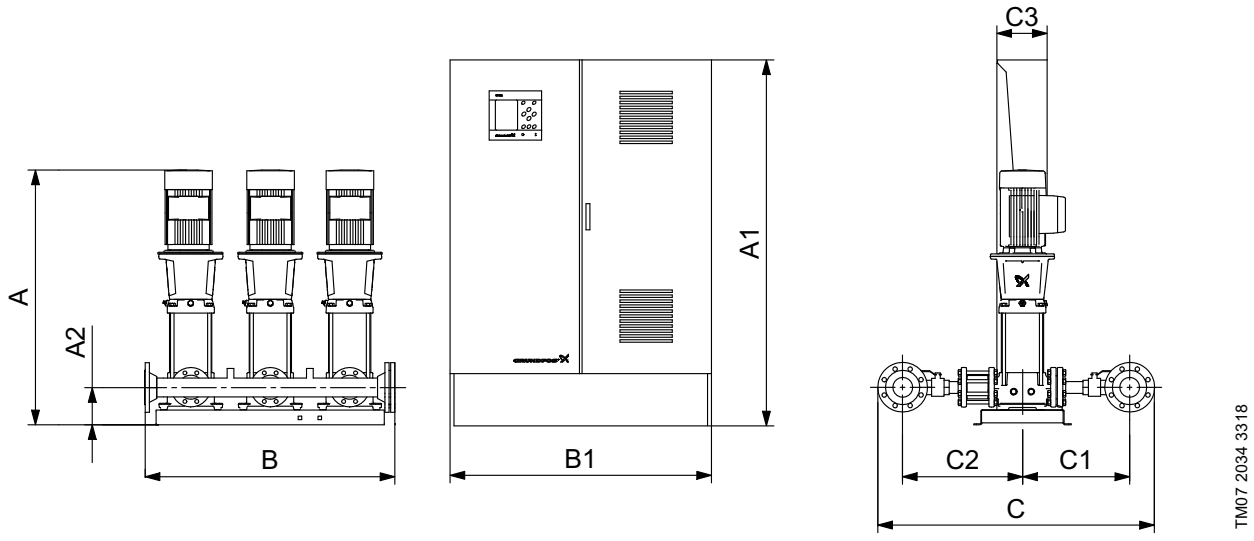


Fig. 62 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 64

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 64-1-1	10.0 (7.5)	6" ANSI	39.8 (1011)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	D
	CRE 64-1	15.0 (11.0)		47.9 (1217)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	D
	CRE 64-2-1	20.0 (15.0)		51.2 (1300)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	D
	CRE 64-2	25.0 (18.5)		51.2 (1300)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	D
	CRE 64-3-2	30.0 (22.0)		58.3 (1481)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	D
3	CRE 64-1-1	10.0 (7.5)	8" ANSI	39.8 (1011)	8.3 (211)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-1	15.0 (11.0)		47.9 (1217)	8.3 (211)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-2-1	20.0 (15.0)		51.2 (1300)	8.3 (211)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-2	25.0 (18.5)		51.2 (1300)	8.3 (211)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-3-2	30.0 (22.0)		58.3 (1481)	8.3 (211)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	D
4	CRE 64-1-1	10.0 (7.5)	8" ANSI	39.8 (1011)	8.3 (211)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-1	15.0 (11.0)		47.9 (1217)	8.3 (211)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-2-1	20.0 (15.0)		51.2 (1300)	8.3 (211)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-2	25.0 (18.5)		51.2 (1300)	8.3 (211)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	D
	CRE 64-3-2	30.0 (22.0)		58.3 (1481)	8.3 (211)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	D
5	CRE 64-1-1	10.0 (7.5)	10" ANSI	43.7 (1110)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	D
	CRE 64-1	15.0 (11.0)		51.9 (1318)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	D
	CRE 64-2-1	20.0 (15.0)		55.1 (1400)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	D
	CRE 64-2	25.0 (18.5)		55.2 (1402)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	D
	CRE 64-3-2	30.0 (22.0)		62.2 (1580)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	D
6	CRE 64-1-1	10.0 (7.5)	12" ANSI	43.7 (1110)	12.2 (310)	119.5 (3035)	68.8 (1748)	19.8 (503)	49.8 (1265)	D
	CRE 64-1	15.0 (11.0)		51.9 (1318)	12.2 (310)	119.5 (3035)	68.8 (1748)	19.8 (503)	49.8 (1265)	D
	CRE 64-2-1	20.0 (15.0)		55.1 (1400)	12.2 (310)	119.5 (3035)	68.8 (1748)	19.8 (503)	49.8 (1265)	D
	CRE 64-2	25.0 (18.5)		55.2 (1402)	12.2 (310)	119.5 (3035)	68.8 (1748)	19.8 (503)	49.8 (1265)	D
	CRE 64-3-2	30.0 (22.0)		62.2 (1580)	12.2 (310)	119.5 (3035)	68.8 (1748)	19.8 (503)	49.8 (1265)	D

Hydro MPC-E with CR 64

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 64-1-1	10.0 (7.5)	6" ANSI	39.8 (1011)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
	CR 64-1	15.0 (11.0)		45.5 (1156)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
	CR 64-2-1	20.0 (15.0)		50.9 (1293)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
	CR 64-2	25.0 (18.5)		52.1 (1323)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
	CR 64-3-2	30.0 (22.0)		56.3 (1430)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
	CR 64-3	40.0 (30)		58.1 (1476)	8.3 (211)	40.4 (1026)	54.3 (1379)	16.5 (419)	26.7 (678)	C
3	CR 64-1-1	10.0 (7.5)	8" ANSI	41.4 (1052)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-1	15.0 (11.0)		47.1 (1196)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-2-1	20.0 (15.0)		52.5 (1334)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-2	25.0 (18.5)		53.6 (1361)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-3-2	30.0 (22.0)		57.9 (1471)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-3	40.0 (30)		59.3 (1506)	9.8 (249)	60.2 (1529)	56.3 (1430)	16.4 (417)	26.5 (673)	C
4	CR 64-1-1	10.0 (7.5)	8" ANSI	41.4 (1052)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-1	15.0 (11.0)		47.1 (1196)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-2-1	20.0 (15.0)		52.5 (1334)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-2	25.0 (18.5)		53.6 (1361)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-3-2	30.0 (22.0)		57.9 (1471)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
	CR 64-3	40.0 (30)		59.3 (1506)	9.8 (249)	79.9 (2029)	56.3 (1430)	16.4 (417)	26.5 (673)	C
5	CR 64-1-1	10.0 (7.5)	10" ANSI	43.7 (1110)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-1	15.0 (11.0)		49.4 (1255)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-2-1	20.0 (15.0)		54.9 (1394)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-2	25.0 (18.5)		56 (1422)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-3-2	30.0 (22.0)		60.2 (1529)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-3	40.0 (30)		62 (1575)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
6	CR 64-1-1	10.0 (7.5)	12" ANSI	43.7 (1110)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-1	15.0 (11.0)		49.4 (1255)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-2-1	20.0 (15.0)		54.9 (1394)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-2	25.0 (18.5)		56 (1422)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-3-2	30.0 (22.0)		60.2 (1529)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C
	CR 64-3	40.0 (30)		62 (1575)	12.2 (310)	99.7 (2532)	64.3 (1633)	19.1 (485)	29.2 (742)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 95

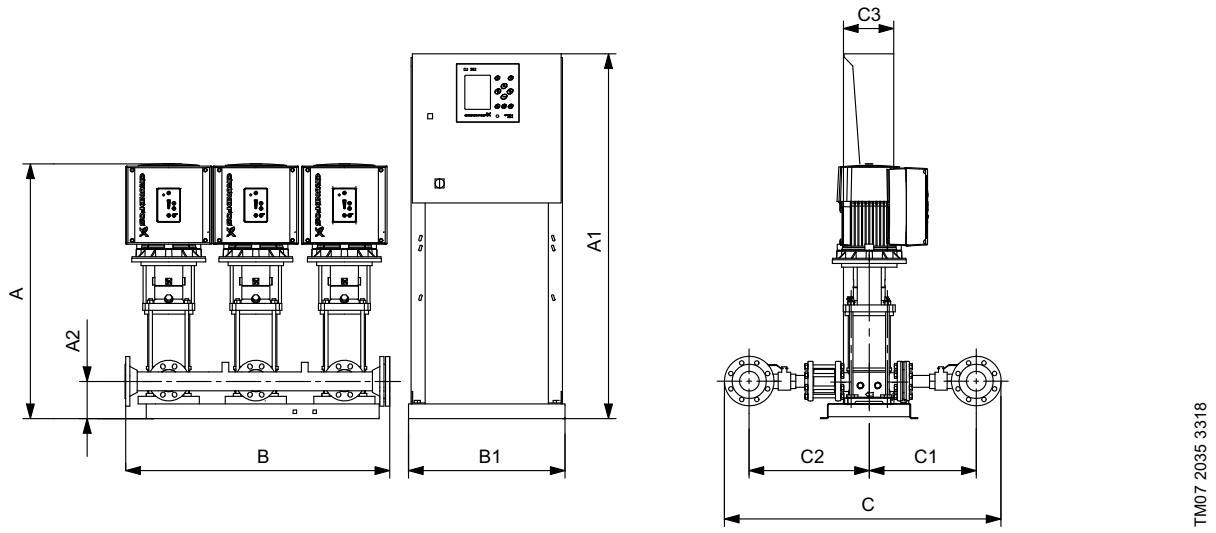


Fig. 63 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 95

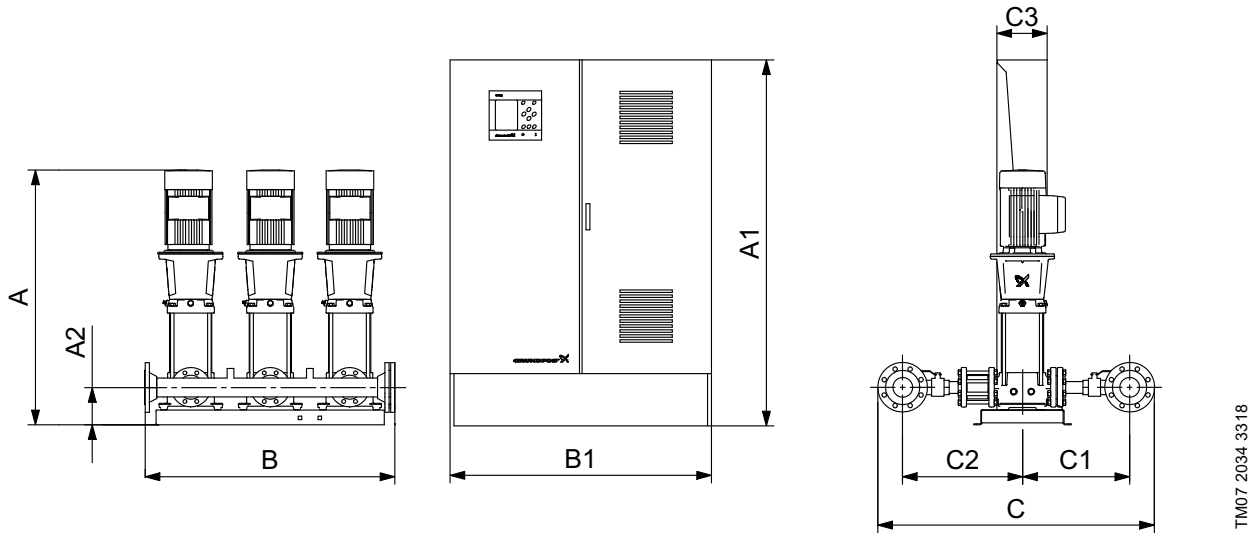


Fig. 64 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 95

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 95-1-1	15.0 (11.0)	8" ANSI	52.6 (1336)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-2	25.0 (18.5)		56.7 (1440)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-1	30.0 (22.0)		60.5 (1537)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2	30.0 (22.0)		60.5 (1537)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
3	CRE 95-1-1	15.0 (11.0)	8" ANSI	52.6 (1336)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-2	25.0 (18.5)		56.7 (1440)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-1	30.0 (22.0)		60.5 (1537)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
	CRE 95-2	30.0 (22.0)		60.5 (1537)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	D
4	CRE 95-1-1	15.0 (11.0)	10" ANSI	52.6 (1336)	11.9 (302)	80 (2032)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	80 (2032)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-2	25.0 (18.5)		56.7 (1440)	11.9 (302)	80 (2032)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-1	30.0 (22.0)		60.5 (1537)	11.9 (302)	80 (2032)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2	30.0 (22.0)		60.5 (1537)	11.9 (302)	80 (2032)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
5	CRE 95-1-1	15.0 (11.0)	12" ANSI	52.6 (1336)	11.9 (302)	99.6 (2530)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	99.6 (2530)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-2	25.0 (18.5)		56.7 (1440)	11.9 (302)	99.6 (2530)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2-1	30.0 (22.0)		60.5 (1537)	11.9 (302)	99.6 (2530)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
	CRE 95-2	30.0 (22.0)		60.5 (1537)	11.9 (302)	99.6 (2530)	86.7 (2202)	29.4 (747)	41.3 (1049)	D
6	CRE 95-1-1	15.0 (11.0)	14" ANSI	52.6 (1336)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	43.1 (1095)	D
	CRE 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	43.1 (1095)	D
	CRE 95-2-2	25.0 (18.5)		56.7 (1440)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	43.1 (1095)	D
	CRE 95-2-1	30.0 (22.0)		60.5 (1537)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	43.1 (1095)	D
	CRE 95-2	30.0 (22.0)		60.5 (1537)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	43.1 (1095)	D

Hydro MPC-E with CR 95

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 95-1-1	15.0 (11.0)	8" ANSI	52.6 (1336)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2-2	25.0 (18.5)		59.4 (1509)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2-1	30.0 (22.0)		59.4 (1509)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2	30.0 (22.0)		59.4 (1509)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-3-2	40.0 (30.0)		66 (1676)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-3	50.0 (37)		69.2 (1758)	11.9 (302)	40.6 (1031)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
3	CR 95-1-1	15.0 (11.0)	8" ANSI	52.6 (1336)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2-2	25.0 (18.5)		59.4 (1509)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2-1	30.0 (22.0)		59.4 (1509)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-2	30.0 (22.0)		59.4 (1509)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-3-2	40.0 (30.0)		66 (1676)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
	CR 95-3	50.0 (37)		69.2 (1758)	11.9 (302)	60.2 (1529)	84.2 (2139)	29.4 (747)	41.3 (1049)	C
4	CR 95-1-1	15.0 (11.0)	10" ANSI	52.6 (1336)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2-2	25.0 (18.5)		59.4 (1509)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2-1	30.0 (22.0)		59.4 (1509)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2	30.0 (22.0)		59.4 (1509)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-3-2	40.0 (30.0)		66 (1676)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-3	50.0 (37)		69.2 (1758)	11.9 (302)	80 (2032)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
5	CR 95-1-1	15.0 (11.0)	12" ANSI	52.6 (1336)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2-2	25.0 (18.5)		59.4 (1509)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2-1	30.0 (22.0)		59.4 (1509)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-2	30.0 (22.0)		59.4 (1509)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-3-2	40.0 (30.0)		66 (1676)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
	CR 95-3	50.0 (37)		69.2 (1758)	11.9 (302)	99.6 (2530)	86,7 (2202)	29.4 (747)	41.3 (1049)	C
6	CR 95-1-1	15.0 (11.0)	14" ANSI	52.6 (1336)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-1	20.0 (15.0)		52.6 (1336)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-2-2	25.0 (18.5)		59.4 (1509)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-2-1	30.0 (22.0)		59.4 (1509)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-2	30.0 (22.0)		59.4 (1509)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-3-2	40.0 (30.0)		66 (1676)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D
	CR 95-3	50.0 (37)		69.2 (1758)	11.9 (302)	119.6 (3038)	95.2 (2418)	31.1 (790)	41.3 (1049)	D

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CRE 125

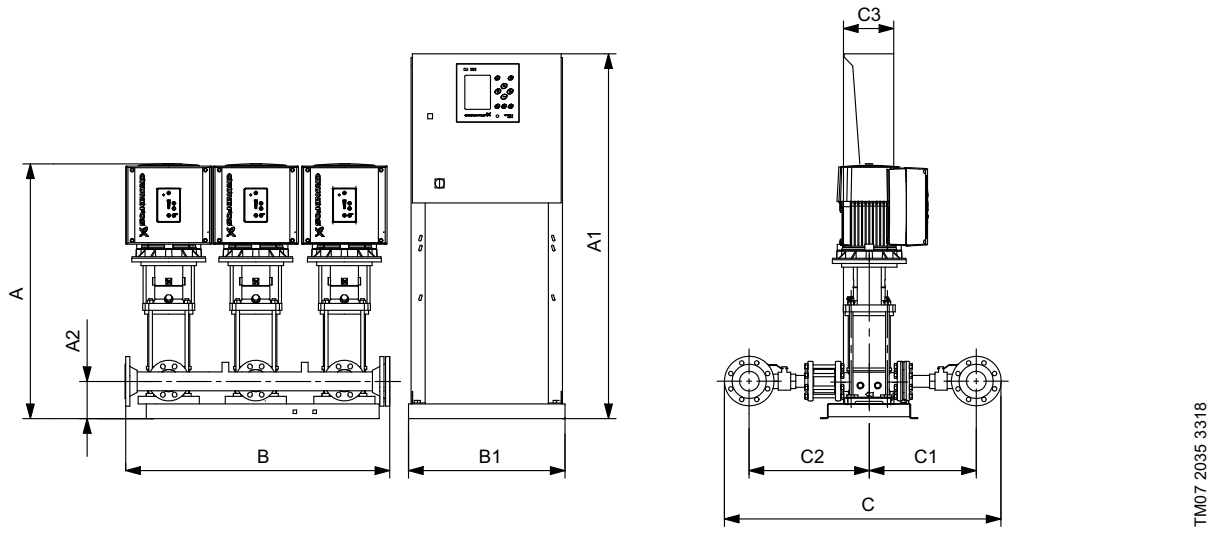


Fig. 65 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design D). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Hydro MPC-E with CR 125

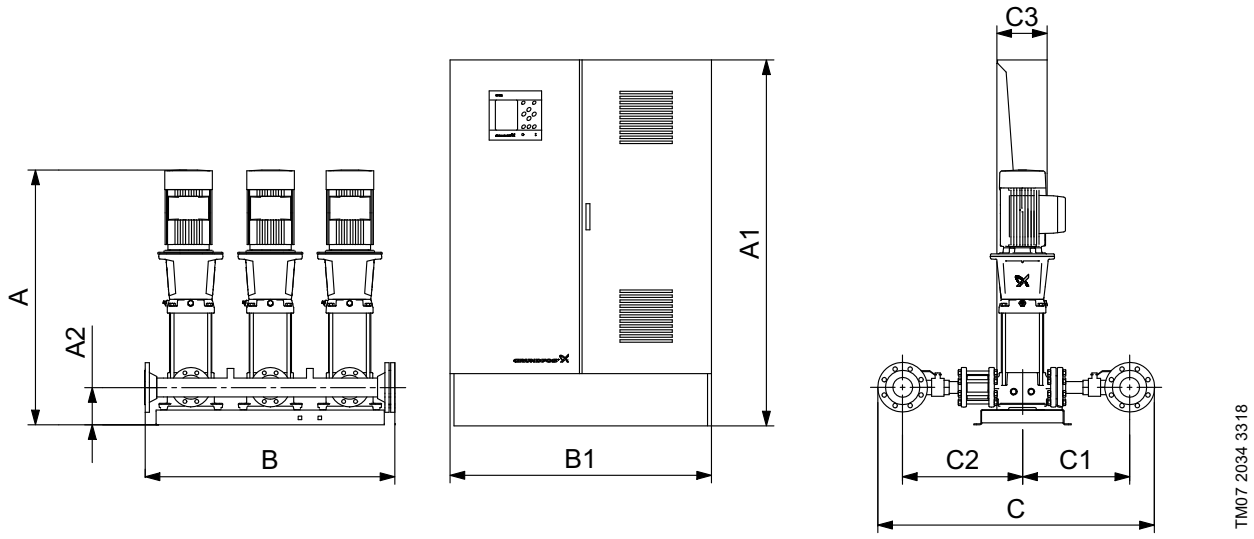


Fig. 66 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

Hydro MPC-E with CRE 125

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CRE 125-1-1	15.0 (11.0)	8" ANSI	59.4 (1509)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	D
	CRE 125-1	25.0 (18.5)		59.5 (1511)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	D
	CRE 125-2-2	30.0 (22.0)		68.1 (1730)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	D
3	CRE 125-1-1	15.0 (11.0)	10" ANSI	59.4 (1509)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	D
	CRE 125-1	25.0 (18.5)		59.5 (1511)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	D
	CRE 125-2-2	30.0 (22.0)		68.1 (1730)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	D
4	CRE 125-1-1	15.0 (11.0)	12" ANSI	59.4 (1509)	16.9 (429)	103.7 (2634)	99.4 (2526)	33.2 (843)	47.2 (1199)	D
	CRE 125-1	25.0 (18.5)		59.5 (1511)	16.9 (429)	103.7 (2634)	99.4 (2526)	33.2 (843)	47.2 (1199)	D
	CRE 125-2-2	30.0 (22.0)		68.1 (1730)	16.9 (429)	103.7 (2634)	99.4 (2526)	33.2 (843)	47.2 (1199)	D
5	CRE 125-1-1	15.0 (11.0)	14" ANSI	59.4 (1509)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	D
	CRE 125-1	25.0 (18.5)		59.5 (1511)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	D
	CRE 125-2-2	30.0 (22.0)		68.1 (1730)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	D
6	CRE 125-1-1	15.0 (11.0)	14" ANSI	59.4 (1509)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	41.3 (1049)	D
	CRE 125-1	25.0 (18.5)		59.5 (1511)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	41.3 (1049)	D
	CRE 125-2-2	30.0 (22.0)		68.1 (1730)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	D

Hydro MPC-E with CR 125

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 125-1-1	15.0 (11.0)	8" ANSI	59.4 (1509)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
	CR 125-1	25.0 (18.5)		60.5 (1537)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
	CR 125-2-2	30.0 (22.0)		67.1 (1704)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
	CR 125-2-1	40.0 (30.0)		69.6 (1768)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
	CR 125-2	50.0 (37.0)		72.8 (1849)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
	CR 125-3-2	60.0 (44.0)		78.2 (1986)	16.9 (429)	52.4 (1331)	87.2 (2215)	29.9 (759)	43.8 (1113)	C
3	CR 125-1-1	15.0 (11.0)	10" ANSI	59.4 (1509)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
	CR 125-1	25.0 (18.5)		60.5 (1537)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
	CR 125-2-2	30.0 (22.0)		67.1 (1704)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
	CR 125-2-1	40.0 (30.0)		69.6 (1768)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
	CR 125-2	50.0 (37.0)		72.8 (1849)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
	CR 125-3-2	60.0 (44.0)		78.2 (1986)	16.9 (429)	78 (1981)	96.4 (2449)	33.2 (843)	47.2 (1199)	C
4	CR 125-1-1	15.0 (11.0)	12" ANSI	59.4 (1509)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
	CR 125-1	25.0 (18.5)		60.5 (1537)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
	CR 125-2-2	30.0 (22.0)		67.1 (1704)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
	CR 125-2-1	40.0 (30.0)		69.6 (1768)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
	CR 125-2	50.0 (37.0)		72.8 (1849)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
	CR 125-3-2	60.0 (44.0)		78.2 (1986)	16.9 (429)	103.7 (2634)	99.4 (2525)	33.2 (843)	47.2 (1199)	C
5	CR 125-1-1	15.0 (11.0)	14" ANSI	59.4 (1509)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-1	25.0 (18.5)		60.5 (1537)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2-2	30.0 (22.0)		67.1 (1704)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2-1	40.0 (30.0)		69.6 (1768)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2	50.0 (37.0)		72.8 (1849)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-3-2	60.0 (44.0)		78.2 (1986)	16.9 (429)	129.5 (3289)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
6	CR 125-1-1	15.0 (11.0)	14" ANSI	59.4 (1509)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-1	25.0 (18.5)		60.5 (1537)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2-2	30.0 (22.0)		67.1 (1704)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2-1	40.0 (30.0)		69.6 (1768)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-2	50.0 (37.0)		72.8 (1849)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C
	CR 125-3-2	60.0 (44.0)		78.2 (1986)	16.9 (429)	155 (3937)	101.4 (2576)	33.2 (843)	47.2 (1199)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

Hydro MPC-E with CR 155

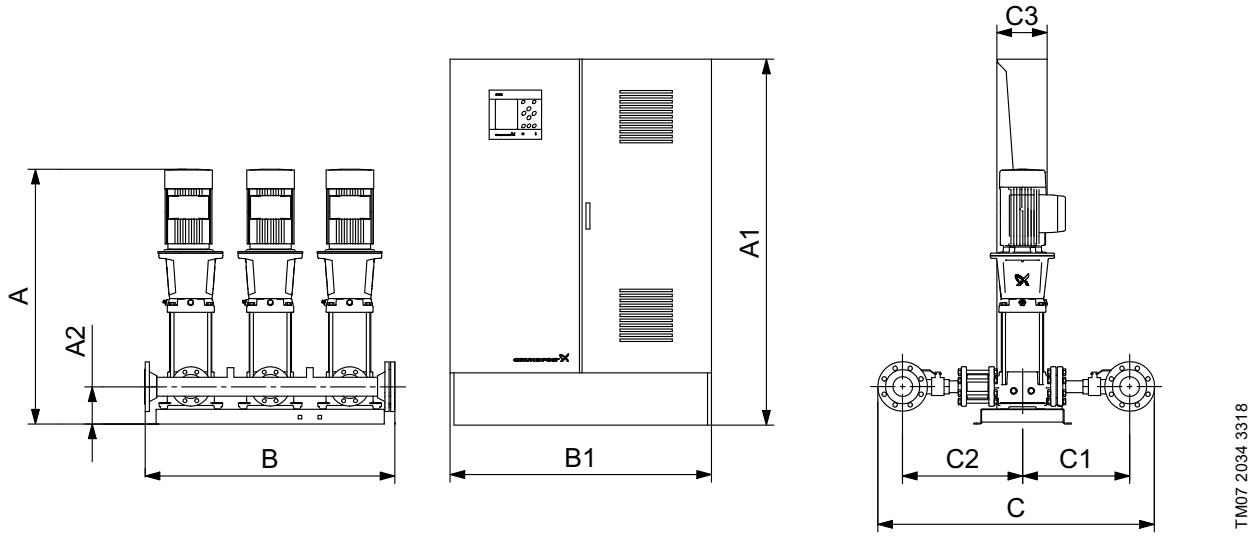


Fig. 67 Dimensional sketch of a Hydro MPC pump system with a control cabinet mounted on a separate base frame (design C). The pump system is shown as an example. The pumps supplied may differ from the sketch.

Electrical data and dimensions

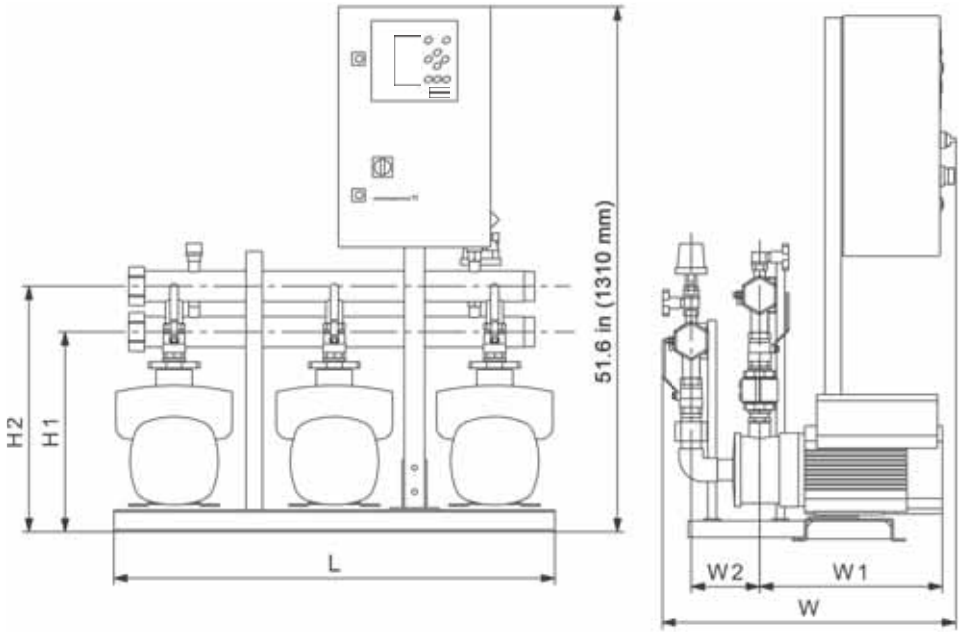
Hydro MPC-E with CR 155

Number of pumps	Pump type	Motor [Hp (kW)]	Connection size	A [in (mm)]	A2 [in (mm)]	B [in (mm)]	C [in (mm)]	C1 [in (mm)]	C2 [in (mm)]	Design
2	CR 155-1-1	25.0 (18.5)	10" ANSI	60.5 (1537)	16.9 (429)	52.4 (1331)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-1	40.0 (30.0)		64.8 (1646)	16.9 (429)	52.4 (1331)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-2-2	50.0 (37.0)		69.6 (1768)	16.9 (429)	52.4 (1331)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-2-1	60.0 (44.0)		69.1 (1755)	16.9 (429)	52.4 (1331)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
3	CR 155-1-1	25.0 (18.5)	12" ANSI	60.5 (1537)	16.9 (429)	78.1 (1984)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-1	40.0 (30.0)		64.8 (1646)	16.9 (429)	78.1 (1984)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-2-2	50.0 (37.0)		69.6 (1768)	16.9 (429)	78.1 (1984)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
	CR 155-2-1	60.0 (44.0)		69.1 (1755)	16.9 (429)	78.1 (1984)	105.9 (2690)	36.7 (932)	53.2 (1351)	C
4	CR 155-1-1	25.0 (18.5)	14" ANSI	60.5 (1537)	16.9 (429)	103.9 (2639)	110.9 (2817)	36.7 (932)	53.2 (1351)	C
	CR 155-1	40.0 (30.0)		64.8 (1646)	16.9 (429)	103.9 (2639)	110.9 (2817)	36.7 (932)	53.2 (1351)	C
	CR 155-2-2	50.0 (37.0)		69.6 (1768)	16.9 (429)	103.9 (2639)	110.9 (2817)	36.7 (932)	53.2 (1351)	C
	CR 155-2-1	60.0 (44.0)		69.1 (1755)	16.9 (429)	103.9 (2639)	110.9 (2817)	36.7 (932)	53.2 (1351)	C
5	CR 155-1-1	25.0 (18.5)	16" ANSI	60.5 (1537)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-1	40.0 (30.0)		64.8 (1646)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-2-2	50.0 (37.0)		69.6 (1768)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-2-1	60.0 (44.0)		69.1 (1755)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
6	CR 155-1-1	25.0 (18.5)	16" ANSI	60.5 (1537)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-1	40.0 (30.0)		64.8 (1646)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-2-2	50.0 (37.0)		69.6 (1768)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C
	CR 155-2-1	60.0 (44.0)		69.1 (1755)	16.9 (429)	129.5 (3289)	113.4 (2880)	36.7 (932)	53.2 (1351)	C

Design D: Hydro MPC pump system with a control cabinet mounted on a separate base frame.
Design C: Hydro MPC pump system with a floor-mounted control cabinet.
Dimensions may vary by ± 0.39 in. (10 mm).

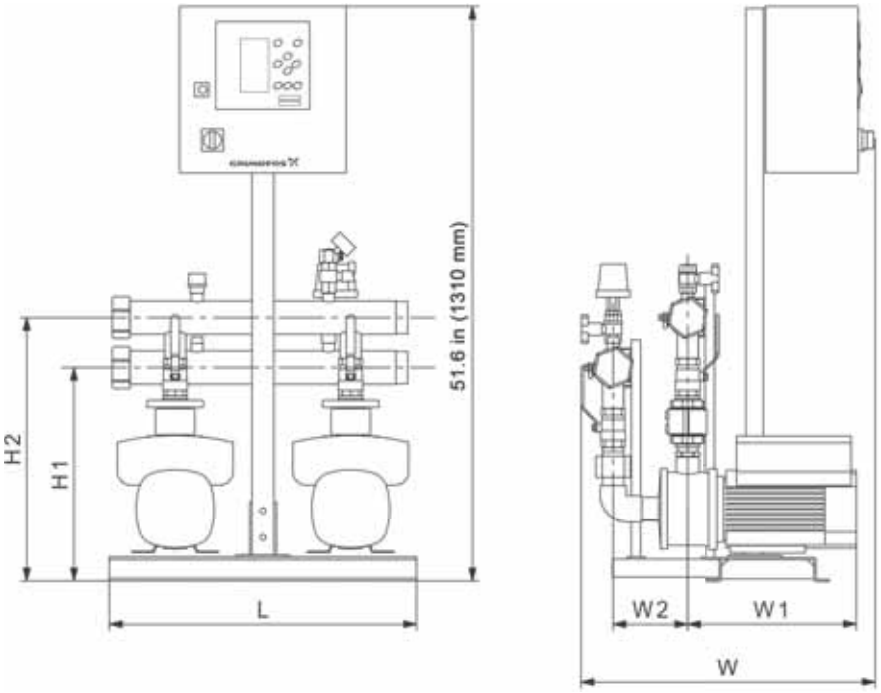
11. Technical data, Hydro MPC CME, 60 Hz

Dimensional sketches for CME



TM07 4709 2219

Fig. 68 Hydro MPC CME pump system with three CME pumps



TM07 4702 2219

Fig. 69 Hydro MPC CME pump system with two CME pumps

Hydro MPC CME with CME 3

No. of pumps	Pump type	Motor [hp (kW)]	Voltage code	FLA [Amps] U1 / U2 / U3	Connection size [in]	L [in (mm)]	W [in (mm)]	W1 [in (mm)]	W2 [in (mm)]	H1 [in (mm)]	H2 [in (mm)]	Tank [gal (L)]	Wt. [lbs (kg)]
2	CME 3-3	1.5 (1.1)	U1	20.2	2" NPT	27.6 (701)	23.9 (607)	18.4 (467)	5.9 (150)	18.1 (460)	23.9 (607)	4.4 (17)	175 (79)
	CME 3-5	1.5 (1.1)	U1	20.2		27.6 (701)	26.2 (665)	19.9 (505)	7.3 (185)	18.1 (460)	23,9 (607)	4.4 (17)	178 (81)
3	CME 3-3	1.5 (1.1)	U1	29.3	2" NPT	43.3 (1099)	22.9 (582)	18.4 (467)	5.9 (150)	18.1 (460)	23,9 (607)	4.4 (17)	242 (110)
	CME 3-5	1.5 (1.1)	U1	29.3		43.3 (1099)	24.4 (620)	19.9 (505)	7.3 (185)	18.1 (460)	23,9 (607)	4.4 (17)	244 (111)

Hydro MPC CME with CME 5

No. of pumps	Pump type	Motor [hp (kW)]	Voltage code	FLA [Amps] U1 / U2 / U3	Connection size [in]	L [in (mm)]	W [in (mm)]	W1 [in (mm)]	W2 [in (mm)]	H1 [in (mm)]	H2 [in (mm)]	Tank [gal (L)]	Wt. [lbs (kg)]
2	CME 5-3	1.5 (1.1)	U1	20,2	2" NPT	27.6 (701)	25.9 (658)	20.4 (518)	7.5 (191)	19.3 (490)	24.2 (615)	4.4 (17)	175 (79)
	CME 5-4	2 (1.4)	U1, U2, U3	20.2 / 17.8 / 9.6		26.6 (676)	25.5 (648)	20.4 (518)	7,5 (191)	19.3 (490)	25.7 (653)	4.4 (17)	200 (91)
	CME 5-5	2 (1.4)	U2, U3	17.8 / 9,6		27.6 (701)	26.4 (671)	20.9 (518)	8,4 (213)	19.3 (490)	25.7 (653)	4.4 (17)	202 (92)
3	CME 5-3	1.5 (1.1)	U1	29.3	2" NPT	43.3 (1099)	24.9 (632)	20.4 (518)	7,5 (191)	19.3 (490)	24.2 (615)	4.4 (17)	242 (110)
	CME 5-4	2 (1.4)	U1, U2, U3	29.3 / 25.7 / 13.4		43.3 (1099)	24.6 (625)	20.4 (518)	7,5 (191)	19.3 (490)	25.7 (653)	4.4 (17)	279 (127)
	CME 5-5	2 (1.4)	U2, U3	25.7 / 13.4		43.3 (1099)	25.4 (645)	20.9 (518)	8,4 (213)	19.3 (490)	25.7 (653)	4.4 (17)	282 (128)

Hydro MPC CME with CME 10

No. of pumps	Pump type	Motor [hp (kW)]	Voltage code	FLA [Amps] U1 / U2 / U3	Connection size [in]	L [in (mm)]	W [in (mm)]	W1 [in (mm)]	W2 [in (mm)]	H1 [in (mm)]	H2 [in (mm)]	Tank [gal (L)]	Wt. [lbs (kg)]
2	CME 10-1	1.5 (1.1)	U1	20.2	2.5" NPT	27.6 (701)	25.0 (635)	20,9 (518)	7.4 (188)	21.5 (546)	27,5 (699)	10.3 (39)	238 (108)
	CME 10-2	3 (2.2)	U2, U3	17.8 / 9.6		27.6 (701)	26,8 (681)	25,2 (640)	7.4 (188)	21.5 (546)	27.5 (699)	10.3 (39)	264 (120)
	CME 10-3	5 (3.7)	U2, U3	42.0 / 20.2		27.6 (701)	29,3 (744)	28,8 (732)	8.6 (218)	22.0 (559)	27.9 (709)	10.3 (39)	405 (184)
3	CME 10-1	1.5 (1.1)	U1	29.3	2.5" NPT	43.3 (1099)	25.4 (645)	20,9 (518)	7.4 (188)	21.5 (546)	27.5 (699)	10.3 (39)	334 (152)
	CME 10-2	3 (2.2)	U2, U3	25.7 / 13.4		43.3 (1099)	26,3 (668)	25,2 (640)	7.4 (188)	21.5 (546)	27.5 (699)	10.3 (39)	373 (169)
	CME 10-3	5 (3.7)	U2, U3	62.0 / 29.3		43.3 (1099)	28,8 (732)	28,8 (732)	8.6 (218)	22.0 (559)	27.9 (709)	10.3 (39)	585 (265)

Hydro MPC CME with CME 15

No. of pumps	Pump type	Motor [hp (kW)]	Voltage code	FLA [Amps] U1 / U2 / U3	Connection size [in]	L [in (mm)]	W [in (mm)]	W1 [in (mm)]	W2 [in (mm)]	H1 [in (mm)]	H2 [in (mm)]	Tank [gal (L)]	Wt. [lbs (kg)]
2	CME 15-1	3 (2.2)	U2, U3	17.8 / 9.6	3" ANSI 150#	27.6 (701)	30.4 (772)	27.7 (704)	9.6 (244)	23.6 (599)	28.5 (723)	34.0 (129)	300 (136)
	CME 15-2	5 (3.7)	U2, U3	42.0 / 20.2		27.6 (701)	31.0 (787)	30.1 (765)	9.6 (244)	23.6 (599)	28.5 (723)	34.0 (129)	441 (200)
	CME 15-3	7.5 (5.5)	U2, U3	42.0 / 20.2		27.6 (701)	32.1 (815)	31.3 (795)	9.6 (244)	23.6 (599)	28.5 (723)	34.0 (129)	460 (209)
3	CME 15-1	3 (2.2)	U2, U3	25.7 / 13.4	4" ANSI 150#	43.3 (1099)	29.4 (747)	27.7 (704)	9.6 (244)	22.7 (577)	27.0 (685)	34.0 (129)	443 (200)
	CME 15-2	5 (3.7)	U2, U3	62.0 / 29.3		43.3 (1099)	30.7 (780)	30.1 (765)	9.6 (244)	23.2 (589)	27.5 (698)	34.0 (129)	654 (297)
	CME 15-3	7.5 (5.5)	U2, U3	62.0 / 29.3		43.3 (1099)	31.9 (810)	31.3 (795)	10.8 (274)	23.2 (589)	27.5 (698)	34.0 (129)	683 (310)

E system with two or three CME pumps.
Voltage code U1: 1 x 208-230 V - 10 %/+ 10 %, N, PE.
Voltage code U2: 3 x 208-230 V - 5 %/+ 5 %, N, PE.
Voltage code U3: 3 x 460-480 V - 10 %/+ 10 %, N, PE.
Dimensions may vary by ± 1 in.

Maximum system amps (full load amperage)

Number of pumps	Motor [Hp (kW)]	MPC-E (CRE/CME)			MPC-E (CUE), -F, -S			
		1 x 230 V	3 x 208-230 V	3 x 460-480 V	1 x 230 V	3 x 208-230 V	3 x 460-480 V	3 x 575-600V
2	1 (0.75)	11.4		5.3		11.2	6.2	5.4
	1.5 (1.1)	15.4	10.2	6.1	27	15.2	7.4	6.8
	2 (1.5)	20.2	12.8	7.3	32	17	8.8	7.4
	3 (2.2)		17.8	9.6	43	23.2	11.6	9.8
	5 (4)		28.4	14.4	66	35.4	18.4	14.2
	7.5 (5.5)		42	20.2	94	50.4	24	20
	10 (7.5)			26.8	120	63.6	31	24
	15 (11)			37.8		94.4	44	38
	20 (15)			54		120.8	56	46
	25 (18.5)			63		151.6	70	56
	30 (22)			75			82	70
	40 (30)						106	84
	50 (37)						132	106
	60 (44)						162	126
3	1 (0.75)	16.1		6.95		15.8	8.3	7.1
	1.5 (1.1)	22.1	14.3	8.15	39.5	21.8	10.1	9.2
	2 (1.5)	29.3	18.2	9.95	47	24.5	12.2	10.1
	3 (2.2)		25.7	13.4	63.5	33.8	16.4	13.7
	5 (4)		41.6	20.6	98	52.1	26.6	20.3
	7.5 (5.5)		62	29.3	140	74.6	35	29
	10 (7.5)			39.2	179	94.4	45.5	35
	15 (11)			55.7		140.6	65	56
	20 (15)			80		180.2	83	68
	25 (18.5)			93.5		226.4	104	83
	30 (22)			111.5			122	104
	40 (30)						158	125
	50 (37)						197	158
	60 (44)						242	188
4	1 (0.75)	20.8		8.6		20.4	10.4	8.8
	1.5 (1.1)	28.8	18.4	10.2	52	28.4	12.8	11.6
	2 (1.5)	38.4	23.6	12.6	62	32	15.6	12.8
	3 (2.2)		33.6	17.2	84	44.4	21.2	17.6
	5 (4)		54.8	26.8	130	68.8	34.8	26.4
	7.5 (5.5)		82	38.4	186	98.8	46	38
	10 (7.5)			51.6	238	125.2	60	46
	15 (11)			73.6		186.8	86	74
	20 (15)			106		239.6	110	90

Number of pumps	Motor [Hp (kW)]	MPC-E (CRE/CME)			MPC-E (CUE), -F, -S			
		1 x 230 V	3 x 208-230 V	3 x 460-480 V	1 x 230 V	3 x 208-230 V	3 x 460-480 V	3 x 575-600V
4	25 (18.5)			124		301.2	138	110
	30 (22)			148			162	138
	40 (30)						210	166
	50 (37)						262	210
	60 (44)						322	250
5	1 (0.75)	25.5		10.25		25	12.5	10.5
	1.5 (1.1)	35.5	22.5	12.25	64.5	35	15.5	14
	2 (1.5)	47.5	29	15.25	77	39.5	19	15.5
	3 (2.2)		41.5	21	104.5	55	26	21.5
	5 (4)		68	33	162	85.5	43	32.5
	7.5 (5.5)		102	47.5	232	123	57	47
	10 (7.5)			64	297	156	74.5	57
	15 (11)			91.5		233	107	92
	20 (15)			132		299	137	112
	25 (18.5)			154.5		376	172	137
	30 (22)			184.5			202	172
	40 (30)						262	207
	50 (37)						327	262
	60 (44)						402	312
6	1 (0.75)	30.2		11.9		29.6	14.6	12.2
	1.5 (1.1)	42.2	26.6	14.3	77	41.6	18.2	16.4
	2 (1.5)	56.6	34.4	17.9	92	47	22.4	18.2
	3 (2.2)		49.4	24.8	125	65.6	30.8	25.4
	5 (4)		81.2	39.2	194	102.2	51.2	38.6
	7.5 (5.5)		122	56.6	278	147.2	68	56
	10 (7.5)			76.4	356	186.8	89	68
	15 (11)			109.4		279.2	128	110
	20 (15)			158		358.4	164	134
	25 (18.5)			185		450.8	206	164
	30 (22)			221			242	206
	40 (30)						314	248
	50 (37)						392	314
	60 (44)						482	374

Notes: Maximum system amperage reflects panels with no options and may change due to panel options requested.

12. Optional equipment

Pump system

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

See options in the Hydro MPC type key on page 10.

Option		Description	Location	Options (type key for Hydro MPC)
Pilot pump		During periods when consumption is low, the pilot pump takes over the operation from the main pumps when the main pumps stop function is activated.	System	B
NRV on inlet side		As standard, the non-return valves are fitted on the outlet side of the pumps of the pump system. In installations with suction lift, we recommend that you install non-return valves on the inlet side of the pumps to prevent dry running.	Inlet side	D
Elbow manifold	-	Manifolds with elbows in one end can reduce dead ends. On request.	Inlet/outlet side	E
Dry-running protection		The pump 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. For further description, see table below.	On inlet manifold	H
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.	-	J
One free pump position	-	Systems with one free pump position are available from a 3-pump up to a 6-pump system. The pump systems, including the cabinet, are prepared for the future pump.	-	K
Two free pump positions		Systems with two free pump positions are available on 4-pump up to 6-pump systems. The pump systems, including the cabinet, are prepared for the future pumps.	-	L
Three free pump positions		Systems with three free pump positions are available on 5 and 6 pump systems only. The pump systems, including the cabinet, are prepared for the future pumps.	-	M

Option		Description	Location	Options (type key for Hydro MPC)
Low pre-pressure (low NPSH)	-	The pump systems are available with CR low-NPSH pumps designed to eliminate the risk of cavitation and ensure a stable and reliable operation. The CR low-NPSH has a special inlet design that reduces the NPSH value required by the pump and prevents erosion and destruction of pump, pipes and valves. The improved inlet design may expose the low-NPSH pump to more stress than conventional pumps without affecting the stability of operation. The CR low-NPSH pump reduces excess pressure itself and does not require any additional tank to provide supplementary pressure. **Note**: Systems are available on request with CR low-NPSH from CR/CRI 3 to CR/CRI 20 and CRN, CRNE from CRN, CRNE 3 to CRN, CRNE 64.	-	Q
Customized variant	-	Customized systems can be produced on request. For further information, contact your local Grundfos sales office.	-	S
Undersized motor		We recommend a Hydro pump system with undersized motors if operating conditions deviate from those stated in the Hydro MPC Data Booklet and Grundfos Product Center. We especially recommend undersized motors if the duty point is constant,and the flow rate is significantly lower than the maximum recommended flow rate.	-	U
Standard controls with options		See standard Control MPC options on page 11.	-	V
Customized controls		See Control MPC options on page 11.	-	W

Dry-running protection, option H

Description	Range [psi (bar)]
Dry-running protection by means of electrode relay, without electrodes and electrode cable *	-
Inlet pressure sensor**	0-87 (0-6)
	0-145 (0-10)
	0-232 (0-16)

* Only one type of dry-running protection can be selected, as it must be connected to the same digital input as CU 352. This also applies to level switches. For further information about CU 352, see page 15.

** The inlet pressure sensor is normally connected to the analog input AI2 of CU 352. If this input is used for another function, such as "External setpoint", connect the sensor to analog input AI3. If, however, this input is also occupied, increase the number of analog inputs by installing an IO 351B module, see page 90. For further information about IO 351B, see page 15.

Redundant primary sensor, option J

Description	Range [psi (bar)]
Redundant primary sensor*	0-145 (0-10)
	232 (0-16)

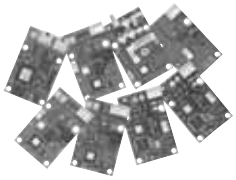
* The redundant primary sensor is normally connected to the analog input AI3 of CU 352. If this input is used for another function, such as "External setpoint", connect the redundant sensor to analog input AI2. If, however, this input is also occupied, increase the number of analog inputs by installing an IO 351B module, see page 90.

Control MPC

All optional equipment for Control MPC must be specified when ordering the pump system, as it must be fitted from factory prior to delivery. Standard Hydro MPC systems are produced with Control cabinet standard version A.

See options in the Control MPC type key on page 11.

Operating-panel options					Included in pre-defined Control MPC standard			
Option		**Description**	**Location**	**Options (type key for Control MPC)**	**A**	**B**	**E**	**F**
Redundant primary sensor	-	The redundant primary sensor is visible on the wiring diagram. **Note**: The redundant primary sensor is not included.	In the control cabinet	O1	•	•	•	•
Show repair switches in wiring diagram	-	The repair switches are visible on the wiring diagram. **Note**: Repair switches are not included.	In the control cabinet	O2	•	•	•	•
Emergency-operation switch	-	The emergency-operation switch enables 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. **Note**: One switch for each pump.	In the control cabinet	O3	-	•	•	•
IO 351B interface		This option features a factory-fitted and non-programmed IO 351B interface enabling exchange of additional digital in-/outputs, seven additional outputs, two additional analog inputs and three analog outputs. **Note**: The CU 352 supports up to two IO 351B interfaces.	In the control cabinet	O4	-	-	-	-
Potential-free contacts	-	Potential-free contacts are used to indicate that the pumps in the system are running or that an alarm is present.	In the control cabinet	O5	-	-	-	-

Operating-panel options					Included in pre-defined Control MPC standard			
Option		**Description**	**Location**	**Options (type key for Control MPC)**	**A**	**B**	**E**	**F**
CIM - Communication interface modules		The CIM modules enable communication of operating data, such as measured values and setpoints, between Hydro MPC and a building-management system. Note: CIM modules must be fitted by authorized 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:		O6	↓	↓	↓	↓
• CIM 050		GENIbus module	In the control cabinet	O6a	-	-	-	-
• CIM 110		LonWorks module		O6b	-	-	-	-
• CIM 150		PROFIBUS DP Module		O6c	-	-	-	-
• CIM 200		Modbus RTU Module		O6d	-	-	-	-
• CIM 260		3G/4G GRM Grundfos Remote Management		O6e	-	-	-	-
• CIM 280		3G/4G GRM Grundfos Remote Management		O6f	-	-	-	-
• CIM 300		BACnet MS/TP Module		O6g	-	-	-	-
• CIM 500		Ethernet module		O6h	-	-	-	-
Dry-running protection - electrode relay	-	Electrode Relay mounted in panel. **Note**: Order electrodes separately.	In the control cabinet	O7	-	-	•	-
Dry-running protection - vibration-limit switch	-	The vibration-limit switch is visible on the wiring diagram. **Note**: Vibration-limit switch not included.	In the control cabinet	O8	-	-	-	•
Dry-running protection - inlet pressure sensor	-	The inlet-pressure sensor is visible on the wiring diagram. **Note**: inlet-pressure switch not included.	In the control cabinet	O9	•	•	-	-
Dry-running protection - digital input	-	Digital input is visible on the wiring diagram.	In the control cabinet	O10	•	•	-	-
Fault light, pump		The fault light is on if a fault occurs in the pump. **Note**: One fault light for each pump.	In door of control cabinet	O11	-	-	-	-
Operating light, pump		The operating light when the relevant pump is in operation. **Note**: One operating light for each pump.	In door of control cabinet	O12	-	-	-	-
Fault light, system		The fault light is on if a fault occurs in the system. **Note**: Phase failure causes no fault indication.	In door of control cabinet	O13	-	-	-	-
Operating light, system		The operating light is on when the system is in operation.	In door of control cabinet	O14	-	-	-	-
Ammeter	-	An ammeter indicates the current of one phase per pump. **Note**: One ammeter for each pump.	In door of control cabinet	O15	-	-	-	-

Operating-panel options					Included in pre-defined Control MPC standard			
Option		**Description**	**Location**	**Options (type key for Control MPC)**	**A**	**B**	**E**	**F**
Voltmeter	-	A voltmeter indicates the mains voltages between mains phases and between the neutral conductor, N, and the mains phases. **Note**: One voltmeter for each pump.	In door of control cabinet	O16	-	-	-	-
Pilot pump control	-	With this option, the Control MPC is prepared for connection, meaning that it includes fuses and motor starter. The pilot pump is visible on the wiring diagram.	In the control cabinet	O17	-	-	-	-
Main switch with door interlock	-	The cabinet door can only be opened if the main switch is in off position.	In the control cabinet	O18	-	-	-	-
Main switch for neutral conductor	-	The main switch for switching off the neutral conductor is only used in connection with single-phase motors. Select this option according to the local rules for the installation site. As standard, the main switch does not switch off the neutral conductor.	In the control cabinet	O19	-	-	-	-
Phase-failure monitoring	-	Protect the pump system against phase failure. **Note**: A potential-free switch is available for external monitoring	In the control cabinet	O20	-	-	-	-
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.	In the control cabinet	O21	-	-	-	-
Transient-voltage protection	-	The transient-voltage protection protects the pump system against high-energy transients.	In the control cabinet	O22	-	-	-	-
Lightning protection	-	The pump system can be protected against strokes of lightning. The lightning protection is in accordance with IEC 61024-1:1992-10, class B & C. Note: Additional earthing facilities must be arranged by the customer at the installation site.	In the control cabinet	O23	-	-	-	-
Backup battery		The battery is connected to the CU352 as a backup in case the power supply is interrupted.	In the control cabinet	O24	-	-	-	-
Ethernet	-	The ethernet connection makes it possible to get unlimited access to the setting and monitoring of the Hydro MPC from a remote PC.	In the control cabinet	O25	-	-	-	-
Beacon	-	The beacon is on in case of a system alarm. **Note**: Phase failure causes no alarm indication.	On top of the control cabinet, external	O26	-	-	-	-
Audible alarm	-	The audible alarm sounds in case of a system alarm.	In the control cabinet	O27	-	-	-	-
Motor filter (LC)	-	The motor filter is mounted in panel for CUE -/ EC systems. Control MPC uses Sinus filters as standard. Other types are on request.	In the control cabinet	O28	-	-	-	-

All options can be added to the predefined package choice
- • Included in the predefined package
- \- Not included in the predefined package

13. Accessories

All accessories can be fitted to the Hydro MPC pump system after delivery.

Option		Description
Dry-running protection	-	The pump system must be protected against dry running. Dry-running protection by means of level switches is used in installations where the pump system draws water from a tank or well. For further description, see table below.
		Grundfos GO Remote is used for wireless infrared or radio communication with the pumps. Various Grundfos GO Remote variants are available. The variants MI 204 complete kit, MI 204 and MI 301 are described in the following. For further description, see table below.
• **MI 301**		**MI 301** • The MI 301 is a module with built-in infrared and radio communication. Use the MI 301 in conjunction with an Android- or iOS-based Smartphone with a Bluetooth connection. The MI 301 has a rechargeable Li-ion battery and must be charged separately.

Dry-running protection

Description	Product number
Level switch including 16 ft (5 m) of cable*	96020142

* The input for the level switch is not included. See page 90.
Only one type of dry-running protection can be selected, as it must be connected to the same digital input as CU 352. This also applies to level switches.

Diaphragm tank

Pump type	Recommended diaphragm tank size [gallons]			
	-E	-E(CUE)	-F	-S
CR, CRE 3	4.4	4.4	4.4	20
CR, CRE 5	4.4	4.4	4.4	34
CR, CRE 10	10.3	10.3	10.3	62
CR, CRE 15	34	34	34	211
CR, CRE 20	34	34	34	211
CR, CRE 32	44	44	44	317
CR, CRE 45	86	86	86	528
CR, CRE 64	132	132	132	1056
CR, CRE 95	132	132	132	1056
CR, CRE 125	211	211	211	(2) x 1056
CR, CRE 155	211	211	211	(2) x 1056

Recommended diaphragm tank size	
Pump type	**Tank size [gal (L)]**
CME 3	4.4 (17)
CME 5	4.4 (17)
CME 10	10.3 (39)
CME 15	34 (129)

Grundfos GO Remote

Product numbers for MI 204 (complete kit), MI 204 and MI 301

Grundfos GO Remote variant	Product number
Grundfos MI 204 (complete kit)	98612711
Grundfos MI 204	98424092
Grundfos MI 301	98046408

Additional 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	99107595
Catalogue	
Hydro pump systems - custom-built solutions 50/60 Hz	96881732

In addition to printed documentation, Grundfos offers product documentation in Grundfos Product Center at www.grundfos.com. See page 91.

14. Grundfos Product Center

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

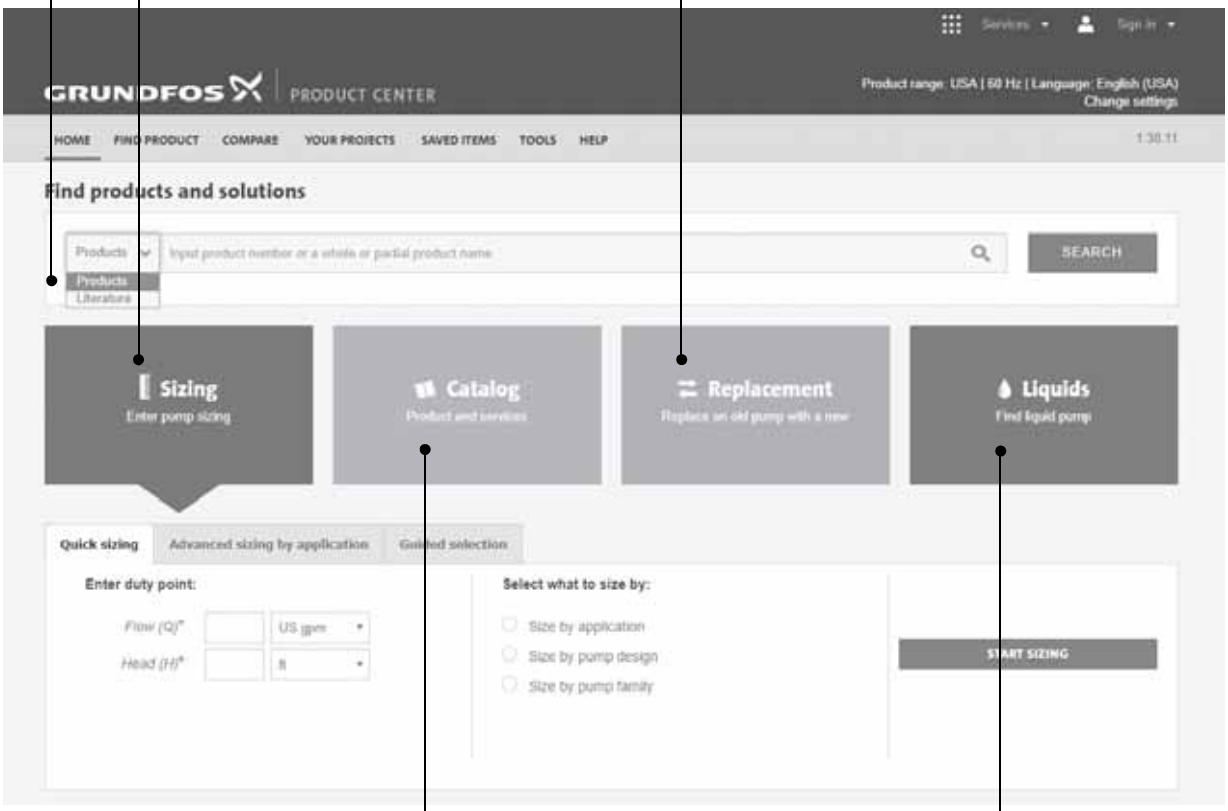
http://product-selection.grundfos.com

This drop-down menu enables you to set the search function to "Products" or "Literature".

"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 following:

- 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.

Grundfos GO

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GRUNDFOS Chicago
3905 Enterprise Court
P.O. Box 6620
Aurora, IL 60598-0620
Phone: +1-630-236-5500
Fax: +1-630-236-5511

GRUNDFOS Kansas City
9300 Loiret Boulevard
Lenexa, Kansas 6619
Phone: +1-913-227-3400
Fax: +1-913-227-3500

GRUNDFOS CBS
902 Koomey Road
Brookshire, TX 77423
Phone: +1-281-994-2700
Fax: +1-800-945-4777

www.grundfos.us

Canada
GRUNDFOS Canada
2941 Brighton Road
Phone: +1-905-829-9533
Fax: +1-905-829-9512

www.grundfos.ca

México
GRUNDFOS México
Boulevard TLC No. 15
Parque Industrial Stiva Aeropuerto
Phone: +011-52-81-8144-4000
Fax: +011-52-81-8144-4010

www.grundfos.mx

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