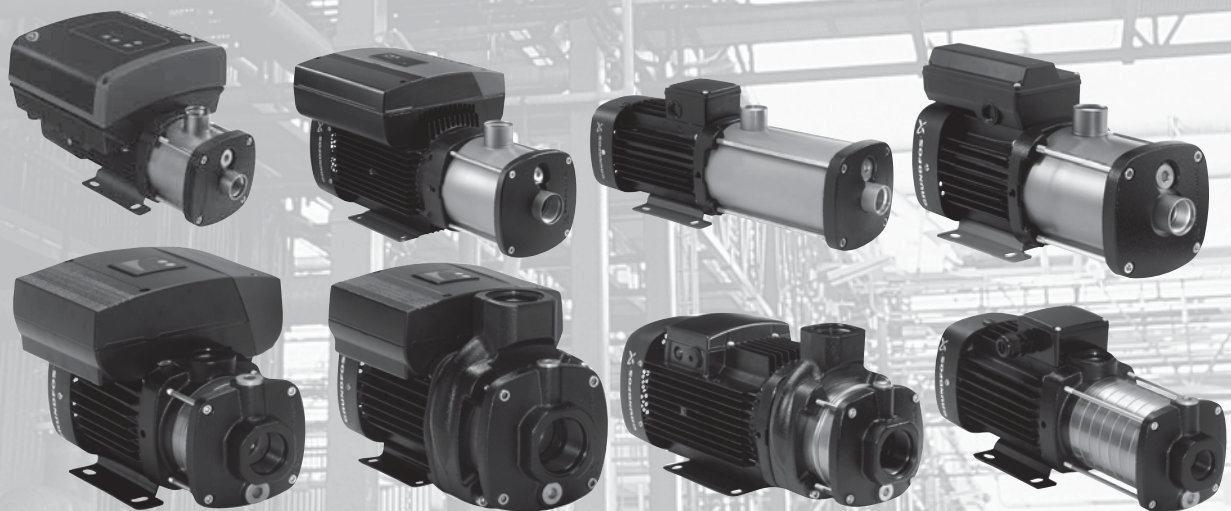


CM, CME

Horizontal, multistage centrifugal pumps

50/60 Hz



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GRUNDFOS 

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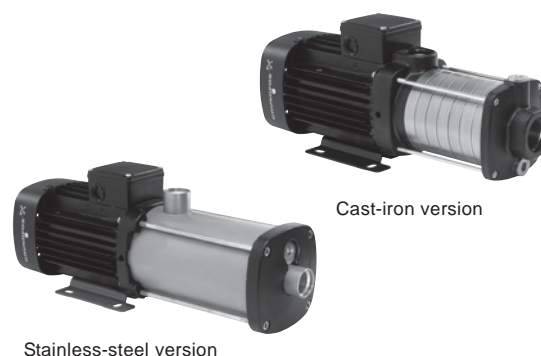
1. Product introduction

The Grundfos CM and CME pumps are horizontal, multistage, end-suction centrifugal pumps. The pumps are of the close-coupled type and available as either self-priming or non-self-priming pumps. CM pumps are fitted with mains-operated motors whereas the motor for CME pumps has an integrated frequency converter. Both CM and CME pumps have mechanical shaft seals.

The CM and CME pumps are available in these three material versions:

- cast iron (EN-GJL-200)*
 - stainless steel (EN 1.4301/AISI 304)
 - stainless steel (EN 1.4401/AISI 316).
- * The pump shaft, impeller, chamber and filling plugs are made of stainless steel (EN 1.4301/AISI 304).

CM



Stainless-steel version

Cast-iron version

TM05 1128 2211 - TM05 1129 2211

Fig. 1 Grundfos CM pumps

The CM pumps are unique products that have been developed in order to fulfil a wide variety of customer demands. The development of the pumps has resulted in no less than five patent applications.

The CM pumps are available in various sizes and numbers of stages to provide the flow and pressure required.

The CM pumps consist of two main components: the motor and the pump unit. The motor is a Grundfos motor designed to EN standards. The pump unit incorporates optimised hydraulics and offers various types of connections.

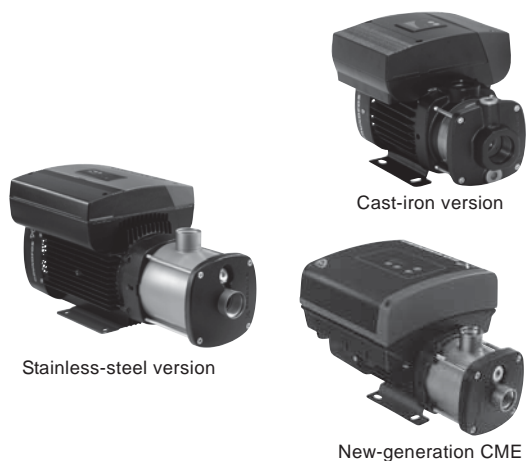
The pumps offer many advantages, some of which are listed below and described in detail in [Features and benefits](#) on page 9:

- compact design
- worldwide usage
- high reliability
- service friendly
- wide performance range
- low noise
- customised solutions.

IE3 motors

IE3 motors are available on request for three-phase motors of 0.75 kW and above.

CME



TM05 1126 2211 - TM05 1122 2211 - TM05 6830 0113

Fig. 2 Grundfos CME pumps

The CME pumps are built on the basis of CM pumps. CME pumps belong to the so-called E-pump family. The difference between the CM and the CME pump ranges is the motor.

The CME pump motor is a Grundfos MGE motor designed to EN standards. The motor incorporates a frequency converter.

Frequency control enables continuously variable control of the motor speed, which makes it possible to set the pump to operation at any duty point. The aim of continuously variable control of the motor speed is to adjust the performance to a given requirement.

You can connect a pressure sensor to the built-in frequency converter on CME pumps. For further information, see [Sensors for CME](#) on page 141.

The pump materials are identical to those of the CM pump range.

New-generation CME 0.37 to 2.2 kW (supply voltages S, T, U)

The CME pumps in this range are fitted with the new-generation MGE motors which are permanent-magnet motors incorporating a high-efficiency frequency converter. This ensures an even higher efficiency of the pump.

The new motor including frequency converter has a total efficiency which exceeds the IE4 super premium efficiency level defined for fixed-speed motors.

CME 0.37 to 7.5 kW (supply voltages L, N, Q, R)

The CME pumps in this range are fitted with the former generation of MGE motors which are asynchronous motors. These motors are IE2-compliant as standard.

Selecting a CME pump

Select a CME pump if the following features are required:

- controlled operation, i.e. consumption fluctuates
- constant pressure
- communication with the pump.

Adaptation of performance through frequency-controlled speed offers obvious benefits such as:

- energy savings
- increased comfort
- control and monitoring of the application and pump performance.

For further information about CME pumps, see [CME pumps](#) on page 29.

2. Overview



Applications



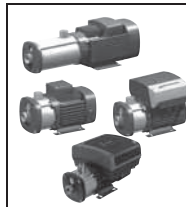
Pages 7 and 8

Identification



Page 11

Product range



Pages 12 and 13

Operating conditions



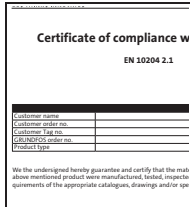
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Construction



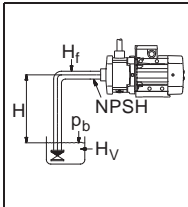
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Certificates and approvals



Pages 34 and 35

Selection and sizing



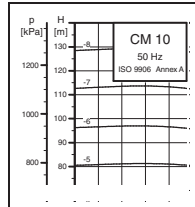
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Pipe connections



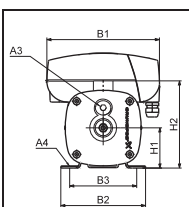
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Performance curves



Pages 42 to 77

Dimensions



Pages 78 to 116

Motor data



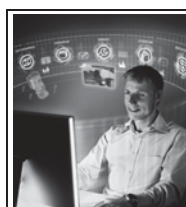
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Accessories



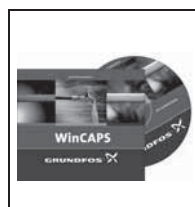
Pages 134 to 142

Customisation



Page 127

Further product information



Pages 143 and 145

3. Applications

The CM and CME pumps are designed to cover a wide variety of applications, ranging from small domestic installations to large industrial systems. The pumps are therefore suitable for a wide diversity of pumping systems where the performance and material of the pump must meet specific demands.

Some of the most typical applications are mentioned below:

- washing and cleaning
- water treatment
- temperature control
- pressure boosting.

Washing and cleaning



Gr3572

Fig. 3 Washing and cleaning

CM and CME pumps can be used in washing and cleaning applications, which usually involve pumping of water containing soap or other cleaning agents.

Reference applications

Typical washing and cleaning applications:

- degreasing and washing of production equipment in industrial environments such as the food and beverage industry
- washing machines
- vehicle-washing tunnels
- mobile-washing units
- units for CIP (Cleaning In Place).

Water treatment



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Fig. 4 Water treatment

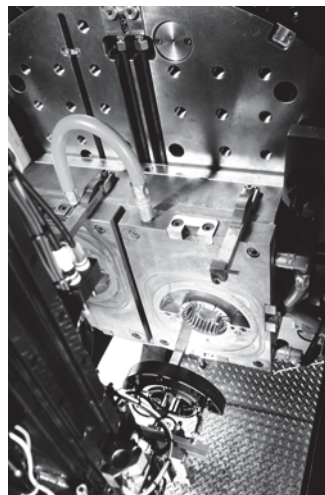
In water treatment plants, the water undergoes a process which makes it more suited for its end use. In this process, the CM and CME pumps can be utilised either as feed pumps or as booster pumps.

Reference applications

Typical water treatment applications:

- nano-, micro- and ultra-filtration systems
- softening, ionising, demineralising systems
- desalination systems
- distillation systems
- separators
- swimming baths.

Temperature control



GrA6288

Fig. 5 Temperature control

Temperature control involves applications where the CM and CME pumps circulate a liquid in a closed loop consisting of a heating or cooling element for optimising a process by means of temperature. Temperature control is also chilling of equipment or food and beverage in the food production industry.

Reference applications

The CM and CME pumps can for example be used in temperature control systems such as:

- electronic data processing
- laser equipment
- medical equipment
- industrial refrigeration
- heating and cooling in industrial processes
- moisturising and humidifying.

To ensure safe and reliable operation in applications involving temperature control, we offer CM and CME pumps designed to meet your needs!

We provide solutions for applications involving pumping of these liquids:

- liquids at temperatures down to $-20\text{ }^{\circ}\text{C}$
- high-temperature liquids
- high-viscous liquids, etc.

Pumping of liquids at temperatures down to $-20\text{ }^{\circ}\text{C}$

When pumping liquids at temperatures down to $-20\text{ }^{\circ}\text{C}$, it is crucial that the pump parts are made of the right materials and have the right dimensions. At such low temperatures, the selection of wrong materials and dimensions may cause deformation because of thermal expansion, and eventually stoppage of operation.

Note: CM and CME pumps for pumping liquids at temperatures below $-20\text{ }^{\circ}\text{C}$ are available on request. Please contact Grundfos.

Pumping of high-temperature liquids

The pumping of hot liquids such as water-based liquids up to $120\text{ }^{\circ}\text{C}$ demands much of the pump parts, such as shaft seals and rubber parts.

Pumping of high-viscous liquids

In applications where high-viscous liquids are pumped, the motor of the pump can be overloaded, and the pump performance will be reduced.

The viscosity of a pumped liquid depends strongly on the pumped liquid and its temperature.

To meet the above-mentioned requirements, we offer CM and CME pumps with oversize motors.

Pressure boosting



Fig. 6 Pressure boosting

In pressure-boosting applications, the pumped liquid must be delivered at a desired pressure on demand. The main priorities in pressure-boosting applications are to ensure maximum reliability and user comfort. Therefore, the CM and CME pumps are also ideal for such applications.

Reference applications

Typical pressure-boosting applications:

- pressure boosting and transfer of drinking water
- process-water systems.

Other applications

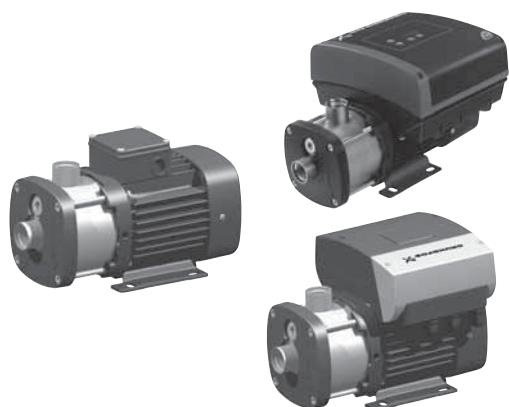
Besides the applications mentioned above, the CM and CME pumps can be used in many other applications.

Examples:

- distilling systems
- dosing/mixing
- evaporation
- comprised machinery
- chemical industry
- pharmaceutical industry.

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4. Features and benefits



TM04 3509 4508 - TM04 3511 4508

Fig. 7 CM and CME pumps

CM and CME pumps present the following features and benefits:

Compact design

Pump and motor are integrated in a compact and user-friendly design. The pump is fitted to a low-profile base plate, making it ideal for installation in systems where compactness is important.

Modular construction/customised solutions

The modular construction of the CM and CME pumps makes it easy to create many different variants based on standard factory parts. This means that it is possible to create pump variants that are customised for the application in question.

Energy-optimised pumps

CM and CME pumps are energy-optimised and comply with the EuP Directive (Commission Regulation (EC) No 547/2012) in which most pumps are classified/graduated in a new energy efficiency index (MEI). See also page 18.

Worldwide usage

- With different voltage and frequency combinations, the CM and CME product ranges cover markets worldwide.
- The CM and CME product ranges have been approved and are marked for worldwide usage. See [Approvals and markings](#) on page 33.

High reliability

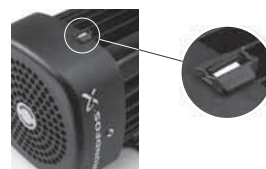
New state-of-the-art shaft seal design and materials offering these benefits:

- high wear resistance and long operating life
- improved sticking and dry-running capabilities.

The pumps are less sensitive to impurities in the pumped liquid than similar pumps of the canned-rotor type.

Easy installation and commissioning

- A Quick Guide supplied with the CM pump enables easy installation and commissioning. Detailed multilingual installation and operating instructions are supplied with each pump.
- An installation indicator fitted to three-phase CM pumps makes it easy to see if the electrical connection of the motor is correct. Based on the motor cooling air, it indicates the direction of rotation of the motor.



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Fig. 8 Installation indicator

Service-friendly

- Service was in mind during the development.
- No special service tools required.
- Spare parts in stock for quick delivery.
- Service parts available as kits, single parts or bulks.
- Service instructions and video make it simple to disassemble and assemble the pump.
- Service kit instructions available where estimated necessary.

Additional features and benefits for self-priming pumps

The CM self-priming pump can create a suction lift of up to 8 metres in less than 5 minutes when installed and commissioned correctly.

- The pump is available in stainless steel 1.4301 with EPDM or Viton O-rings.
- The pump is available for single-phase operation as standard and for three-phase operation on request.

Wide performance range

Can be used in a wide range of applications:

- washing and cleaning
- water treatment
- temperature control
- pressure boosting
- chemical industry
- pharmaceutical industry
- etc.

Product range in the Grundfos Product Center (<http://product-selection.grundfos.com/>).

Low noise level

The CM and CME pumps offer very silent operation.

High-performance hydraulics

Pump efficiency is maximised by the optimised hydraulics and carefully crafted production technology.

Electrocoated cast-iron parts

- optimised corrosion resistance
- better efficiency because of smooth surfaces.

Customised solutions

It is possible to create many different variants of the CM and CME pumps. For further information, see [Customisation](#) on page 127.

- motor adaptation
- pump body modifications.

Grundfos motor

Grundfos motors are remarkably silent and highly efficient.

Grundfos motors are available with integrated frequency converter designed for speed-controlled operation.

Data and literature about the CM and CME pumps

All literature and technical data related to CM and CME pumps are available on line in the Grundfos Product Center (<http://product-selection.grundfos.com/>).

5. Identification

Example	CM 10 - 3 A - R - I - E - A V B E F - A - A - N																														
<p>Type range</p> <p>CM: Centrifugal Modular</p> <p>CME: Centrifugal Modular with integrated frequency converter</p> <hr/> <p>Rated flow rate</p> <p>Rated flow rate at 50 Hz [m³/h]</p> <p>Number of impellers</p> <hr/> <p>Pump version</p> <p>A: Basic version</p> <p>B: Oversize motor (one kW size larger)</p> <p>D:</p> <p>E: Pumps with certificates/approvals</p> <p>N: CME pump with pressure sensor</p> <p>P: Undersize motor (one kW size smaller)</p> <p>T: Oversize motor (two kW sizes larger)</p> <p>O: Self-priming version (max. suction lift 8 metres)</p> <p>S: Self-priming version (max. suction lift 4 metres)</p> <p>X: Special pump</p> <p>Note: Two letters symbolise that two parameters have been combined.</p> <hr/> <p>Pipe connection</p> <p>C: Tri-Clamp®</p> <p>F: DIN/ANSI/JIS flange</p> <p>P: Victaulic® coupling</p> <p>R: Whitworth thread Rp (ISO 7/1)</p> <p>S: Internal NPT thread</p> <hr/> <p>Materials in contact with pump media</p> <table border="0"> <tr> <td>A:</td> <td>Suction and discharge parts</td> <td>EN-GJL-200</td> </tr> <tr> <td></td> <td>Pump shaft</td> <td>EN 1.4301/AISI 304</td> </tr> <tr> <td></td> <td>Impellers/chambers</td> <td>EN 1.4301/AISI 304</td> </tr> <tr> <td>G:</td> <td>Sleeve</td> <td>EN 1.4401/AISI 316</td> </tr> <tr> <td></td> <td>Pump shaft</td> <td>EN 1.4401/AISI 316</td> </tr> <tr> <td></td> <td>Impellers/chambers</td> <td>EN 1.4401/AISI 316</td> </tr> <tr> <td>I:</td> <td>Sleeve</td> <td>EN 1.4301/AISI 304</td> </tr> <tr> <td></td> <td>Pump shaft</td> <td>EN 1.4301/AISI 304</td> </tr> <tr> <td></td> <td>Impellers/chambers</td> <td>EN 1.4301/AISI 304</td> </tr> <tr> <td>X:</td> <td>Special version</td> <td></td> </tr> </table> <hr/> <p>Rubber parts in pump (excluding neck ring and shaft seal)</p> <p>E: EPDM (ethylene propylene)</p> <p>K: FFKM (perflour)</p> <p>V: FKM (flour)</p> <p>Note: Gaskets between chambers of cast-iron versions are always made of Tesnit® BA-U</p> <hr/> <p>Shaft seal</p> <p>A: O-ring seal with fixed driver</p> <p>R: O-ring seal with fixed driver and reduced seal face</p> <hr/> <p>Material of rotating seal face</p> <p>Q: Silicon carbide (SIC)</p> <p>V: Aluminium oxide (Al2O3)</p> <p>U: Tungsten carbide</p>	A:	Suction and discharge parts	EN-GJL-200		Pump shaft	EN 1.4301/AISI 304		Impellers/chambers	EN 1.4301/AISI 304	G:	Sleeve	EN 1.4401/AISI 316		Pump shaft	EN 1.4401/AISI 316		Impellers/chambers	EN 1.4401/AISI 316	I:	Sleeve	EN 1.4301/AISI 304		Pump shaft	EN 1.4301/AISI 304		Impellers/chambers	EN 1.4301/AISI 304	X:	Special version		<p>Sensor</p> <p>N: No sensor</p> <hr/> <p>Mains plug</p> <p>A: Prepared for cable glands</p> <p>B: Harting plug</p> <p>C: With cable</p> <p>D: Cable gland included</p> <hr/> <p>Motor information</p> <p>A: Standard motor (IP55)</p> <p>B: Phase-insulated motor for use with frequency converter</p> <p>C: Condensing environments</p> <p>D: Pt100 in stator</p> <p>E: Angular contact bearing</p> <p>F: Motor heater</p> <p>G: Three-phase motor with overload protection</p> <p>H: Single-phase motor with no protection</p> <p>I: Radio communication not available</p> <p>J: IPX5</p> <hr/> <p>Supply voltage</p> <p>A: 1 x 220 V, 60 Hz</p> <p>B: 1 x 115/230 V, 60 Hz</p> <p>B1: 1 x 115/230 V, 60 Hz, with terminal board</p> <p>C: 1 x 220-240 V, 50 Hz</p> <p>D: 1 x 127 V, 60 Hz</p> <p>E: 3 x 208-230/440-480 V, 60 Hz</p> <p>E1: 3 x 208-230/440-480 V, 60 Hz, with terminal board</p> <p>F: 3 x 220-240/380-415 V, 50 Hz</p> <p>G: 3 x 200/346 V, 50 Hz; 200-220/346-380 V, 60 Hz</p> <p>H: 3 x 575 V, 60 Hz</p> <p>I: 3 x 400 V, 50/60 Hz</p> <p>J: 3 x 380-415 V, 50 Hz; 440-480 V, 60 Hz</p> <p>L: 3 x 380-480 V, 50/60 Hz (E-motor)</p> <p>N: 3 x 460-480 V, 60 Hz (E-motor)</p> <p>O: 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz</p> <p>Q: 3 x 208-230 V, 50/60 Hz (E-motor)</p> <p>R: 3 x 200-230 V, 50/60 Hz (E-motor)</p> <p>S: 3 x 380-500 V, 50/60 Hz (E-motor)¹⁾</p> <p>T: 3 x 440-480 V, 50/60 Hz (E-motor)¹⁾</p> <p>U: 1 x 200-240 V, 50/60 Hz (E-motor)¹⁾</p> <p>X: Special voltage</p> <hr/> <p>Material of secondary seal</p> <p>E: EPDM (ethylene propylene)</p> <p>K: FFKM (perflour)</p> <p>V: FKM (flour)</p> <hr/> <p>Material of stationary seal face</p> <p>B: Carbon, resin-impregnated</p> <p>Q: Silicon carbide (SIC)</p> <p>U: Tungsten carbide</p>
A:	Suction and discharge parts	EN-GJL-200																													
	Pump shaft	EN 1.4301/AISI 304																													
	Impellers/chambers	EN 1.4301/AISI 304																													
G:	Sleeve	EN 1.4401/AISI 316																													
	Pump shaft	EN 1.4401/AISI 316																													
	Impellers/chambers	EN 1.4401/AISI 316																													
I:	Sleeve	EN 1.4301/AISI 304																													
	Pump shaft	EN 1.4301/AISI 304																													
	Impellers/chambers	EN 1.4301/AISI 304																													
X:	Special version																														

¹⁾ The new-generation MGE, currently 0.37 to 2.2 kW.
Note: The type key cannot be used for ordering as not all combinations are possible.

6. Product range

CM, CME

Pump type	50 Hz			60 Hz			Shaft seal			Mains-operated motor						Electronically speed-controlled motor											
	Material			Material						50 Hz	60 Hz			50/60 Hz			Voltage [V]										
	Voltage [V]			Voltage [V]			Voltage [V]			Voltage [V]																	
	Voltage [V]			Voltage [V]			Voltage [V]			Voltage [V]																	
	Cast iron EN-GJL-200 (CM-A)	Stainless steel EN 1.4301/AISI 304 (CM-I)	Stainless steel EN 1.4401/AISI 316 (CM-G)	Cast iron EN-GJL-200 (CM-A)	Stainless steel EN 1.4301/AISI 304 (CM-I)	Stainless steel EN 1.4401/AISI 316 (CM-G)	AVBE, AVBV	AQQE, AQBE	AQKQ	1 x 220-240 V (supply voltage C)	3 x 220-240/380-415 V (supply voltage F)	1 x 220 V (supply voltage A)	1 x 115/230 V (supply voltage B/B1) ⁴⁾	1 x 127 V (supply voltage D) ¹⁾	3 x 208-230/440-480 V (supply voltage E/E1) ⁴⁾	3 x 575 V (supply voltage H)	3 x 220-240/380-415 V, (50 Hz)/	3 x 380-415 V, (50 Hz)/	3 x 200 V/346 V, (50 Hz);	3 x 400 V, (50/60 Hz) (supply voltage I)	3 x 380-480 V, (50/60 Hz) (supply voltage L)	3 x 460-480 V, (60 Hz) (supply voltage N)	3 x 200-230 V, 50/60 Hz (supply voltage R)	3 x 208-230 V, 50/60 Hz (supply voltage Q)	3 x 380-500 V, (50/60 Hz) (supply voltage S) ⁵⁾	3 x 440-480 V, (50/60 Hz) (supply voltage T) ⁵⁾	1 x 200-240 V, (50/60 Hz) (supply voltage U) ⁵⁾
CM 1-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-7	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-8	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-9	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-10	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-11	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-12	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-13	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 1-14	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-7	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-8	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-9	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-10	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-11	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-12	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-13	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 3-14	•	•	•	•	•	•	•	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

1) On request.

2) Neither suitable for 60 Hz mains-operated pumps, nor for CME pumps running at 100 % speed.

3) Not suitable for pumping liquids at temperatures above 90 °C.

4) Pumps with supply voltages B and E are supplied for wire connection without terminal board inside the terminal box (flying wires). Pumps with supply voltages B1 and E1 are supplied with terminal board inside the terminal box.

5) The new-generation MGE, currently 0.37 to 2.2 kW.

Pump type	50 Hz			60 Hz			Shaft seal	Mains-operated motor						Electronically speed-controlled motor													
	Material			Material				50 Hz	60 Hz			50/60 Hz			Voltage [V]												
	Material			Material				Voltage [V]	Voltage [V]			Voltage [V]			Voltage [V]												
	Material			Material				Voltage [V]	Voltage [V]			Voltage [V]			Voltage [V]												
	Cast iron EN-GJL-200 (CM-A)	Stainless steel EN 1.4301/AISI 304 (CM-I)	Stainless steel EN 1.4401/AISI 316 (CM-G)	Cast iron EN-GJL-200 (CM-A)	Stainless steel EN 1.4301/AISI 304 (CM-I)	Stainless steel EN 1.4401/AISI 316 (CM-G)	AVBE, AVBV	AQQE, AQBE	AQKQ	1 x 220-240 V (supply voltage C)	3 x 220-240/380-415 V (supply voltage F)	1 x 220 V (supply voltage A)	1 x 115/230 V (supply voltage B/B1) ⁴⁾	1 x 127 V (supply voltage D) ¹⁾	3 x 208-230/440-480 V (supply voltage E/E1) ⁴⁾	3 x 575 V (supply voltage H)	3 x 220-240/380-415 V, (50 Hz)/	3 x 380-415 V, (50 Hz)/	3 x 200 V/346 V, (50 Hz);	3 x 400 V, (50/60 Hz) (supply voltage I)	3 x 380-480 V, (50/60 Hz) (supply voltage L)	3 x 460-480 V, (60 Hz) (supply voltage N)	3 x 200-230 V, 50/60 Hz (supply voltage R)	3 x 208-230 V, 50/60 Hz (supply voltage Q)	3 x 380-500 V, (50/60 Hz) (supply voltage S) ⁵⁾	3 x 440-480 V, (50/60 Hz) (supply voltage T) ⁵⁾	1 x 200-240 V, (50/60 Hz) (supply voltage U) ⁵⁾
CM 5-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-7	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-8	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-9	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-10	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-11	•	•	•	•	•	•	•	• ³⁾	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-12	•	•	•	•	•	•	•	• ³⁾	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 5-13	•	•	•	•	•	•	•	• ³⁾	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-5	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-6	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-7	•	•	•	•	•	•	•	• ³⁾	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 10-8	•	•	•	•	•	•	•	• ³⁾	• ³⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 15-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 15-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 15-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 15-4	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 25-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 25-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 25-3	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
CM 25-4	•	•	•	•	•	•	• ²⁾	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

- 1) On request.
- 2) Neither suitable for 60 Hz mains-operated pumps, nor for CME pumps running at 100 % speed.
- 3) Not suitable for pumping liquids at temperatures above 90 °C.
- 4) Pumps with supply voltages B and E are supplied for wire connection without terminal board inside the terminal box (flying wires). Pumps with supply voltages B1 and E1 are supplied with terminal board inside the terminal box.
- 5) The new-generation MGE, currently 0.37 to 2.2 kW.

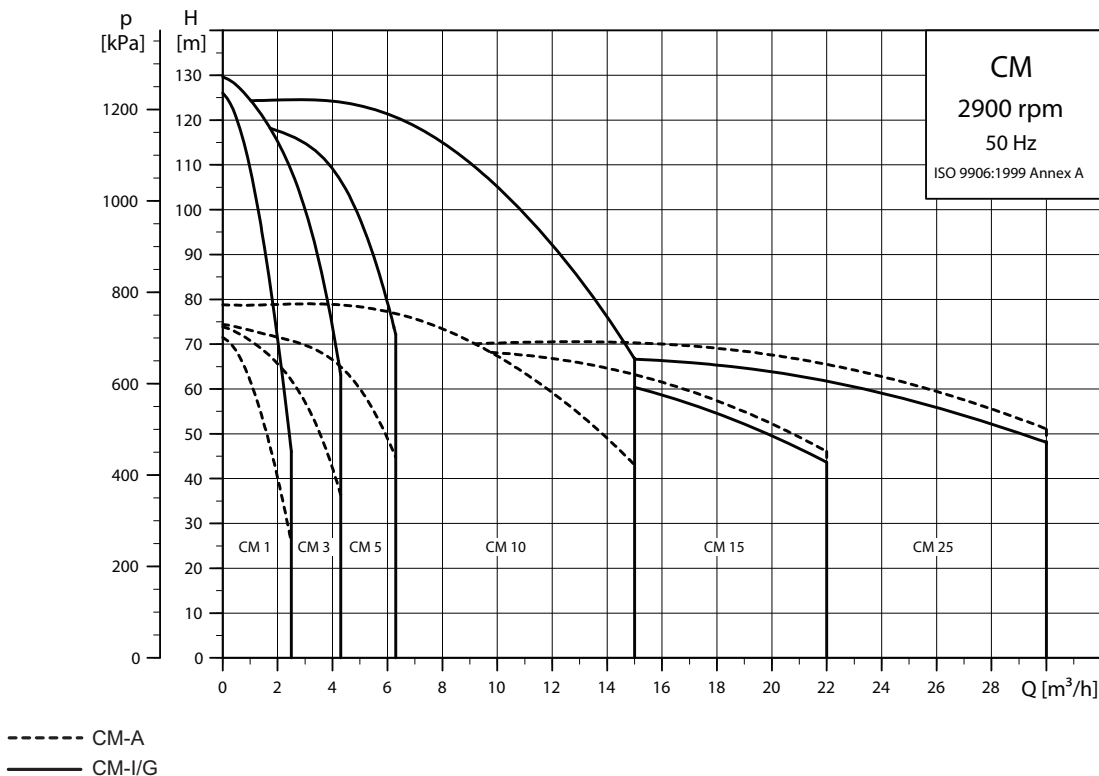
CM self-priming

Pump type	Max. suction lift		Material		Shaft seal		Supply voltage											
							Mains-operated motor											
	4 metres	8 metres	Stainless steel EN 1.4301/AISI 304 (CM-I)	Stainless steel EN 1.4401/AISI 316 (CM-G)	AVBE/AQQE	AVBV/AQQV	50 Hz			60 Hz			50/60 Hz					
							1 x 220-240 V (supply voltage C)	3 x 220-240/380-415 V (supply voltage F)	1 x 220 V (supply voltage A)	1 x 115/230 V (supply voltage B/B1)	1 x 127 V (supply voltage D)	3 x 208-230/440-480 V (supply voltage E/E1)	3 x 575 V (supply voltage H)	3 x 220-240/380-415 V (50 Hz) / 3 x 220-255/380-440 V (60 Hz) (supply voltage O)	3 x 380-415 V (50 Hz) / 3 x 440-480 V (60 Hz) (supply voltage J)	3 x 200 V/346 V (50 Hz); 3 x 200-220/346-380 V (60 Hz) (supply voltage G)	3 x 400 V (50/60 Hz) (supply voltage I)	
CM 1-3	•	-	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 1-4	•	-	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 1-5	•	-	•	○	•	○	•	○	○	○	○	○	○	○	○	○	○	○
CM 1-6	•	-	•	○	•	○	•	○	○	○	○	○	○	○	○	○	○	○
CM 3-3	•	•	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 3-4	•	•	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 3-5	•	•	•	○	•	○	•	○	○	○	○	○	○	○	○	○	○	○
CM 3-6	•	•	•	○	•	○	•	○	○	○	○	○	○	○	○	○	○	○
CM 5-3	•	•	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 5-4	•	•	•	○	•	○	•	○	•	○	○	○	○	○	○	○	○	○
CM 5-5	•	•	•	○	•	○	•	○	○	○	○	○	○	○	○	○	○	○
CM 5-6	•	•	•	○	•	○	•	○	-	-	-	○	○	○	○	○	○	○
CM 5-7	•	•	•	○	•	○	•	○	-	-	-	○	○	○	○	○	○	○

- Available as standard
- Available on request
- Not available

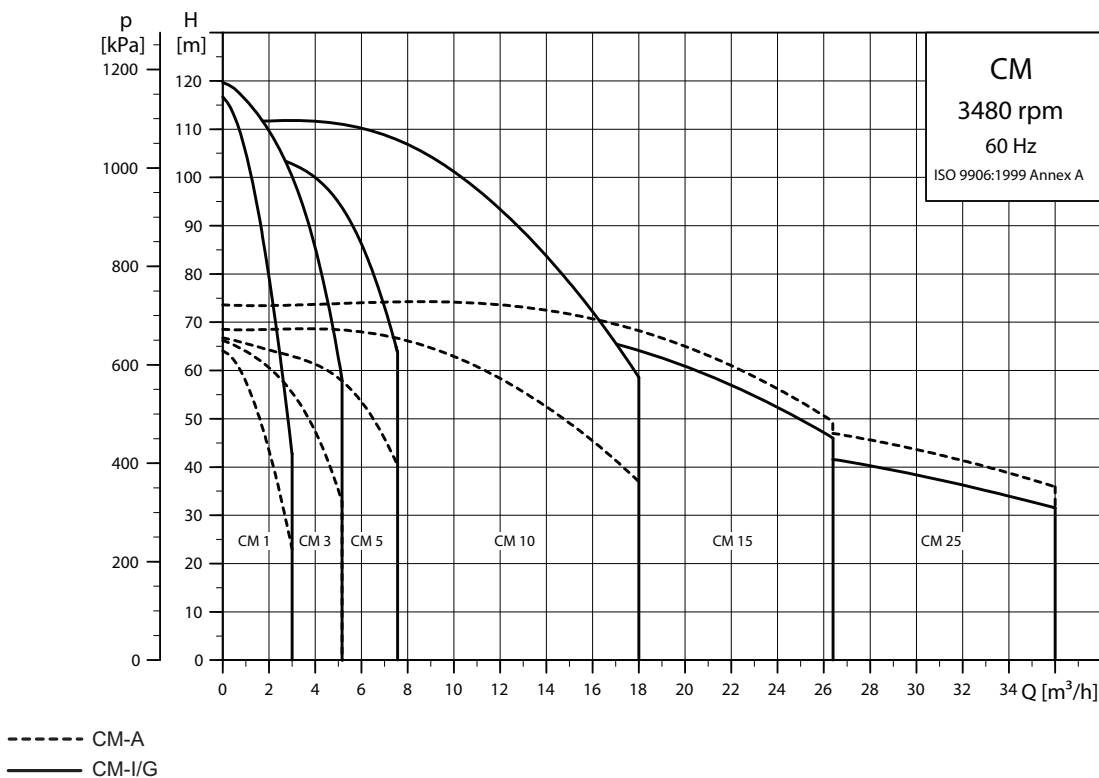
7. Performance range

CM, 50 Hz



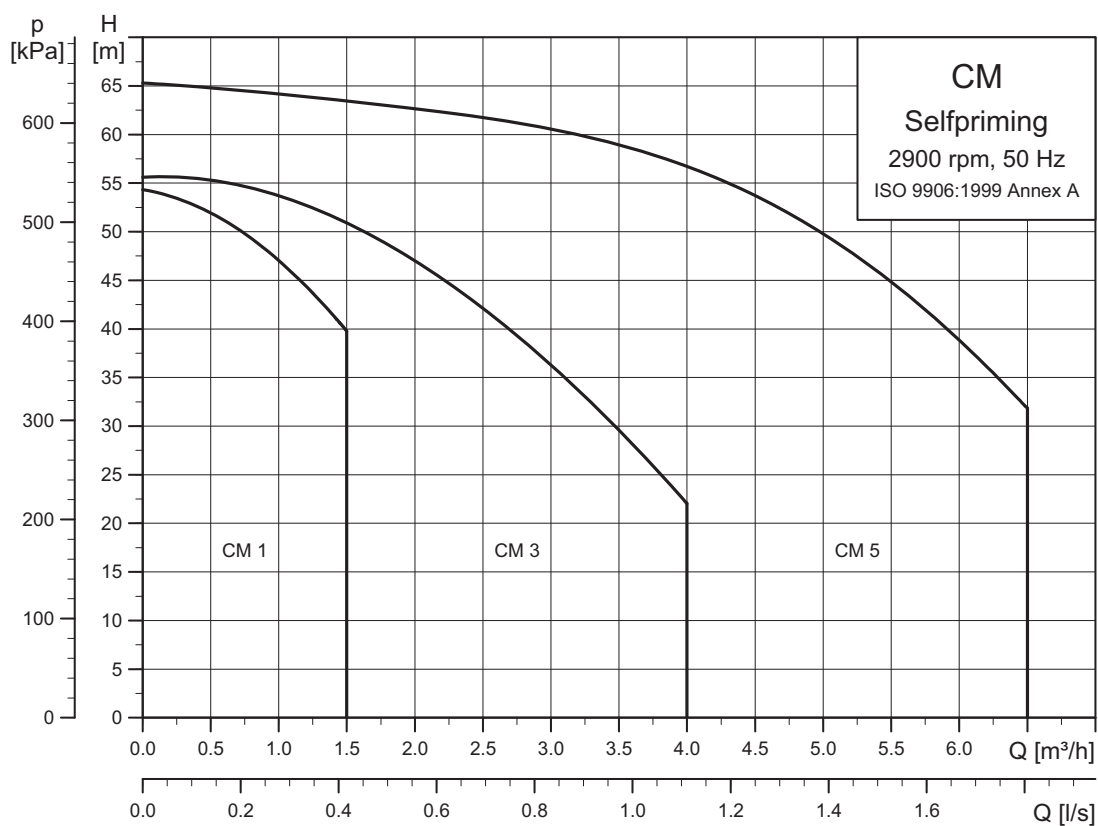
TM04 3340 5112

CM, 60 Hz



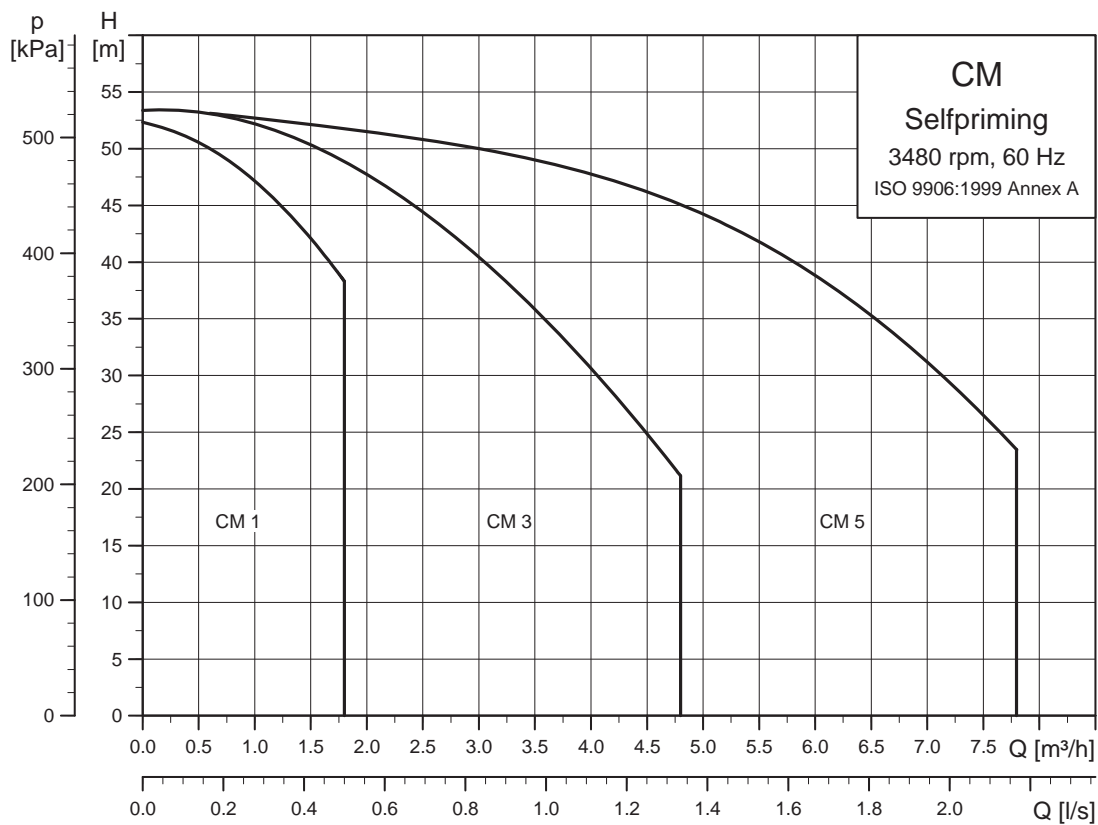
TM04 3369 5112

CM self-priming, 50 Hz



TM05 8834 2713

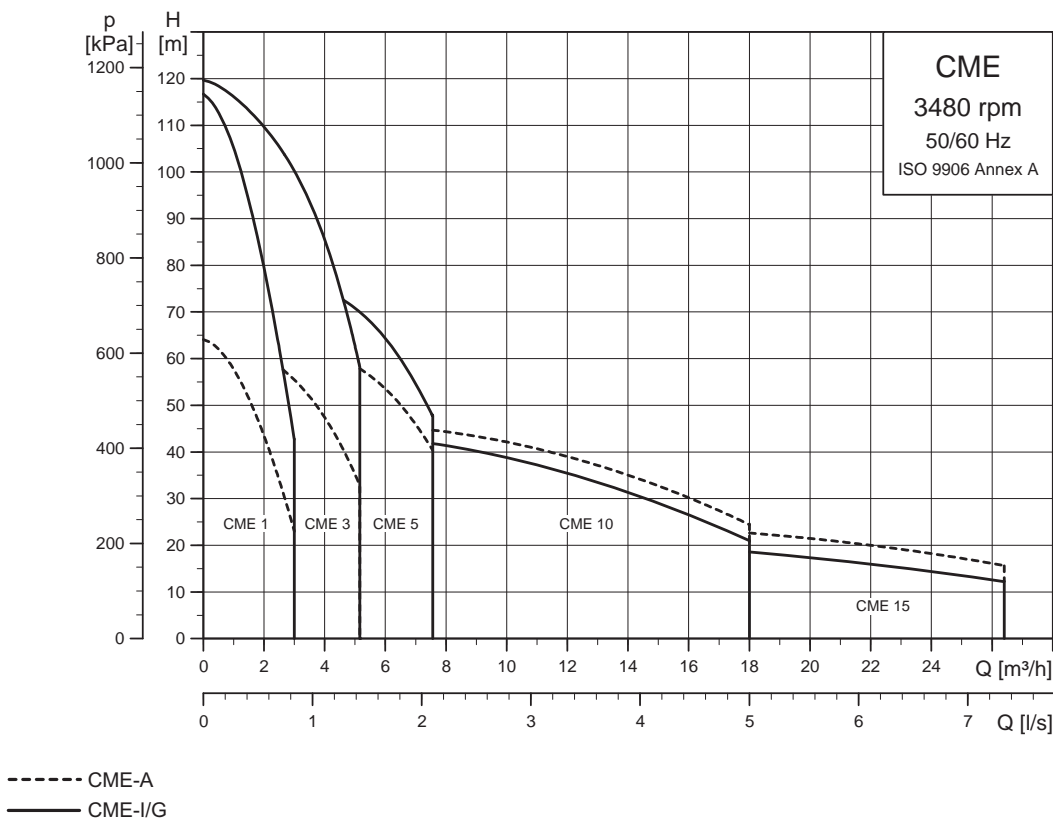
CM self-priming, 60 Hz



TM05 8835 2713

New-generation CME, 50/60 Hz

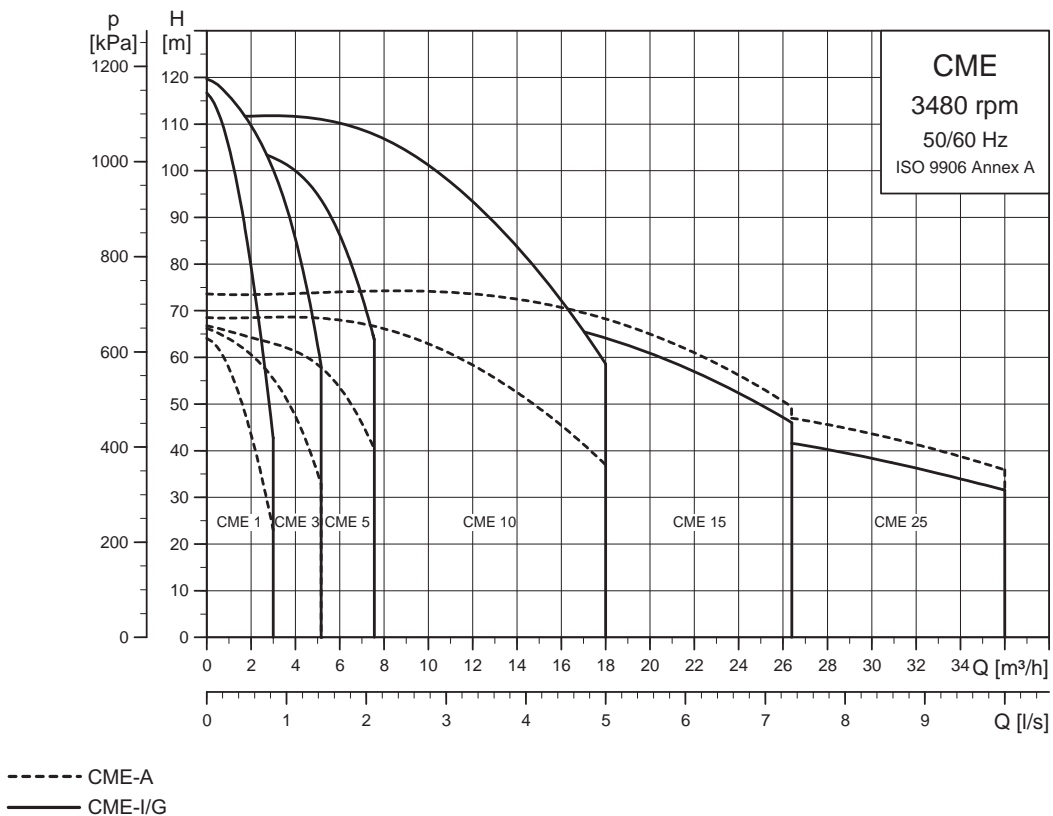
(supply voltages S, T, U)



TM05 7576 1313

CME, 50/60 Hz

(supply voltages K, L, M, N, Q, R)



TM04 3568 5112

EuP ready

The CM, CME pumps are energy-optimised and comply with the EuP Directive (Commission Regulation (EC) No 547/2012) which has been effective since 1 January 2013. As from this date, all pumps will be classified/graduated in a new energy efficiency index (MEI).

Minimum efficiency index

Minimum efficiency index (MEI) means the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load (PL) and overload (OL). The Commission Regulation (EU) sets efficiency requirements to $MEI \geq 0.10$ as from 1 January 2013 and $MEI \geq 0.40$ as from 1 January 2015. An indicative benchmark for best-performing water pump available on the market as from 1 January 2013 is determined in the Regulation.

- The benchmark for most efficient water pumps is $MEI \geq 0.70$.
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable-speed drive that matches the pump duty to the system.
- Information on benchmark efficiency is available at <http://europump.eu/efficiencycharts>.

Pump type	MEI	Efficiency at best efficiency point [%]
CM, CME 1 A	0.70	37.1
CM, CME 1 I/G	0.68	36.4
CM, CME 3 A	0.70	50.6
CM, CME 3 I/G	0.70	49.3
CM, CME 5 A	0.70	53.3
CM, CME 5 I/G	0.70	52.1
CM, CME 10 A	0.70	62.2
CM, CME 10 I/G	0.52	57.9
CM, CME 15 A	0.70	67.5
CM, CME 15 I/G	0.59	63.1
CM, CME 25 A	0.70	68.3
CM, CME 25 I/G	0.19 ¹⁾	62.7
	0.41 ²⁾	63.8

¹⁾ Until 2015.

²⁾ Applies from 1 January 2015. This will not change the outer dimensions of the pump.

8. Operating conditions

Ambient temperature

The maximum ambient temperature depends on the liquid temperature. The table below shows within which temperature ranges the CM and CME pumps should be used.

Note: The maximum permissible liquid temperature for CM-A and CME-A is 90 °C.

Maximum ambient temperature [°C]	Minimum ambient temperature [°C]	Liquid temperature [°C]	Pump type			
			CM	CM self-priming	CME ¹⁾	CME
55 °C		60 °C	•	•	-	-
55 °C		90 °C	•	-	-	-
50 °C	-20 °C	100 °C ¹⁾	•	-	•	-
45 °C		110 °C ¹⁾	•	-	•	-
40 °C		120 °C ¹⁾	•	-	•	•

¹⁾ New-generation CME 0.37 to 2.2 kW (supply voltages S, T, U)

CM (mains-operated motors)

If the ambient temperature for CM pumps exceeds 55 °C, the motor must not be fully loaded due to the risk of overheating.

In such cases, it may be necessary to derate the motor output or use an oversize motor with higher rated output. The CM pumps can be derated in relation to ambient temperature without consequence. Contact Grundfos for further information.

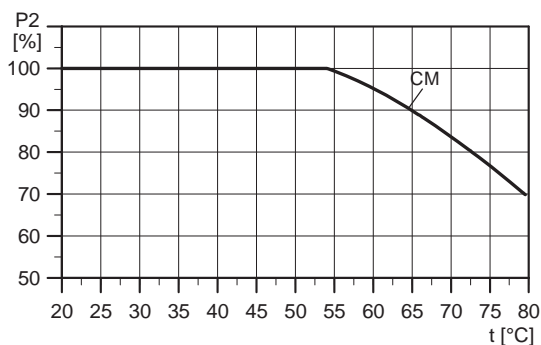


Fig. 9 Derating of CM pump, in relation to ambient temperature

TM05 7630 1313

CME (speed-controlled motors)

The electronics incorporated in the CME pumps is limiting the maximum ambient temperature. This means that the maximum ambient temperature must not be exceeded. If the pump is operated at temperatures exceeding the maximum ambient temperature, the motor life will be reduced.

Maximum ambient temperature

CME 0.37 to 2.2 kW (supply voltages S, T, U): 50 °C.

CME 0.37 to 7.5 kW (supply voltages K, L, M, N, Q, R): 40 °C.

Note: You can operate the new-generation CME pumps at 60 °C as well. In such case, contact Grundfos for further information.

Storage and transport temperature

-30-60 °C.

Installation altitude

Installation altitude is the height above sea level of the installation site. Motors installed at maximum altitude can be loaded 100 %. Motors installed above maximum altitude must not be fully loaded due to the low density and consequently low cooling effect of the air.

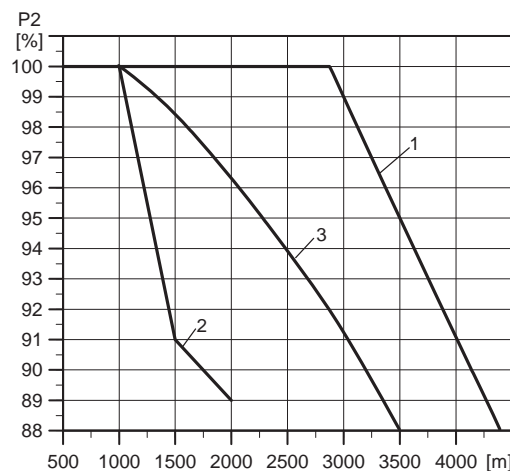


Fig. 10 Relationship between motor output (P₂) and altitude

TM05 7631 1313

Pos.	Motor output [kW]	Pump type
1	0.37 - 7.5	CM
2	0.37 - 2.2	CME ¹⁾
3	0.37 - 7.5	CME

¹⁾ New-generation CME 0.37 to 2.2 kW (supply voltages S, T, U)

Installation of pump

The pump must be installed on a plane surface and fixed so that it cannot be displaced during startup and operation.

Installation of CM and CME pumps

The pump must be installed so that air locks are avoided in the pump housing and pipework.

Figure 11 shows the permissible pump positions.

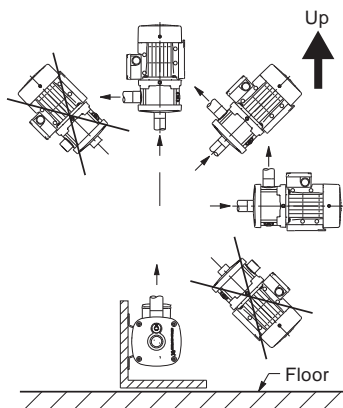


Fig. 11 Pump positions (CM and CME pumps)

TM03 8773 2810

Installation of CM self-priming pumps

The pump must be installed so that the inlet is horizontal. Figure 12 shows the permissible pump positions.

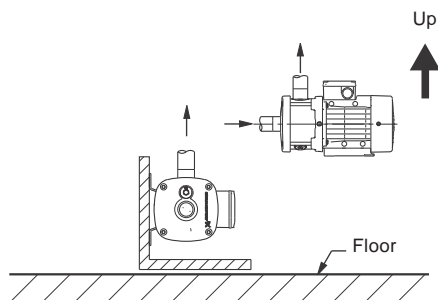


Fig. 12 Pump positions (CM self-priming pumps)

TM05 8905 2514

The pump should be installed with easy access for inspection, maintenance and service.

The pump should be installed in a well-ventilated location.

Maximum operating pressure and permissible liquid temperature

The maximum operating pressure and the permissible liquid temperature depend on the pump material, the type of shaft seal and the pumped liquid.

CM, CME pumps

Material variant	Shaft seal	Permissible liquid temperature ¹⁾ [°C]	Maximum operating pressure [bar]
Cast iron (EN-GJL-200)	AVBx	-20-40 41-90	10 6
	AQQx/ AQBx	-20-90	10
	RUUx	-20-60	6
Stainless steel (EN 1.4301/AISI 304)	AVBx	-20-40 41-90	10 6
	AQQx/ AQBx	-20 ²⁾ -90 91-120	16 10
	RUUx	-20-60	6
Stainless steel (EN 1.4401/AISI 316)	AVBx	-20-40 41-90	10 6
	AQQx/ AQBx	-20 ²⁾ -90 91-120	16 10
	RUUx	-20-60	6

CM self-priming pumps

Material variant	Shaft seal	Permissible liquid temperature ¹⁾ [°C]	Max. operating pressure [bar]
Stainless steel (EN 1.4301/AISI 304)	AVBx	0-40 41-60	10 6
	AQQx	0-60	16

¹⁾ At liquid temperatures below 0 °C (32 °F), higher motor outputs may be needed due to increased viscosity, for instance if glycol has been added to the water.

²⁾ CM-I, -G and CME-I, -G pumps for liquid temperatures below -20 °C are available on request. Please contact Grundfos.

Maximum liquid temperature change gradient

Cast-iron pumps (CM-A, CME-A) should not be used in applications where rapid temperature changes of more than 45 °C may occur. If exposed to such rapid temperature changes, a cast-iron pump may leak.

Under such operating conditions, we recommend to use stainless-steel pumps (CM-I, -G and CME-I, -G).

Liquid temperature range

O-ring material/liquid	Permissible liquid temperature [°C]
EPDM	-20-120
FFKM	0-120
FKM/liquids containing water	-20-90
FKM/oil without water	-20-120

Frequency of starts and stops

Maximum 100 per hour.

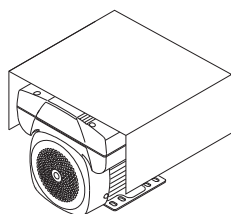
Operation in condensing environments

If the liquid temperature becomes lower than the ambient temperature, condensation may form in the motor during inactivity. In such cases, a motor suited for condensing environments must be used, e.g. an IPX5 motor (available from Grundfos).

Alternatively, you can open the bottom drain hole in the motor flange by removing the plug. The enclosure class of the motor is then reduced to IPX5.

Removing the plug helps prevent condensation in the motor as it will make the motor self-venting and allow water and humid air to escape.

When installing CM and CME pumps outdoors, provide them with a suitable cover to protect them from build-up of condensed water. See fig. 13.



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Fig. 13 CME pump with protective cover

Motors in outdoor installations radiate heat to and absorb heat from their surroundings. By day, a stopped motor will absorb more heat than it radiates; by night, especially clear nights, radiation from a stopped motor may be so high that the surface temperature falls a few degrees below the air temperature. This may cause the formation of condensation. Condensation on the inner surfaces may result in moisture on the electronic components, including the printed-circuit boards, which means a risk of failure or even destruction of the motor and electronics.

Furthermore, the cover protects the motor against direct sunlight.

Environmental rating

Three-phase CME motors hold a UL NEMA 3R environmental rating.

Single-phase CME motors have not been tested against the UL NEMA environmental rating.

All motors are IP55.

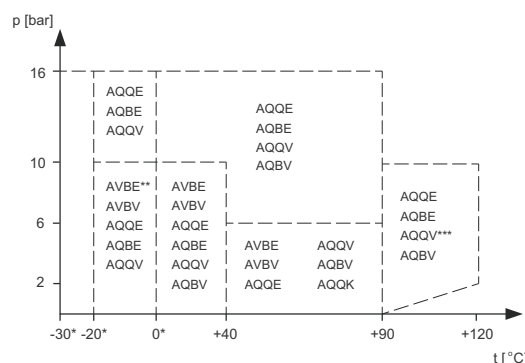
Operating range of the shaft seal

The operating range of the shaft seal depends on operating pressure, type of shaft seal and liquid temperature.

The curve in fig. 14 shows which shaft seals are suitable at a given temperature and a given pressure. The curve applies to clean water.

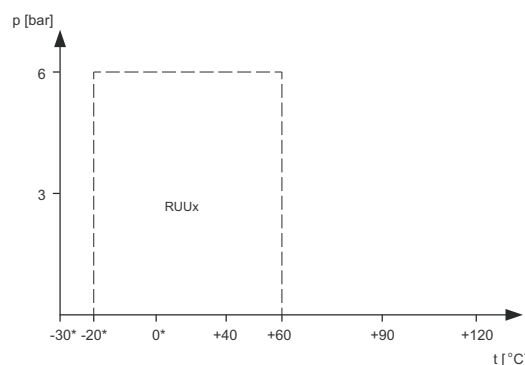
For other pumped liquids, concentrations and temperatures, please visit the Grundfos Product Center liquids section >

<http://product-selection.grundfos.com/liquids.html>



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Fig. 14 Curve for the selection of AQQx, AQBx and AVBx shaft seals



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Fig. 15 Curve for RUUx shaft seal

- * Antifreeze should be added at liquid temperatures below 0 °C.
- ** CM and CME pumps for liquid temperatures below -20 °C are available on request. Please contact Grundfos.
- *** AQQV/AQBV above 90 °C only in media not containing water.

Shaft seal run-in

The seal faces are lubricated by the pumped liquid, meaning that there may be a certain amount of leakage from the shaft seal.

When the pump is started up for the first time, or when a new shaft seal is installed, a certain run-in period is required before the leakage is reduced to an acceptable level. The time required for this depends on the operating conditions, i.e. every time the operating conditions change, a new run-in period will be started. Under normal conditions, the leaking liquid will evaporate. As a result, no leakage will be detected. However, liquids such as kerosene will not evaporate. The leakage may therefore be seen as a shaft seal failure.

Viscosity

The pumping of liquids with densities or kinematic viscosities higher than those of water will cause a considerable pressure drop, a drop in the hydraulic performance and a rise in the power consumption.

For instance at liquid temperatures below 0 °C (32 °F), higher motor outputs may be needed due to increased viscosity if glycol has been added to the water.

In such situations, the pump should be fitted with a larger motor. If in doubt, contact Grundfos or visit the Grundfos Product Center >

<http://product-selection.grundfos.com/>.

Sound pressure level

The sound pressure values in the table below apply for CM pumps. If the motor output (P2) for a given pump is not found in the table, use the nearest rounded-up value. The values for sound pressure include a tolerance of 3 dB(A) according to EN ISO 4871.

P ₂ [kW]	50 Hz		60 Hz
	L _{pA} [dB(A)]		L _{pA} [dB(A)]
0.37	50	50	55
0.55	50	50	53
0.75	50	50	54
1.1	52	52	57
1.5	54	54	59
2.2	54	54	59
3.0	55	55	60
4.0	62	62	66
5.5	60	60	65
7.5	60	60	65
11.0	60	60	65

The audible noise from CM pumps is primarily noise from the motor fan. The selection of CME pumps will reduce the noise at partial load, as the motor, and consequently, the motor fan runs at a lower speed. Possible flow noise from control valves is also reduced at partial load in the case of the CME pump.

Minimum inlet pressure, NPSH

Grundfos recommends that you calculate the inlet pressure "H" in these situations:

- The liquid temperature is high.
- The flow is significantly higher than the rated flow.
- Water is drawn from depths.
- Water is drawn through long pipes.
- Inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump.

The maximum suction lift "H" in metres head can be calculated as follows:

$$H = p_b \times 10.2 - \text{NPSH} - H_f - H_v - H_s$$

p _b	=	Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems, p _b indicates the system pressure in bar.
NPSH	=	Net Positive Suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering).
H _f	=	Friction loss in suction pipe in metres head. (At the highest flow the pump will be delivering).
H _v	=	Vapour pressure in metres head. (To be read from the vapour pressure scale, "H _v " depends on the liquid temperature "T _m ").
H _s	=	Safety margin = minimum 0.5 metres head.

If the "H" calculated is positive, the pump can operate at a suction lift of maximum "H" metres head.

If the "H" calculated is negative, an inlet pressure of minimum "H" metres head is required.

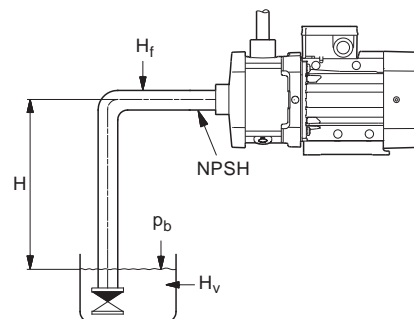


Fig. 16 Minimum inlet pressure (NPSH)

Note: To avoid cavitation, never select a pump with a duty point too far to the right on the NPSH curve.

Always check the NPSH value of the pump at the highest possible flow.

Note: NPSH must also be observed and calculated for CM self-priming pumps.

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9. Construction

Pump

The Grundfos CM and CME pumps are horizontal, multistage, end-suction centrifugal pumps. The pumps are of the close-coupled type and are available as either self-priming or non-self-priming pumps.

The pumps have an axial suction port and a radial discharge port and are mounted on a base plate.

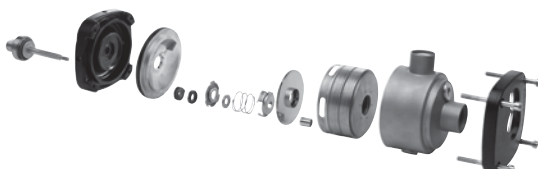
All movable parts are made of stainless steel.

Self priming pumps are fitted with an internal water trap and an internal valve, both of which are mainly made of a composite material.

You find the sectional drawings on pages 25 to 27.

The pumps are available with mains-operated motors (CM pumps) and electronically speed-controlled motors (CME pumps).

All pumps incorporate a maintenance-free mechanical O-ring shaft seal with fixed driver.



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Fig. 17 CM and CME pump hydraulics

Motor

CM and CME pumps are fitted with totally enclosed, fan-cooled, 2-pole motors with principal dimensions to EN 50347. The motors have been developed especially for CM and CME pumps.

Electrical tolerances comply with EN 60034.

Single-phase CME pumps are available from 0.37 to 1.5 kW.

Three-phase CME pumps are available from 0.37 to 7.5 kW.

Soft starter

Soft starters are only to be used for three-phase motors.

Efficiency

Motors for CM and CME pumps comply with different energy-efficiency requirements throughout the world, for example the European Ecodesign.

For China, motors with CCC and CEL marking are available.

Generally, this means that all three-phase motors of 0.75 kW and up are IE2-compliant as standard. IE3-compliant motors are available on request.

The new-generation MGE motors have a total efficiency which exceeds the IE4 super premium efficiency level defined for fixed-speed motors including the frequency converter.

Electrical data

Insulation class	F
Enclosure class	IP55*
	CM
	1 x 220 V, 60 Hz
	1 x 115/230 V, 60 Hz
	1 x 220-240 V, 50 Hz
	1 x 127 V, 60 Hz
	3 x 208-230/440-480 V, 60 Hz
	3 x 220-240/380-415 V, 50 Hz
	3 x 200/346 V, 50 Hz; 200-220/346-380 V, 60 Hz
	3 x 575 V, 60 Hz
	3 x 400 V, 50/60 Hz
	Supply voltages (tolerance ± 10 %)
	3 x 380-415 V, 50 Hz; 440-480 V, 60 Hz
	3 x 220-240/380-415 V, 50 Hz
	3 x 220-255/380-440 V, 60 Hz
	CME
	1 x 200-240 V, 50/60 Hz
	1 x 208-230 V, 50/60 Hz
	3 x 380-480 V, 50/60 Hz
	3 x 460-480 V, 60 Hz
	3 x 208-230 V, 50/60 Hz
	3 x 200-230 V, 50/60 Hz
	3 x 380-500 V, 50/60 Hz
	3 x 440-480 V, 50/60 Hz

* IP55 is not recommended for operation in condensing environments.
For operation in such environments, see [Operation in condensing environments](#) on page 21.

Motor protection

Mains-operated motors (CM)

Single-phase motors, 1 x 115/230 V, 60 Hz, do not incorporate motor protection and must be connected to a motor-protective circuit breaker which can be manually reset. Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See nameplate.

Other single-phase motors have built-in current- and temperature-dependent motor protection in accordance with IEC 60034-11 and require no further motor protection. The motor protection reacts to both slow- and quick-rising temperatures. The motor protection is automatically reset.

Three-phase motors up to 3 kW must be connected to a motor-protective circuit breaker which can be manually reset. Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See nameplate. Motors with power ratings of 3 kW and up have built-in thermistors (PTC)*. The thermistors are designed according to DIN 44082. The motor protection reacts to both slow- and quick-rising temperatures.

* Applies only to supply voltages F, G and O.

Motors for other supply voltages must be connected to a motor-protective circuit breaker as described for three-phase motors up to 3 kW.

Electronically speed-controlled motors (CME)

CME pumps require no external motor protection. The MGE motor incorporates thermal protection against steady overload and stalled condition (IEC 34-11).

Frequency converter operation

All three-phase motors can be connected to a frequency converter. Depending on the frequency converter type, this may cause increased acoustic noise from the motor. Furthermore, it may cause the motor to be exposed to detrimental voltage peaks.

Single-phase motors must not be connected to a frequency converter.

As standard MG 71- and MG 80-based motors have no phase insulation and must therefore be protected against voltage peaks higher than 650 V (peak value) between the supply terminals.

Note: MG 71- and MG 80-based motors with phase insulation are available on request.

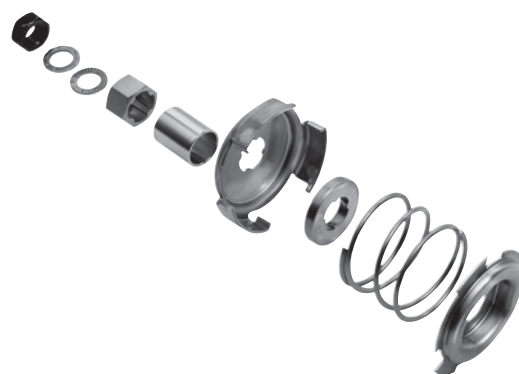
The above disturbances, i.e. both increased acoustic noise and detrimental voltage peaks, can be eliminated by fitting an LC filter between the frequency converter and the motor.

For further information, please contact the frequency converter supplier or Grundfos.

Shaft seal

The shaft seal for the CM and CME pumps is of the O-ring type, which makes it very flexible when different types of O-rings and seal-face materials are needed. The shaft seal has a fixed seal driver which ensures a reliable rotation of all parts - even under the most extreme operating conditions.

Due to the special design of the shaft seal and the interfaces to the rest of the pump construction, the dry-running capabilities are improved significantly compared to most other similar shaft seals and pump types. Furthermore, improvements have been made to reduce the risk and effect of sticking. The shaft seal types available can be found in [Selection of CME pumps](#) on page 38 where the key parameters of selecting a shaft seal are also described.



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Fig. 18 Exploded view of shaft seal

Note: The available shaft seals for CM and CME pumps are very robust and durable, but dry running must always be avoided.

Details regarding operating conditions for the shaft seal can be found in [Operating range of the shaft seal](#) on page 21.

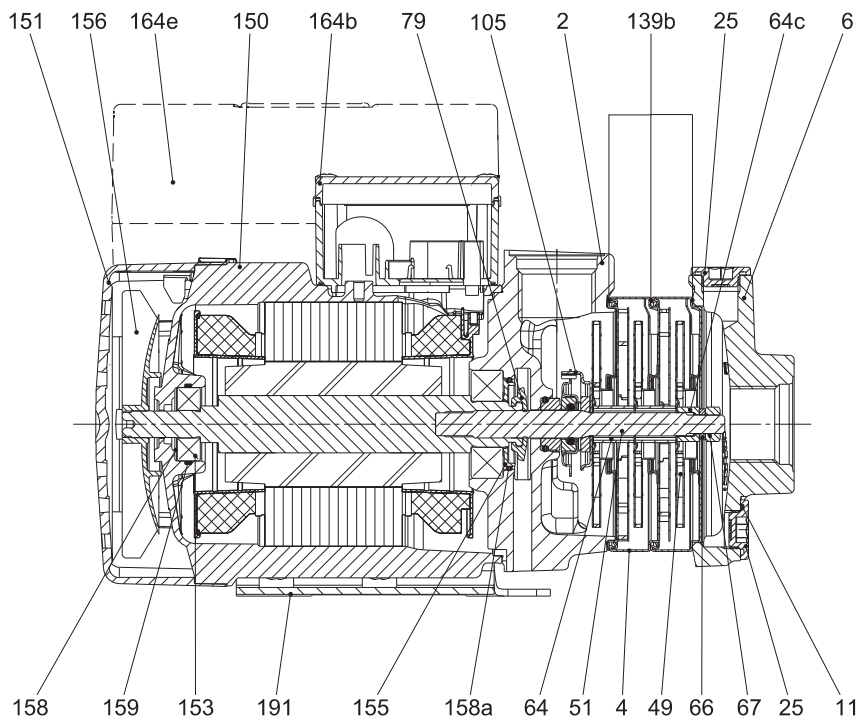
Further information about the shaft seal can be found in the separate book covering shaft seals which can be ordered from Grundfos.

Title	Publication number
Mechanical shaft seals for pumps	97506935

CM(E) 1-A

(A = cast iron EN-GJL-200)

Sectional drawing



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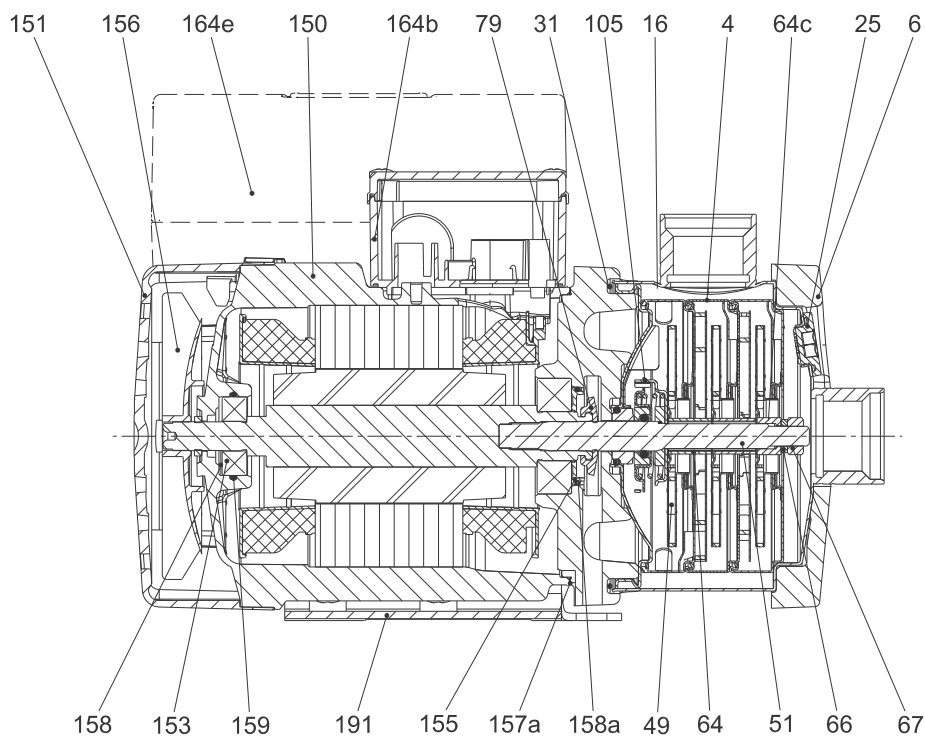
Fig. 19 CM(E) 1-3 with MG(E) 71 motor

Components

Pos.	Component	Pos.	Component	Pos.	Component
2	Discharge part	64c	Clamp	153	Ball bearing
4	Chamber	66	Washer (NORD-LOCK®)	155	Bearing cover plate
6	Inlet part	67	Nut	156	Fan
11	O-ring	79	Diverting disc	158	Corrugated spring
25	Plug	105	Shaft seal	158a	O-ring
49	Impeller	139b	Gasket	159	O-ring
51	Pump shaft	150	Stator housing	164b, 164e	Terminal box
64	Spacing pipe	151	Fan cover	191	Base plate

CM(E) 1-I and CM(E) 1-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Sectional drawing

TM04 3722 3809

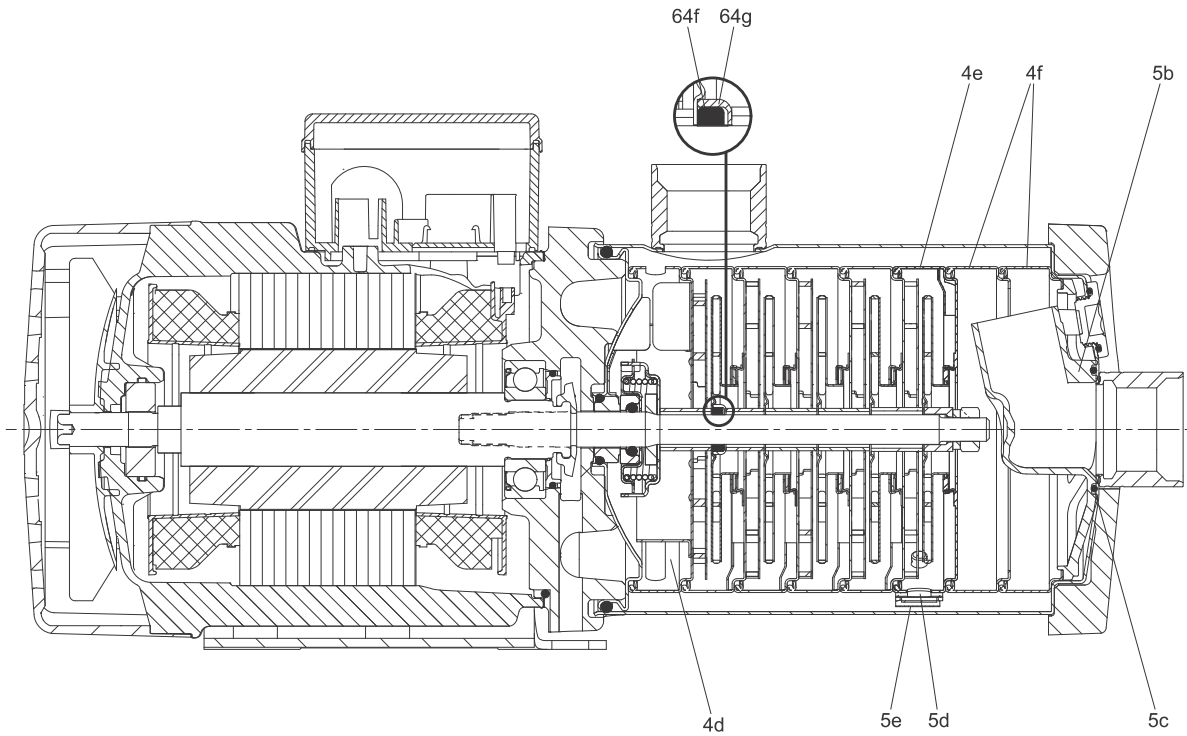
Fig. 20 CM(E) 1-3 with MG(E) 71 motor**Components**

Pos.	Component	Pos.	Component	Pos.	Component
4	Chamber	64c	Clamp	155	Bearing cover plate
6	Flange	66	Washer (NORD-LOCK®)	156	Fan
16	Sleeve	67	Nut	157a	Gasket
25	Plug	79	Diverting disc	158	Corrugated spring
31	O-ring	105	Shaft seal	158a	O-ring
49	Impeller	150	Stator housing	159	O-ring
51	Pump shaft	151	Fan cover	164b, 164e	Terminal box
64	Spacing pipe	153	Ball bearing	191	Base plate

CM self-priming

Stainless steel: I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Sectional drawing



TM05 8874 2813

Fig. 21 CM 1-3 (self-priming version)

Components

Pos.	Description	Material
4d	Chamber complete with ribs and vanes	Stainless steel (EN 1.4301/AISI 304)
4e	Chamber with recirculation hole	Stainless steel (EN 1.4301/AISI 304)
4f	Empty chambers	Stainless steel (EN 1.4301/AISI 304)
5b	Syphon	Composite (Noryl 731s-701-1977)
5c	O-ring	EPDM
5d	Base for valve	Composite (Noryl 731s-701-1977)
5e	Spring plate	Stainless steel (EN 1.4310/AISI 301)
64f	Rubber seal	EPDM
64g	Container for rubber seal	Stainless steel (EN 1.4301/AISI 304)

Material specification

Pos.	Description	Material	Pump material version					
			Cast iron (EN-GJL-200)		Stainless steel (EN 1.4301/AISI 304)		Stainless steel (EN 1.4401/AISI 316)	
			EN	ISO/AISI/ASTM	EN	ISO/AISI/ASTM	EN	ISO/AISI/ASTM
Motor parts								
156b	Motor flange	Cast iron						
150	Stator housing	Silumin (Alu)						
151	Fan cover	Composite PBT/PC						
153	Ball bearing							
156	Fan	Composite PA 66 30 % GF						
158	Corrugated spring	Steel						
164b	Terminal box, MG	Composite PC/ASA or silumin (Alu)						
164e	Terminal box, MGE							
191	Base plate	Steel, electrocoated	1.0330.3		1.0330.3			
		Steel, powder-coated, 60 to 120 µ, NCS 7005					1.0330.3	
79	Diverting disc	Silicone fluid (LSR)						
155	Bearing cover plate	PPS						
Pump parts								
105	Shaft seal, steel parts	Stainless steel	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4401	AISI 316
	Shaft seal, seal faces	Al ₂ O ₃ /carbon or SiC						
51	Pump shaft	Stainless steel	1.4301	AISI 304	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4401	AISI 316
11 31 ³⁾ 158a 159	O-rings	EPDM, FKM or FFKM						
157a ³⁾	Gasket	Paper						
139b ⁴⁾	Gasket	Aramide fibres (nbr)						
2 ⁴⁾	Discharge part	Cast iron						
6 ⁴⁾	Inlet part	Cast iron						
4	Chamber	Stainless steel	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4401	AISI 316
25	Plug	Stainless steel	1.4404	AISI 316L	1.4404	AISI 316L	1.4404	AISI 316L
49	Impeller	Stainless steel	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4301/ 1.4401 ¹⁾	AISI 304/ AISI 316 ¹⁾	1.4401	AISI 316
64	Spacing pipe	Stainless steel	1.4401	AISI 316	1.4401	AISI 316	1.4401	AISI 316
64c	Clamp	Stainless steel	STX2000 ⁵⁾		STX2000 ⁵⁾		STX2000 ³⁾	
6 ³⁾	Flange	Cast iron						
16	Sleeve	Stainless steel			1.4301/ 1.4401 ¹⁾ + 2)	AISI 304/ AISI 316 ¹⁾	1.4401	AISI 316
67	Nut	Stainless steel A4						
66	Washer (NORD-LOCK®)	Steel	1.4547		1.4547		1.4547	

1) On request.

2) As standard, the pumps listed below are fitted with sleeves made of stainless steel 1.4401:

CM(E) 1-9 up to and including CM(E) 1-14
 CM(E) 3-9 up to and including CM(E) 3-14
 CM(E) 5-9 up to and including CM(E) 5-13
 CM(E) 10-6 up to and including CM(E) 10-8

3) Only in CM(E)-I/G pumps.

4) Only in CM(E)-A pumps.

5) STX2000 ~ CrNiMO 22 19 4.

10. CME pumps

Communication with CME pumps

Communication with CME pumps is possible via

- a central building management system
- Grundfos GO Remote
- a control panel.

Central building management system

The operator can communicate with a CME pump at a distance. Communication can take place via a central building management system allowing the operator to monitor and change control modes and setpoint settings.

The communication interface between the CME pump and central building management systems varies, depending on pump size.

New-generation CME 0.37 to 2.2 kW (supply voltages S, T, U)

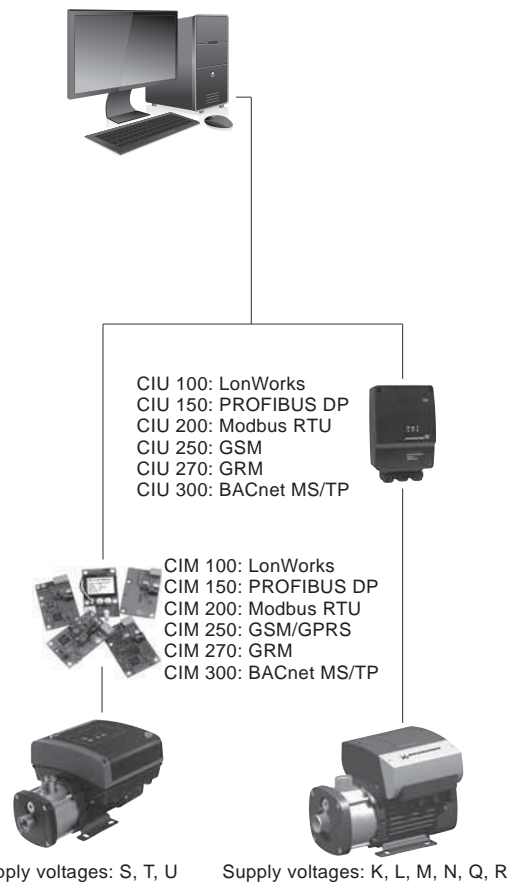
This range of CME pumps can be fitted with a communication interface module (CIM). This means that no external communication interface is required.

The modules are available as accessories, see page 139.

CME 0.37 to 7.5 kW

(supply voltages K, L, M, N, Q, R)

This range of CME pumps communicates via an external communication interface unit (CIU). The units are available as accessories, see page 139.



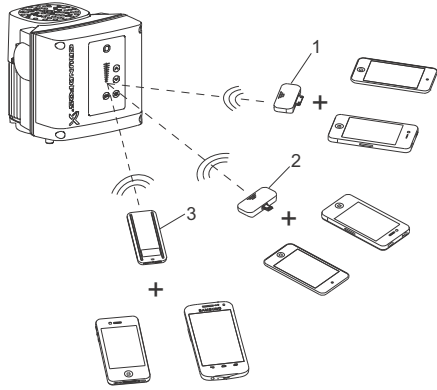
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Fig. 22 Communication via a central building management system

Grundfos GO Remote

The pump is designed for wireless radio or infrared communication with the Grundfos GO Remote.

The Grundfos GO Remote enables setting of functions and gives access to status overviews, technical product information and actual operating parameters. The Grundfos GO Remote offers the following mobile interfaces (MI). See fig. 23.



TM06 0744 0914

Fig. 23 Grundfos GO Remote communicating with the pump via radio or infrared connection (IR)

Pos.	Description
1	Grundfos MI 202: Add-on module which can be used in conjunction with an Apple iPhone or iPod with 30-pin connector and iOS 5.0 or later, e.g. fourth generation iPhone or iPod.
2	Grundfos MI 204: Add-on module which can be used in conjunction with an Apple iPhone or iPod with Lightning connector, e.g. fifth generation iPhone or iPod. (The MI 204 is also available together with an Apple iPod touch and a cover.)
3	Grundfos MI 301: Separate module enabling radio or infrared communication. The module can be used in conjunction with an Android or iOS-based smart device with Bluetooth connection.

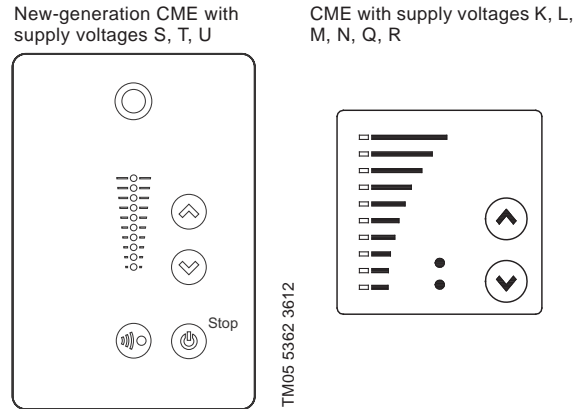
The Grundfos GO Remote is available as an accessory. See page 140.

Control panel

The operator can change the setpoint settings manually on the control panel of the CME pump terminal box.

The design and functionality of the control panels vary, depending on the MGE motor fitted to the CME pump.

The control panel of the new-generation CME pumps enables radio communication. The Grundfos Eye at the top of the control panel is a pump status indicator light providing information about the pump operating status. Less or more advanced control panels are available on request.



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TM00 7600 0404

Fig. 24 Standard control panels of CME pumps

Speed control of CME pumps

Affinity equations

Normally, CME pumps are used in applications characterised by a variable flow. Consequently, you cannot select a pump that is constantly operating at its optimum efficiency.

In order to achieve optimum operating economy, the duty point should be close to the optimum efficiency (η) for most operating hours.

Between the minimum and maximum performance curves, CME pumps have an infinite number of performance curves, each representing a specific speed. You may therefore not be able to select a duty point close to the maximum curve.

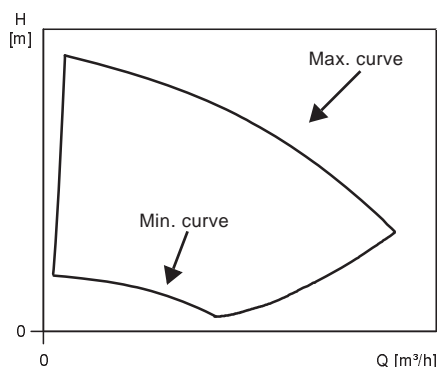


Fig. 25 Minimum and maximum performance curves

In situations where you cannot select a duty point close to the maximum curve, use the affinity equations below. The head (H), the flow rate (Q) and the input power (P) are the appropriate variables for calculating the motor speed (n).

Note: The approximated formulas apply on condition that the system characteristic remains unchanged for n_n and n_x and that it is based on the formula $H = k \times Q^2$ where k is a constant.

The power equation implies that the pump efficiency is unchanged at the two speeds. In practice, this is not quite correct.

Finally, it is worth noting that the efficiency of the frequency converter and the motor must be taken into account if a precise calculation of the power saving resulting from a reduction of the pump speed is wanted.

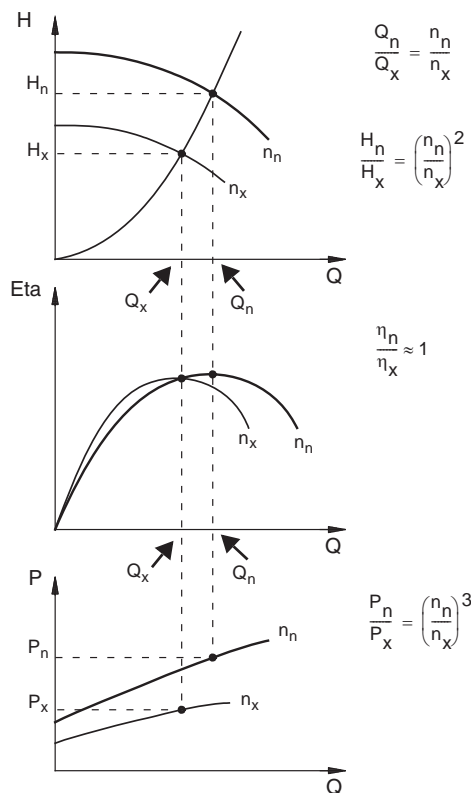


Fig. 26 Affinity equations

Legend

- H_n Rated head [m]
- H_x Current head [m]
- Q_n Rated flow rate [m³/h]
- Q_x Current flow rate [m³/h]
- n_n Rated motor speed [min⁻¹]
- n_x Current motor speed [min⁻¹]
- η_n Rated efficiency [%]
- η_x Current efficiency [%].

TM01 4916 4803

TM00 8720 3496

11. Grundfos CUE

CM pumps connected to Grundfos CUE, external frequency converters

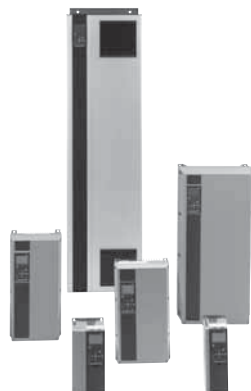


Fig. 27 Grundfos CUE product range

Grundfos CUE is a complete range of frequency converters for pump control in a wide range of applications. Grundfos CUE is designed for wall mounting.

Grundfos CUE provides a variety of benefits to the end-user.

The benefits include

- Grundfos CME pump functionality and user interface
- application- and pump family-related functions
- increased comfort compared to mains-operated pump solutions
- simple installation and commissioning compared to standard frequency converters.

GrA4404

Functions

Intuitive startup guide

The startup guide enables easy installation and commissioning as well as plug-and-pump convenience. Few settings need to be made by the installer as the rest is done automatically or preset from the factory.

Smart user interface



Fig. 28 Grundfos CUE control panel

TM04 3283 4108

Grundfos CUE features a unique user-friendly control panel with graphic display and easy-to-use buttons. Panel layout resembles the well-known Grundfos R100 remote control, which is used with Grundfos CME pumps.

Controlling the value you choose

Grundfos CUE has a built-in PI controller offering closed-loop control of a desired value.

The values include

- constant differential pressure
- proportional pressure
- constant temperature
- constant flow.

Wide product range

The CUE product range is quite comprehensive, covering five different voltage ranges, enclosure classes IP20/21 (NEMA 1) and IP54/55 (NEMA 12), and a wide range of output powers.

The table below provides a general overview.

Input voltage [V]	Output voltage [V]	Motor [kW]
1 x 200-240	3 x 200-240	1.1 - 7.5
3 x 200-240	3 x 200-240	0.75 - 45
3 x 380-500	3 x 380-500	0.55 - 250
3 x 525-600	3 x 525-600	0.75 - 7.5

12. Approvals and markings

CM, CME pumps

Approvals

- C-tick mark, New Zealand and Australian EMC.
- TR certificate.

cULus

The cULus approval covers the standard product range within the following supply voltages:

- 1 x 115/230 V, 60 Hz (supply voltage B)
- 3 x 208-230/440-480 V, 60 Hz (supply voltage E)
- 3 x 575 V, 60 Hz (supply voltage H)
- 1 x 115/230 V, 60 Hz (supply voltage B1)
- 3 x 208-230/440-480 V, 60 Hz (supply voltage E1)
- 3 x 400 V, 50/60 Hz (supply voltage I)
- 3 x 380-415 V, 50 Hz/3 x 440-480 V, 60 Hz (supply voltage J).

Contact Grundfos for further information.

Pumps

UL778 and C22.2 No 108-01

NEMA 250 (IP code).

Overheating protection

UL2111 and C22.2 No 77-95.

Note: cULus/cURus-approved motors have no internal protection. Motors fitted with PTC/PTO have no cULus/cURus approval.

cURus motors

The cURus approval covers the CME motors mentioned in the following:

CME motors for the below listed supply voltages comply with UL 60730-1 and CSA E 60730-1.

- 3 x 380-500 V, 50/60 Hz (supply voltage S)
- 3 x 440-480 V, 50/60 Hz (supply voltage T)
- 1 x 200-230 V, 50/60 Hz (supply voltage U).

CME motors for the below listed supply voltages comply with UL508 and CSA C22.2 No 14.

- 3 x 380-480 V, 50/60 Hz (supply voltage L)

Other approvals and compliance with directives

- GOST (Russia)
(From February 2015, EAC will be used instead of GOST)
- Compliance with RoHS, directive 2002/96/EC
- CCC
- CEL
- EuP.

Drinking water approvals

- WRAS
- ACS
- NSF61.

Markings



CM self-priming pumps

The following approvals and markings are available as standard. Further approvals and markings are available on request. Contact Grundfos for further information.

Approvals

- TR certificate.

Other approvals and compliance with directives

- GOST (Russia)
(From February 2015, EAC will be used instead of GOST)
- Compliance with RoHS, directive 2002/96/EC
- CCC
- CEL
- EuP.

Drinking water approvals

- WRAS
- ACS.

Markings



13. Certificates

Certificate	Description
Certificate of compliance with the order	According to EN 10204, 2.1. Grundfos document certifying that the pump supplied is in compliance with the order specifications.
Test certificate. Non-specific inspection and testing	According to EN 10204, 2.2. Certificate with inspection and test results of a non-specific pump.
Inspection certificate 3.1	Grundfos document certifying that the pump supplied is in compliance with the order specifications. Inspection and test results are mentioned in the certificate.
Inspection certificate	Grundfos document certifying that the pump supplied is in compliance with the order specifications. Inspection and test results are mentioned in the certificate. Certificate from the surveyor is included. We offer the following inspection certificates: <ul style="list-style-type: none"> • Lloyds Register of Shipping (LRS) • Det Norske Veritas (DNV) • Germanischer Lloyd (GL) • Bureau Veritas (BV) • American Bureau of Shipping (ABS) • Registro Italiano Navale Agenture (RINA) • China Classification Society (CCS) • Russian maritime register of Shipping (RS) • Biro Klassifikasio Indonesia (BKI) • United States Coast Guard (USCG) • Nippon Kaiji Koykai (NKK)
Standard test report	Certifies that the main components of the specific pump are manufactured by Grundfos, and that the pump has been QH-tested, inspected and conforms to the full requirements of the appropriate catalogues, drawings and specifications.
Material specification report	Certifies the material used for the main components of the specific pump.
Material specification report with certificate from raw material supplier	Certifies the material used for the main components of the specific pump. A material certificate, EN 10204, 3.1, will be supplied for each main component.
Duty-point verification report	Certifies a test point specified by the customer. Issued according to ISO 9906:1999 concerning "Duty point verification".
Surface-roughness	Shows the measured roughness of the cast pump base of the specific pump. The report indicates the values measured at the base inlet and outlet according to ISO 1302.
Vibration report	Vibration report indicating the values measured during the performance test of the specific pump according to ISO 10816.
Motor test report	Shows the performance test of the specific motor, including power output, current, temperature, stator windings resistance and insulation test.
Cleaned and dried pump	Confirms that the specific pump has been cleaned and dried, and how it was done.
Electro-polished pump	Confirms that the specific pump has been electro-polished. The maximum surface roughness is specified in the report.

Examples of the certificates are shown on pages 35 and 36.

Note: Other certificates are available on request.

Examples of certificates

Certificate of compliance with the order

BE > THINK > INNOVATE >		GRUNDFOS	
Certificate of compliance with the order			
EN 10204 2.1			
Customer name			
Customer order no.			
Customer Tag no.			
GRUNDFOS order no.			
Product type			
<p>We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.</p>			
GRUNDFOS			
Date:			
Signature:			
Name:			
Dept.:			
Part no. 96 50 78 95/1001002			

TM03 4165 1706

Test certificate

BE > THINK > INNOVATE >		GRUNDFOS	
Test certificate			
Non-specific inspection and testing			
EN 10204 2.2			
Customer name			
Customer order no.			
Customer TAG no.			
GRUNDFOS order no.			
Pump			
Pump type		Part number	
Motor make		Part number	
Flow	m ³ /h		
Head	m		
Power P2	kW		
Voltage	V		
Frequency	Hz		
Full load current	A		
Motor speed	min ⁻¹		
<p>We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and / or specifications relative thereto.</p>			
GRUNDFOS			
Date:			
Signature:			
Name:			
Dept.:			
Part no.96 50 78 96/1001002			

TM03 4163 1706

Inspection certificate 3.1

BE > THINK > INNOVATE >		GRUNDFOS	
Inspection certificate.			
EN 10204 3.1			
Manufactured by		GRUNDFOS	
GRUNDFOS order no.			
GRUNDFOS DUT id.			
Customer order no.			
Customer name and address			
Shipyard / factory			
Ship / new building			
Customer TAG no.			
Classifying society		GRUNDFOS authorized department	
Pump		Motor	
Pump type		Make	
Part number		Part number	
Serial no.		Serial No.	
Flow rate (m ³ /h)		P2 (kW)	
Head (m)		Voltage (V)	
Max. ope. P/t (bar / °C)		Current (A)	
	Din / W. - No.	n(min ⁻¹)	
Base/Pump head cover		Frequency (Hz)	
Impeller/guide vanes		Insulation class	
Shaft/sleeve		Power factor	
Customer's requirements			
Flow rate (m ³ /h)		Head (m)	
Test result ref. requirements			
Q(m ³ /h)		H(m)	
		n(min ⁻¹)	
		I(A)	
		P1(kW)	
Hydrostatic test Bar – no leaks or deformation observed			
GRUNDFOS			
Date:			
Signature:			
Name:			
Dept.:			
Part no. 96 50 78 97/1034342			


TM03 4162 3607

Inspection certificate

BE > THINK > INNOVATE >		GRUNDFOS	
Inspection certificate.			
Russian Maritime Register of Shipping			
Manufactured by		GRUNDFOS	
GRUNDFOS order no.			
GRUNDFOS DUT id.			
Customer order no.			
Customer name and address			
Shipyard / factory			
Ship / new building			
Customer TAG no.			
Classifying society		Russian Maritime Register of Shipping (RS)	
Pump		Motor	
Pump type		Make	
Part number		Part number	
Serial no.		Serial No.	
Flow rate (m ³ /h)		P2 (kW)	
Head (m)		Voltage (V)	
Max. ope. P/t (bar / °C)		Current (A)	
	Din / W. - No.	n(min ⁻¹)	
Base/Pump head cover		Frequency (Hz)	
Impeller/guide vanes		Insulation class	
Shaft/sleeve		Power factor	
Customer's requirements			
Flow rate (m ³ /h)		Head (m)	
Test result ref. requirements			
Q(m ³ /h)		H(m)	
		n(min ⁻¹)	
		I(A)	
		P1(kW)	
Hydrostatic test Bar – no leaks or deformation observed			
The pump has been marked			
GRUNDFOS			
Date:			
Signature:			
Name:			
Dept.:			
Part no. 96 50 78 25/1014342			

TM03 4156 3607

Standard test report

BE > THINK > INNOVATE > **GRUNDFOS** 

Standard test report

Customer name	
Customer order no.	
Customer TAG no.	
GRUNDFOS order no.	
Product type	
GRUNDFOS DUT id.	
Part number	


We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured by GRUNDFOS, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.
The attached test result is from the above mentioned pump.

GRUNDFOS
Date:
Signature:
Name:
Dept.:

Part no. 96 50 79 30 P01 / A72775

TM03 4143 1706

Material specification report

BE > THINK > INNOVATE > **GRUNDFOS** 

Material specification report.

Customer name	
Customer order no.	
Customer TAG no.	
GRUNDFOS order no.	
Pump type	
GRUNDFOS DUT id.	
Part number	
Production code	

Pump	Materials	DIN W.-Nr.	AISI / ASTM
Pump head			
Pump head cover			
Shaft			
Impeller			
Chamber			
Outer sleeve			
Base			


We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.

GRUNDFOS
Date:
Signature:
Name:
Dept.:

Part no 96 50 79 28/A72775

TM03 4150 1706

Material specification report with certificate from raw material supplier

BE > THINK > INNOVATE > **GRUNDFOS** 

Material specification report with EN10204 3.1 material certificate from raw material supplier

Customer name	
Customer order no.	
Customer TAG no.	
GRUNDFOS order no.	
Pump type	
GRUNDFOS DUT id.	
Part number	
Production code	

Pump	Raw material no.	Supplier certificate no.
Pump head		
Pump head cover		
Shaft		
Impeller		
Chamber		
Outer sleeve		
Base		


We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.

GRUNDFOS
Date:
Signature:
Name:
Dept.:

Part no 96 50 79 29/A72775

TM03 4149 3607

Duty-point verification report

BE > THINK > INNOVATE > **GRUNDFOS** 

Duty point verification report

Customer name	
Customer order no.	
Customer TAG no.	
GRUNDFOS order no.	
Product type	
GRUNDFOS DUT id.	
Part number	

We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured by GRUNDFOS, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.

GRUNDFOS
Date:
Signature:
Name:
Dept.:

Part no. 96 53 96 99 / A72775

TM03 4148 1706

14. Selection and sizing

Selection of pumps

Selection of pumps should be based on these elements:

- the duty point of the pump (see below)
- dimensional data such as pressure loss as a result of height differences, friction loss in the pipework, pump efficiency, etc. (see below)
- pump materials (see page 38)
- pump connections (see page 38)
- shaft seal (see page 21).

Duty point of the pump

From a duty point you can select a pump on the basis of the curve charts starting on page 42.

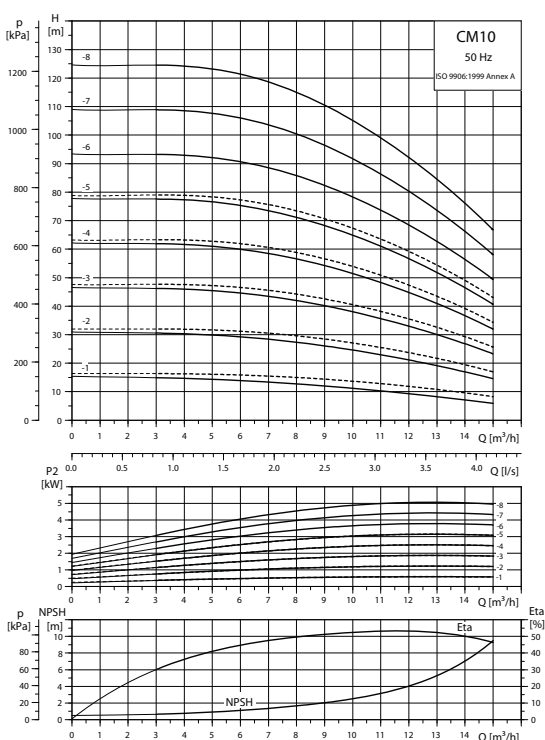


Fig. 29 Example of a curve chart

TM04 6404 5112

Dimensional data

When sizing a pump, take the following factors into account:

- Required flow and pressure at the draw-off point.
- Pressure loss as a result of height differences (H_{geo}).
- Friction loss in the pipework (H_f).
- Best efficiency at the estimated duty point.*
- NPSH value.

It may be necessary to account for pressure loss in connection with long pipes, bends or valves, etc.

For calculation of the NPSH value, see *Minimum inlet pressure, NPSH* on page 22.

* See *Selection of CME pumps* on page 38 for further information about sizing CME pumps.

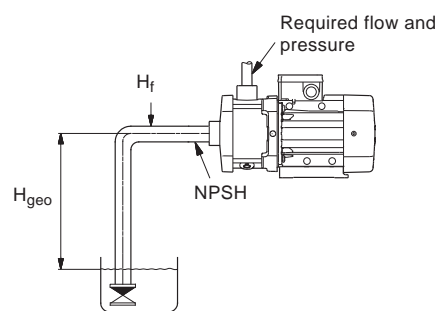


Fig. 30 Dimensional data

TM04 3486 4508

Pump efficiency

When sizing the pump, the efficiency (η) should be considered so that the pump will operate at or near its maximum efficiency, for instance on the right-hand side in the curve example in fig. 31.

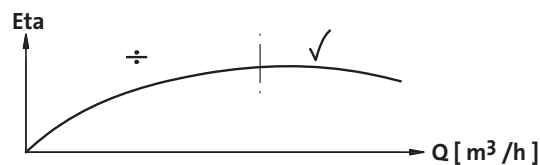


Fig. 31 Best efficiency

TM00 9190 1303

Before determining the best efficiency point, the operation pattern of the pump needs to be identified. If the pump is expected to operate at the same duty point, then select a CM pump which is operating at a duty point corresponding with the best efficiency of the pump. The example in fig. 32 shows how to check the pump efficiency when selecting a CM pump.

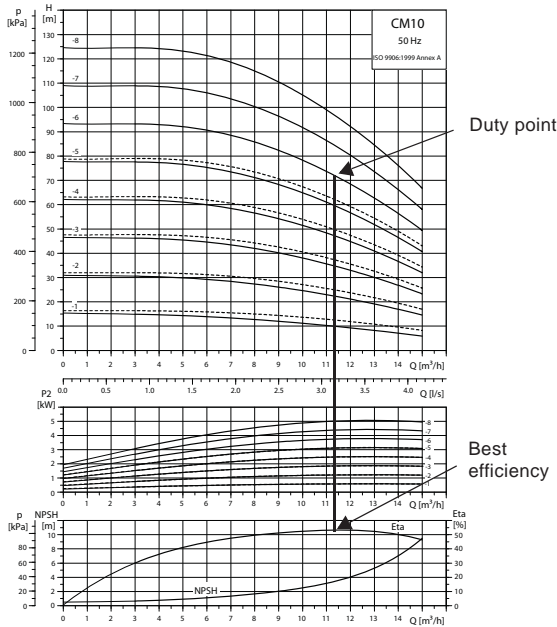


Fig. 32 Example of a CM pump's duty point

Pump materials

Select the material variant on the basis of the liquid to be pumped. The table below gives a general recommendation regarding selection of pump material.

Liquid to be pumped	Material in contact with pump media	Pump type
Clean, non-aggressive liquids such as potable water and oils	Cast iron* (EN-GJL-200)	CM(E)-A
	Stainless steel (EN 1.4301/AISI 304)	CM(E)-I
Industrial liquids and acids	Stainless steel (EN 1.4401/AISI 316)	CM(E)-G

* The impeller, chamber and filling plugs are made of stainless steel (EN 1.4301/AISI 304).
The pump shaft is made of stainless steel (EN 1.4301/AISI 316).

Contact Grundfos for more specific selection based on the pumped liquid.

Pump connections



Fig. 33 Examples of pump connections

Selection of pump connection depends on the rated pressure and pipework. To meet any requirement, the CM and CME pumps offer a wide range of flexible connections such as:

- Tri-Clamp®
- DIN flange
- ANSI flange
- JIS flange
- Victaulic® coupling
- Whitworth thread Rp
- internal NPT thread.

Selection of CME pumps

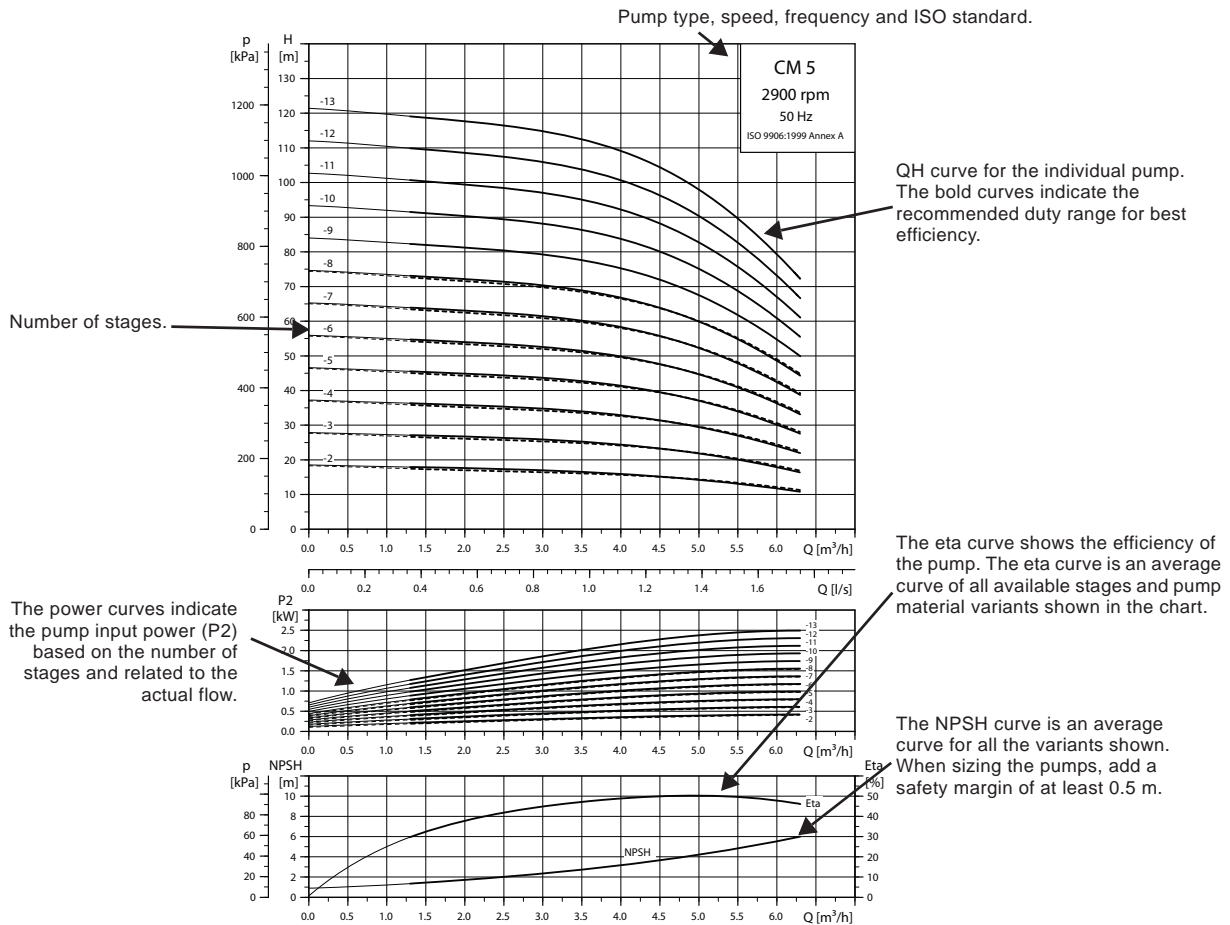
CME pumps are normally used in applications characterised by a variable flow. Consequently, you cannot select a pump that is constantly operating at its optimum efficiency. In order to achieve optimum operating economy, the duty point should therefore be close to the optimum efficiency (eta) for most operating hours. For further information, see [CME pumps](#) on page 29.

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹. See CME performance curves on pages 72 to 77.

TM04 3837 0409

TM04 6404 5012

15. How to read the curve charts



TM04 3336 5112

Fig. 34 How to read the curve charts

Guidelines for performance curves

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

- Tolerances to ISO 9906:1999, Annex A.
- Measurements have been made with airless water at a temperature of 20 °C.
- The curves apply to the following kinematic viscosity: $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).
- The QH curves apply to fixed speeds of 2900 min^{-1} (50 Hz) and 3480 min^{-1} (60 Hz).
Note: The actual speed will in most cases deviate from the above-mentioned speeds. So for realistic curves, please refer to the Grundfos Product Center (<http://product-selection.grundfos.com/>) where the pump curves include the characteristics of the selected motor and therefore show curves at actual speeds. In the 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 $\rho = 1000 \text{ kg/m}^3$.

- Due to the risk of overheating, the pumps are not be used at a flow below the minimum flow rate. The curve in fig. 35 shows the minimum flow rate as a percentage of the rated flow rate in relation to the liquid temperature.

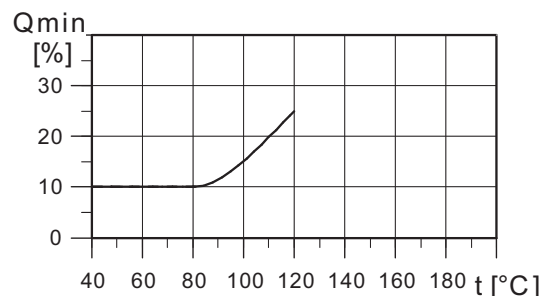
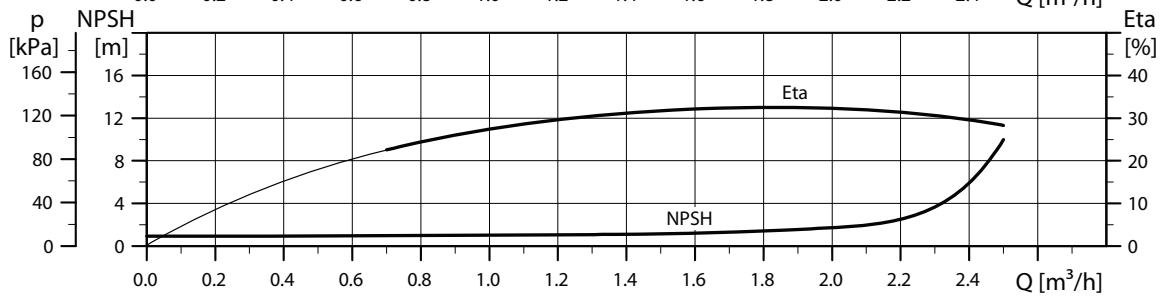
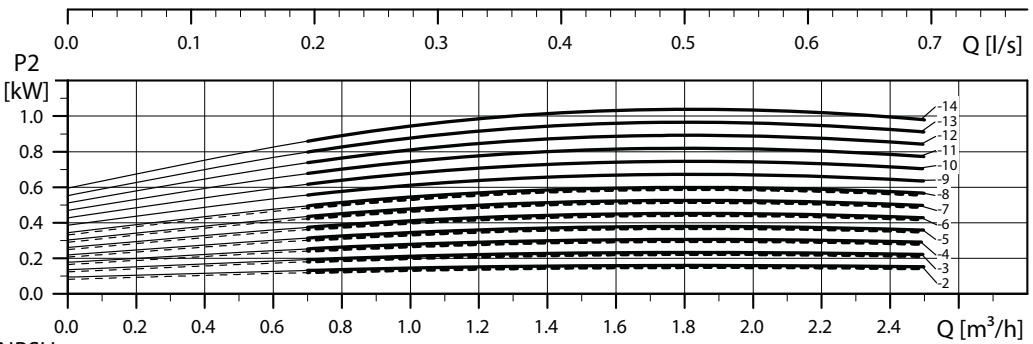
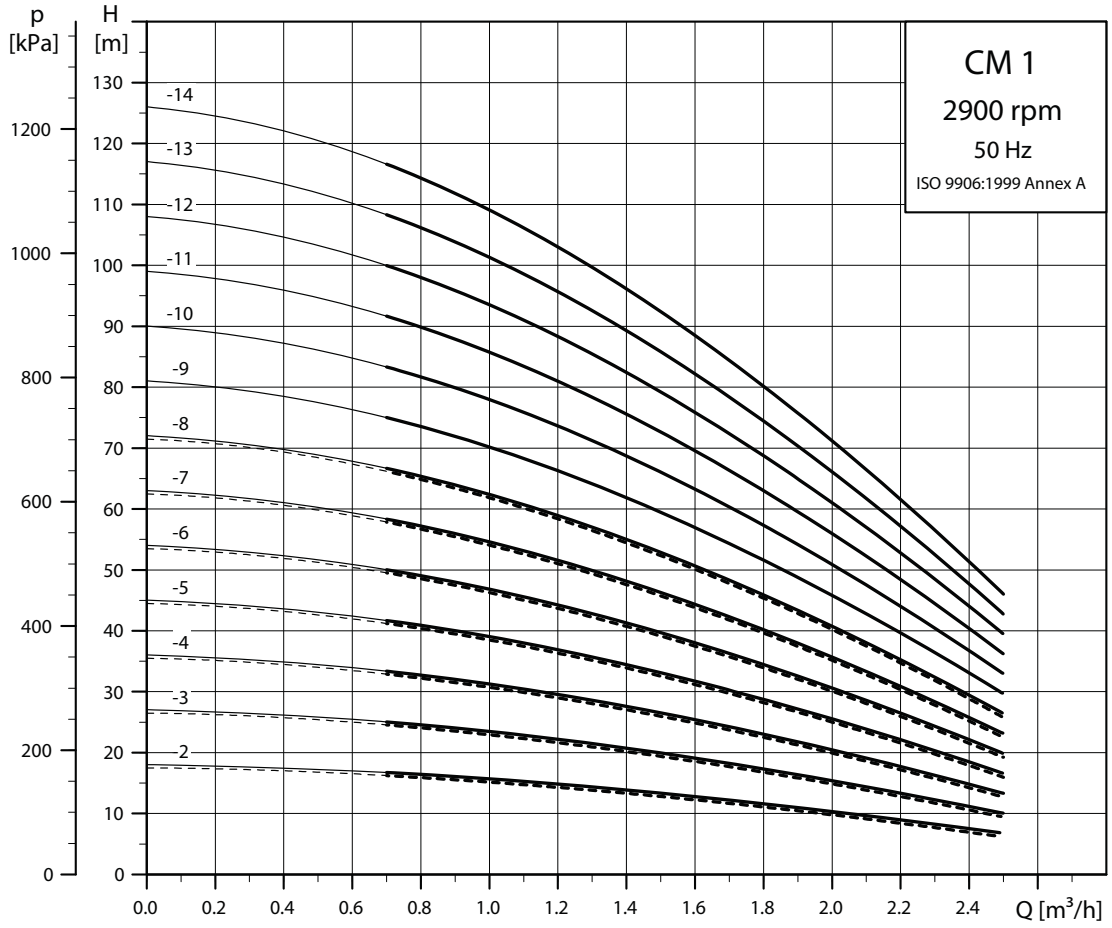


Fig. 35 Minimum flow rate

TM04 3791 5005

16. Performance curves, CM 50 Hz

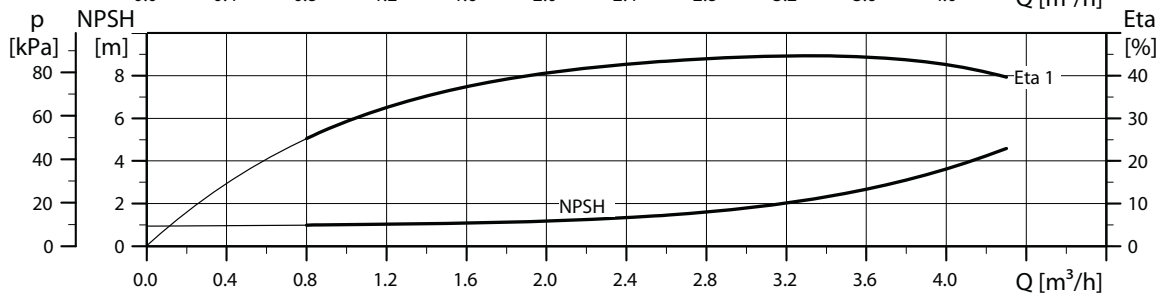
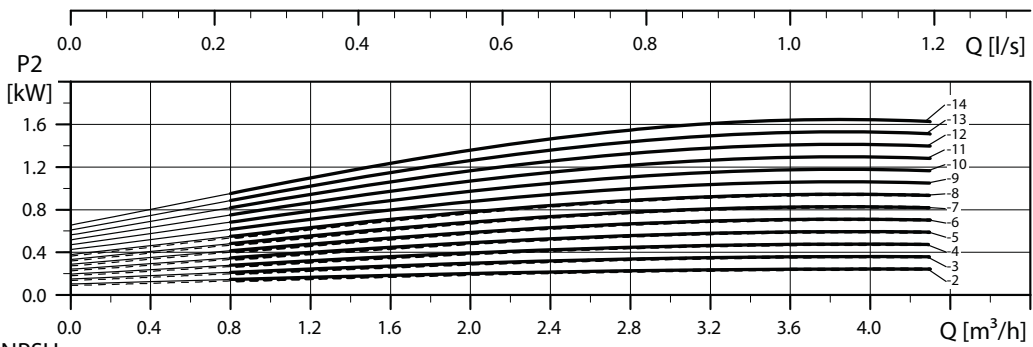
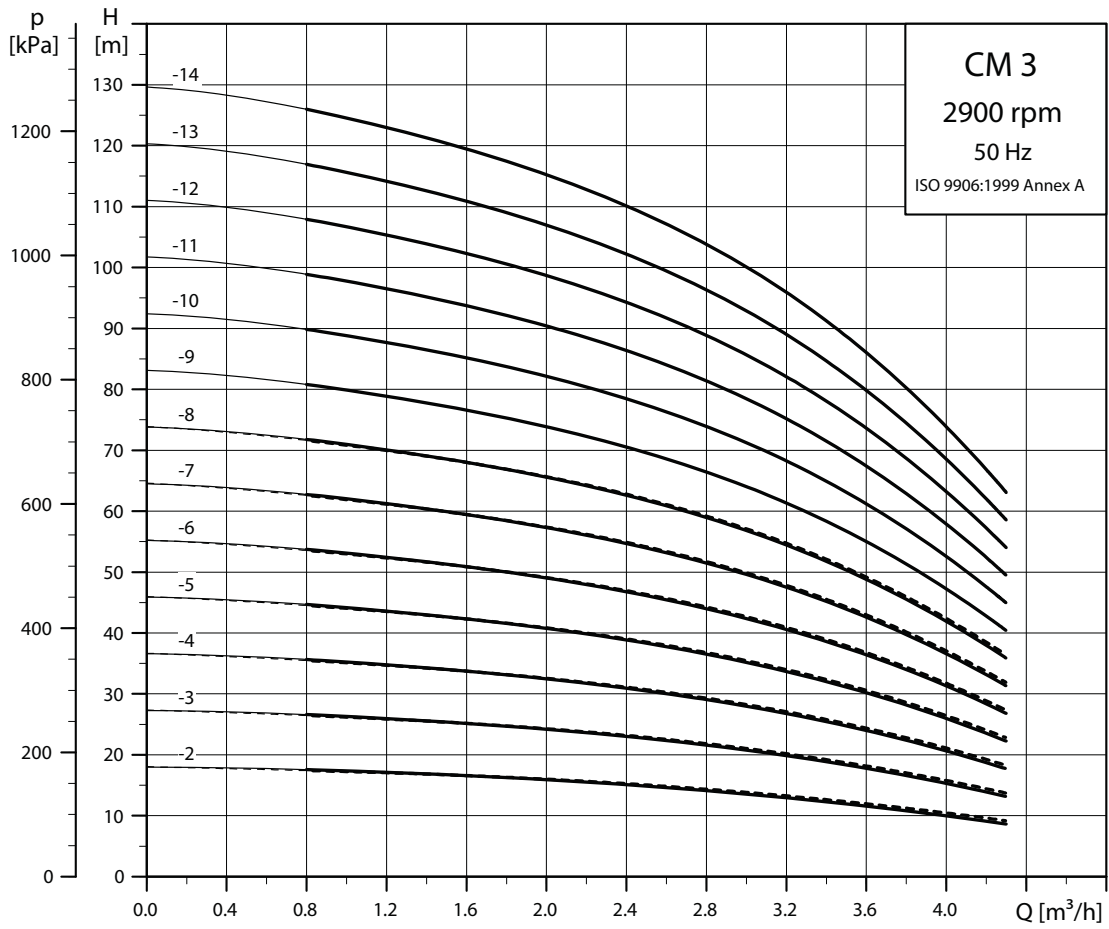
CM 1



----- CM-A
———— CM-I/G

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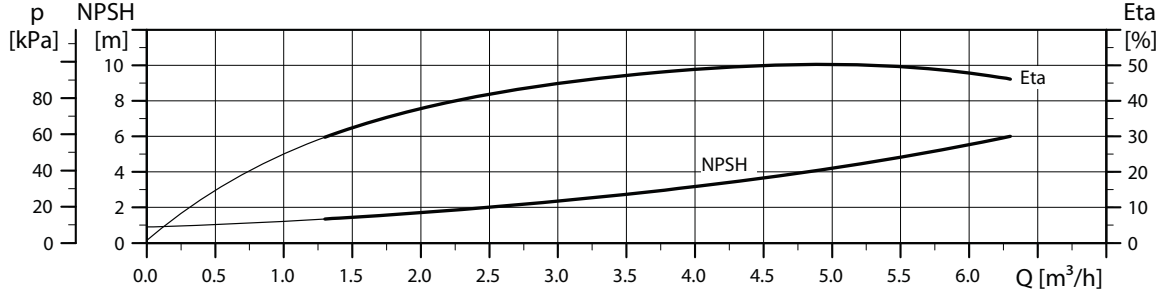
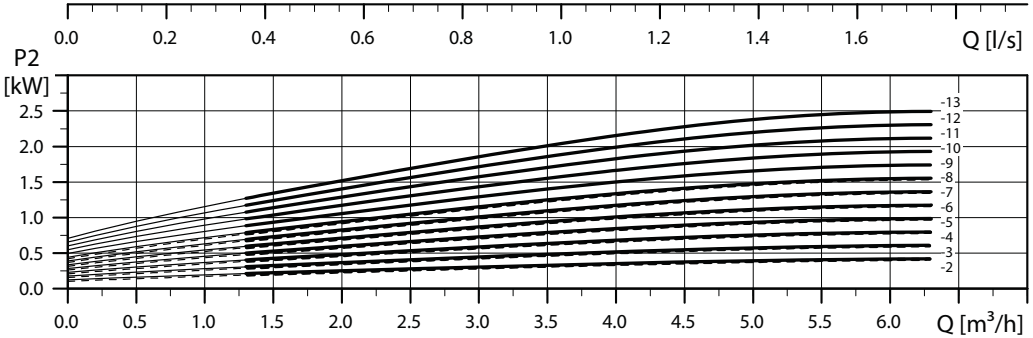
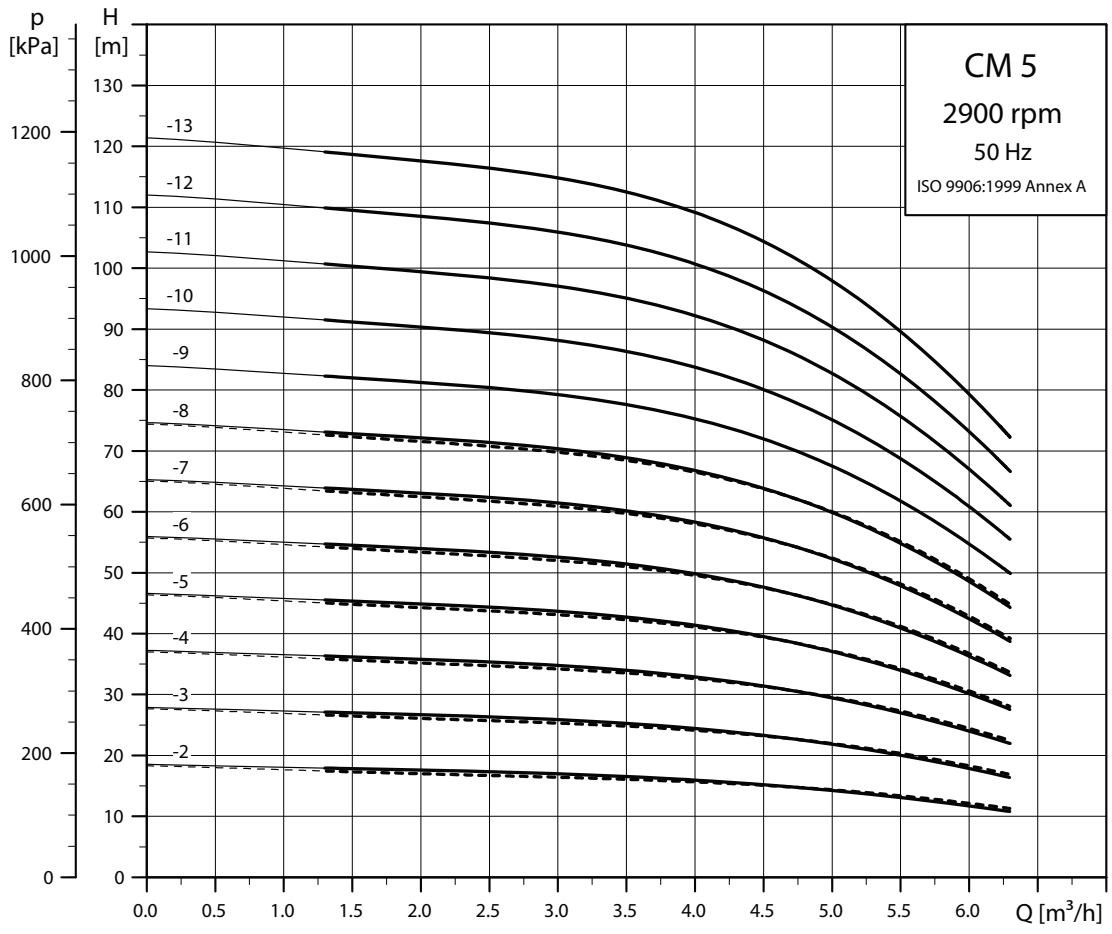
CM 3



----- CM-A
———— CM-I/G

TM04 3335 5112

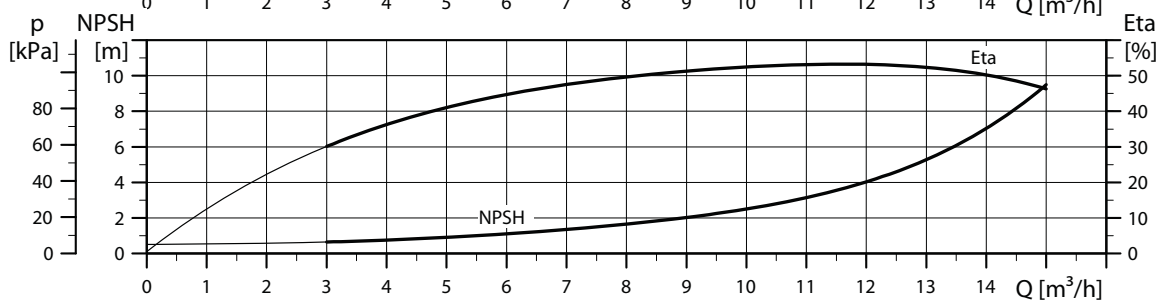
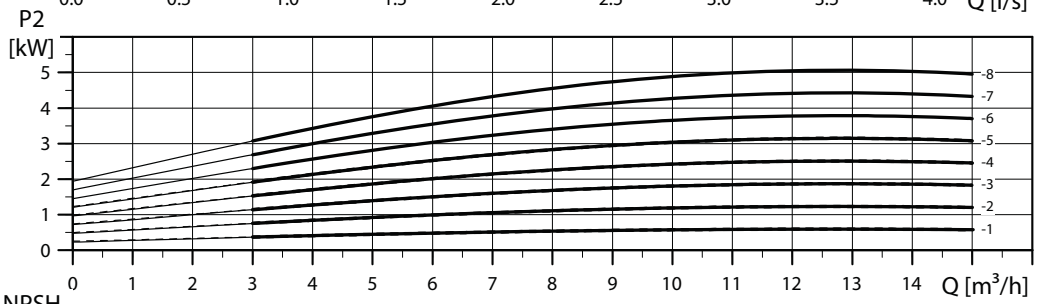
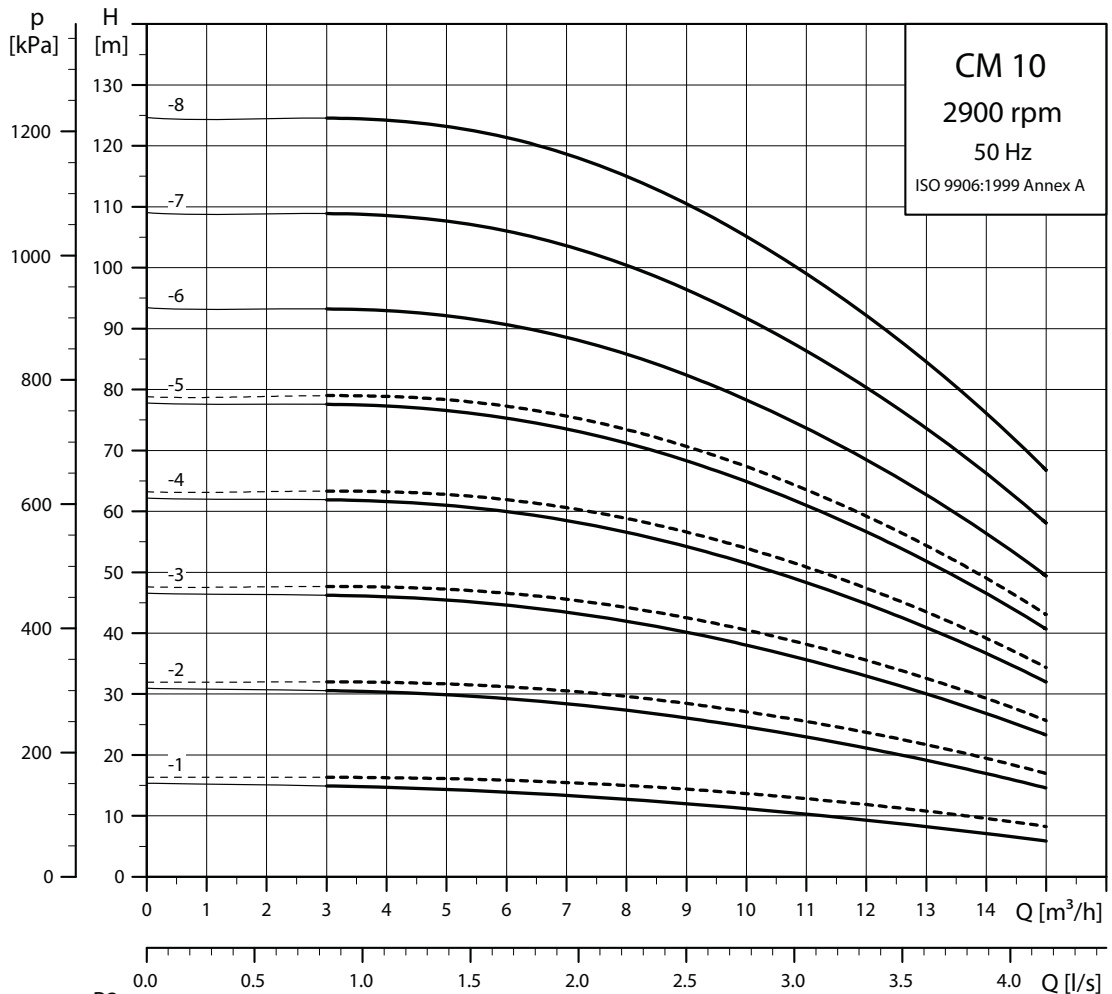
CM 5



----- CM-A
———— CM-I/G

TM04 3336 5112

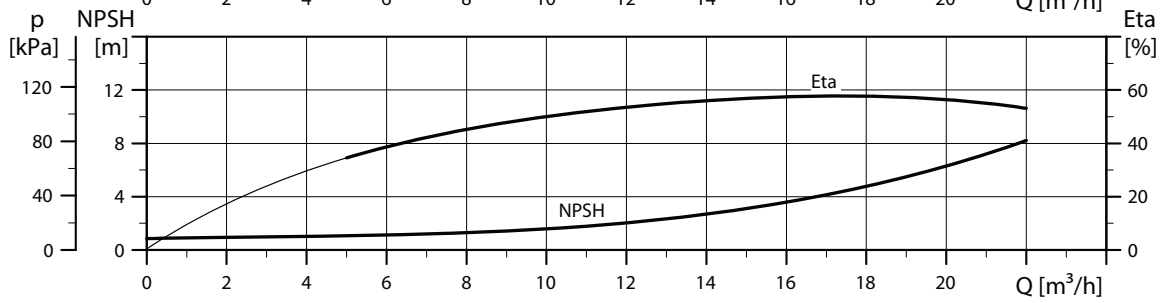
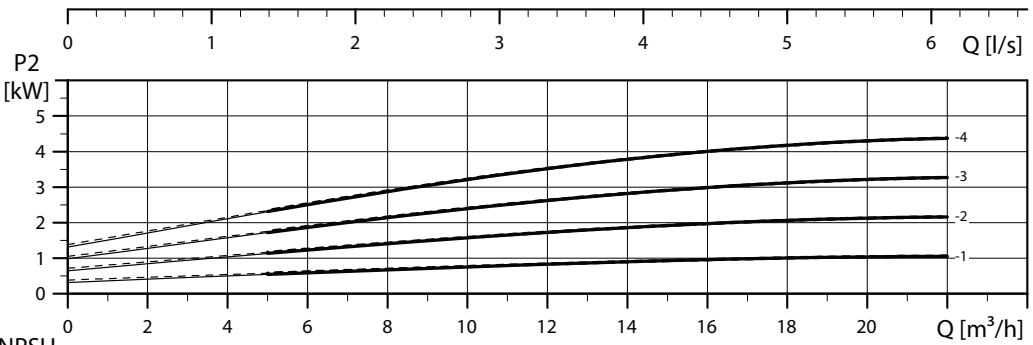
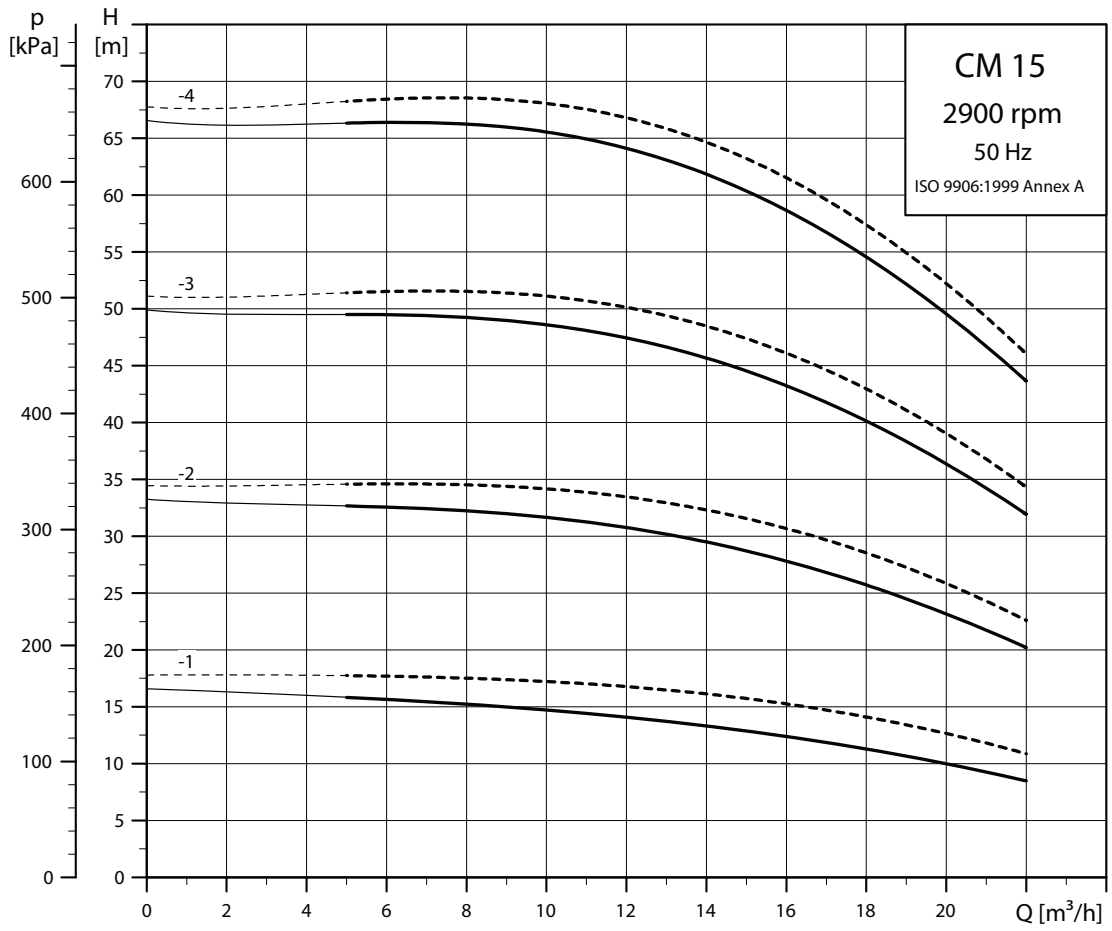
CM 10



----- CM-A
———— CM-I/G

TM04 3337 5112

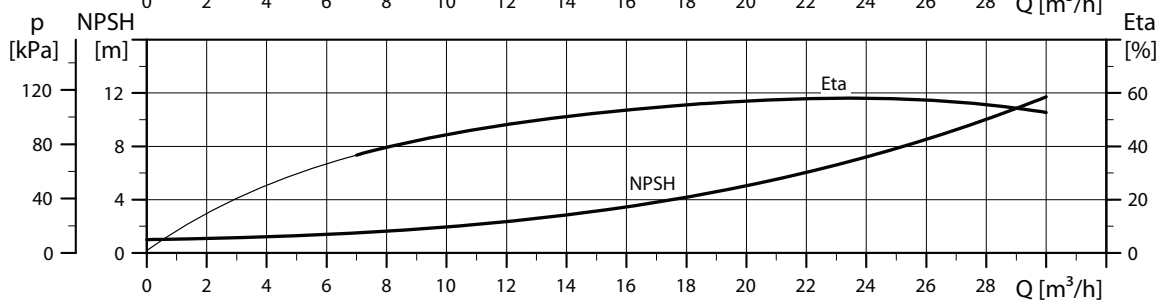
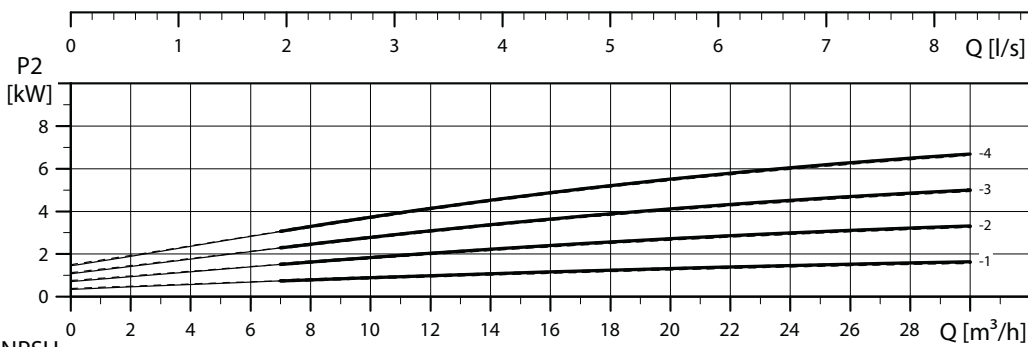
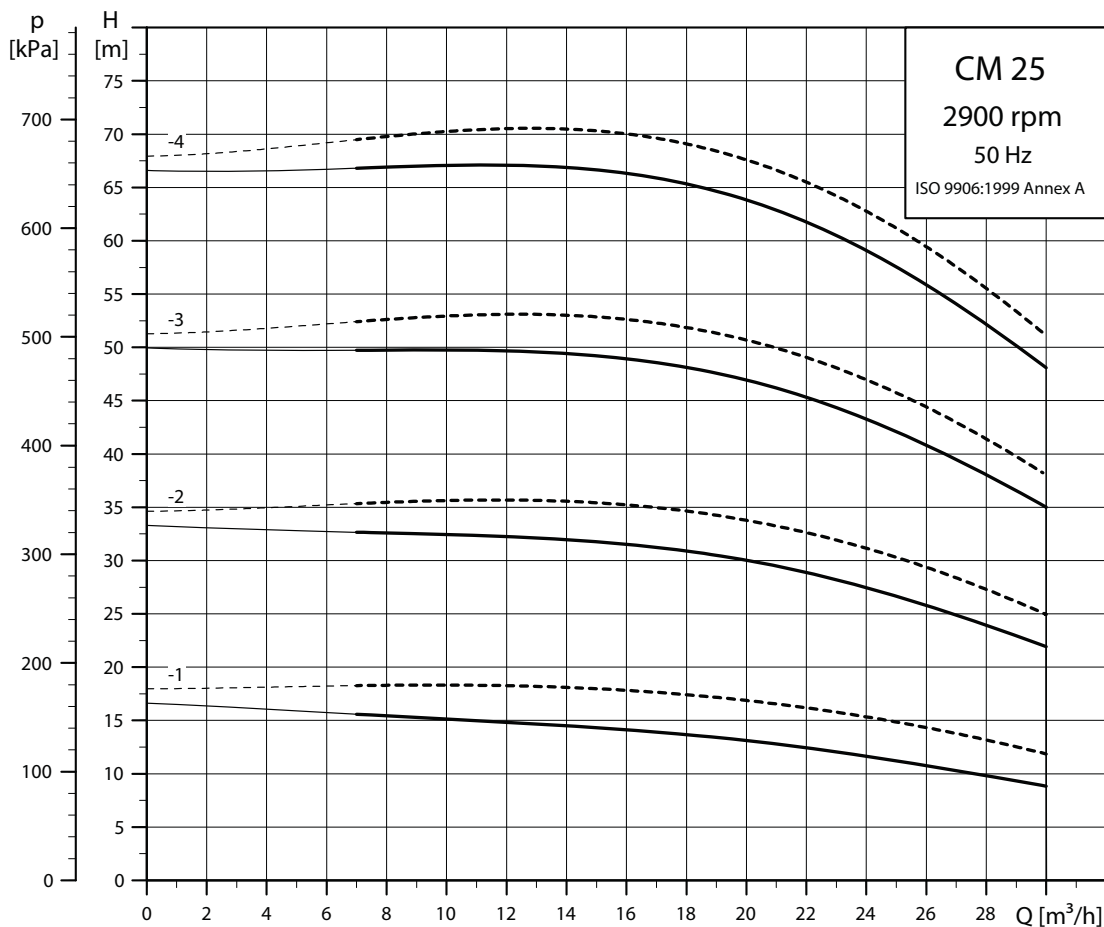
CM 15



----- CM-A
———— CM-I/G

TM04 3338 5112

CM 25

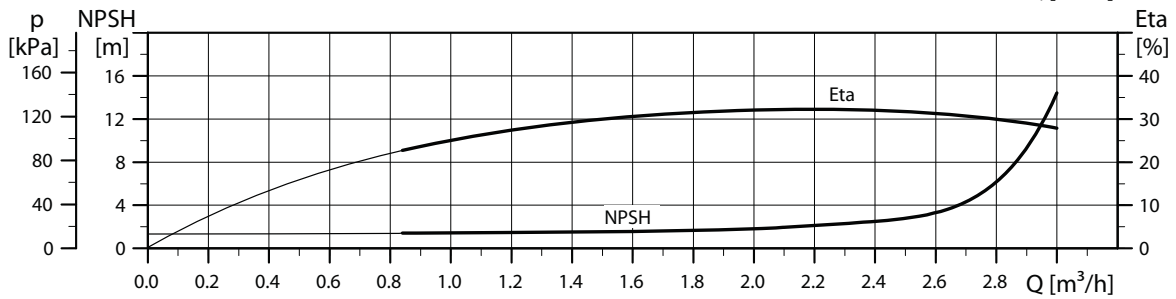
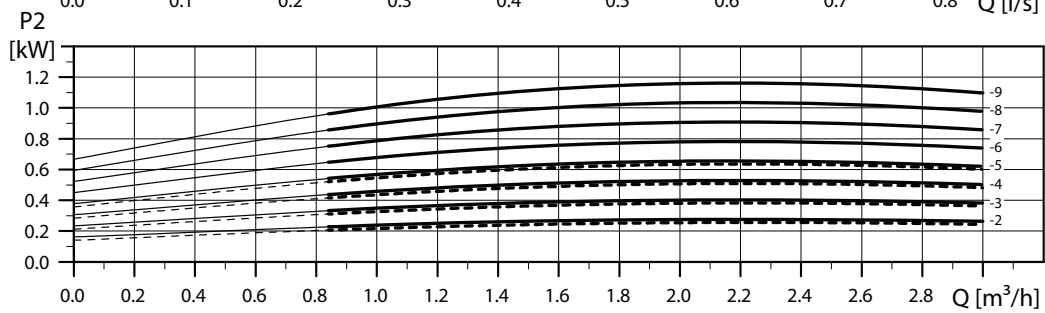
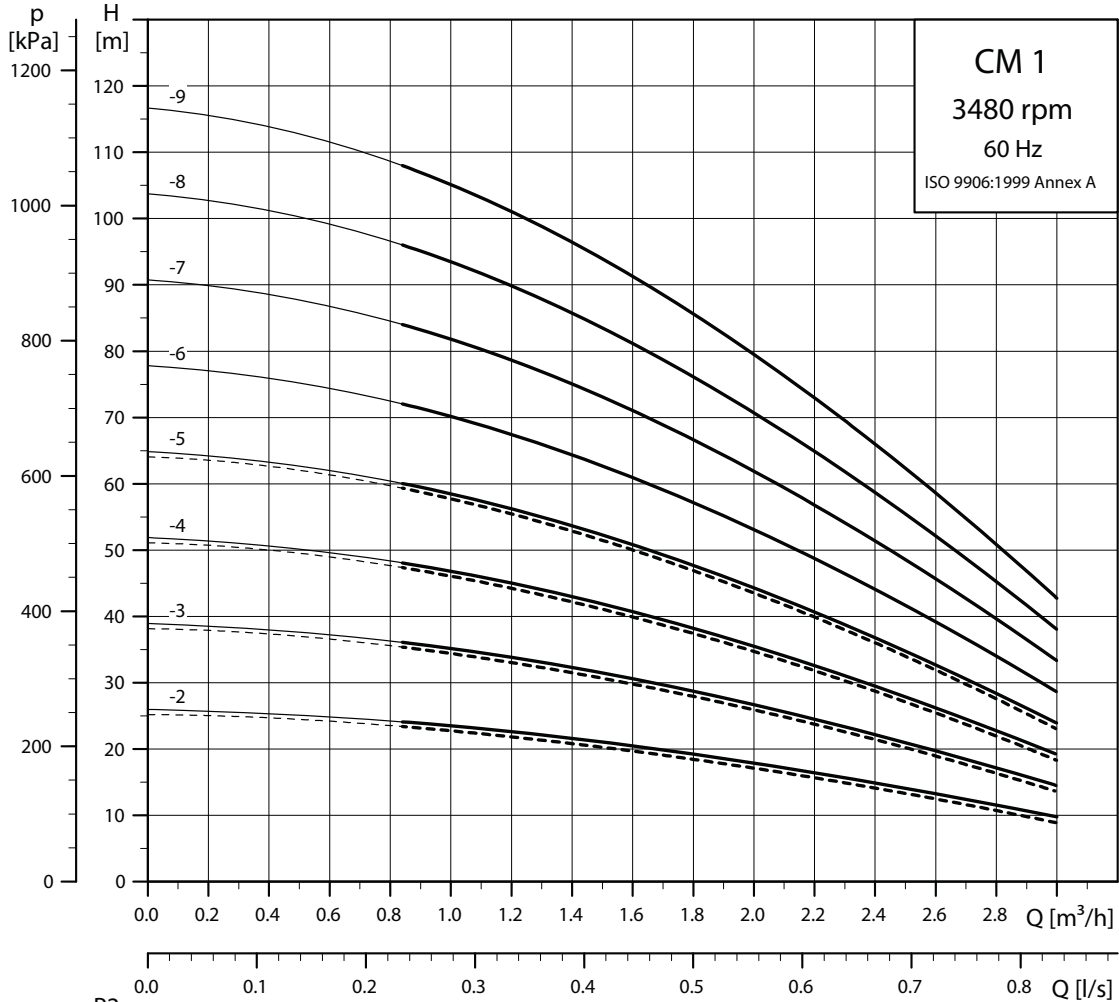


----- CM-A
———— CM-I/G

TM04 3339 5112

17. Performance curves, CM 60 Hz

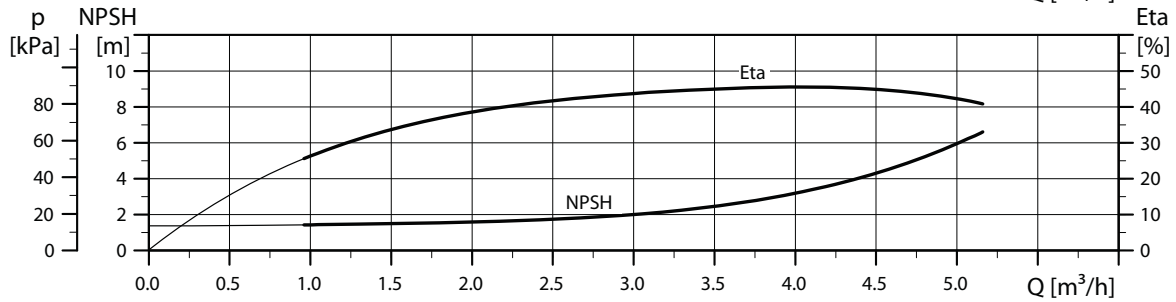
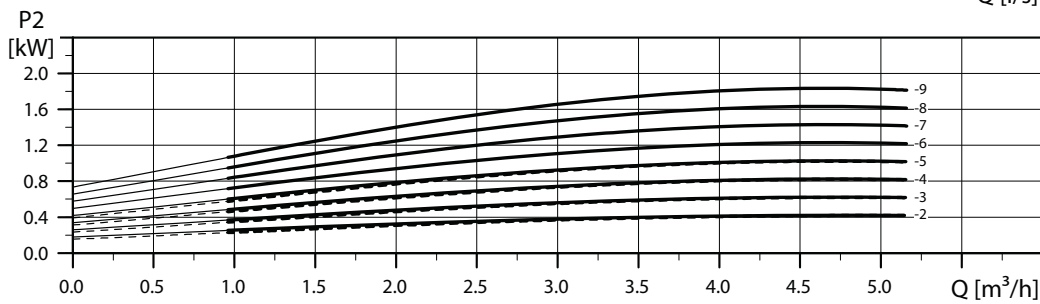
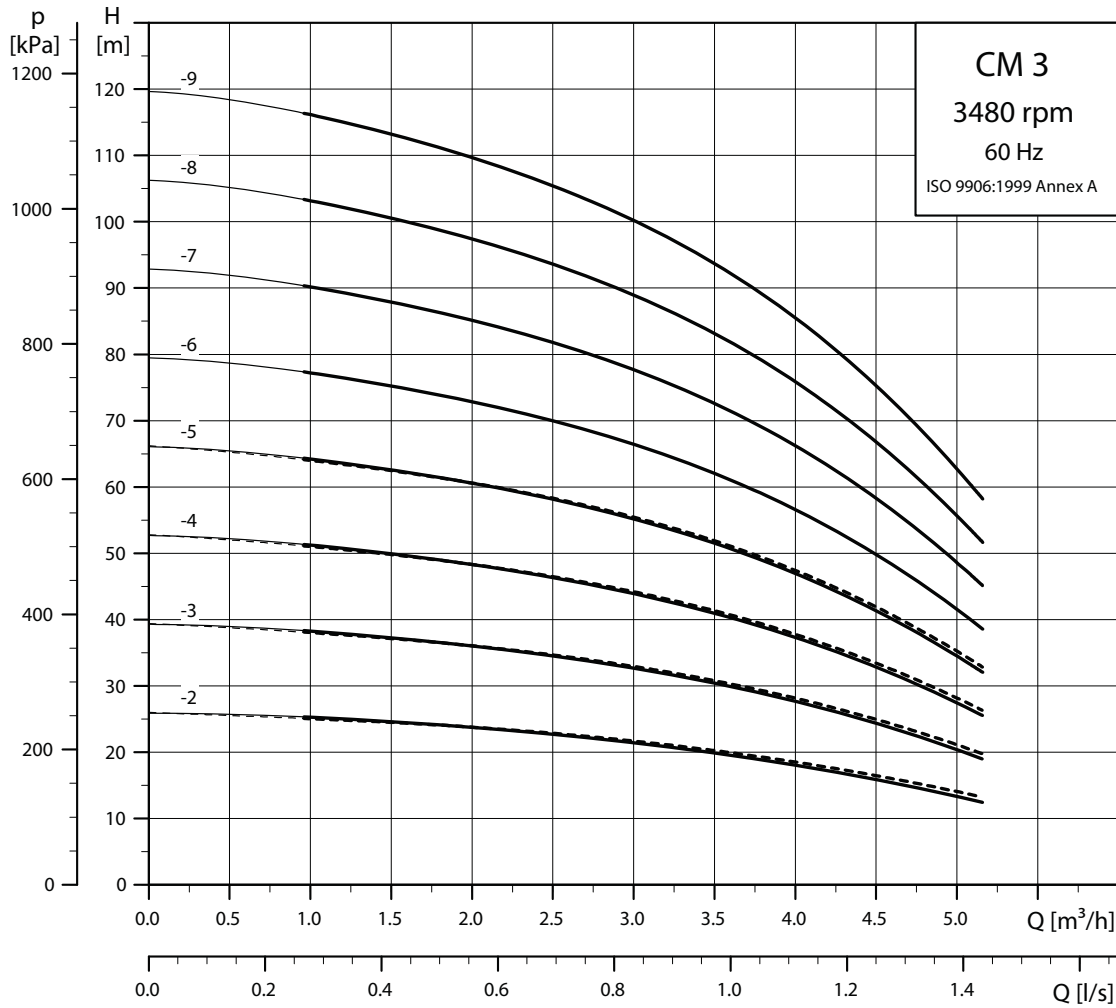
CM 1



----- CM-A
———— CM-I/G

TM04 3370 5112

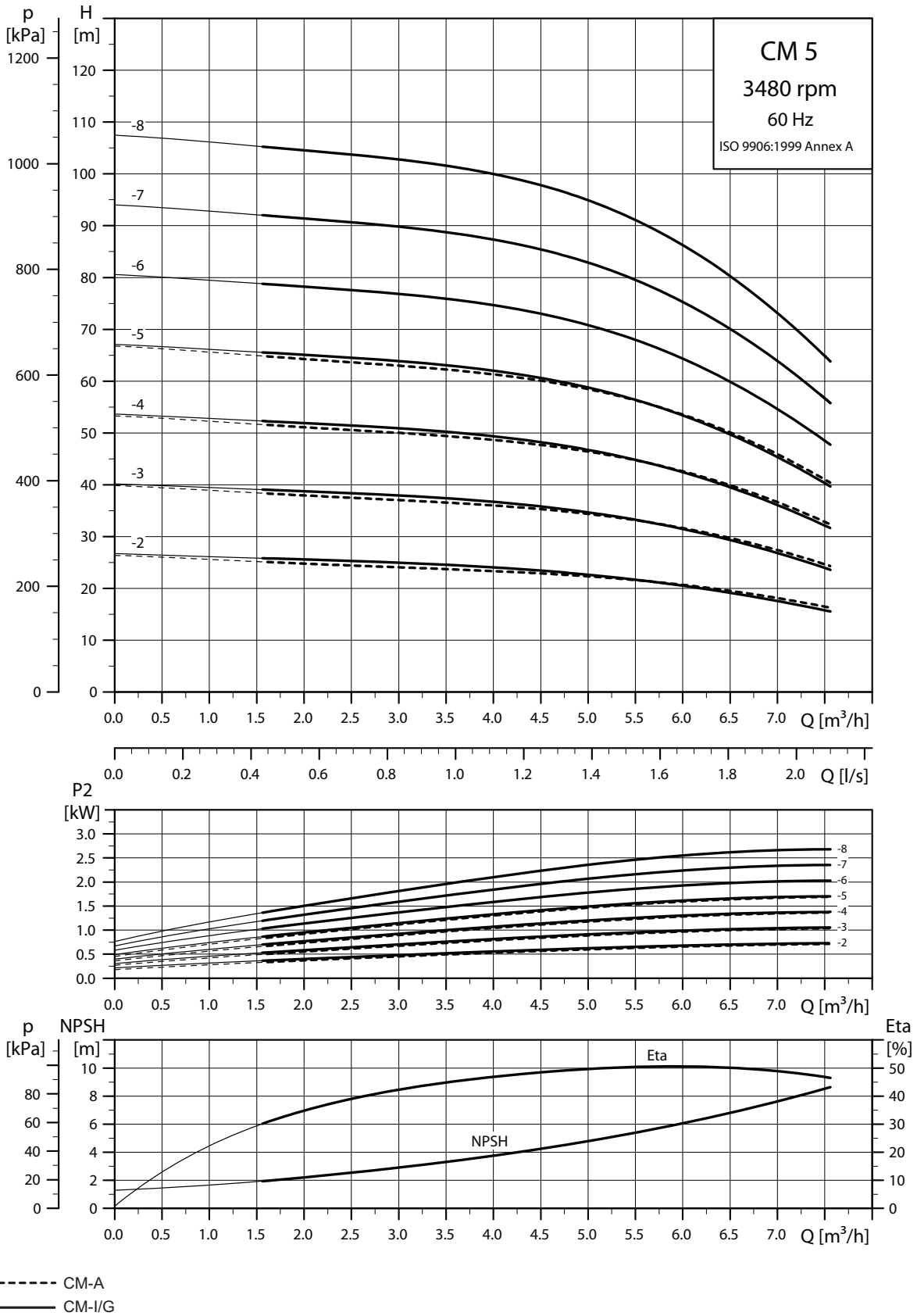
CM 3



----- CM-A
———— CM-I/G

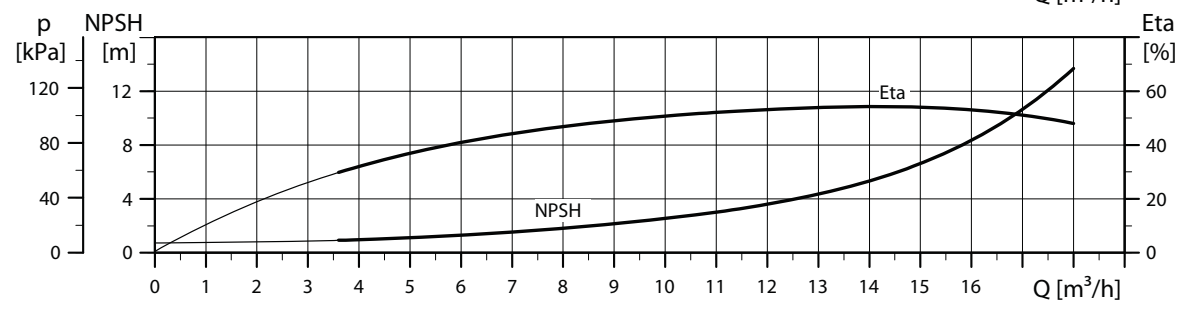
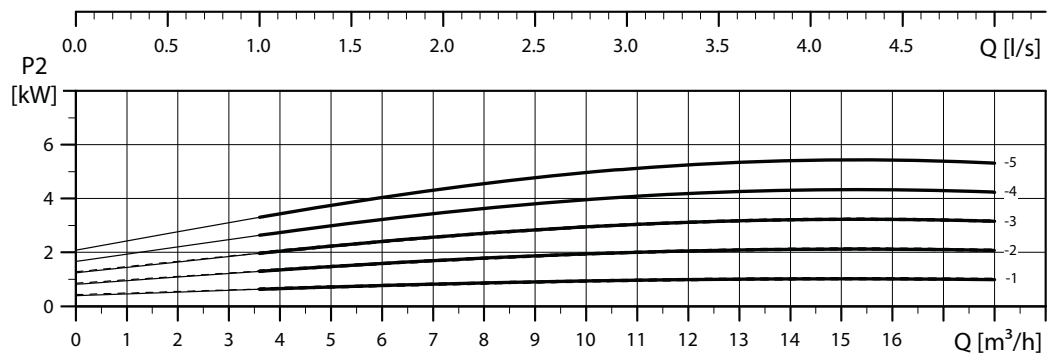
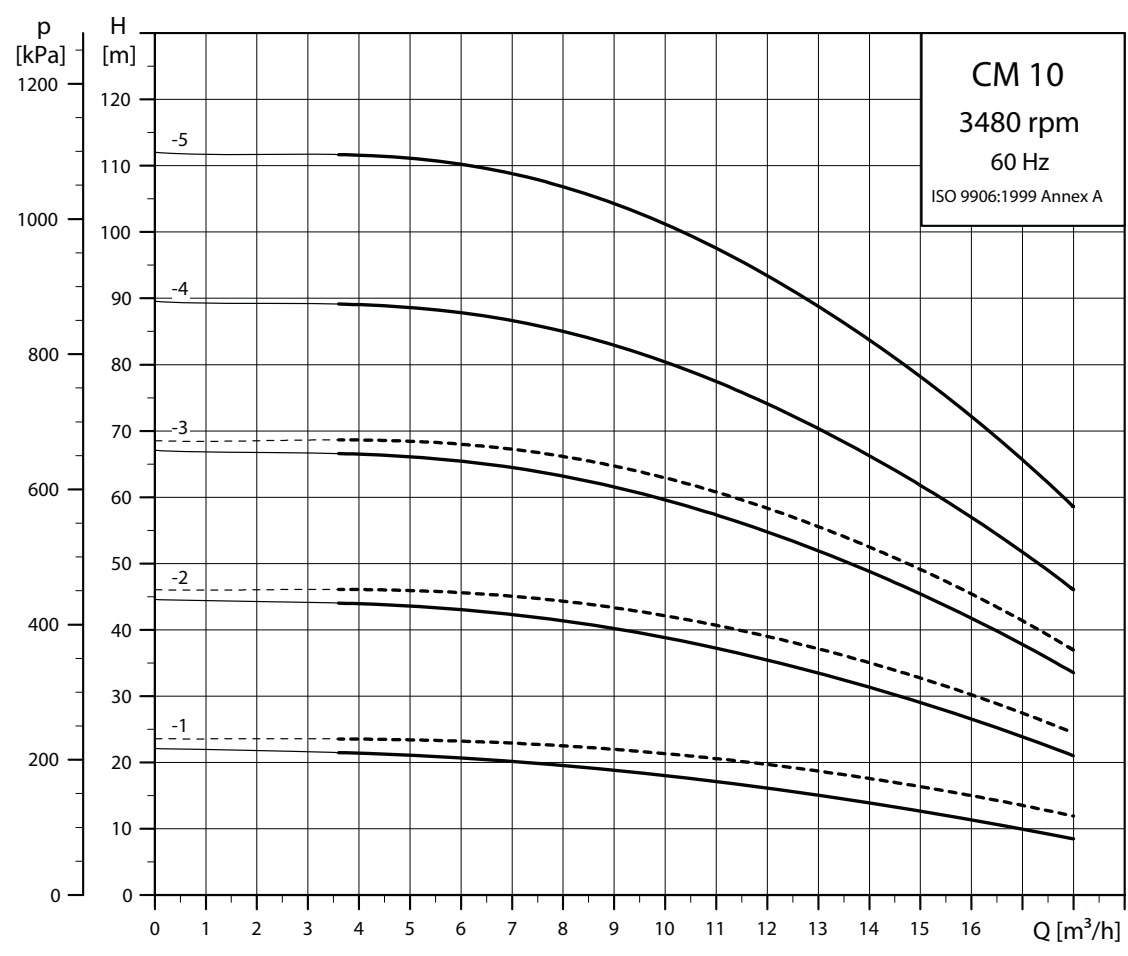
TM04 3371 5112

CM 5



TM04 3372 5112

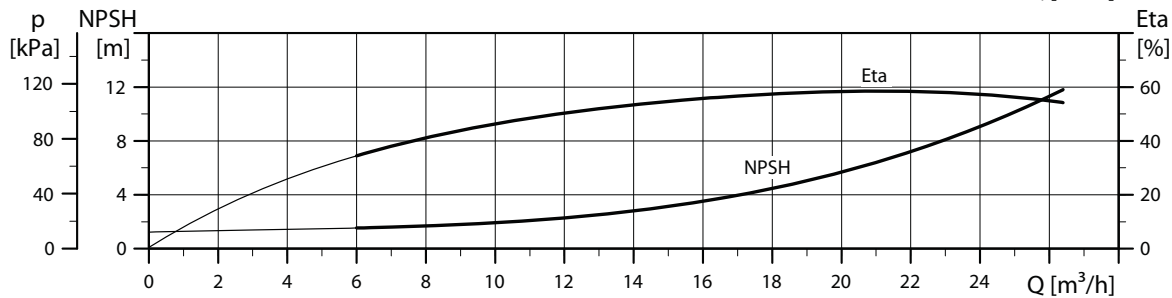
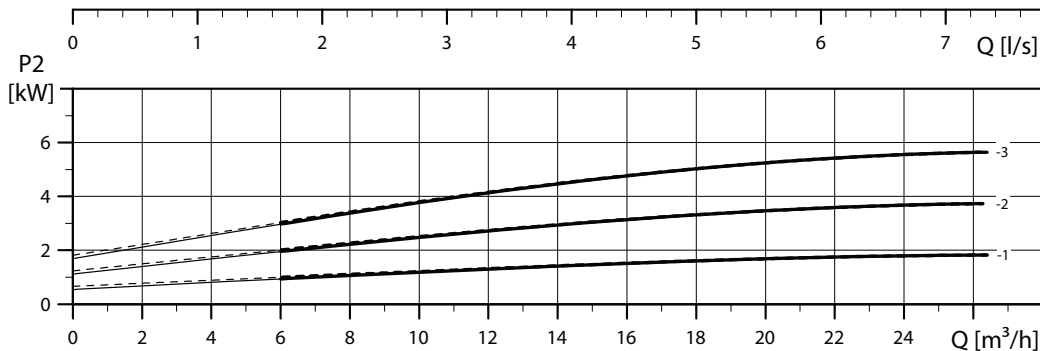
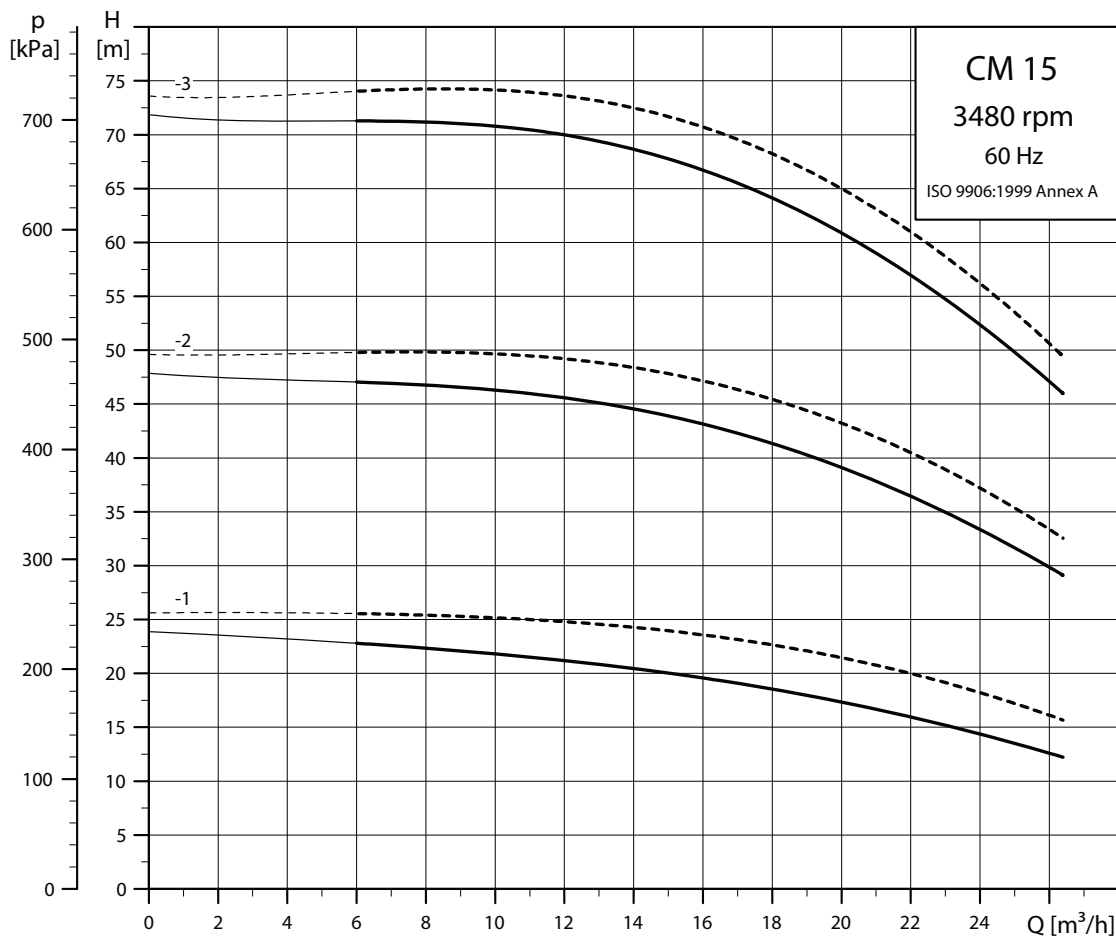
CM 10



----- CM-A
———— CM-I/G

TM04 3373 5112

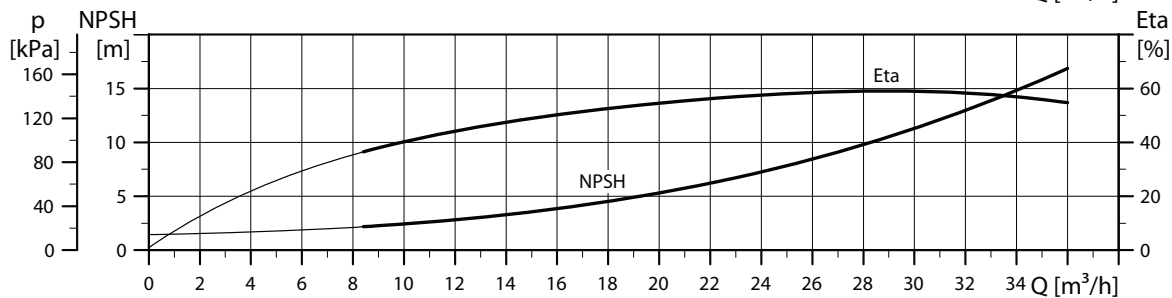
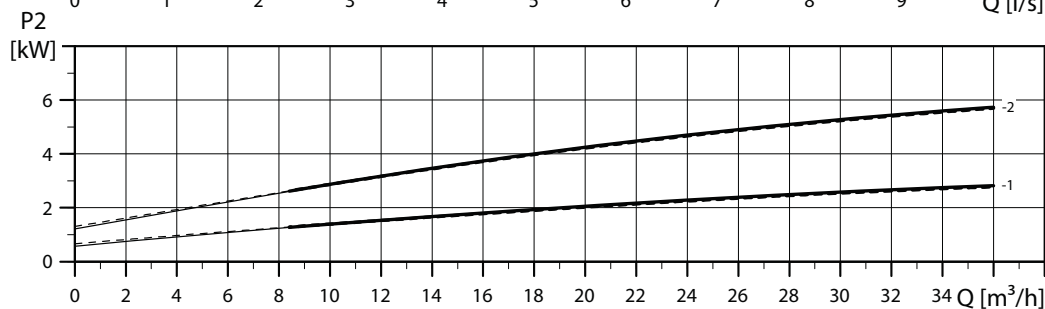
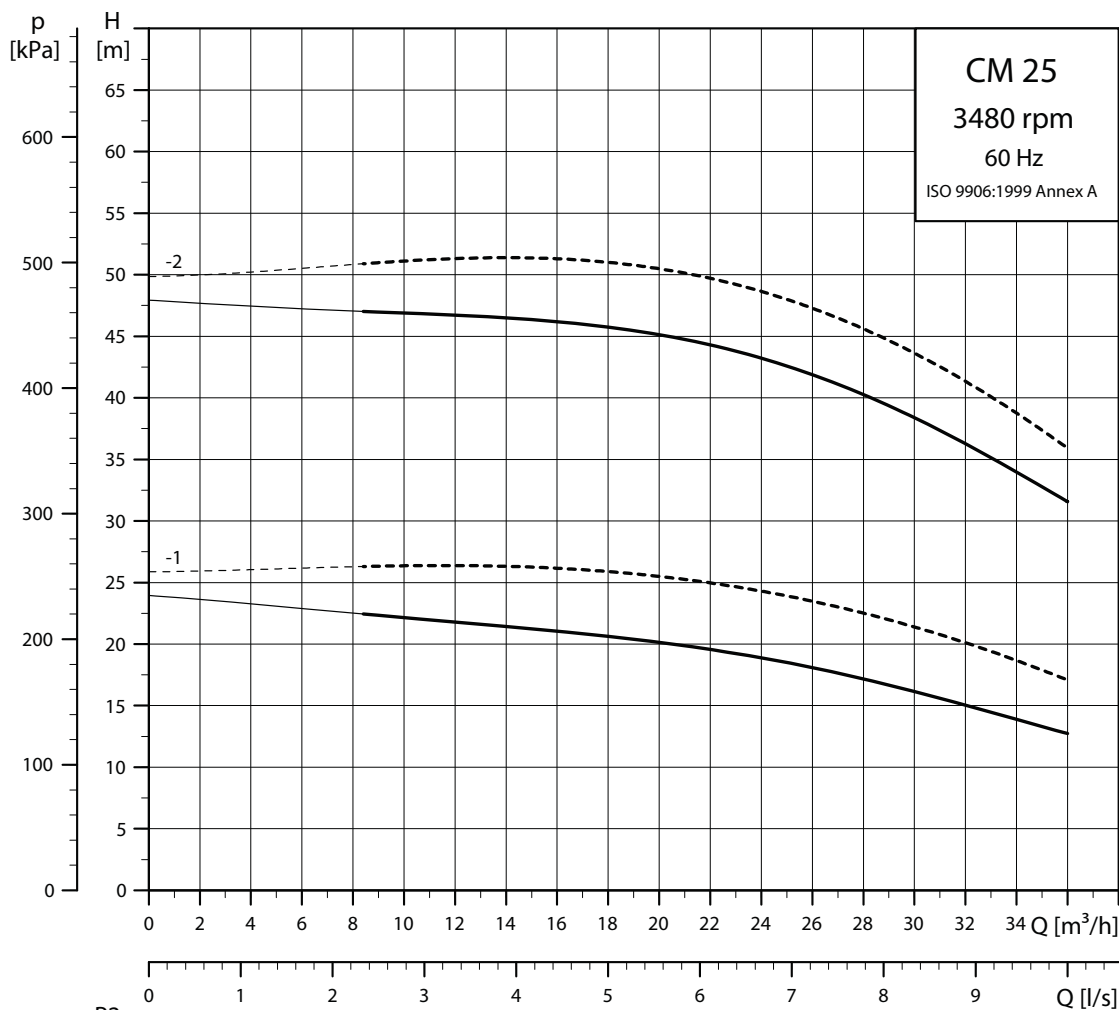
CM 15



----- CM-A
———— CM-I/G

TM04 3374 5112

CM 25

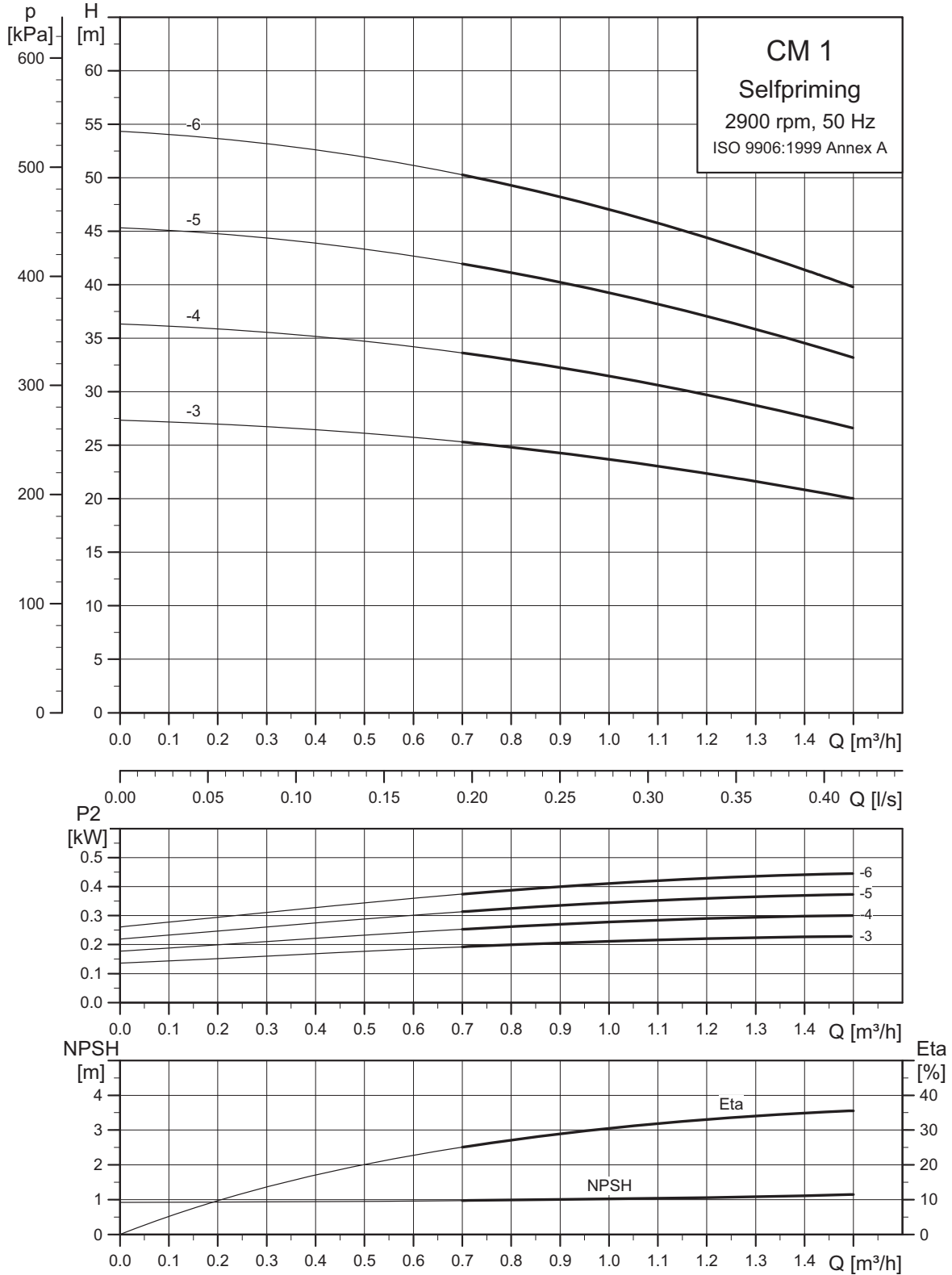


----- CM-A
———— CM-I/G

TM04 3375 5112

18. Performance curves, CM self-priming, 50 Hz

CM 1



Note: Pump performance is influenced by the suction lift. See page 53.

TM05 8756 4414

Pump performance in relation to suction lift

CM 1-3

Pump head [m]		Flow [m ³ /h]						
		0	0.25	0.5	0.75	1	1.25	1.5
Suction lift [m]	0	27.3	26.9	26.1	25.1	23.7	22.0	20.0
	1	26.3	25.9	25.1	24.1	22.7	21.0	19.0
	2	25.3	24.9	24.1	23.1	21.7	20.0	18.0
	3	24.3	23.9	23.1	22.1	20.7	19.0	17.0
	4	23.3	22.9	22.1	21.1	19.7	18.0	16.0

CM 1-4

Pump head [m]		Flow [m ³ /h]						
		0	0.25	0.5	0.75	1	1.25	1.5
Suction lift [m]	0	36.3	35.7	34.7	33.3	31.5	29.2	26.6
	1	35.3	34.7	33.7	32.3	30.5	28.2	25.6
	2	34.3	33.7	32.7	31.3	29.5	27.2	24.6
	3	33.3	32.7	31.7	30.3	28.5	26.2	23.6
	4	32.3	31.7	30.7	29.3	27.5	25.2	22.6

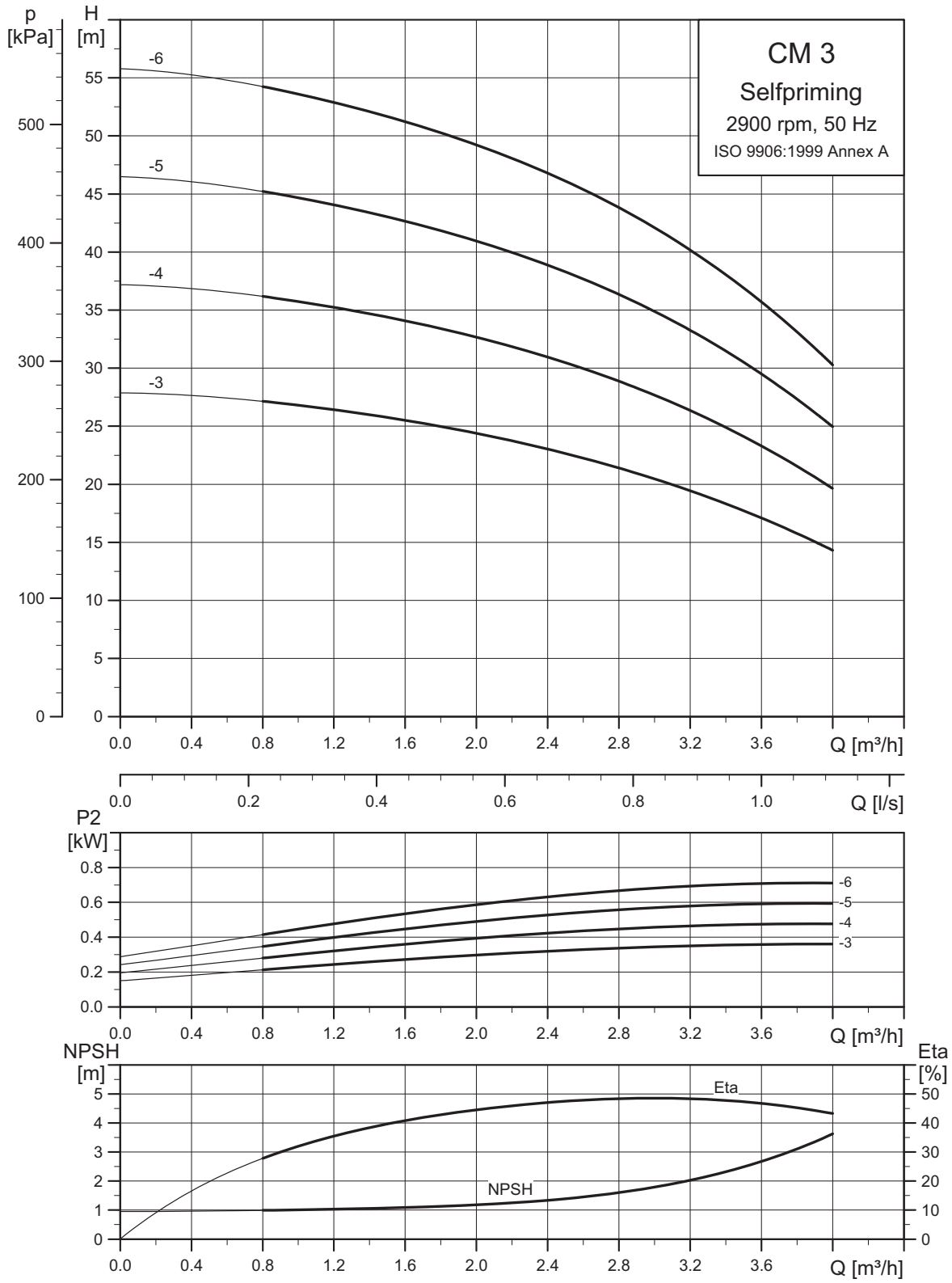
CM 1-5

Pump head [m]		Flow [m ³ /h]						
		0	0.25	0.5	0.75	1	1.25	1.5
Suction lift [m]	0	45.3	44.6	43.3	41.6	39.3	36.5	33.2
	1	44.3	43.6	42.3	40.6	38.3	35.5	32.2
	2	43.3	42.6	41.3	39.6	37.3	34.5	31.2
	3	42.3	41.6	40.3	38.6	36.3	33.5	30.2
	4	41.3	40.6	39.3	37.6	35.3	32.5	29.2

CM 1-6

Pump head [m]		Flow [m ³ /h]						
		0	0.25	0.5	0.75	1	1.25	1.5
Suction lift [m]	0	54.3	53.4	51.9	49.8	47.0	43.7	39.8
	1	53.3	52.4	50.9	48.8	46.0	42.7	38.8
	2	52.3	51.4	49.9	47.8	45.0	41.7	37.8
	3	51.3	50.4	48.9	46.8	44.0	40.7	36.8
	4	50.3	49.4	47.9	45.8	43.0	39.7	35.8

CM 3



Note: Pump performance is influenced by the suction lift. See page 55.

TM05 8757 4414

Pump performance in relation to suction lift

CM 3-3

Pump head [m]		Flow [m ³ /h]								
		0	0.5	1	1.5	2	2.5	3	3.5**	4**
Suction lift [m]	0	27.9	27.5	26.8	25.8	24.4	22.7	20.5	17.7	14.3
	1	26.9	26.5	25.8	24.8	23.4	21.7	19.5	16.7	13.3
	2	25.9	25.5	24.8	23.8	22.4	20.7	18.5	15.7	12.3
	3	24.9	24.5	23.8	22.8	21.4	19.7	17.5	14.7	11.3
	4	23.9	23.5	22.8	21.8	20.4	18.7	16.5	13.7	10.3
	5*	22.9	22.5	21.8	20.8	19.4	17.7	15.5	-	-
	6*	21.9	21.5	20.8	19.8	18.4	16.7	14.5	-	-
	7*	20.9	20.5	19.8	18.8	17.4	15.7	-	-	-
	8*	19.9	19.5	18.8	17.8	-	-	-	-	-

CM 3-4

Pump head [m]		Flow [m ³ /h]								
		0	0.5	1	1.5	2	2.5	3	3.5**	4**
Suction lift [m]	0	37.2	36.7	35.7	34.4	32.7	30.5	27.7	24.1	19.6
	1	36.2	35.7	34.7	33.4	31.7	29.5	26.7	23.1	18.6
	2	35.2	34.7	33.7	32.4	30.7	28.5	25.7	22.1	17.6
	3	34.2	33.7	32.7	31.4	29.7	27.5	24.7	21.1	16.6
	4	33.2	32.7	31.7	30.4	28.7	26.5	23.7	20.1	15.6
	5*	32.2	31.7	30.7	29.4	27.7	25.5	22.7	-	-
	6*	31.2	30.7	29.7	28.4	26.7	24.5	21.7	-	-
	7*	30.2	29.7	28.7	27.4	25.7	23.5	-	-	-
	8*	29.2	28.7	27.7	26.4	-	-	-	-	-

CM 3-5

Pump head [m]		Flow [m ³ /h]								
		0	0.5	1	1.5	2	2.5	3	3.5**	4**
Suction lift [m]	0	46.5	45.9	44.7	43.0	40.9	38.3	34.9	30.5	25.0
	1	45.5	44.9	43.7	42.0	39.9	37.3	33.9	29.5	24.0
	2	44.5	43.9	42.7	41.0	38.9	36.3	32.9	28.5	23.0
	3	43.5	42.9	41.7	40.0	37.9	35.3	31.9	27.5	22.0
	4	42.5	41.9	40.7	39.0	36.9	34.3	30.9	26.5	21.0
	5*	41.5	40.9	39.7	38.0	35.9	33.3	29.9	-	-
	6*	40.5	39.9	38.7	37.0	34.9	32.3	28.9	-	-
	7*	39.5	38.9	37.7	36.0	33.9	31.3	-	-	-
	8*	38.5	37.9	36.7	35.0	-	-	-	-	-

CM 3-6

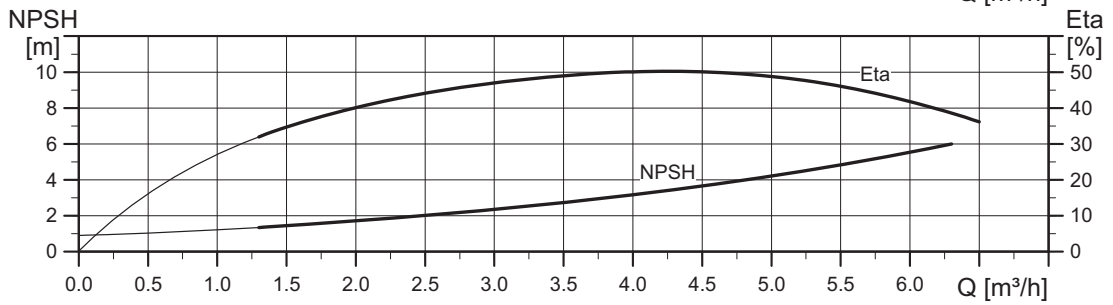
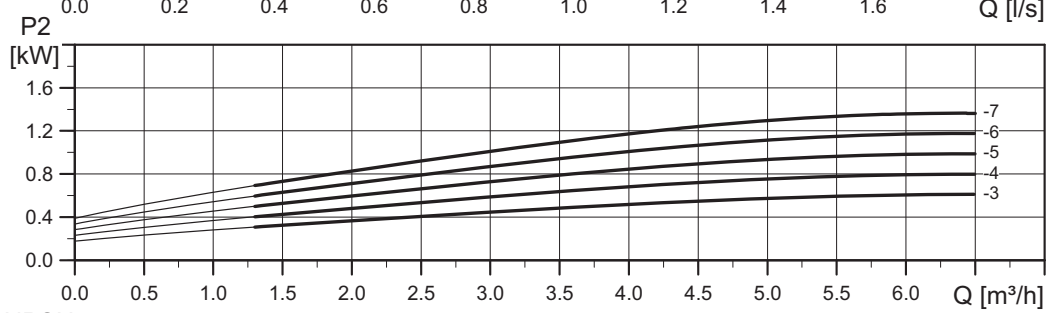
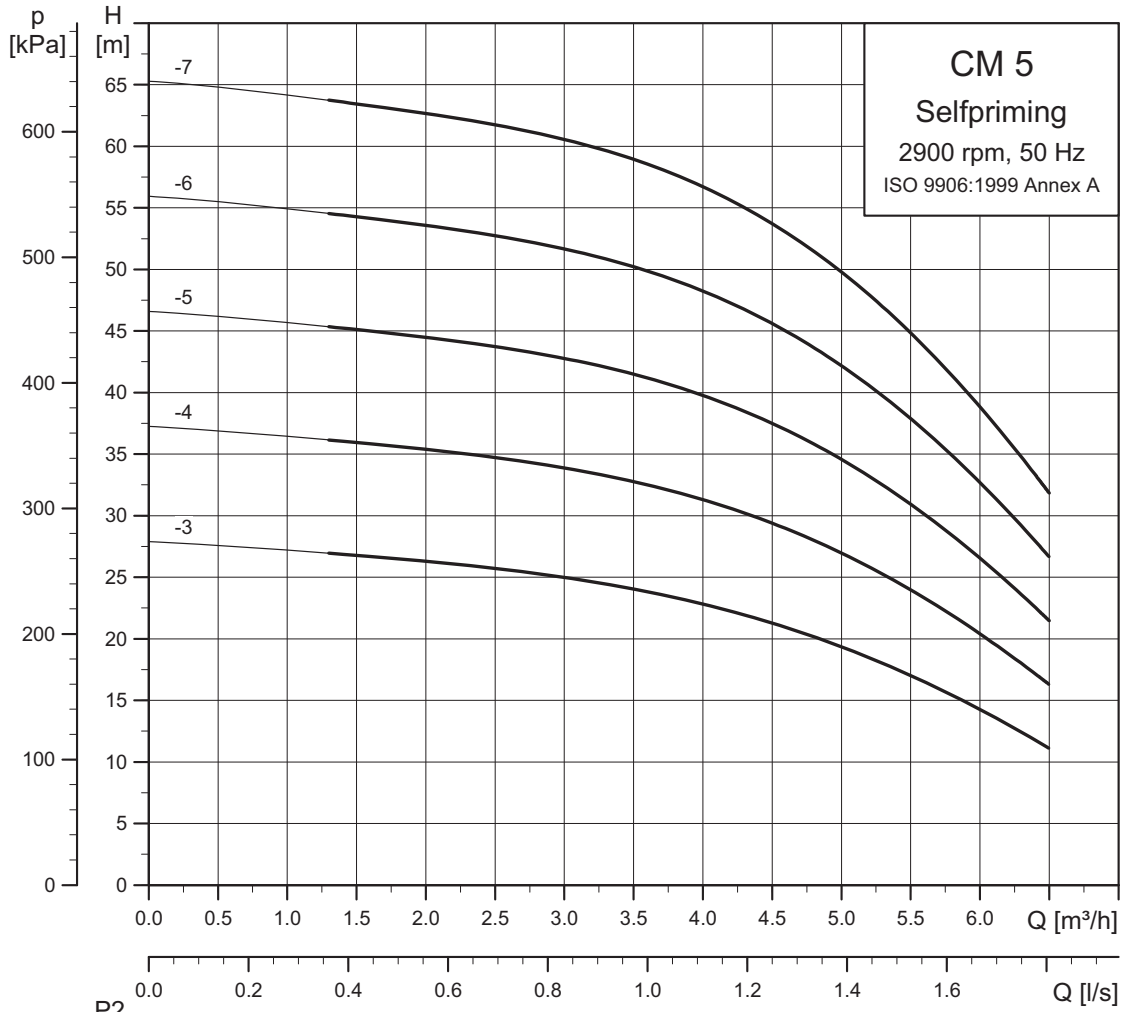
Pump head [m]		Flow [m ³ /h]								
		0	0.5	1	1.5	2	2.5	3	3.5**	4**
Suction lift [m]	0	55.8	55.0	53.6	51.7	49.2	46.1	42.1	36.9	30.3
	1	54.8	54.0	52.6	50.7	48.2	45.1	41.1	35.9	29.3
	2	53.8	53.0	51.6	49.7	47.2	44.1	40.1	34.9	28.3
	3	52.8	52.0	50.6	48.7	46.2	43.1	39.1	33.9	27.3
	4	51.8	51.0	49.6	47.7	45.2	42.1	38.1	32.9	26.3
	5*	50.8	50.0	48.6	46.7	44.2	41.1	37.1	-	-
	6*	49.8	49.0	47.6	45.7	43.2	40.1	36.1	-	-
	7*	48.8	48.0	46.6	44.7	42.2	39.1	-	-	-
	8*	47.8	47.0	45.6	43.7	-	-	-	-	-

Note: Depending on the pump model, the maximum suction depth varies between 7.5 and 8.5 m.

* Only available in O-version

** Only available in S-version

CM 5



Note: Pump performance is influenced by the suction lift. See page 57.

TM05 8758 4414

Pump performance in relation to suction lift

CM 5-3

Pump head [m]	Flow [m ³ /h]													
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5**	6**	6.5**
0	27.9	27.6	27.2	26.8	26.3	25.7	25.0	24.0	22.8	21.3	19.4	17.0	14.3	11.1
1	26.9	26.6	26.2	25.8	25.3	24.7	24.0	23.0	21.8	20.3	18.4	16.0	13.3	10.1
2	25.9	25.6	25.2	24.8	24.3	23.7	23.0	22.0	20.8	19.3	17.4	15.0	12.3	-
3	24.9	24.6	24.2	23.8	23.3	22.7	22.0	21.0	19.8	18.3	16.4	-	-	-
4	23.9	23.6	23.2	22.8	22.3	21.7	21.0	20.0	18.8	17.3	-	-	-	-
5*	22.9	22.6	22.2	21.8	21.3	20.7	20.0	19.0	17.8	-	-	-	-	-
6*	21.9	21.6	21.2	20.8	20.3	19.7	19.0	-	-	-	-	-	-	-
7*	20.9	20.6	20.2	19.8	19.3	-	-	-	-	-	-	-	-	-
8*	19.9	19.6	19.2	18.8	-	-	-	-	-	-	-	-	-	-

CM 5-4

Pump head [m]	Flow [m ³ /h]													
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5**	6**	6.5**
0	37.3	36.9	36.4	35.9	35.4	34.7	33.9	32.8	31.3	29.4	27.0	24.0	20.4	16.3
1	36.3	35.9	35.4	34.9	34.4	33.7	32.9	31.8	30.3	28.4	26.0	23.0	19.4	15.3
2	35.3	34.9	34.4	33.9	33.4	32.7	31.9	30.8	29.3	27.4	25.0	22.0	18.4	-
3	34.3	33.9	33.4	32.9	32.4	31.7	30.9	29.8	28.3	26.4	24.0	-	-	-
4	33.3	32.9	32.4	31.9	31.4	30.7	29.9	28.8	27.3	25.4	-	-	-	-
5*	32.3	31.9	31.4	30.9	30.4	29.7	28.9	27.8	26.3	-	-	-	-	-
6*	31.3	30.9	30.4	29.9	29.4	28.7	27.9	-	-	-	-	-	-	-
7*	30.3	29.9	29.4	28.9	28.4	-	-	-	-	-	-	-	-	-
8*	29.3	28.9	28.4	27.9	-	-	-	-	-	-	-	-	-	-

CM 5-5

Pump head [m]	Flow [m ³ /h]													
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5**	6**	6.5**
0	46.6	46.2	45.7	45.1	44.5	43.7	42.8	41.5	39.8	37.5	34.6	30.9	26.5	21.5
1	45.6	45.2	44.7	44.1	43.5	42.7	41.8	40.5	38.8	36.5	33.6	29.9	25.5	20.5
2	44.6	44.2	43.7	43.1	42.5	41.7	40.8	39.5	37.8	35.5	32.6	28.9	24.5	-
3	43.6	43.2	42.7	42.1	41.5	40.7	39.8	38.5	36.8	34.5	31.6	-	-	-
4	42.6	42.2	41.7	41.1	40.5	39.7	38.8	37.5	35.8	33.5	-	-	-	-
5*	41.6	41.2	40.7	40.1	39.5	38.7	37.8	36.5	34.8	-	-	-	-	-
6*	40.6	40.2	39.7	39.1	38.5	37.7	36.8	-	-	-	-	-	-	-
7*	39.6	39.2	38.7	38.1	37.5	-	-	-	-	-	-	-	-	-
8*	38.6	38.2	37.7	37.1	-	-	-	-	-	-	-	-	-	-

CM 5-6

Pump head [m]	Flow [m ³ /h]													
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5**	6**	6.5**
0	55.9	55.5	54.9	54.3	53.6	52.7	51.7	50.2	48.2	45.6	42.2	37.9	32.7	26.6
1	54.9	54.5	53.9	53.3	52.6	51.7	50.7	49.2	47.2	44.6	41.2	36.9	31.7	25.6
2	53.9	53.5	52.9	52.3	51.6	50.7	49.7	48.2	46.2	43.6	40.2	35.9	30.7	-
3	52.9	52.5	51.9	51.3	50.6	49.7	48.7	47.2	45.2	42.6	39.2	-	-	-
4	51.9	51.5	50.9	50.3	49.6	48.7	47.7	46.2	44.2	41.6	-	-	-	-
5*	50.9	50.5	49.9	49.3	48.6	47.7	46.7	45.2	43.2	-	-	-	-	-
6*	49.9	49.5	48.9	48.3	47.6	46.7	45.7	-	-	-	-	-	-	-
7*	48.9	48.5	47.9	47.3	46.6	-	-	-	-	-	-	-	-	-
8*	47.9	47.5	46.9	46.3	-	-	-	-	-	-	-	-	-	-

Note: Depending on the pump model, the maximum suction depth varies between 7.5 and 8.5 m.

* Only available in O-version

** Only available in S-version

CM 5-7

Pump head [m]	Flow [m ³ /h]														
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5**	6**	6.5**	
0	65.3	64.8	64.2	63.4	62.7	61.7	60.6	58.9	56.7	53.7	49.8	44.8	38.8	31.1	
1	64.3	63.8	63.2	62.4	61.7	60.7	59.6	57.9	55.7	52.7	48.8	43.8	37.8	30.1	
2	63.3	62.8	62.2	61.4	60.7	59.7	58.6	56.9	54.7	51.7	47.8	42.8	36.8	-	
3	62.3	61.8	61.2	60.4	59.7	58.7	57.6	55.9	53.7	50.7	46.8	-	-	-	
4	61.3	60.8	60.2	59.4	58.7	57.7	56.6	54.9	52.7	49.7	-	-	-	-	
5*	60.3	59.8	59.2	58.4	57.7	56.7	55.6	53.9	51.7	-	-	-	-	-	
6*	59.3	58.8	58.2	57.4	56.7	55.7	54.6	-	-	-	-	-	-	-	
7*	58.3	57.8	57.2	56.4	55.7	-	-	-	-	-	-	-	-	-	
8*	57.3	56.8	56.2	55.4	-	-	-	-	-	-	-	-	-	-	

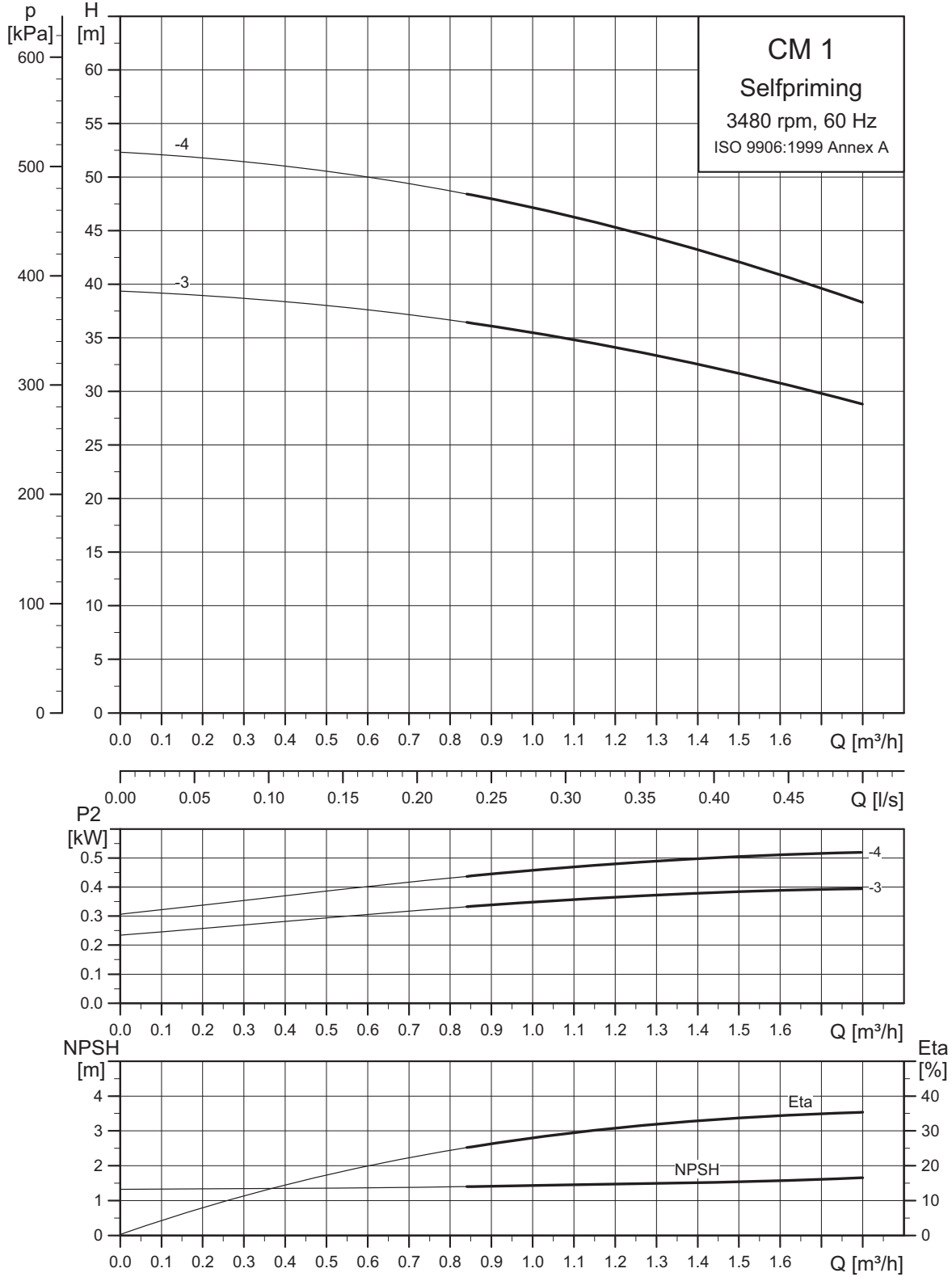
Note: Depending on the pump model, the maximum suction depth varies between 7.5 and 8.5 m.

* Only available in O-version

** Only available in S-version

19. Performance curves, CM self-priming, 60 Hz

CM 1



Note: Pump performance is influenced by the suction lift. See page 61.

TM05 8793 4414

Pump performance in relation to suction lift

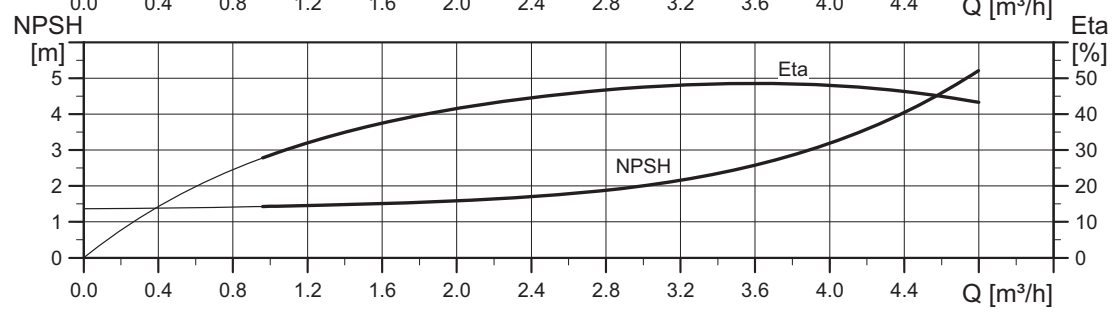
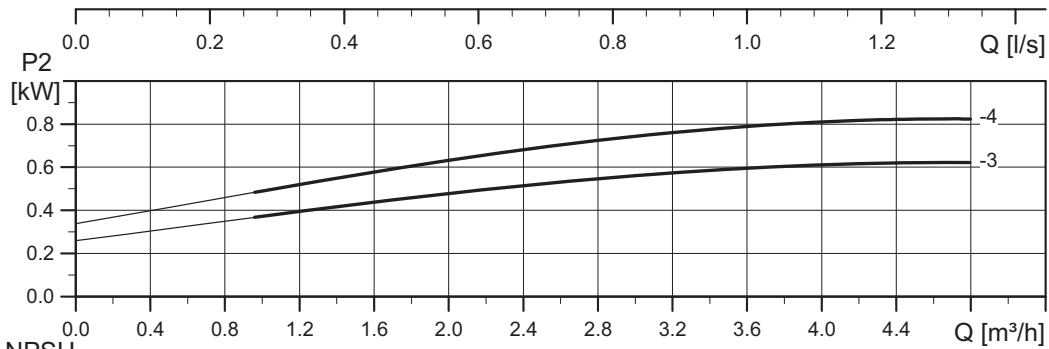
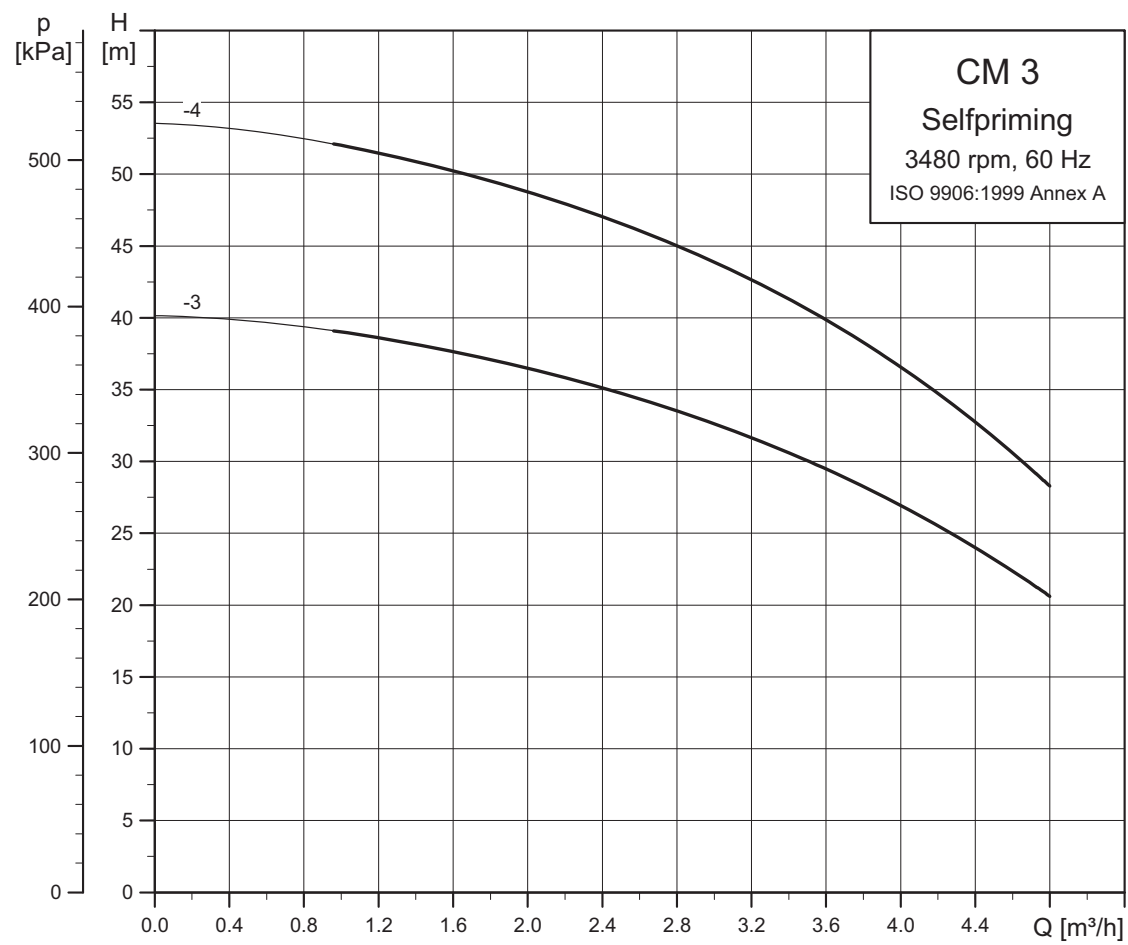
CM 1-3

Pump head [m]		Flow [m ³ /h]										
		0	0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5
Suction lift [m]	0	39.4	38.8	38.0	36.9	35.5	33.7	31.7	29.3	26.7	23.8	20.8
	1	38.4	37.8	37.0	35.9	34.5	32.7	30.7	28.3	25.7	22.8	19.8
	2	37.4	36.8	36.0	34.9	33.5	31.7	29.7	27.3	24.7	21.8	18.8
	3	36.4	35.8	35.0	33.9	32.5	30.7	28.7	26.3	23.7	20.8	17.8
	4	35.4	34.8	34.0	32.9	31.5	29.7	27.7	25.3	22.7	19.8	16.8

CM 1-4

Pump head [m]		Flow [m ³ /h]										
		0	0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5
Suction lift [m]	0	52.3	51.6	50.5	49.1	47.2	44.8	42.1	39.0	35.5	31.7	27.7
	1	51.3	50.6	49.5	48.1	46.2	43.8	41.1	38.0	34.5	30.7	26.7
	2	50.3	49.6	48.5	47.1	45.2	42.8	40.1	37.0	33.5	29.7	25.7
	3	49.3	48.6	47.5	46.1	44.2	41.8	39.1	36.0	32.5	28.7	24.7
	4	48.3	47.6	46.5	45.1	43.2	40.8	38.1	35.0	31.5	27.7	23.7

CM 3



Note: Pump performance is influenced by the suction lift. See page 63.

TM05 8794 4414

Pump performance in relation to suction lift

CM 3-3

Pump head [m]	Flow [m ³ /h]											
	0	0.5	1	1.5	2	2.5	3	3.5	4**	4.5**	5**	
Suction lift [m]	0	40.1	39.8	39.0	37.9	36.5	34.7	32.6	30.1	26.9	23.2	18.7
	1	39.1	38.8	38.0	36.9	35.5	33.7	31.6	29.1	25.9	22.2	17.7
	2	38.1	37.8	37.0	35.9	34.5	32.7	30.6	28.1	24.9	21.2	16.7
	3	37.1	36.8	36.0	34.9	33.5	31.7	29.6	27.1	23.9	20.2	-
	4	36.1	35.8	35.0	33.9	32.5	30.7	28.6	26.1	22.9	-	-
	5*	35.1	34.8	34.0	32.9	31.5	29.7	27.6	-	-	-	-
	6*	34.1	33.8	33.0	31.9	30.5	28.7	26.6	-	-	-	-
	7*	33.1	32.8	32.0	30.9	29.5	27.7	-	-	-	-	-
8*	32.1	31.8	31.0	29.9	-	-	-	-	-	-	-	

CM 3-4

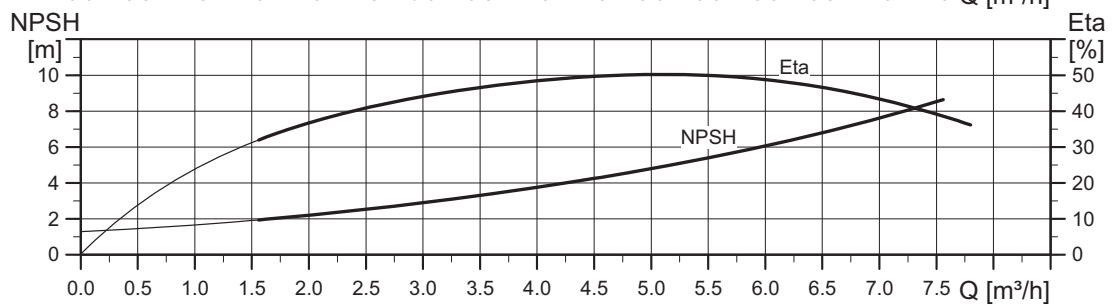
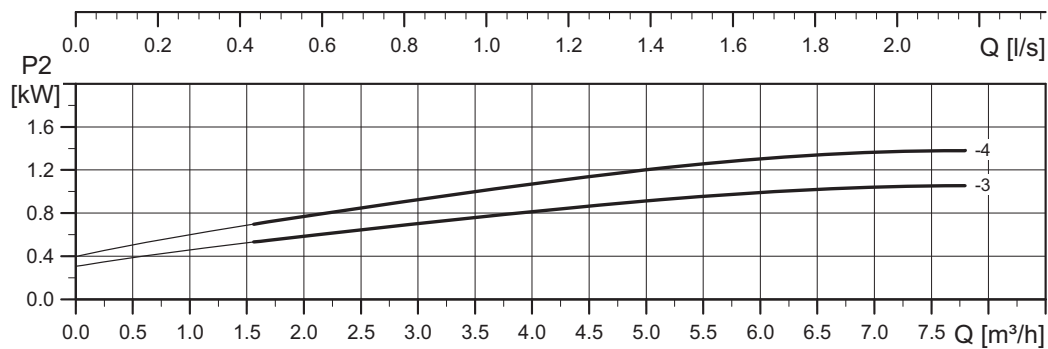
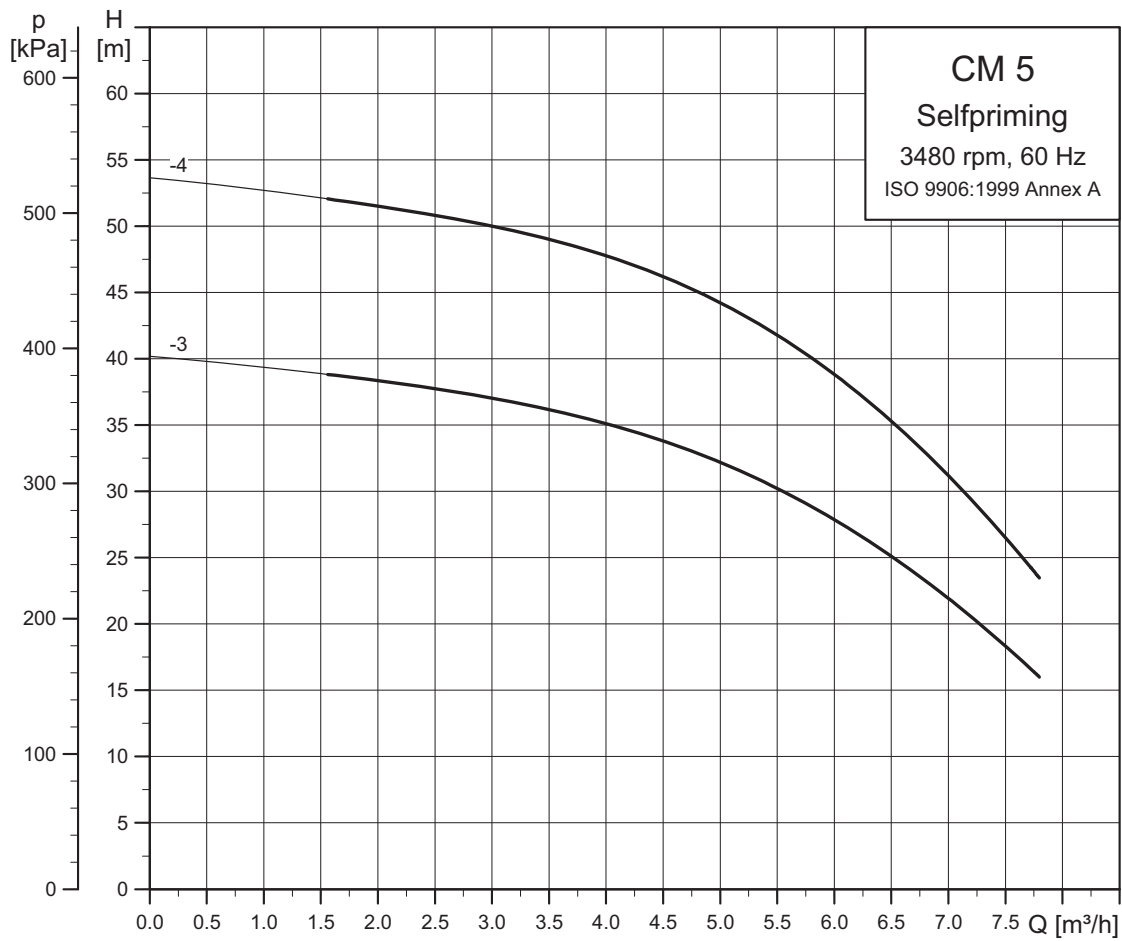
Pump head [m]	Flow [m ³ /h]											
	0	0.5	1	1.5	2	2.5	3	3.5	4**	4.5**	5**	
Suction lift [m]	0	53.5	53.0	52.0	50.6	48.8	46.6	43.9	40.6	36.6	31.7	25.8
	1	52.5	52.0	51.0	49.6	47.8	45.6	42.9	39.6	35.6	30.7	24.8
	2	51.5	51.0	50.0	48.6	46.8	44.6	41.9	38.6	34.6	29.7	23.8
	3	50.5	50.0	49.0	47.6	45.8	43.6	40.9	37.6	33.6	28.7	-
	4	49.5	49.0	48.0	46.6	44.8	42.6	39.9	36.6	32.6	-	-
	5*	48.5	48.0	47.0	45.6	43.8	41.6	38.9	-	-	-	-
	6*	47.5	47.0	46.0	44.6	42.8	40.6	37.9	-	-	-	-
	7*	46.5	46.0	45.0	43.6	41.8	39.6	-	-	-	-	-
8*	45.5	45.0	44.0	42.6	-	-	-	-	-	-	-	

Note: Depending on the pump model, the maximum suction depth varies between 7.5 and 8.5 m.

* Only available in O-version

** Only available in S-version

CM 5



Note: Pump performance is influenced by the suction lift. See page 65.

TM05 8795 4414

Pump performance in relation to suction lift

CM 5-3

Pump head [m]	Flow [m ³ /h]																
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5**	7**	7.5**	
Suction lift [m]	0	40.2	39.8	39.4	38.9	38.3	37.7	37.0	36.2	35.1	33.8	32.2	30.2	27.9	25.1	21.9	18.3
	1	39.2	38.8	38.4	37.9	37.3	36.7	36.0	35.2	34.1	32.8	31.2	29.2	26.9	24.1	-	-
	2	38.2	37.8	37.4	36.9	36.3	35.7	35.0	34.2	33.1	31.8	30.2	28.2	25.9	-	-	-
	3	37.2	36.8	36.4	35.9	35.3	34.7	34.0	33.2	32.1	30.8	29.2	-	-	-	-	-
	4	36.2	35.8	35.4	34.9	34.3	33.7	33.0	32.2	31.1	29.8	-	-	-	-	-	-
	5*	35.2	34.8	34.4	33.9	33.3	32.7	32.0	31.2	30.1	-	-	-	-	-	-	-
	6*	34.2	33.8	33.4	32.9	32.3	31.7	31.0	-	-	-	-	-	-	-	-	-
	7*	33.2	32.8	32.4	31.9	31.3	-	-	-	-	-	-	-	-	-	-	-
	8*	32.2	31.8	31.4	30.9	-	-	-	-	-	-	-	-	-	-	-	-

CM 5-4

Pump head [m]	Flow [m ³ /h]																
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5**	7**	7.5**	
Suction lift [m]	0	53.6	53.2	52.7	52.1	51.5	50.8	50.0	49.0	47.8	46.2	44.2	41.8	38.8	35.3	31.2	26.5
	1	52.6	52.2	51.7	51.1	50.5	49.8	49.0	48.0	46.8	45.2	43.2	40.8	37.8	34.3	-	-
	2	51.6	51.2	50.7	50.1	49.5	48.8	48.0	47.0	45.8	44.2	42.2	39.8	36.8	-	-	-
	3	50.6	50.2	49.7	49.1	48.5	47.8	47.0	46.0	44.8	43.2	41.2	-	-	-	-	-
	4	49.6	49.2	48.7	48.1	47.5	46.8	46.0	45.0	43.8	42.2	-	-	-	-	-	-
	5*	48.6	48.2	47.7	47.1	46.5	45.8	45.0	44.0	42.8	-	-	-	-	-	-	-
	6*	47.6	47.2	46.7	46.1	45.5	44.8	44.0	-	-	-	-	-	-	-	-	-
	7*	46.6	46.2	45.7	45.1	44.5	-	-	-	-	-	-	-	-	-	-	-
	8*	45.6	45.2	44.7	44.1	-	-	-	-	-	-	-	-	-	-	-	-

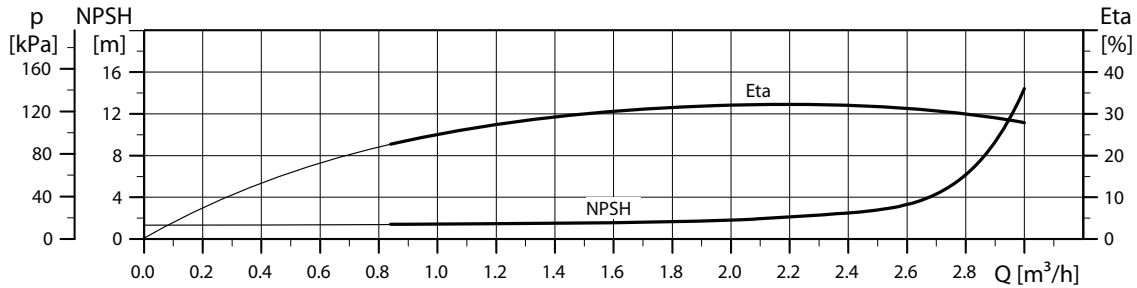
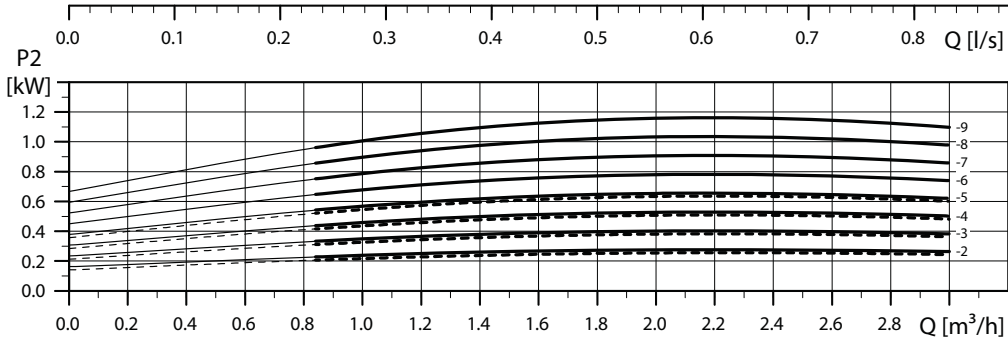
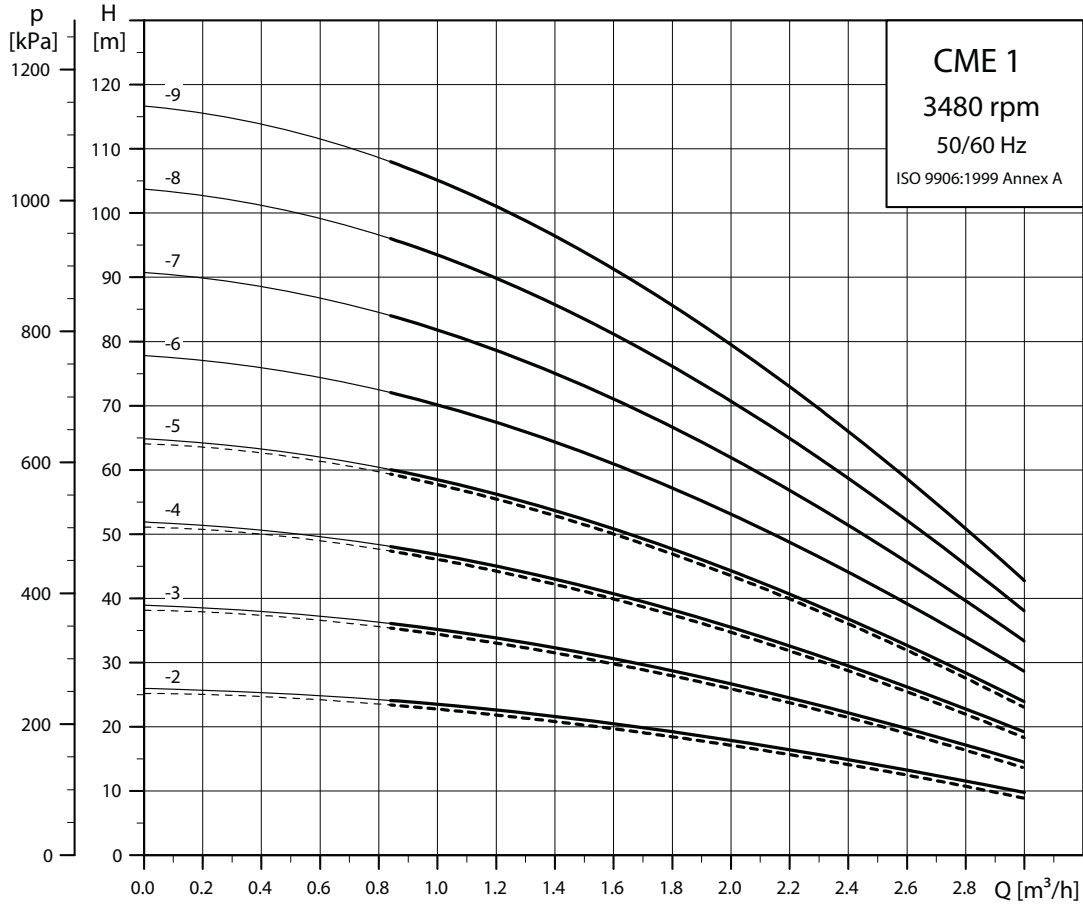
Note: Depending on the pump model, the maximum suction depth varies between 7.5 and 8.5 m.

* Only available in O-version

** Only available in S-version

20. Performance curves, CME 50/60 Hz

CME 1

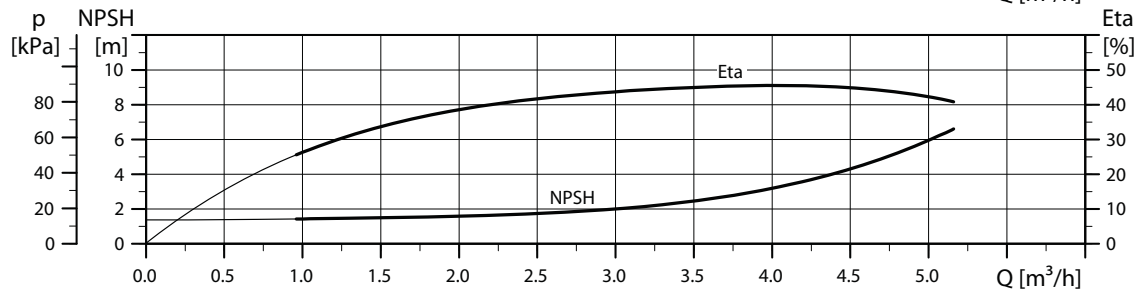
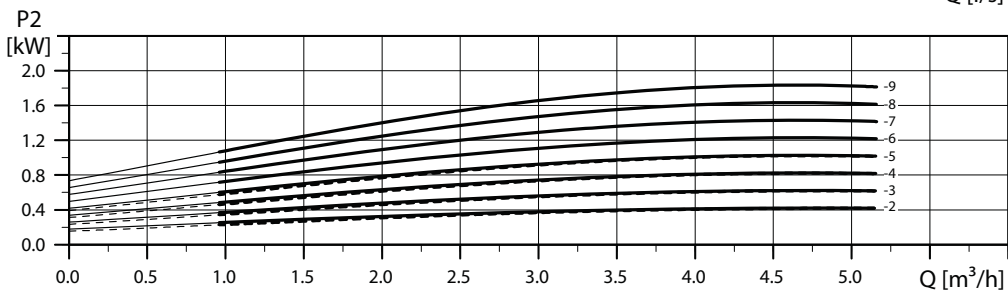
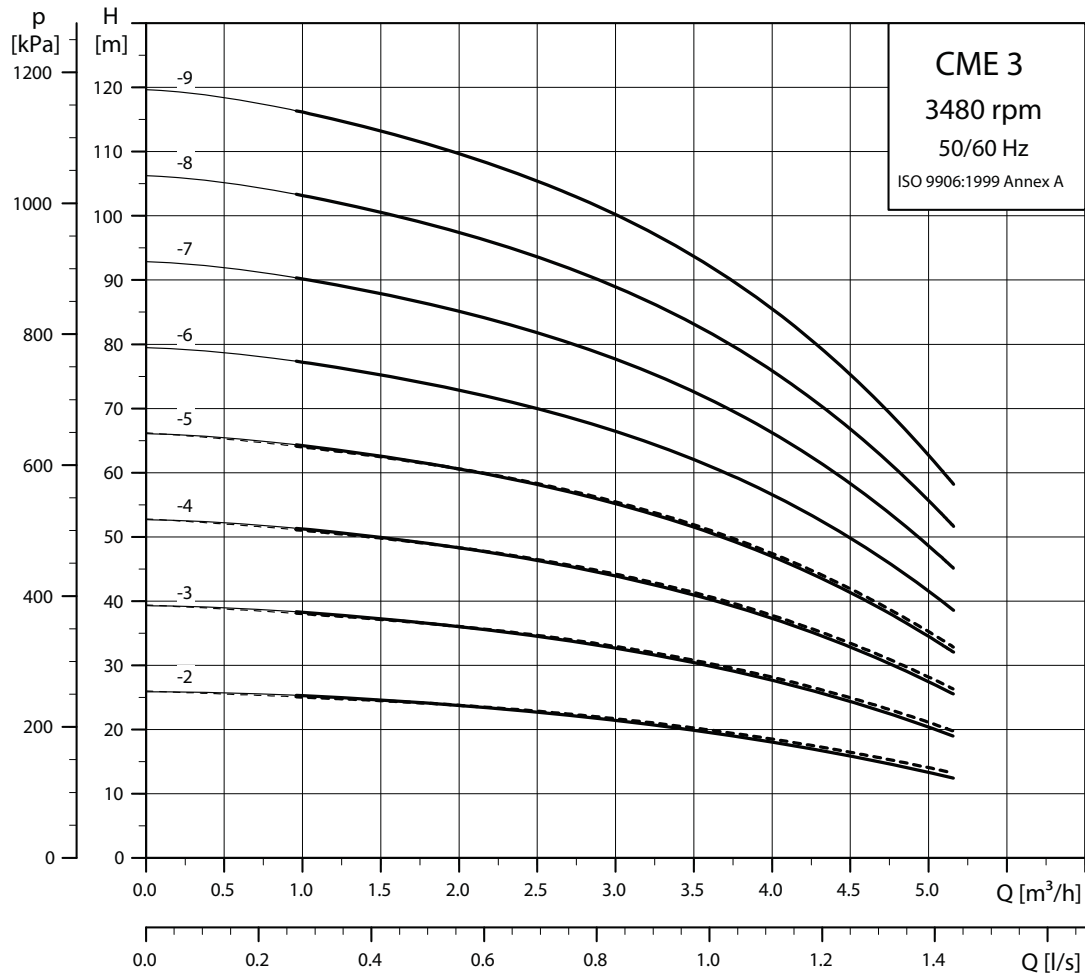


----- CME-A
———— CME-I/G

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3569 5112

CME 3

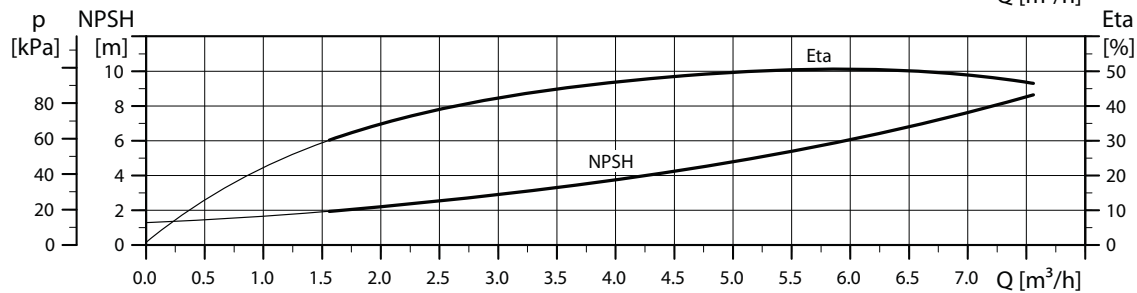
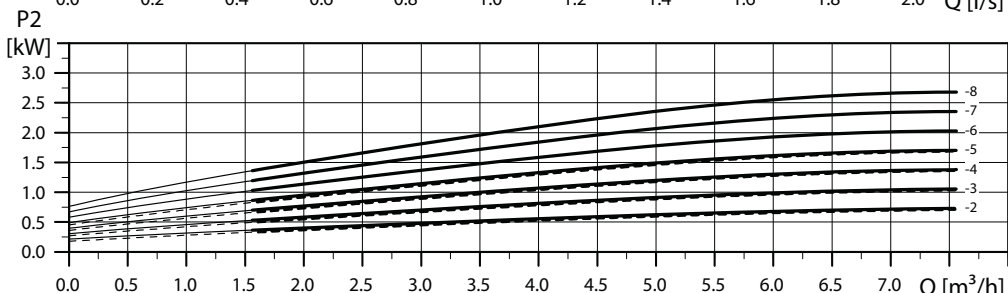
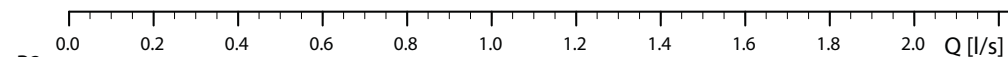
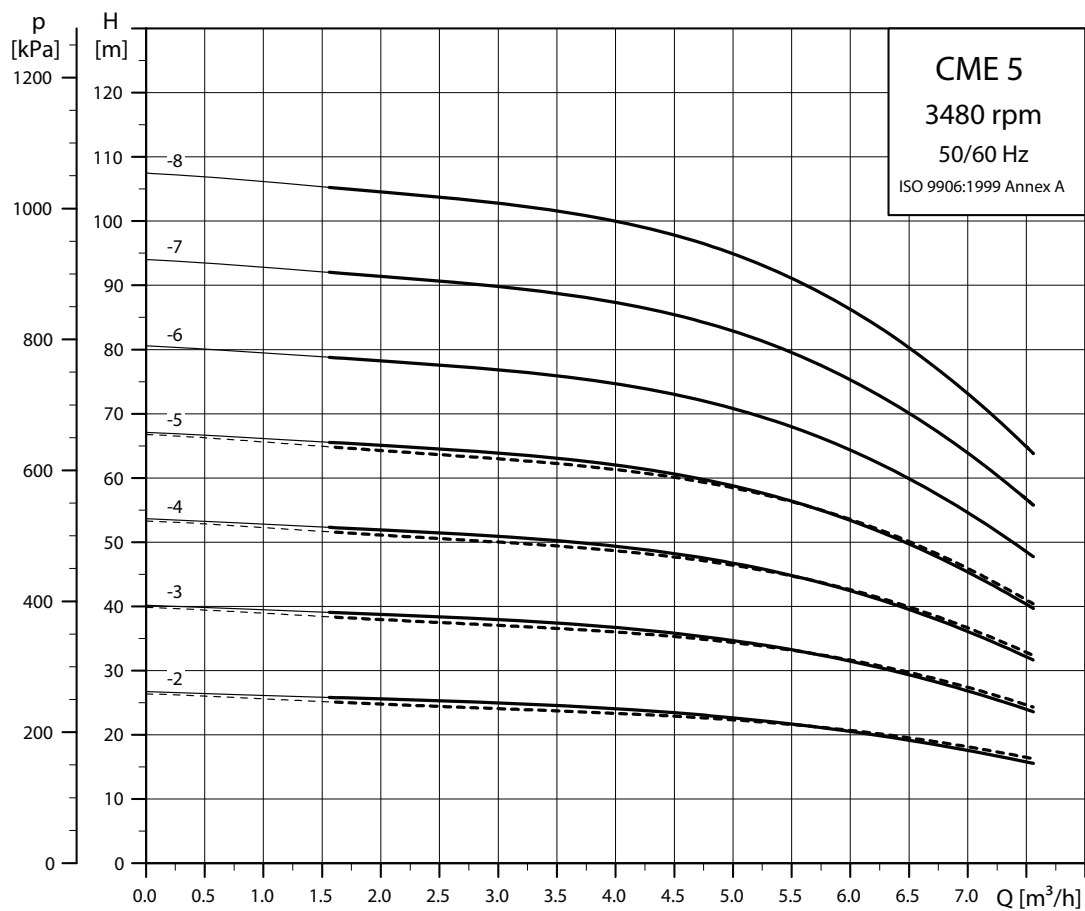


----- CME-A
———— CME-I/G

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3570 5112

CME 5

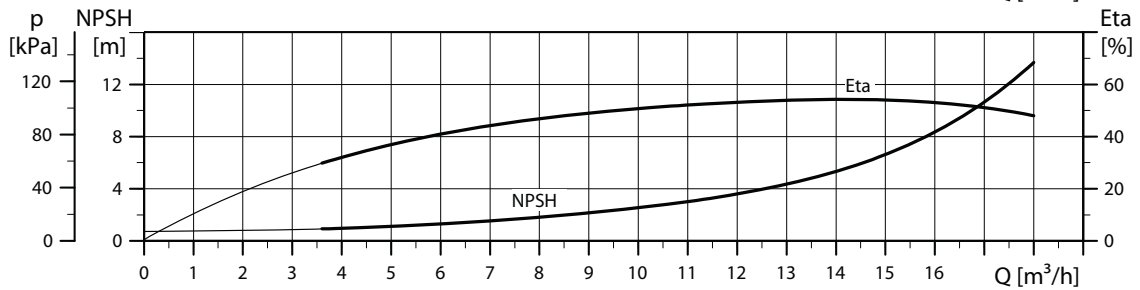
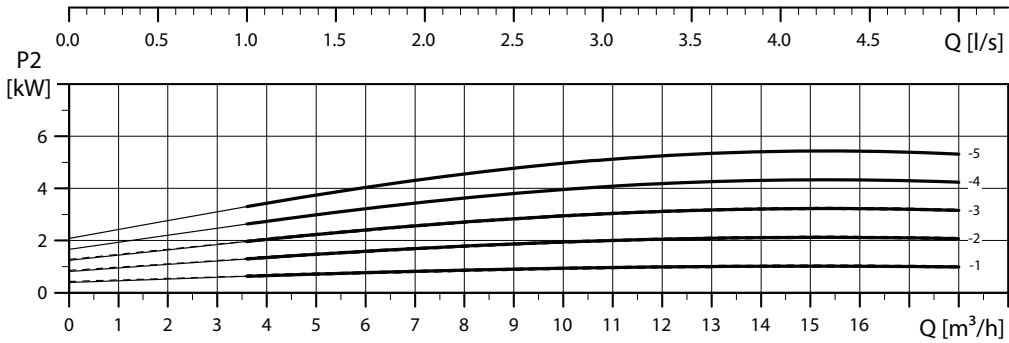
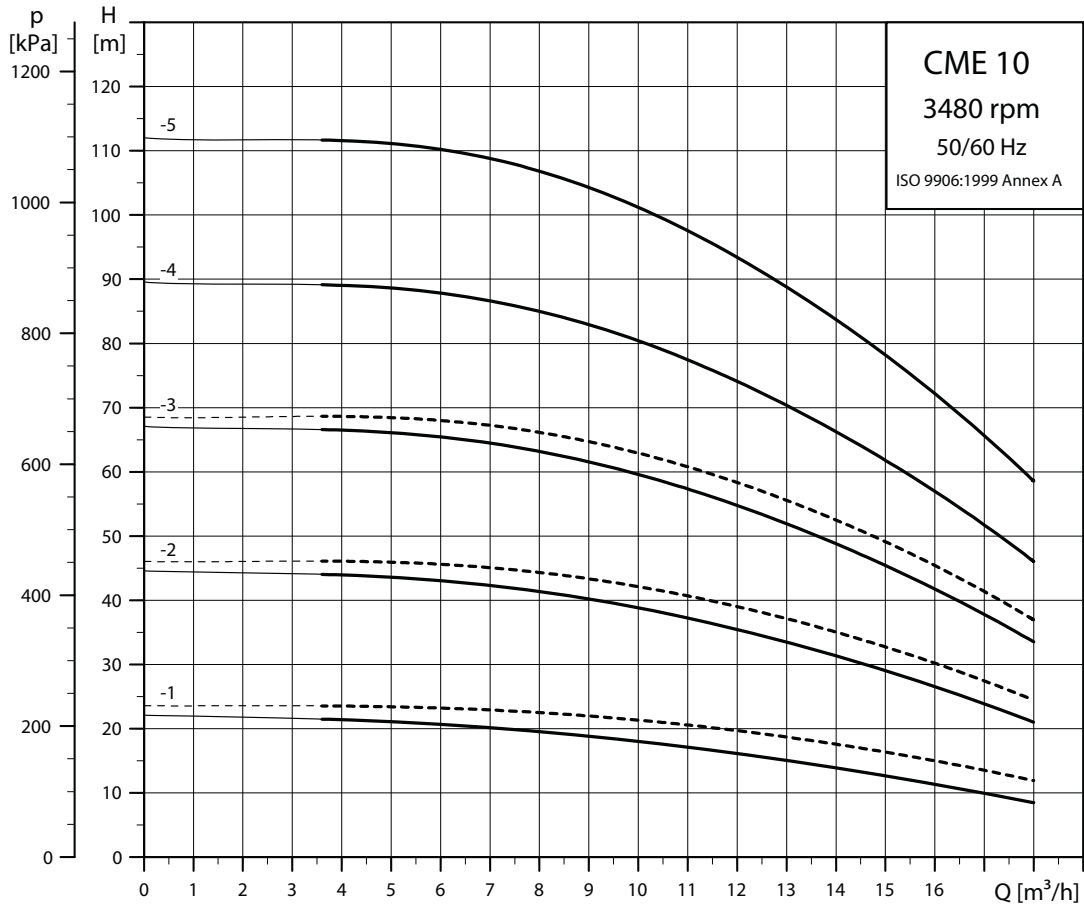


----- CME-A
———— CME-I/G

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3571 5112

CME 10

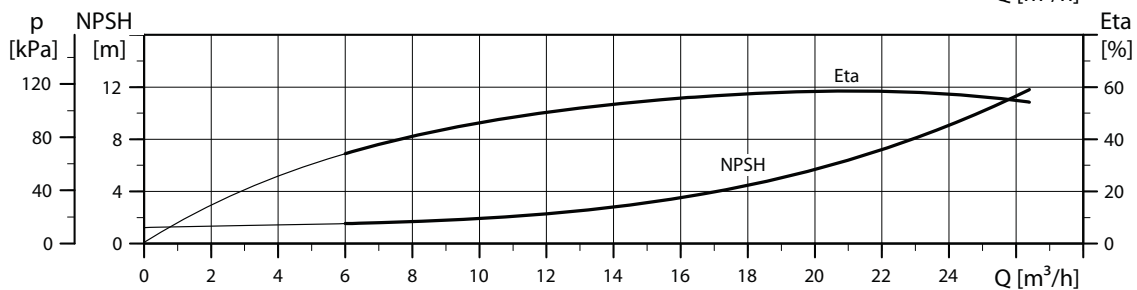
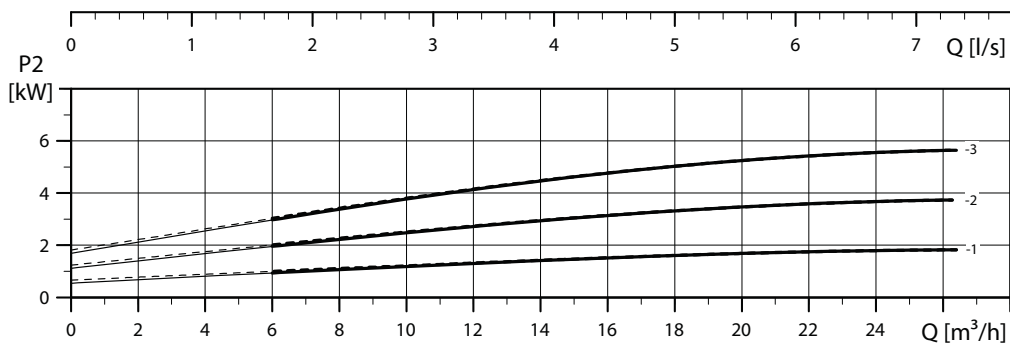
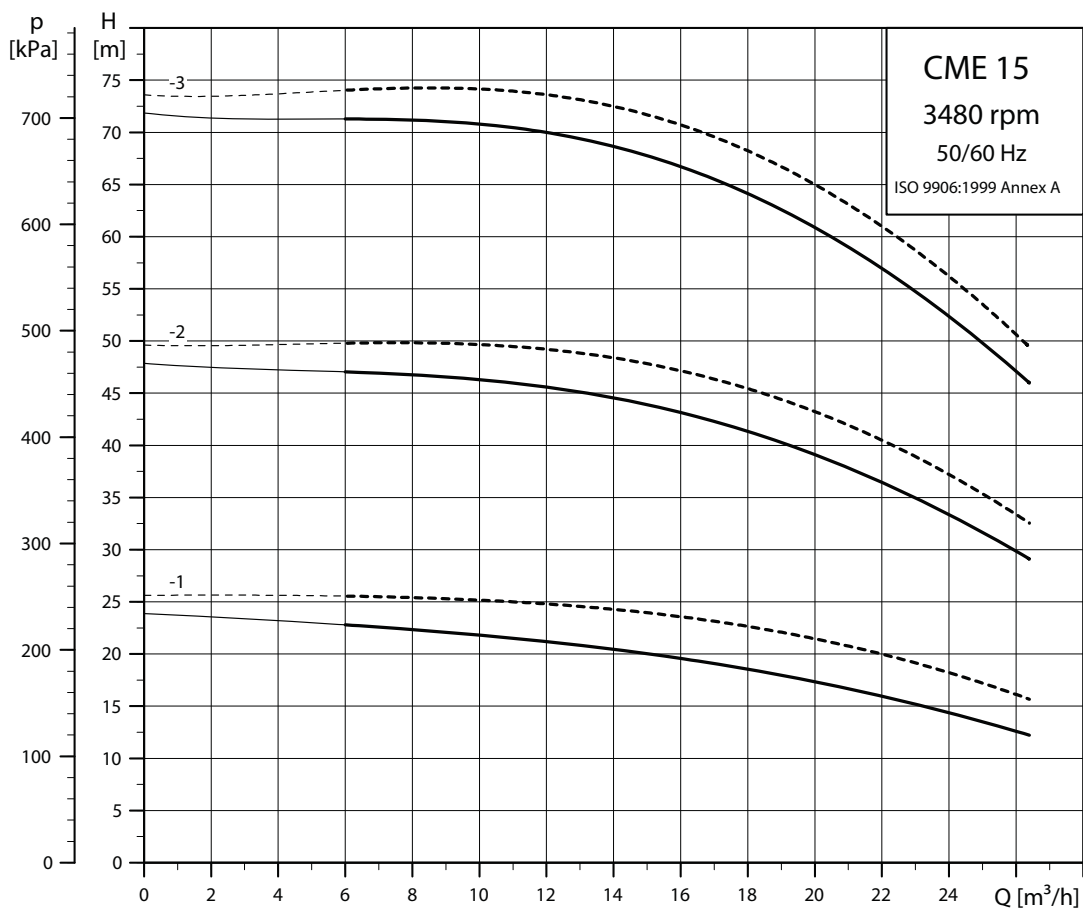


----- CME-A
———— CME-I/G

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3572 5112

CME 15

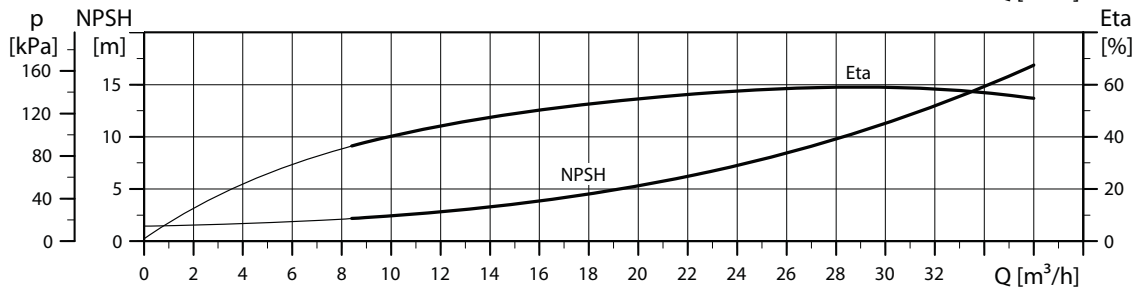
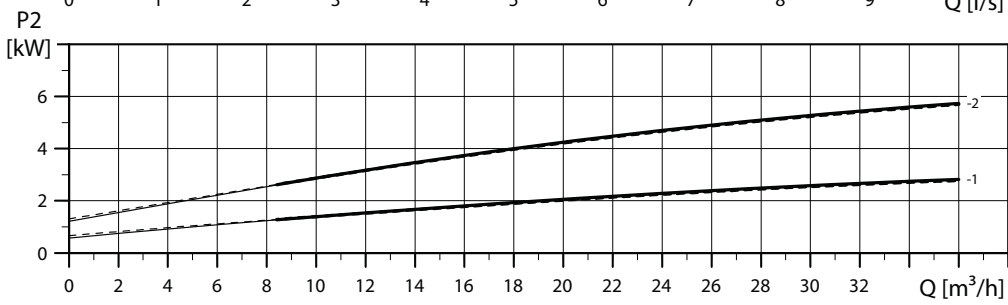
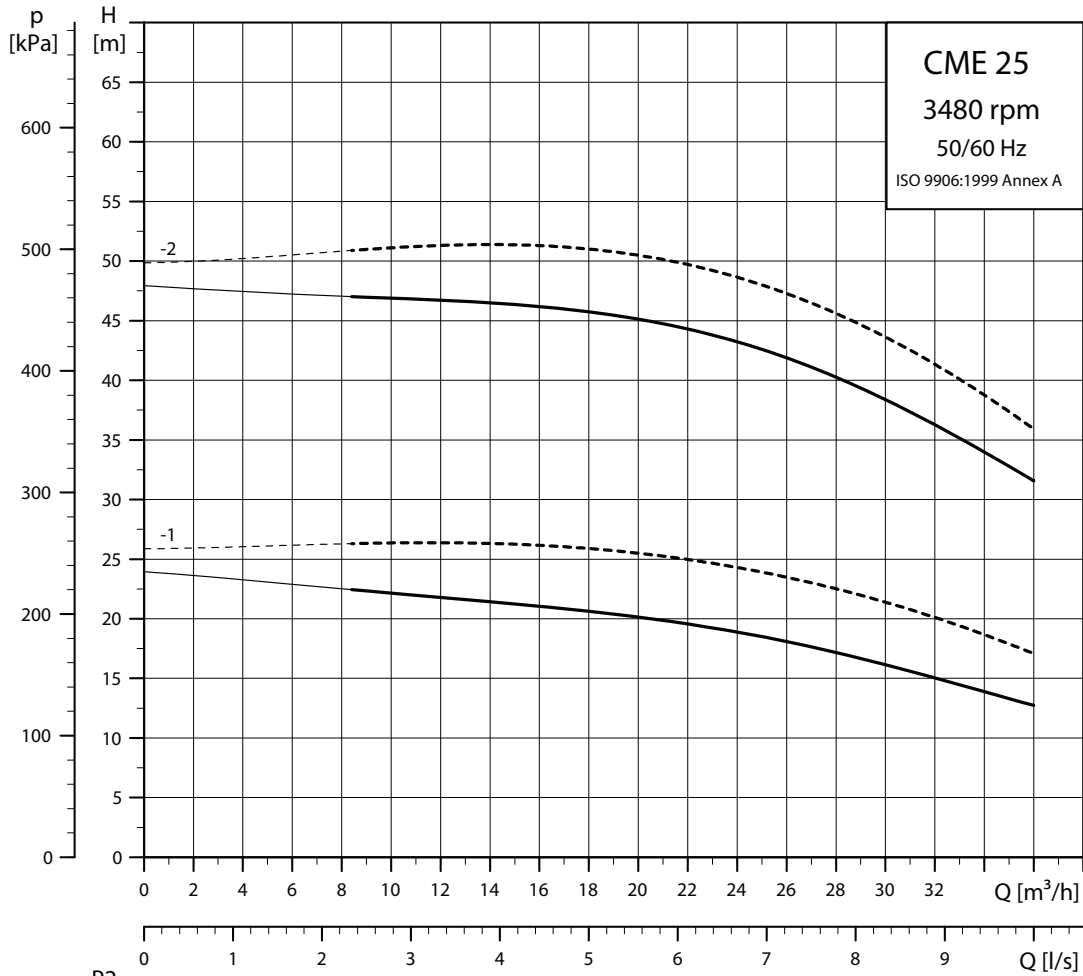


----- CME-A
———— CME-I/G

Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3573 5112

CME 25



----- CME-A
———— CME-I/G

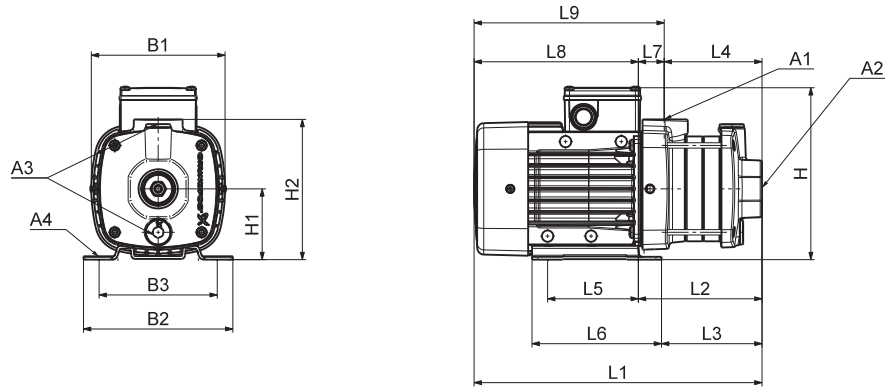
Note: Irrespective of the input frequency, the 100 % speed of CME pumps is approximately 3400 min⁻¹.

TM04 3574 5112

21. Dimensions, CM 50 Hz

CM 1-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM1-3	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	306	132	107	104	96	137	28	174	202
CM1-4	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	324	150	125	122	96	137	28	174	202
CM1-5	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	342	168	143	140	96	137	28	174	202
CM1-6	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	360	186	161	158	96	137	28	174	202
CM1-7	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	149	378	204	179	176	96	137	28	174	202
CM1-8	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	149	396	222	197	194	96	137	28	174	202

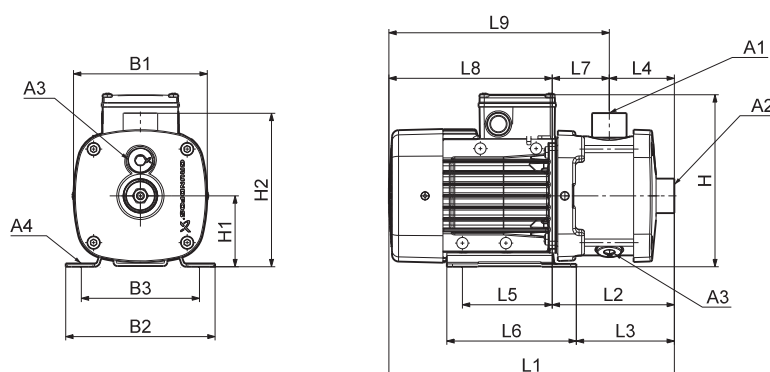
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	149	288	114	89	86	96	137	28	174	202
CM1-3	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	149	306	132	107	104	96	137	28	174	202
CM1-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	324	150	125	122	96	137	28	174	202
CM1-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	342	168	143	140	96	137	28	174	202
CM1-6	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	360	186	161	158	96	137	28	174	202
CM1-7	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	378	204	179	176	96	137	28	174	202
CM1-8	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	149	436	222	197	194	96	137	28	214	242

All dimensions are in mm unless otherwise stated.

CM 1-I and CM 1-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM1-3	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM1-4	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	323	149	125	90	96	137	60	174	234
CM1-5	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	341	167	143	108	96	137	60	174	234
CM1-6	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	377	203	179	144	96	137	60	174	234
CM1-7	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	165	377	203	179	144	96	137	60	174	234
CM1-8	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	165	413	239	215	180	96	137	60	174	234
CM1-9	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	165	413	239	215	180	96	137	60	174	234
CM1-10	80	0.85	1"	1"	3/8"	10	142	158	125	184	75	165	489	275	251	216	96	137	60	214	274
CM1-11	80	0.85	1"	1"	3/8"	10	142	158	125	184	75	165	489	275	251	216	96	137	60	214	274
CM1-12	80	0.85	1"	1"	3/8"	10	142	158	125	184	75	165	543	329	305	270	96	137	60	214	274
CM1-13	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	165	563	329	305	270	96	137	60	234	294
CM1-14	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	165	563	329	305	270	96	137	60	234	294

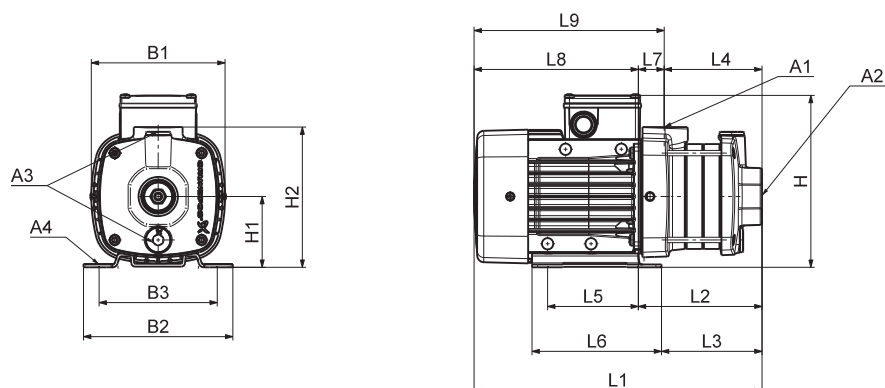
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM1-3	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM1-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	323	149	125	90	96	137	60	174	234
CM1-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	341	167	143	108	96	137	60	174	234
CM1-6	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM1-7	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM1-8	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM1-9	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM1-10	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	489	275	251	216	96	137	60	214	274
CM1-11	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	489	275	251	216	96	137	60	214	274
CM1-12	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	543	329	305	270	96	137	60	214	274
CM1-13	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	543	329	305	270	96	137	60	214	274
CM1-14	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	593	369	354	270	125	155	99	224	323

All dimensions are in mm unless otherwise stated.

CM 3-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM3-3	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	306	132	107	104	96	137	28	174	202
CM3-4	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	149	324	150	125	122	96	137	28	174	202
CM3-5	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	149	342	168	143	140	96	137	28	174	202
CM3-6	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	149	360	186	161	158	96	137	28	174	202
CM3-7	80	0.85	1"	1"	3/8"	10	142	158	125	184	75	149	418	204	179	176	96	137	28	214	242
CM3-8	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	149	456	222	197	194	96	137	28	234	262

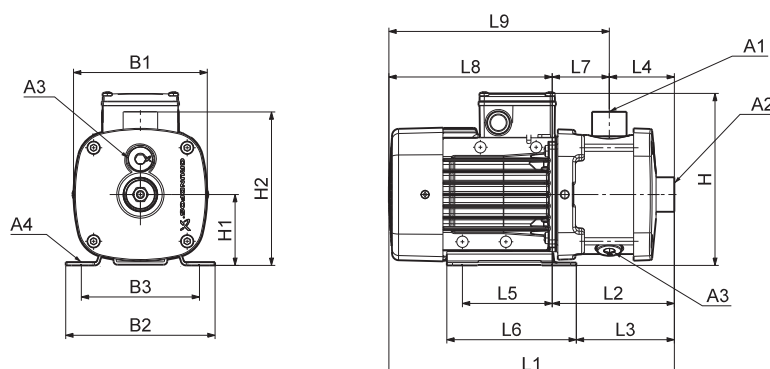
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	149	288	114	89	86	96	137	28	174	202
CM3-3	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	306	132	107	104	96	137	28	174	202
CM3-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	324	150	125	122	96	137	28	174	202
CM3-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	149	342	168	143	140	96	137	28	174	202
CM3-6	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	149	400	186	161	158	96	137	28	214	242
CM3-7	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	149	418	204	179	176	96	137	28	214	242
CM3-8	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	149	436	222	197	194	96	137	28	214	242

All dimensions are in mm unless otherwise stated.

CM 3-I and CM 3-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM3-3	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM3-4	71	0.46	1"	1"	3/8"	10	142	158	125	184	75	165	323	149	125	90	96	137	60	174	234
CM3-5	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	165	341	167	143	108	96	137	60	174	234
CM3-6	71	0.65	1"	1"	3/8"	10	142	158	125	184	75	165	377	203	179	144	96	137	60	174	234
CM3-7	80	0.85	1"	1"	3/8"	10	142	158	125	184	75	165	417	203	179	144	96	137	60	214	274
CM3-8	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	165	473	239	215	180	96	137	60	234	294
CM3-9	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	165	473	239	215	180	96	137	60	234	294
CM3-10	80	1.2	1"	1"	3/8"	10	142	158	125	184	75	165	509	275	251	216	96	137	60	234	294
CM3-11	90	1.58	1"	1"	3/8"	10	178	178	140	200	90	180	539	315	300	216	125	155	99	224	323
CM3-12	90	1.58	1"	1"	3/8"	10	178	178	140	200	90	180	593	369	354	270	125	155	99	224	323
CM3-13	90	1.58	1"	1"	3/8"	10	178	178	140	200	90	180	593	369	354	270	125	155	99	224	323
CM3-14	90	2.2	1"	1"	3/8"	10	178	178	140	200	90	180	633	369	354	270	125	155	99	264	363

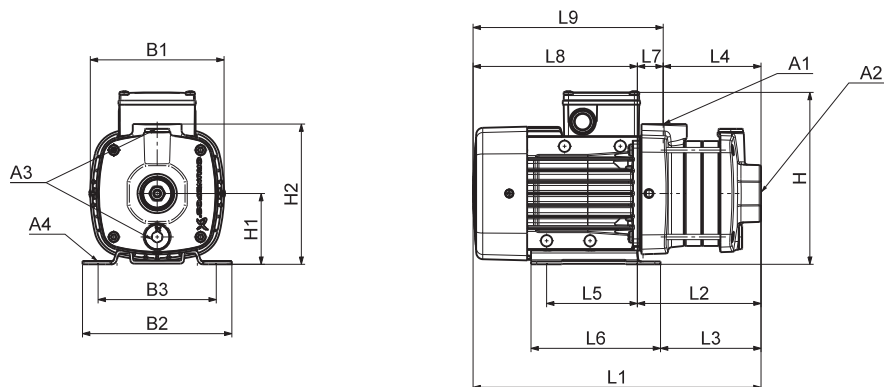
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM3-3	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM3-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	323	149	125	90	96	137	60	174	234
CM3-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	341	167	143	108	96	137	60	174	234
CM3-6	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM3-7	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM3-8	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM3-9	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	503	279	264	180	125	155	99	224	323
CM3-10	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	539	315	300	216	125	155	99	224	323
CM3-11	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	539	315	300	216	125	155	99	224	323
CM3-12	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	593	369	354	270	125	155	99	224	323
CM3-13	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	593	369	354	270	125	155	99	224	323
CM3-14	90	1.9	1"	1"	3/8"	10	178	178	140	229	90	180	593	369	354	270	125	155	99	224	323

All dimensions are in mm unless otherwise stated.

CM 5-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.46	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM5-3	71	0.65	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	306	132	107	104	96	137	28	174	202
CM5-4	80	0.85	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	364	150	125	122	96	137	28	214	242
CM5-5	80	1.2	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	402	168	143	140	96	137	28	234	262
CM5-6	80	1.2	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	420	186	161	158	96	137	28	234	262
CM5-7	90	1.58	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	468	244	229	162	125	155	82	224	306
CM5-8	90	1.58	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	486	262	247	180	125	155	82	224	306

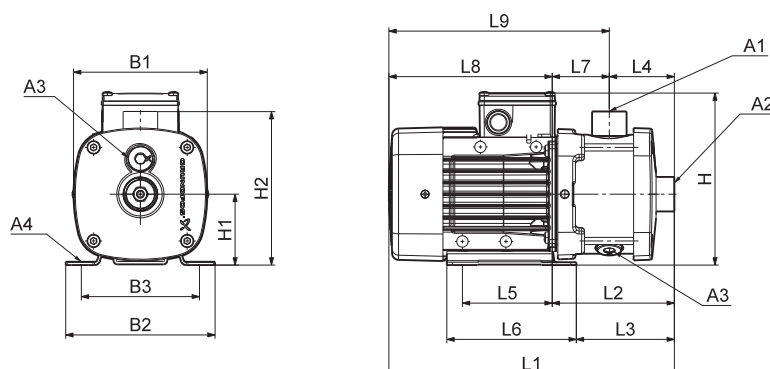
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.5	1"	1 1/4"	3/8"	10	142	158	125	208	75	149	288	114	89	86	96	137	28	174	202
CM5-3	71	0.5	1"	1 1/4"	3/8"	10	142	158	125	208	75	149	306	132	107	104	96	137	28	174	202
CM5-4	80	0.67	1"	1 1/4"	3/8"	10	142	158	125	208	75	149	364	150	125	122	96	137	28	214	242
CM5-5	80	0.9	1"	1 1/4"	3/8"	10	142	158	125	208	75	149	382	168	143	140	96	137	28	214	242
CM5-6	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	201	450	226	211	144	125	155	82	224	306
CM5-7	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	201	468	244	229	162	125	155	82	224	306
CM5-8	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	201	486	262	247	180	125	155	82	224	306

All dimensions are in mm unless otherwise stated.

CM 5-I and CM 5-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.46	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM5-3	71	0.65	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM5-4	80	0.85	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	363	149	125	90	96	137	60	214	274
CM5-5	80	1.2	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	401	167	143	108	96	137	60	234	294
CM5-6	80	1.2	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	437	203	179	144	96	137	60	234	294
CM5-7	90	1.58	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	467	243	228	144	125	155	99	224	323
CM5-8	90	1.58	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	503	279	264	180	125	155	99	224	323
CM5-9	90	2.2	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	543	279	264	180	125	155	99	264	363
CM5-10	90	2.2	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	579	315	300	216	125	155	99	264	363
CM5-11	90	2.2	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	579	315	300	216	125	155	99	264	363
CM5-12	100	3.2	1"	1 1/4"	3/8"	12	198	199	160	220	100	190	651	379	364	270	140	170	109	272	381
CM5-13	100	3.2	1"	1 1/4"	3/8"	12	198	199	160	220	100	190	651	379	364	270	140	170	109	272	381

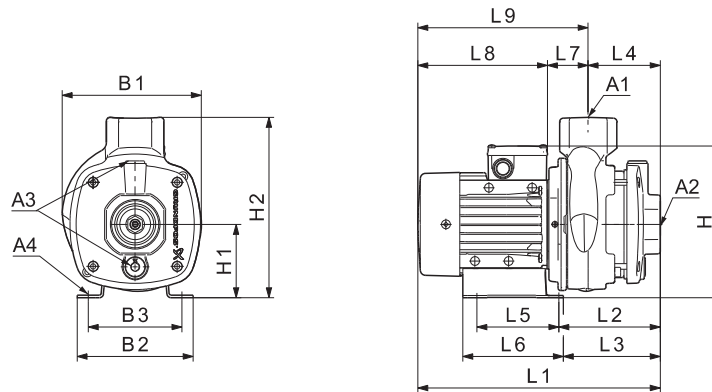
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.5	1"	1 1/4"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM5-3	71	0.5	1"	1 1/4"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM5-4	80	0.67	1"	1 1/4"	3/8"	10	142	158	125	208	75	165	363	149	125	90	96	137	60	214	274
CM5-5	80	0.9	1"	1 1/4"	3/8"	10	142	158	125	208	75	165	381	167	143	108	96	137	60	214	274
CM5-6	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	467	243	228	144	125	155	99	224	323
CM5-7	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	467	243	228	144	125	155	99	224	323
CM5-8	90	1.3	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	503	279	264	180	125	155	99	224	323
CM5-9	90	1.9	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	503	279	264	180	125	155	99	224	323
CM5-10	90	1.9	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	539	315	300	216	125	155	99	224	323
CM5-11	90	1.9	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	539	315	300	216	125	155	99	224	323

All dimensions are in mm unless otherwise stated.

CM 10-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	71	0.65	1 1/2"	1 1/2"	3/8"	10.2	190	158	125	209	100	245	329	155	131	97	96	137	58	174	232
CM10-2	80	1.2	1 1/2"	1 1/2"	3/8"	10.2	190	158	125	209	100	245	389	155	131	97	96	137	58	234	292
CM10-3	90	2.2	1 1/2"	1 1/2"	3/8"	10.2	190	199	160	210	100	245	491	220	205	127	140	170	93	272	364
CM10-4	100	3.2	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	245	537	265	250	157	140	170	108	272	380
CM10-5	100	3.2	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	245	567	295	280	187	140	170	108	272	380

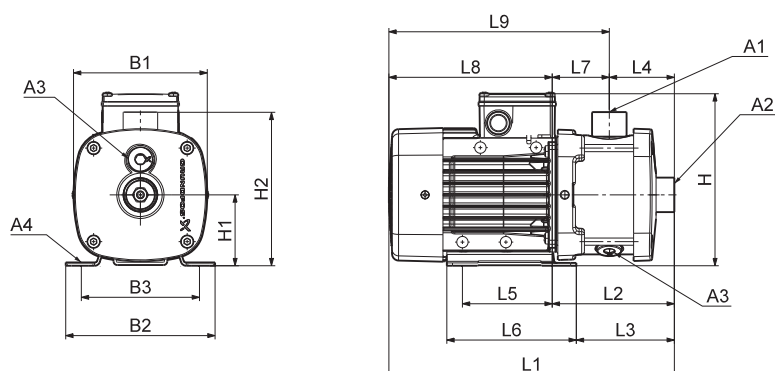
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.67	1 1/2"	1 1/2"	3/8"	10.2	190	158	125	233	100	245	369	155	131	97	96	137	58	214	272
CM10-2	90	1.3	1 1/2"	1 1/2"	3/8"	10.2	190	199	160	239	100	245	421	190	175	97	140	170	93	232	324
CM10-3	90	1.9	1 1/2"	1 1/2"	3/8"	10.2	190	199	160	239	100	245	451	220	205	127	140	170	93	232	324

All dimensions are in mm unless otherwise stated.

CM 10-I and CM 10-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	71	0.65	1 1/2"	1 1/2"	3/8"	10.2	180	158	125	209	100	218	359	185	161	105	96	137	80	174	254
CM10-2	80	1.2	1 1/2"	1 1/2"	3/8"	10.2	180	158	125	209	100	218	419	185	161	105	96	137	80	234	314
CM10-3	90	2.2	1 1/2"	1 1/2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM10-4	100	3.2	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	218	537	265	250	135	140	170	130	272	402
CM10-5	100	3.2	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	218	597	325	310	195	140	170	130	272	402
CM10-6	100	4.0	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	218	597	325	310	195	140	170	130	272	402
CM10-7	132	5.8	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	709	407	391	255	140	172	152	302	454
CM10-8	132	5.8	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	709	407	391	255	140	172	152	302	454

Please note that the dimension H is smaller than H2 for CM 10-1, CM 10-2 and CM 10-3.

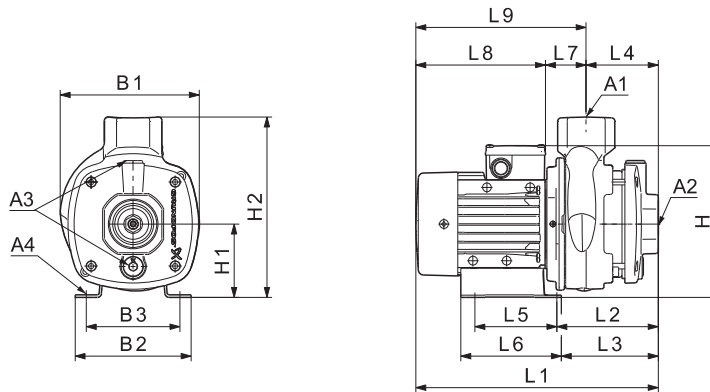
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.67	1 1/2"	1 1/2"	3/8"	10.2	180	158	125	233	100	218	399	185	161	105	96	137	80	214	294
CM10-2	90	1.3	1 1/2"	1 1/2"	3/8"	10.2	180	199	160	239	100	218	450	219	204	105	140	170	114	232	345
CM10-3	90	1.9	1 1/2"	1 1/2"	3/8"	10.2	180	199	160	239	100	218	450	219	204	105	140	170	114	232	345

All dimensions are in mm unless otherwise stated.

CM 15-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	80	1.2	2"	2"	3/8"	10.2	190	158	125	209	100	245	389	155	131	97	96	137	58	234	292
CM15-2	90	2.2	2"	2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM15-3	100	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	245	507	235	220	127	140	170	108	272	380
CM15-4	132	5.8	2"	2"	3/8"	12.0	220	228	190	246	112	257	590	288	272	157	140	172	131	302	433

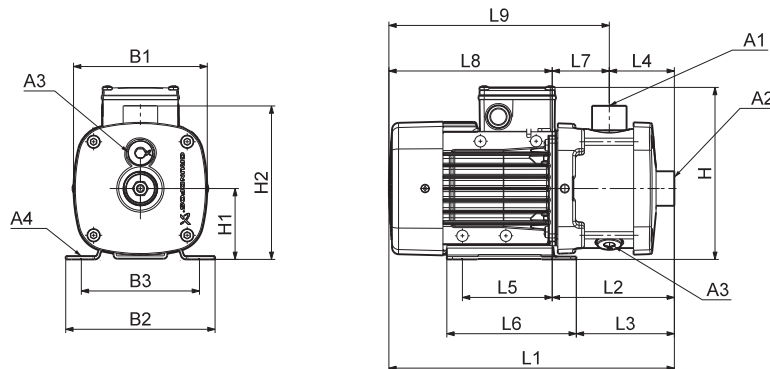
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.3	2"	2"	3/8"	10.2	190	199	160	239	100	245	421	190	175	97	140	170	93	232	324
CM15-2	90	1.9	2"	2"	3/8"	10.2	190	199	160	239	100	245	421	190	175	97	140	170	93	232	324

All dimensions are in mm unless otherwise stated.

CM 15-I and CM 15-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	80	1.2	2"	2"	3/8"	10.2	180	158	125	209	100	218	419	185	161	105	96	137	80	234	314
CM15-2	90	2.2	2"	2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM15-3	100	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM15-4	132	5.8	2"	2"	3/8"	12.0	220	228	190	246	112	230	589	287	271	135	140	172	152	302	454

Please note that the dimension H is smaller than H2 for CM 15-1 and CM 15-2.

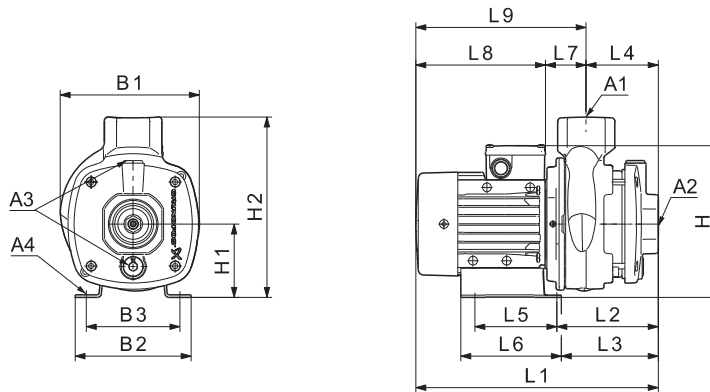
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.3	2"	2"	3/8"	10.2	180	199	160	239	100	218	450	219	204	105	140	170	114	232	345
CM15-2	90	1.9	2"	2"	3/8"	10.2	180	199	160	239	100	218	450	219	204	105	140	170	114	232	345

All dimensions are in mm unless otherwise stated.

CM 25-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	2.2	2"	2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM25-2	100	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	245	477	205	190	97	140	170	108	272	380
CM25-3	132	5.8	2"	2"	3/8"	12.0	220	228	190	246	112	257	560	258	242	127	140	172	131	302	433
CM25-4	132	7.4	2"	2"	3/8"	12.0	220	228	190	246	112	257	590	288	272	157	140	172	131	302	433

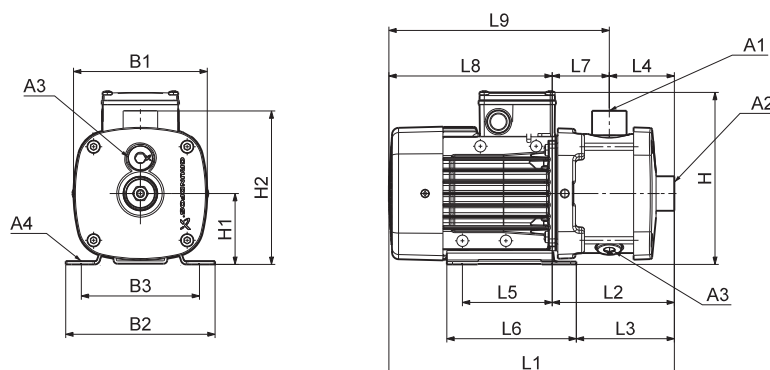
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	1.9	2"	2"	3/8"	10.2	190	199	160	239	100	245	421	190	175	97	140	170	93	232	324

All dimensions are in mm unless otherwise stated.

CM 25-I and CM 25-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	2.2	2"	2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM25-2	100	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM25-3	132	5.8	2"	2"	3/8"	12.0	220	228	190	246	112	230	559	257	241	105	140	172	152	302	454
CM25-4	132	7.4	2"	2"	3/8"	12.0	220	228	190	246	112	230	589	287	271	135	140	172	152	302	454

Please note that the dimension H is smaller than H2 for CM 25-1.

1 x 220-240 V, 50 Hz (supply voltage C)

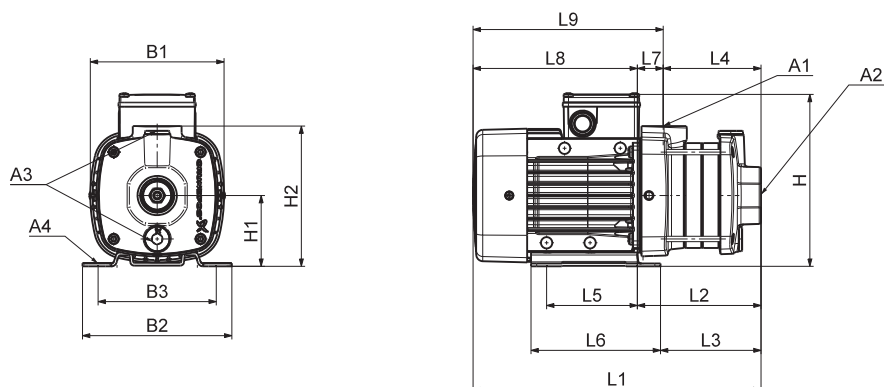
Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	1.9	2"	2"	3/8"	10.2	180	199	160	239	100	218	450	219	204	105	140	170	114	232	345

All dimensions are in mm unless otherwise stated.

22. Dimensions, CM 60 Hz and 50/60 Hz

CM 1-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.25**/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	149	288	114	89	86	96	137	28	174	202
CM1-3	71	0.25**/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	149	306	132	107	104	96	137	28	174	202
CM1-4	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	149	324	150	125	122	96	137	28	174	202
CM1-5	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	149	342	168	143	140	96	137	28	174	202

* Applies to supply voltage O.

** Applies to supply voltage J.

*** Applies to supply voltage I.

1 x 115/230 V, 60 Hz (supply voltage B)

1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	288	114	89	86	96	137	28	174	202
CM1-3	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	306	132	107	104	96	137	28	174	202
CM1-4	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	324	150	125	122	96	137	28	174	202
CM1-5	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	342	168	143	140	96	137	28	174	202

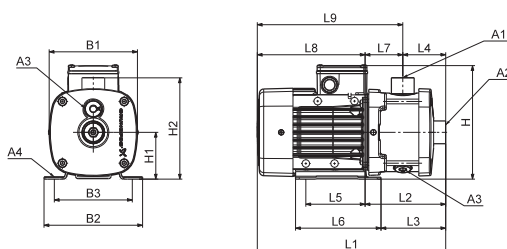
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM1-3	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	149	306	132	107	104	96	137	28	174	202
CM1-4	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	149	324	150	125	122	96	137	28	174	202
CM1-5	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	149	342	168	143	140	96	137	28	174	202

All dimensions are in mm unless otherwise stated.

CM 1-I and CM 1-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.25**/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	165	305	131	107	72	96	137	60	174	234
CM1-3	71	0.25**/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	165	305	131	107	72	96	137	60	174	234
CM1-4	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	323	149	125	90	96	137	60	174	234
CM1-5	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	341	167	143	108	96	137	60	174	234
CM1-6	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	377	203	179	144	96	137	60	174	234
CM1-7	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	377	203	179	144	96	137	60	174	234
CM1-8	80	0.6/1.04***	1.04	1"	1"	3/8"	10	142	158	125	191	75	165	453	239	215	180	96	137	60	214	274
CM1-9	80	0.74/1.28***	1.28	1"	1"	3/8"	10	142	158	125	191	75	165	473	239	215	180	96	137	60	234	294

* Applies to supply voltage O.

** Applies to supply voltage J.

*** Applies to supply voltage I.

1 x 115/230 V, 60 Hz (supply voltage B); 1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM1-3	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM1-4	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	323	149	125	90	96	137	60	174	234
CM1-5	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	341	167	143	108	96	137	60	174	234
CM1-6	80	0.84*/0.78	1"	1"	3/8"	10	142	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM1-7	80	1.14*/1.10	1"	1"	3/8"	10	205	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM1-8	80	1.14*/1.10	1"	1"	3/8"	10	205	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM1-9	80	1.14*/1.10	1"	1"	3/8"	10	205	158	125	208	75	165	453	239	215	180	96	137	60	214	274

* Applies to supply voltage A.

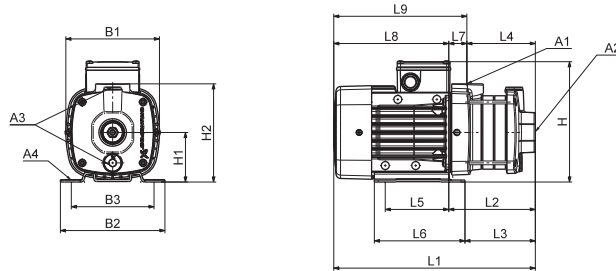
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM1-3	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM1-4	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	323	149	125	90	96	137	60	174	234
CM1-5	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	341	167	143	108	96	137	60	174	234
CM1-6	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	377	203	179	144	96	137	60	174	234
CM1-7	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	377	203	179	144	96	137	60	174	234
CM1-8	80	0.6	1.04	1"	1"	3/8"	10	142	158	125	184	75	165	453	239	215	180	96	137	60	214	274
CM1-9	80	0.74	1.28	1"	1"	3/8"	10	142	158	125	184	75	165	473	239	215	180	96	137	60	234	294

All dimensions are in mm unless otherwise stated.

CM 3-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

- 3 x 208-230/440-480 V, 60 Hz (supply voltage E)
- 3 x 575 V, 60 Hz (supply voltage H)
- 3 x 400 V, 50/60 Hz (supply voltage I)
- 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)
- 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.25*/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	149	288	114	89	86	96	137	28	174	202
CM3-3	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	149	306	132	107	104	96	137	28	174	202
CM3-4	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	149	324	150	125	122	96	137	28	174	202
CM3-5	80	0.60/1.04***	1.04	1"	1"	3/8"	10	142	158	125	191	75	149	382	168	143	140	96	137	28	214	242

* Applies to supply voltage O.
 ** Applies to supply voltage J.
 *** Applies to supply voltage I.

- 1 x 115/230 V, 60 Hz (supply voltage B)
- 1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	288	114	89	86	96	137	28	174	202
CM3-3	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	149	306	132	107	104	96	137	28	174	202
CM3-4	80	0.84*/0.78	1"	1"	3/8"	10	142	158	125	208	75	149	364	150	125	122	96	137	28	214	242
CM3-5	80	1.14*/1.10	1"	1"	3/8"	10	205	158	125	208	75	149	382	168	143	140	96	137	28	214	242

* Applies to supply voltage A.

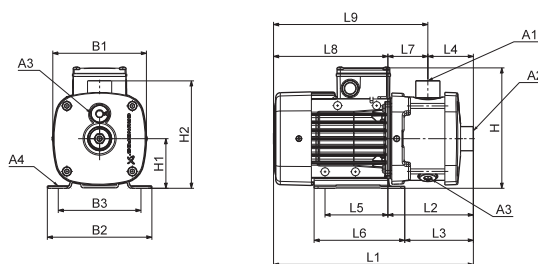
- 3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM3-3	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	149	306	132	107	104	96	137	28	174	202
CM3-4	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	149	324	150	125	122	96	137	28	174	202
CM3-5	80	0.6	1.04	1"	1"	3/8"	10	142	158	125	184	75	149	382	168	143	140	96	137	28	214	242

All dimensions are in mm unless otherwise stated.

CM 3-I and CM 3-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E); 3 x 575 V, 60 Hz (supply voltage H)
 3 x 400 V, 50/60 Hz (supply voltage I); 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)
 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.25**/0.43	0.43/0.74*	1"	1"	3/8"	10	142	158	125	191	75	165	305	131	107	72	96	137	60	174	234
CM3-3	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	305	131	107	72	96	137	60	174	234
CM3-4	71	0.43/0.74***	0.74	1"	1"	3/8"	10	142	158	125	191	75	165	323	149	125	90	96	137	60	174	234
CM3-5	80	0.6*/1.04***/1.45**	1.04/2.5**	1"	1"	3/8"	10	142	158	125	191	75	165	381	167	143	108	96	137	60	214	274
CM3-6	80	0.74/1.28***	1.28	1"	1"	3/8"	10	142	158	125	191	75	165	437	203	179	144	96	137	60	234	294
CM3-7	90	1.0/1.7***	1.7	1"	1"	3/8"	10	178	178	140	200	90	180	467	243	228	144	125	155	99	224	323
CM3-8	90	1.45/2.5***	2.5	1"	1"	3/8"	10	178	178	140	200	90	180	543	279	264	180	125	155	99	264	363
CM3-9	90	1.45/2.5***	2.5	1"	1"	3/8"	10	178	178	140	200	90	180	543	279	264	180	125	155	99	264	363

* Applies to supply voltage O.

** Applies to supply voltage J.

*** Applies to supply voltage I.

CM 3-7, CM 3-8 and CM 3-9 are not available with supply voltage O.

1 x 115/230 V, 60 Hz (supply voltage B); 1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM3-3	71	0.60	1"	1"	3/8"	10	142	158	125	208	75	165	305	131	107	72	96	137	60	174	234
CM3-4	80	0.84*/0.78	1"	1"	3/8"	10	142	158	125	208	75	165	363	149	125	90	96	137	60	214	274
CM3-5	80	1.14*/1.10	1"	1"	3/8"	10	205	158	125	208	75	165	381	167	143	108	96	137	60	214	274
CM3-6	90	1.54*/1.50	1"	1"	3/8"	10	178	178	140	229	90	180	467	243	228	144	125	155	99	224	323
CM3-7	90	1.54*/1.50	1"	1"	3/8"	10	178	178	140	229	90	180	467	243	228	144	125	155	99	224	323
CM3-8	90	1.54*/1.50	1"	1"	3/8"	10	178	178	140	229	90	180	503	279	264	180	125	155	99	224	323

* Applies to supply voltage A.

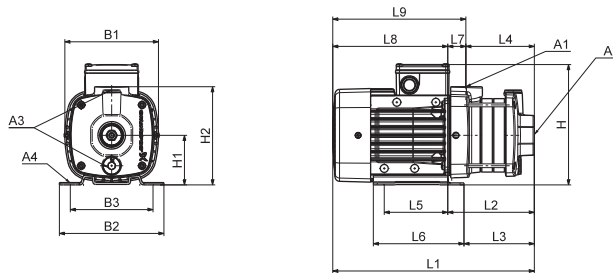
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.25	0.43	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM3-3	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM3-4	71	0.43	0.74	1"	1"	3/8"	10	142	158	125	184	75	165	323	149	125	90	96	137	60	174	234
CM3-5	80	0.6	1.04	1"	1"	3/8"	10	142	158	125	184	75	165	381	167	143	108	96	137	60	214	274
CM3-6	80	0.74	1.28	1"	1"	3/8"	10	142	158	125	184	75	165	437	203	179	144	96	137	60	234	294
CM3-7	90	1	1.7	1"	1"	3/8"	10	178	178	140	200	90	180	467	243	228	144	125	155	99	224	323
CM3-8	90	1.4	2.5	1"	1"	3/8"	10	178	178	140	200	90	180	543	279	264	180	125	155	99	264	363
CM3-9	90	1.4	2.5	1"	1"	3/8"	10	178	178	140	200	90	180	543	279	264	180	125	155	99	264	363

All dimensions are in mm unless otherwise stated.

CM 5-A

(A = cast iron EN-GJL-200)



TM04 2248 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.43/0.74*	0.74	1"	1 1/4"	3/8"	10	142	158	125	191	75	149	288	114	89	86	96	137	28	174	202
CM5-3	80	0.60/1.04*	1.04	1"	1 1/4"	3/8"	10	142	158	125	191	75	149	346	132	107	104	96	137	28	214	242
CM5-4	90	1.0**/1.7*	1.7	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	414	190	175	108	125	155	82	224	306
CM5-5	90	1.45**/2.5*	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	472	208	193	126	125	155	82	264	346

* Applies to supply voltage I.

** Applies to supply voltage J.

Note: CM 5-4 and CM 5-5 are not available with supply voltage O.

1 x 115/230 V, 60 Hz (supply voltage B)

1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																	
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8
CM5-2	80	0.84*/0.78	1"	1 1/4"	3/8"	10	142	158	125	208	75	149	328	114	89	86	96	137	28	214	242
CM5-3	80	1.14*/1.10	1"	1 1/4"	3/8"	10	205	158	125	208	75	149	346	132	107	104	96	137	28	214	242
CM5-4	90	1.54*/1.50	1"	1 1/4"	3/8"	10	178	178	140	229	90	201	414	190	175	108	125	155	82	224	306
CM5-5	90	1.50	1"	1 1/4"	3/8"	10	178	178	140	229	90	201	432	208	193	126	125	155	82	224	306

* Applies to supply voltage A.

Note: CM 5-5 is not available with supply voltage A.

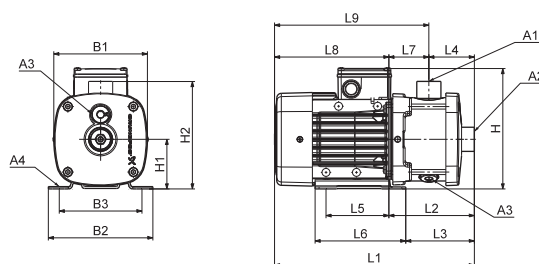
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.43	0.74	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	288	114	89	86	96	137	28	174	202
CM5-3	80	0.6	1.04	1"	1 1/4"	3/8"	10	142	158	125	184	75	149	346	132	107	104	96	137	28	214	242
CM5-4	90	1	1.7	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	414	190	175	108	125	155	82	224	306
CM5-5	90	1.4	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	201	472	208	193	126	125	155	82	264	346

All dimensions are in mm unless otherwise stated.

CM 5-I and CM 5-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.43/0.74*	0.74	1"	1 1/4"	3/8"	10	142	158	125	191	75	165	305	131	107	72	96	137	60	174	234
CM5-3	80	0.6/1.04*	1.04	1"	1 1/4"	3/8"	10	142	158	125	191	75	165	345	131	107	72	96	137	60	214	274
CM5-4	90	1.0/1.7*	1.7	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	413	189	174	90	125	155	99	224	323
CM5-5	90	1.45/2.5*	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	471	207	192	108	125	155	99	264	363
CM5-6	90	1.45/2.5*	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	507	243	228	144	125	155	99	264	363
CM5-7	90	1.45/2.5*	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	507	243	228	144	125	155	99	264	363
CM5-8	100	2.36/4.0*	4	1"	1 1/4"	3/8"	12	198	199	160	220	100	190	561	289	274	180	140	170	109	272	381

* Applies to supply voltage I.

Note: CM 5-4, CM 5-5, CM 5-6, CM 5-7 and CM 5-8 are not available with supply voltage O.

1 x 115/230 V, 60 Hz (supply voltage B)

1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	80	0.84*/0.78	1"	1 1/4"	3/8"	10	142	158	125	208	75	165	345	131	107	72	96	137	60	214	274
CM5-3	80	1.14*/1.10	1"	1 1/4"	3/8"	10	205	158	125	208	75	165	345	131	107	72	96	137	60	214	274
CM5-4	90	1.54*/1.50	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	413	189	174	90	125	155	99	224	323
CM5-5	90	1.50	1"	1 1/4"	3/8"	10	178	178	140	229	90	180	431	207	192	108	125	155	99	224	323

* Applies to supply voltage A.

Note: CM 5-5 is not available with supply voltage A.

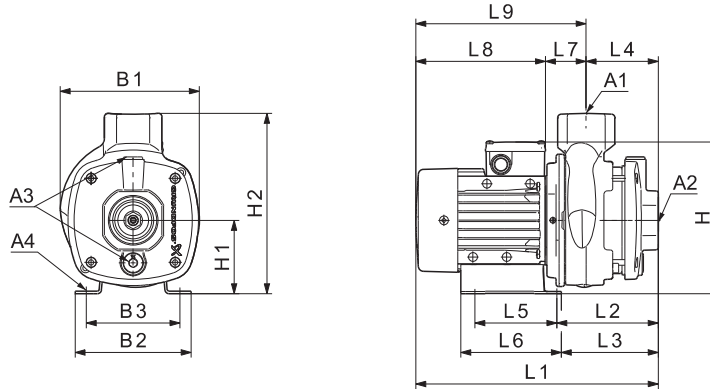
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.43	0.74	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	305	131	107	72	96	137	60	174	234
CM5-3	80	0.6	1.04	1"	1 1/4"	3/8"	10	142	158	125	184	75	165	345	131	107	72	96	137	60	214	274
CM5-4	90	1	1.7	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	413	189	174	90	125	155	99	224	323
CM5-5	90	1.4	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	471	207	192	108	125	155	99	264	363
CM5-6	90	1.4	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	507	243	228	144	125	155	99	264	363
CM5-7	90	1.4	2.5	1"	1 1/4"	3/8"	10	178	178	140	200	90	180	507	243	228	144	125	155	99	264	363
CM5-8	100	2.3	4.0	1"	1 1/4"	3/8"	12	198	199	160	220	100	190	561	289	274	180	140	170	109	272	381

All dimensions are in mm unless otherwise stated.

CM 10-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

- 3 x 208-230/440-480 V, 60 Hz (supply voltage E)
- 3 x 575 V, 60 Hz (supply voltage H)
- 3 x 400 V, 50/60 Hz (supply voltage I)
- 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)
- 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.74/1.28*	1.28	1 1/2"	1 1/2"	3/8"	10.2	190	158	125	216	100	245	389	155	131	97	96	137	58	234	292
CM10-2	90	1.45/2.5*	2.5	1 1/2"	1 1/2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM10-3	100	2.36/4.0*	4	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	245	507	235	220	127	140	170	108	272	380

* Applies to supply voltage I.

- 1 x 115/230 V, 60 Hz (supply voltage B)
- 1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	1.14*/1.10	1 1/2"	1 1/2"	3/8"	10.2	205	158	125	233	100	245	369	155	131	97	96	137	58	214	272

* Applies to supply voltage A.

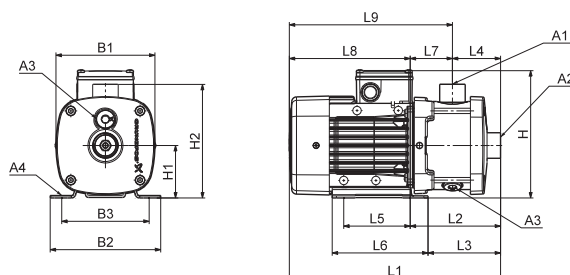
- 3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.74	1.28	1 1/2"	1 1/2"	3/8"	10.2	190	158	125	209	100	245	389	155	131	97	96	137	58	234	292
CM10-2	90	1.4	2.5	1 1/2"	1 1/2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM10-3	100	2.3	4.0	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	245	507	235	220	127	140	170	108	272	380

All dimensions are in mm unless otherwise stated.

CM 10-I and CM 10-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.74/1.28*	1.28	1 1/2"	1 1/2"	3/8"	10.2	180	158	125	216	100	218	399	185	161	105	96	137	80	214	294
CM10-2	90	1.45/2.5*	2.5	1 1/2"	1 1/2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM10-3	100	2.36/4.0*	4	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM10-4	132	4.2/6.2*	6.2	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	589	287	271	135	140	172	152	302	454
CM10-5	132	4.2/6.2*	6.2	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	649	347	331	195	140	172	152	302	454

* Applies to supply voltage I.

Note: The dimension H is smaller than H2 for CM 10-1 and CM 10-2.

Note: CM 10-2, CM 10-3, CM 10-4 and CM 10-5 are not available with supply voltage O.

1 x 115/230 V, 60 Hz (supply voltage B)

1 x 220 V, 60 Hz (supply voltage A)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	1.14*/1.10	1 1/2"	1 1/2"	3/8"	10.2	205	158	125	233	100	218	399	185	161	105	96	137	80	214	294

* Applies to supply voltage A.

3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

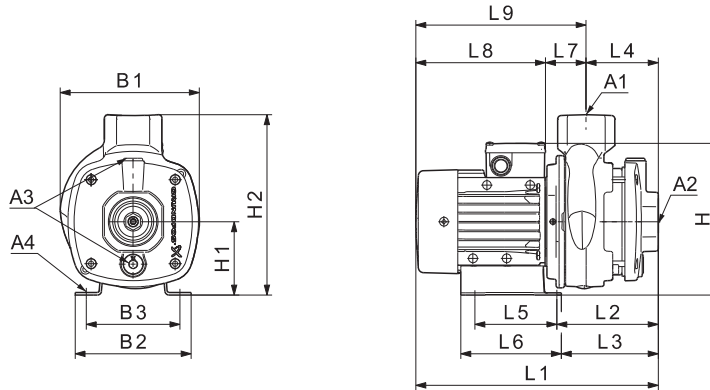
Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.74	1.28	1 1/2"	1 1/2"	3/8"	10.2	180	158	125	209	100	218	419	185	161	105	96	137	80	234	314
CM10-2	90	1.4	2.5	1 1/2"	1 1/2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM10-3	100	2.3	4.0	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM10-4	112	3.5	6.2	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	589	287	271	135	140	172	152	302	454
CM10-5	112	3.5	6.2	1 1/2"	1 1/2"	3/8"	12.0	220	228	190	246	112	230	649	347	331	195	140	172	152	302	454

All dimensions are in mm unless otherwise stated.

Note: The dimension H is smaller than H2 for CM 10-1 and CM 10-2.

CM 15-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

- 3 x 208-230/440-480 V, 60 Hz (supply voltage E)
- 3 x 575 V, 60 Hz (supply voltage H)
- 3 x 400 V, 50/60 Hz (supply voltage I)
- 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.45/2.5*	2.5	2"	2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM15-2	100	2.36/4.0*	4	2"	2"	3/8"	12.0	198	199	160	220	100	245	477	205	190	97	140	170	108	272	380
CM15-3	132	4.2/6.2*	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	257	560	258	242	127	140	172	131	302	433

* Applies to supply voltage I.

Note: CM 15-2 and CM 15-3 are not available with supply voltage O.

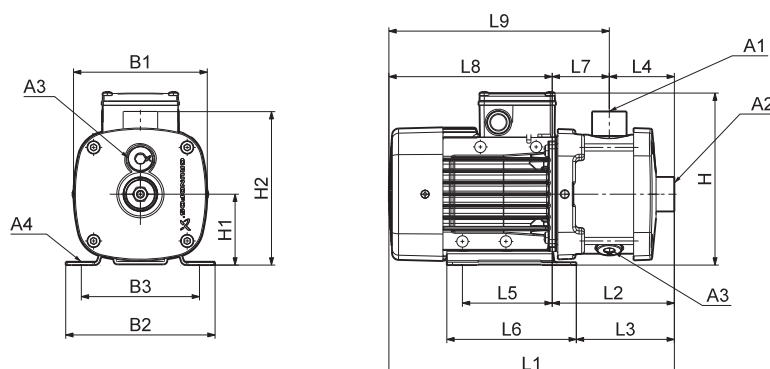
- 3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.4	2.5	2"	2"	3/8"	10.2	190	199	160	210	100	245	461	190	175	97	140	170	93	272	364
CM15-2	100	2.3	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	245	477	205	190	97	140	170	108	272	380
CM15-3	112	3.5	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	257	560	258	242	127	140	172	131	302	433

All dimensions are in mm unless otherwise stated.

CM 15-I and CM 15-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.45/2.5*	2.5	2"	2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM15-2	100	2.36/4.0*	4	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM15-3	132	4.2/6.2*	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	230	559	257	241	105	140	172	152	302	454

* Applies to supply voltage I.

Note: The dimension H is smaller than H2 for CM 15-1.

Note: CM 15-1, CM 15-2 and CM 15-3 are not available with supply voltage O.

3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

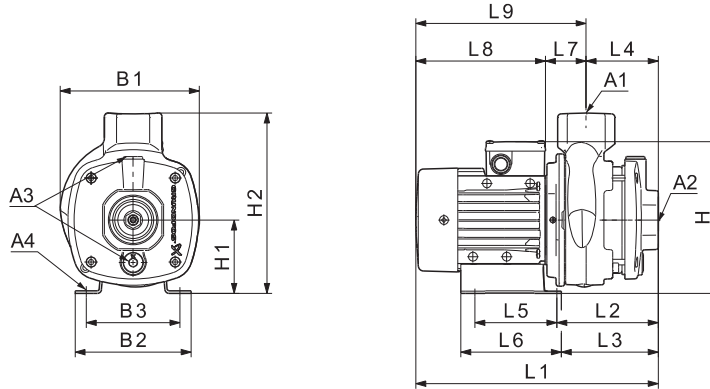
Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.4	2.5	2"	2"	3/8"	10.2	180	199	160	210	100	218	490	219	204	105	140	170	114	272	385
CM15-2	100	2.3	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM15-3	112	3.5	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	230	559	257	241	105	140	172	152	302	454

All dimensions are in mm unless otherwise stated.

Note: The dimension H is smaller than H2 for CM 15-1.

CM 25-A

(A = cast iron EN-GJL-200)



TM04 6111 4909

Dimensions

- 3 x 208-230/440-480 V, 60 Hz (supply voltage E)
- 3 x 575 V, 60 Hz (supply voltage H)
- 3 x 400 V, 50/60 Hz (supply voltage I)
- 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	100	2.36/4.0*	4	2"	2"	3/8"	12.0	198	199	160	220	100	245	477	205	190	97	140	170	108	272	380
CM25-2	132	4.2/6.2*	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	257	530	228	212	97	140	172	131	302	433

* Applies to supply voltage I.

Note: CM 25-1 and CM 25-2 are not available with supply voltage O.

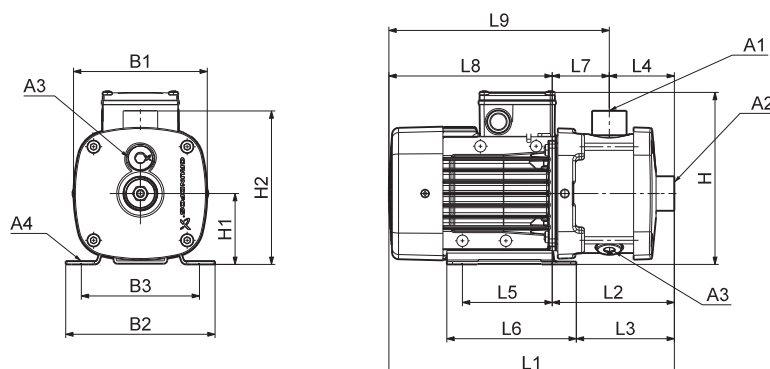
- 3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	100	2.3	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	245	477	205	190	97	140	170	108	272	380
CM25-2	112	3.5	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	257	530	228	212	97	140	172	131	302	433

All dimensions are in mm unless otherwise stated.

CM 25-I and CM 25-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2246 2208

Dimensions

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

3 x 575 V, 60 Hz (supply voltage H)

3 x 400 V, 50/60 Hz (supply voltage I)

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	100	2.36/4.0*	4	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM25-2	132	4.2/6.2*	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	230	559	257	241	105	140	172	152	302	454

* Applies to supply voltage I.

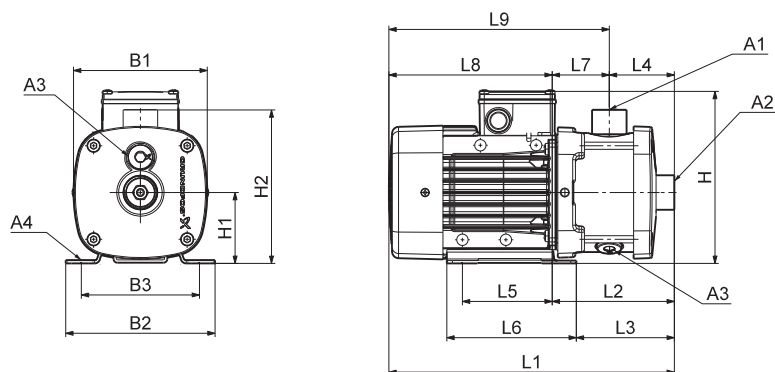
Note: CM 25-1 and CM 25-2 are not available with supply voltage O.

3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Pump type	Frame size	P ₂ [kW]		Dimensions [mm]																		
		50 Hz	60 Hz	A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	100	2.3	4.0	2"	2"	3/8"	12.0	198	199	160	220	100	218	507	235	220	105	140	170	130	272	402
CM25-2	112	3.5	6.2	2"	2"	3/8"	12.0	220	228	190	246	112	230	559	257	241	105	140	172	152	302	454

All dimensions are in mm unless otherwise stated.

23. Dimensions, CM self-priming 50 Hz and 60 Hz



TM04 2246 2208

1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM 1-3	71	0.3	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 1-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 1-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	413	239	215	180	96	137	60	174	234
CM 1-6	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	413	239	215	180	96	137	60	174	234
CM 3-3	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 3-4	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 3-5	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	413	239	215	180	96	137	60	174	234
CM 3-6	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM 5-3	71	0.5	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 5-4	80	0.67	1"	1"	3/8"	10	142	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM 5-5	80	0.9	1"	1"	3/8"	10	142	158	125	208	75	165	453	239	215	180	96	137	60	214	274
CM 5-6	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	503	279	264	180	125	155	99	224	323
CM 5-7	90	1.3	1"	1"	3/8"	10	178	178	140	229	90	180	539	315	300	216	125	155	99	224	323

1 x 220 V, 60 Hz (supply voltage A)

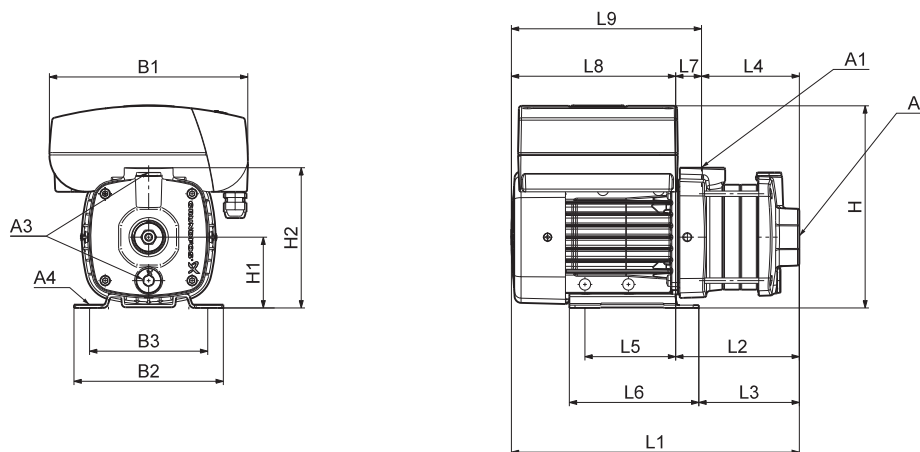
Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM 1-3	71	0.6	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 1-4	71	0.6	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 3-3	71	0.6	1"	1"	3/8"	10	142	158	125	208	75	165	377	203	179	144	96	137	60	174	234
CM 3-4	80	0.84	1"	1"	3/8"	10	142	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM 5-3	80	1.14	1"	1"	3/8"	10	205	158	125	208	75	165	417	203	179	144	96	137	60	214	274
CM 5-4	90	1.54	1"	1"	3/8"	10	178	178	140	229	90	180	467	243	228	144	125	155	99	224	323

All dimensions are in mm unless otherwise stated.

24. Dimensions, CME 60 Hz and 50/60 Hz

CME 1-A

(A = cast iron EN-GJL-200)



TM04 2249 2208

Dimensions

3 x 380-500 V, 50/60 Hz (supply voltage S)

3 x 440-480 V, 50/60 Hz (supply voltage T)

Pume type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 1-2	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	149	349	113	89	86	96	137	28	236	263
CME 1-3	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	149	367	131	107	104	96	137	28	236	263
CME 1-4	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	149	385	149	125	122	96	137	28	236	263
CME 1-5	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	149	403	167	143	140	96	137	28	236	263

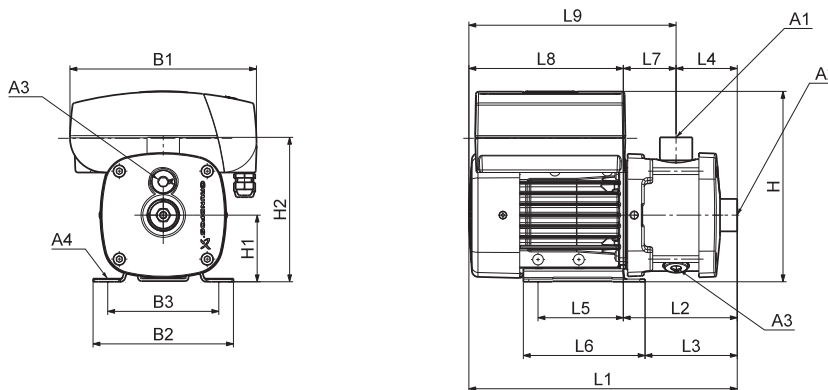
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 1-2	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	149	309	113	89	86	96	137	28	196	223
CME 1-3	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	149	327	131	107	104	96	137	28	196	223
CME 1-4	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	149	345	149	125	122	96	137	28	196	223
CME 1-5	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	149	363	167	143	140	96	137	28	196	223

All dimensions are in mm unless otherwise stated.

CME 1-I and CME 1-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-500 V, 50/60 Hz (supply voltage S)
3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 1-2	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 1-3	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 1-4	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	165	384	148	124	90	96	137	59	236	294
CME 1-5	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	402	166	142	108	96	137	59	236	294
CME 1-6	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	438	202	178	144	96	137	59	236	294
CME 1-7	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	438	202	178	144	96	137	59	236	294
CME 1-8	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	474	238	214	180	96	137	59	236	294
CME 1-9	90	1.50	1"	1"	3/8"	10	268	178	140	248	90	180	480	282	267	180	125	155	103	197	300

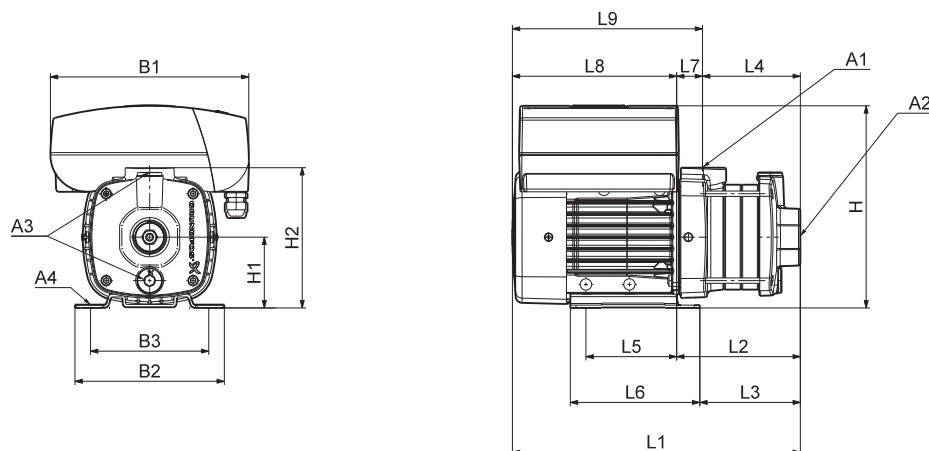
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 1-2	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 1-3	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 1-4	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	165	344	148	124	90	96	137	59	196	254
CME 1-5	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	362	166	142	108	96	137	59	196	254
CME 1-6	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	398	202	178	144	96	137	59	196	254
CME 1-7	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	398	202	178	144	96	137	59	196	254
CME 1-8	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	434	238	214	180	96	137	59	196	254
CME 1-9	90	1.50	1"	1"	3/8"	10	212	178	140	248	90	180	440	282	267	180	125	155	103	157	260

All dimensions are in mm unless otherwise stated.

CME 3-A

(A = cast iron EN-GJL-200)



TM04 2249 2208

Dimensions

3 x 380-500 V, 50/60 Hz (supply voltage S)

3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 3-2	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	149	349	113	89	86	96	137	28	236	263
CME 3-3	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	149	367	131	107	104	96	137	28	236	263
CME 3-4	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	149	385	149	125	122	96	137	28	236	263
CME 3-5	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	149	403	167	143	140	96	137	28	236	263

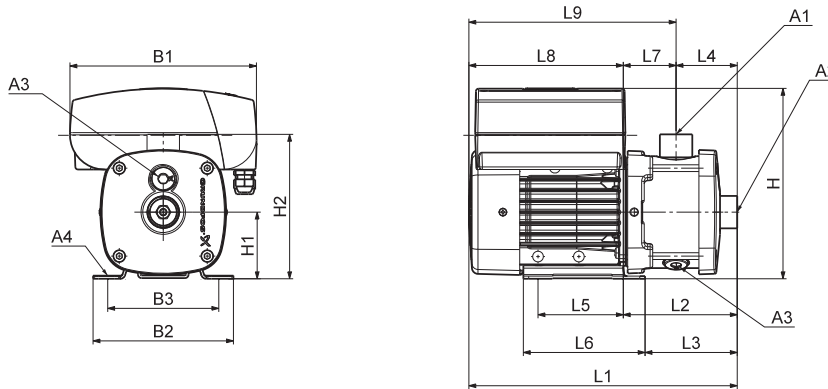
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 3-2	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	149	309	113	89	86	96	137	28	196	223
CME 3-3	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	149	327	131	107	104	96	137	28	196	223
CME 3-4	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	149	345	149	125	122	96	137	28	196	223
CME 3-5	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	149	363	167	143	140	96	137	28	196	223

All dimensions are in mm unless otherwise stated.

CME 3-I and CME 3-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-500 V, 50/60 Hz (supply voltage S)
 3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 3-2	71	0.55	1"	1"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 3-3	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 3-4	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	384	148	124	90	96	137	59	236	294
CME 3-5	80	1.10	1"	1"	3/8"	10	268	158	125	233	75	165	402	166	142	108	96	137	59	236	294
CME 3-6	90	1.50	1"	1"	3/8"	10	268	178	140	248	90	180	444	246	231	144	125	155	103	197	300
CME 3-7	90	1.50	1"	1"	3/8"	10	268	178	140	248	90	180	444	246	231	144	125	155	103	197	300
CME 3-8	90	2.20	1"	1"	3/8"	10	268	178	140	248	90	180	480	282	267	180	125	155	103	197	300
CME 3-9	90	2.20	1"	1"	3/8"	10	268	178	140	248	90	180	480	282	267	180	125	155	103	197	300

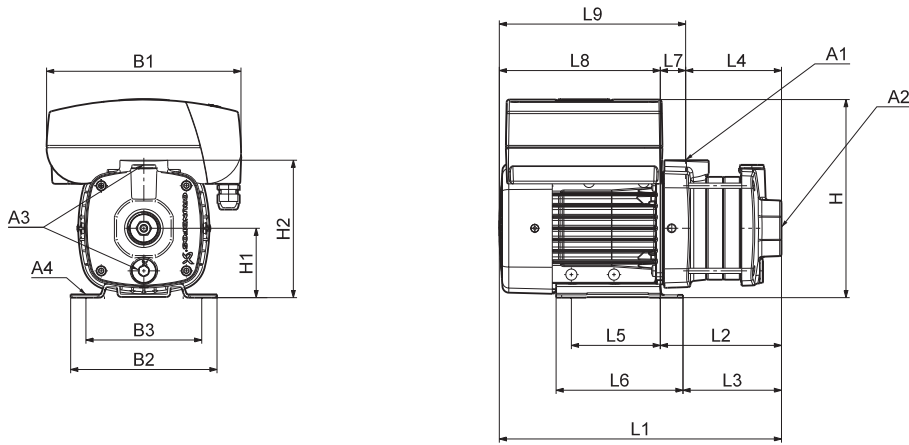
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 3-2	71	0.55	1"	1"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 3-3	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 3-4	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	344	148	124	90	96	137	59	196	254
CME 3-5	80	1.10	1"	1"	3/8"	10	212	158	125	233	75	165	362	166	142	108	96	137	59	196	254
CME 3-6	90	1.50	1"	1"	3/8"	10	212	178	140	248	90	180	404	246	231	144	125	155	103	157	260
CME 3-7	90	1.50	1"	1"	3/8"	10	212	178	140	248	90	180	404	246	231	144	125	155	103	157	260

All dimensions are in mm unless otherwise stated.

CME 5-A

(A = cast iron EN-GJL-200)



TM04 2249 2208

Dimensions

3 x 380-500 V, 50/60 Hz (supply voltage S)

3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 5-2	80	1.10	1"	1 1/4"	3/8"	10	268	158	125	233	75	149	349	113	89	86	96	137	28	236	263
CME 5-3	80	1.10	1"	1 1/4"	3/8"	10	268	158	125	233	75	149	367	131	107	104	96	137	28	236	263
CME 5-4	90	1.50	1"	1 1/4"	3/8"	10	268	178	140	248	90	201	391	194	179	108	125	155	86	197	283
CME 5-5	90	2.20	1"	1 1/4"	3/8"	10	268	178	140	248	90	201	423	225	210	140	125	155	86	197	283

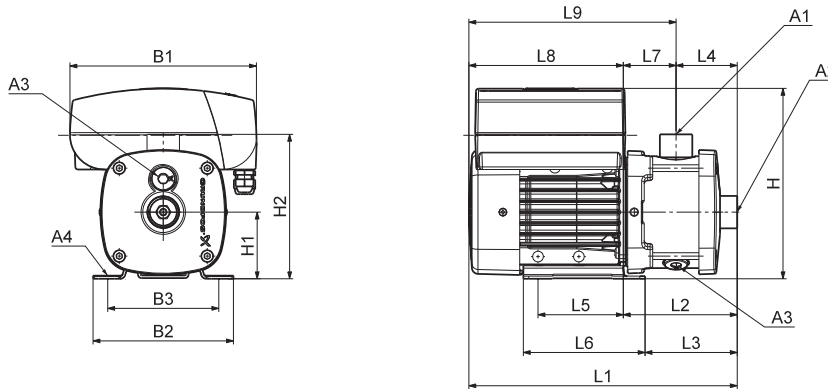
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 5-2	80	1.10	1"	1 1/4"	3/8"	10	212	158	125	233	75	149	309	113	89	86	96	137	28	196	223
CME 5-3	80	1.10	1"	1 1/4"	3/8"	10	212	158	125	233	75	149	327	131	107	104	96	137	28	196	223
CME 5-4	90	1.50	1"	1 1/4"	3/8"	10	212	178	140	248	90	201	351	194	179	108	125	155	86	157	243

All dimensions are in mm unless otherwise stated.

CME 5-I and CME 5-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 5-7	100	3.0	1"	1 1/4"	3/8"	12	264	199	160	277	100	190	525	253	238	144	140	170	109	272	381
CME 5-8	100	3.0	1"	1 1/4"	3/8"	12	264	199	160	277	100	190	561	289	274	180	140	170	109	272	381

3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 5-2	80	1.10	1"	1 1/4"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 5-3	80	1.10	1"	1 1/4"	3/8"	10	268	158	125	233	75	165	366	130	106	72	96	137	59	236	294
CME 5-4	90	1.50	1"	1 1/4"	3/8"	10	268	178	140	248	90	180	390	192	177	90	125	155	103	197	300
CME 5-5	90	1.50	1"	1 1/4"	3/8"	10	268	178	140	248	90	180	408	210	195	108	125	155	103	197	300
CME 5-6	90	2.20	1"	1 1/4"	3/8"	10	268	178	140	248	90	180	444	246	231	144	125	155	103	197	300
CME 5-7	90	2.20	1"	1 1/4"	3/8"	10	268	178	140	248	90	180	444	246	231	144	125	155	103	197	300

CME 5-7 is only available for supply voltage T.

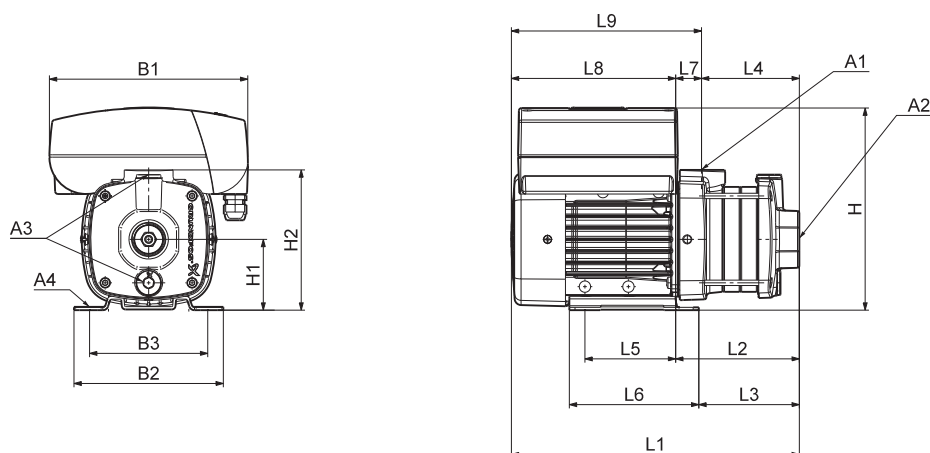
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 5-2	80	1.10	1"	1 1/4"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 5-3	80	1.10	1"	1 1/4"	3/8"	10	212	158	125	233	75	165	326	130	106	72	96	137	59	196	254
CME 5-4	90	1.50	1"	1 1/4"	3/8"	10	212	178	140	248	90	180	350	192	177	90	125	155	103	157	260

All dimensions are in mm unless otherwise stated.

CME 10-A

(A = cast iron EN-GJL-200)



TM04 6110 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-3	112	4.0	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	257	560	258	242	127	140	172	131	302	433

3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-3	112	4.0	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	257	560	258	242	127	140	172	131	302	433

3 x 380-500 V, 50/60 Hz (supply voltage S)

3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-1	80	1.10	1 1/2"	1 1/2"	3/8"	10	268	158	125	233	100	245	392	156	131	97	96	137	59	236	295
CME 10-2	90	2.20	1 1/2"	1 1/2"	3/8"	10	268	199	160	258	100	245	398	190	175	97	140	170	93	208	301

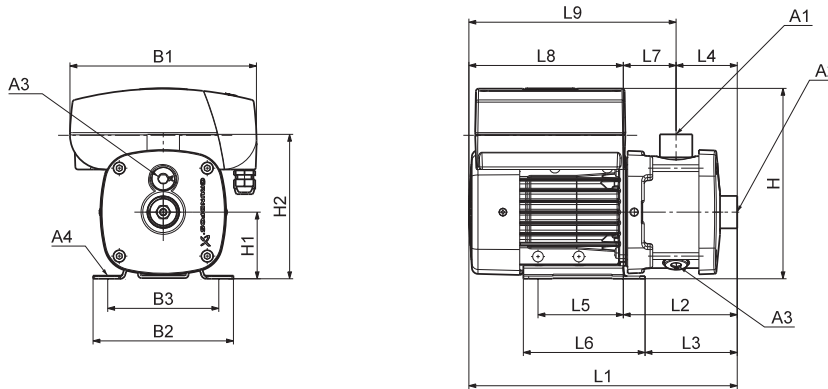
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-1	80	1.10	1 1/2"	1 1/2"	3/8"	10	212	158	125	233	100	245	352	156	131	97	96	137	59	196	255

All dimensions are in mm unless otherwise stated.

CME 10-I and CME 10-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-3	112	4.0	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454
CME 10-4	132	5.5	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	589	287	271	135	140	172	152	302	454
CME 10-5	132	5.5	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	649	347	331	195	140	172	152	302	454

3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-3	112	4.0	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454
CME 10-4	112	4.0	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	589	287	271	135	140	172	152	302	454
CME 10-5	132	5.5	1 1/2"	1 1/2"	3/8"	12	290	228	190	300	112	230	649	347	331	195	140	172	152	302	454

3 x 380-500 V, 50/60 Hz (supply voltage S)

3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-1	80	1.10	1 1/2"	1 1/2"	3/8"	10	268	158	125	233	100	218	417	181	157	105	96	137	76	236	312
CME 10-2	90	2.20	1 1/2"	1 1/2"	3/8"	12	268	199	160	258	100	218	427	219	204	105	140	170	114	208	322

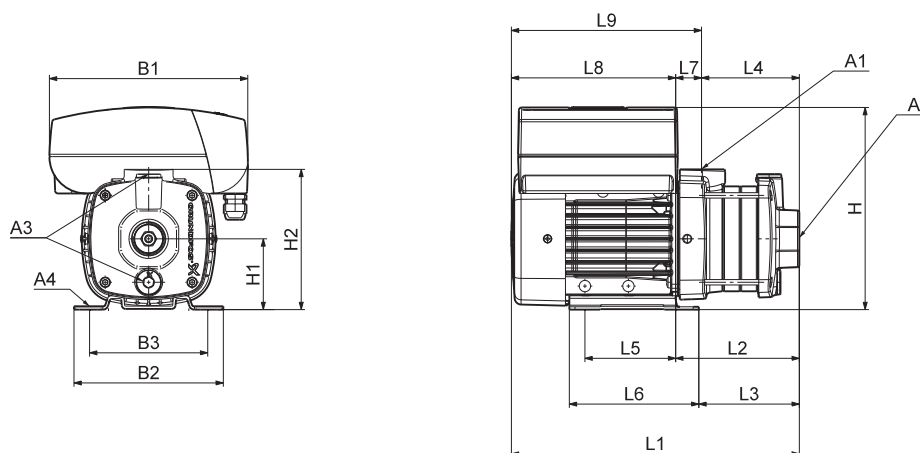
1 x 200-240 V, 50/60 Hz (supply voltage U)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 10-1	80	1.10	1 1/2"	1 1/2"	3/8"	10	212	158	125	233	100	218	377	181	157	105	96	137	76	196	272

All dimensions are in mm unless otherwise stated.

CME 15-A

(A = cast iron EN-GJL-200)



TM04 2249 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-2	112	4.0	2"	2"	3/8"	12	290	228	190	300	112	257	530	228	212	97	140	172	131	302	433
CME 15-3	132	7.5	2"	2"	3/8"	12	290	228	190	300	112	257	560	258	242	127	140	172	131	302	433

3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-2	112	4.0	2"	2"	3/8"	12	290	228	190	300	112	257	530	228	212	97	140	172	131	302	433
CME 15-3	132	5.5	2"	2"	3/8"	12	290	228	190	300	112	257	560	258	242	127	140	172	131	302	433

3 x 380-500 V, 50/60 Hz (supply voltage S)

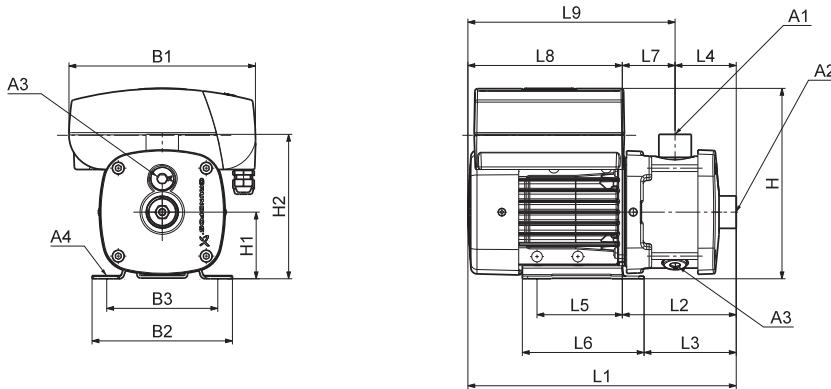
3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-1	90	2.20	2"	2"	3/8"	10	268	199	160	258	100	245	398	190	175	97	140	170	93	208	301

All dimensions are in mm unless otherwise stated.

CME 15-I and CME 15-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-2	112	4.0	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454
CME 15-3	132	7.5	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454

3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-2	112	4.0	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454
CME 15-3	132	5.5	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454

3 x 380-500 V, 50/60 Hz (supply voltage S)

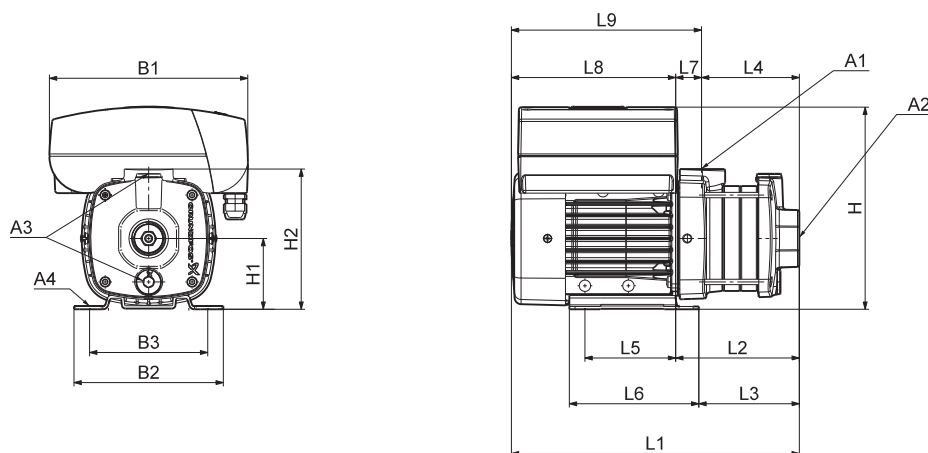
3 x 440-480 V, 50/60 Hz (supply voltage T)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 15-1	90	2.20	2"	2"	3/8"	12	268	199	160	258	100	218	427	219	204	105	140	170	114	208	322

All dimensions are in mm unless otherwise stated.

CME 25-A

(A = cast iron EN-GJL-200)



TM04 2249 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 25-1	100	3.0	2"	2"	3/8"	12	264	199	160	277	100	245	477	205	190	97	140	170	108	272	380
CME 25-2	132	7.5	2"	2"	3/8"	12	290	228	190	300	112	257	530	228	212	97	140	172	131	302	433

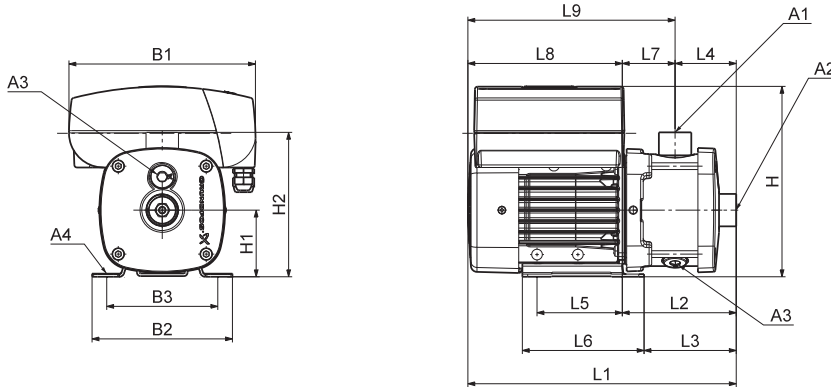
3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 25-1	112	4.0	2"	2"	3/8"	12	290	228	190	300	112	257	530	228	212	97	140	172	131	302	433
CME 25-2	132	5.5	2"	2"	3/8"	12	290	228	190	300	112	257	530	228	212	97	140	172	131	302	433

All dimensions are in mm unless otherwise stated.

CME 25-I and CME 25-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)



TM04 2247 2208

Dimensions

3 x 380-480 V, 50/60 Hz (supply voltage L)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 25-1	100	3.0	2"	2"	3/8"	12	264	199	160	277	100	218	507	235	220	105	140	170	130	272	402
CME 25-2	132	7.5	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454

3 x 460-480 V, 60 Hz (supply voltage N)

Pump type	Frame size	P ₂ [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CME 25-1	112	2"	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454
CME 25-2	132	2"	2"	2"	3/8"	12	290	228	190	300	112	230	559	257	241	105	140	172	152	302	454

All dimensions are in mm unless otherwise stated.

25. Weights and shipping volume

All weights and volumes refer to pumps with standard pipe connections.

Overview

Pump type	Material variant	Pages
CM non-self-priming	Cast iron	109-111
	Stainless steel	112-115
CM self-priming	Stainless steel	116
CME non-self-priming	Cast iron	117-118
	Stainless steel	118-119

CM non-self-priming pumps

Cast iron

CM 1-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 1-2	11.0	13.5	0.02
	CM 1-3	11.3	13.8	0.02
	CM 1-4	12.2	14.7	0.02
	CM 1-5	12.5	15.0	0.02
	CM 1-6	12.8	15.3	0.03
	CM 1-7	13.0	15.5	0.03
	CM 1-8	14.7	17.2	0.03
	1 x 115/230 V, 60 Hz (supply voltage B)	CM 1-2	11.7	14.2
CM 1-3		12.0	14.5	0.02
CM 1-4		12.2	14.7	0.02
CM 1-5		12.5	15.0	0.02
CM 1-2		11.0	13.5	0.02
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 1-3	11.3	13.8	0.02
	CM 1-4	11.5	14.0	0.02
	CM 1-5	11.8	14.3	0.02
	CM 1-6	12.1	14.6	0.03
	CM 1-7	13.0	15.5	0.03
	CM 1-8	13.3	15.8	0.03
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 1-2	11.0	13.5	0.02
	CM 1-3	11.3	13.8	0.02
	CM 1-4	12.2	14.7	0.02
	CM 1-5	12.5	15.0	0.02
3 x 208-230/440-480 V, 60 Hz (supply voltage E)	CM 1-2	11.0	13.5	0.02
	CM 1-3	11.3	13.8	0.02
3 x 575 V, 60 Hz (supply voltage H)	CM 1-3	11.3	13.8	0.02
3 x 400 V, 50/60 Hz (supply voltage I)	CM 1-4	12.2	14.7	0.02
3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)	CM 1-4	12.2	14.7	0.02
3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)	CM 1-5	12.5	15.0	0.02

CM 3-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 3-2	11.0	13.5	0.02
	CM 3-3	12.0	14.5	0.02
	CM 3-4	12.2	14.7	0.02
	CM 3-5	12.5	15.0	0.02
	CM 3-6	14.2	16.7	0.03
	CM 3-7	15.5	18.0	0.03
	CM 3-8	15.8	18.3	0.03
	1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 3-2	11.7	14.2
CM 3-3		12.0	14.5	0.02
CM 3-4		13.6	16.1	0.03
CM 3-5		15.0	17.5	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 3-2	11.0	13.5	0.02
	CM 3-3	11.3	13.8	0.02
	CM 3-4	11.5	14.0	0.02
	CM 3-5	12.5	15.0	0.02
	CM 3-6	12.8	15.3	0.03
	CM 3-7	15.8	18.3	0.03
	CM 3-8	16.8	19.3	0.04
	3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 3-2	11.0	13.5
CM 3-3		12.0	14.5	0.02
CM 3-4		12.2	14.7	0.02
CM 3-5		15.3	17.8	0.03
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)	CM 3-2	11.0	13.5	0.02
	CM 3-3	12.0	14.5	0.02
	CM 3-4	12.2	14.7	0.02
	CM 3-5	13.9	16.4	0.04

CM 5-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 5-2	11.6	14.1	0.02
	CM 5-3	11.9	14.4	0.02
	CM 5-4	13.5	16.0	0.03
	CM 5-5	14.9	17.4	0.03
	CM 5-6	22.7	25.2	0.04
	CM 5-7	23.0	25.5	0.04
	CM 5-8	23.2	25.7	0.04
	1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 5-2	13.0	15.5
CM 5-3		14.4	16.9	0.04
CM 5-4		24.3	26.8	0.04
CM 5-2		10.9	13.4	0.02
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 5-3	11.9	14.4	0.02
	CM 5-4	14.9	17.4	0.03
	CM 5-5	15.9	18.4	0.03
	CM 5-6	16.2	18.7	0.03
	CM 5-7	25.8	28.3	0.04
	CM 5-8	26.0	28.5	0.04
	CM 5-2	11.6	14.1	0.02
	CM 5-3	14.7	17.2	0.03
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 5-4	24.3	26.8	0.03
	CM 5-5	29.7	32.2	0.04
	CM 5-2	11.6	14.1	0.02
	CM 5-3	14.7	17.2	0.03
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)	CM 5-4	24.3	26.8	0.03
	CM 5-5	29.7	32.2	0.04
	CM 5-2	11.6	14.1	0.02
	CM 5-3	14.7	17.2	0.03

CM 10-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 10-1	22.2	24.7	0.04
	CM 10-2	29.8	32.3	0.04
	CM 10-3	32.6	35.1	0.04
1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 10-1	23.4	25.9	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 10-1	20.9	23.4	0.04
	CM 10-2	25.0	27.5	0.04
	CM 10-3	35.8	38.3	0.04
	CM 10-4	38.6	41.1	0.05
	CM 10-5	39.3	41.8	0.05
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 10-11	24.4	26.9	0.04
	CM 10-12	37.1	39.6	0.04
	CM 10-13	40.8	43.3	0.04
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)	CM 10-1	24.3	26.8	0.04
	CM 10-2	37.1	39.6	0.04
	CM 10-3	40.8	43.3	0.04

CM 15-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 15-1	28.5	31.0	0.04
	CM 15-2	31.3	33.8	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 15-1	23.7	26.2	0.04
	CM 15-2	34.5	37.0	0.04
	CM 15-3	40.2	42.7	0.04
	CM 15-4	56.0	58.5	0.08
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 15-1	35.8	38.3	0.04
	CM 15-2	39.5	42.0	0.04
	CM 15-3	52.0	54.5	0.08
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)	CM 15-1	35.8	38.3	0.04
	CM 15-2	39.5	42.0	0.04
	CM 15-3	52.0	54.5	0.08

CM 25-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 25-1	30.6	33.1	0.04
	CM 25-1	33.8	36.3	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 25-2	39.5	42.0	0.04
	CM 25-3	55.3	57.8	0.08
	CM 25-4	56.4	58.9	0.08
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 25-1	38.8	41.3	0.04
	CM 25-2	51.3	53.8	0.08
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)	CM 25-1	38.8	41.3	0.04
	CM 25-2	51.3	53.8	0.08

Stainless steel**CM 1-I and CM 1-G**

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 1-2	11.6	14.1	0.02
	CM 1-3	11.7	14.2	0.02
	CM 1-4	12.7	15.2	0.02
	CM 1-5	13.1	15.6	0.02
	CM 1-6	13.7	16.2	0.03
	CM 1-7	13.8	16.3	0.03
	CM 1-8	15.7	18.3	0.04
	CM 1-9	15.8	18.3	0.04
	CM 1-10	16.4	18.9	0.04
	CM 1-11	17.6	20.1	0.04
	CM 1-12	18.5	21.0	0.05
	CM 1-13	18.6	21.1	0.05
	CM 1-14	24.3	26.8	0.08
	1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 1-2	11.6	14.1
CM 1-3		11.7	14.2	0.02
CM 1-4		12.0	14.5	0.02
CM 1-5		12.4	14.9	0.02
CM 1-6		13.0	15.5	0.03
CM 1-7		13.8	16.3	0.03
CM 1-8		14.4	16.8	0.03
CM 1-9		14.4	16.9	0.03
3 x 220-240/380-415 V, 50 Hz (supply voltage F)		CM 1-2	17.8	20.3
	CM 1-3	17.9	20.4	0.04
	CM 1-4	18.8	21.3	0.05
	CM 1-5	19.6	22.1	0.05
	CM 1-6	19.6	22.1	0.05
	CM 1-7	12.3	14.8	0.02
	CM 1-8	12.4	14.9	0.02
	CM 1-9	12.7	15.2	0.02
	CM 1-10	13.1	15.6	0.02
	CM 1-11	15.1	17.6	0.03
	CM 1-12	16.3	18.8	0.04
	CM 1-13	16.8	19.3	0.04
	CM 1-14	16.9	19.4	0.04
	3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 1-2	11.6	14.1
CM 1-3		11.7	14.2	0.02
CM 1-4		12.7	15.2	0.02
CM 1-5		13.1	15.6	0.02
CM 1-6		13.7	16.2	0.03
CM 1-7		13.8	16.3	0.03
CM 1-8		17.2	19.7	0.04
CM 1-9		17.9	20.4	0.04
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)		CM 1-2	11.6	14.1
	CM 1-3	11.7	14.2	0.02
	CM 1-4	12.7	15.2	0.02
	CM 1-5	13.1	15.6	0.02
	CM 1-6	13.7	16.2	0.03
	CM 1-7	13.8	16.3	0.03
	CM 1-8	17.2	19.7	0.04
	CM 1-9	17.9	20.4	0.04

CM 3-I and CM 3-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 3-2	11.6	14.1	0.02
	CM 3-3	12.4	14.9	0.02
	CM 3-4	12.7	15.2	0.02
	CM 3-5	13.1	15.6	0.02
	CM 3-6	15.1	17.6	0.03
	CM 3-7	16.3	18.8	0.03
	CM 3-8	16.8	19.3	0.04
	CM 3-9	22.6	25.1	0.04
	CM 3-10	23.2	25.7	0.05
	CM 3-11	23.3	25.8	0.05
	CM 3-12	24.2	26.7	0.08
	CM 3-13	24.2	26.7	0.08
	CM 3-14	26.4	28.9	0.08
	1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 3-2	11.6	14.1
CM 3-3		11.7	14.2	0.02
CM 3-4		12.0	14.5	0.02
CM 3-5		13.1	15.6	0.02
CM 3-6		13.7	16.2	0.03
CM 3-7		16.6	19.1	0.03
CM 3-8		17.8	20.3	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)		CM 3-2	17.9	20.4
	CM 3-3	18.5	21.0	0.04
	CM 3-4	26.1	28.6	0.05
	CM 3-5	27.0	29.5	0.08
	CM 3-6	27.0	29.5	0.08
	CM 3-7	30.0	32.5	0.08
	CM 3-8	12.3	14.8	0.02
	CM 3-9	12.4	14.9	0.02
	CM 3-10	14.1	16.6	0.03
	CM 3-11	15.6	18.1	0.04
	CM 3-12	24.0	26.5	0.04
	CM 3-13	24.0	26.5	0.04
	CM 3-14	24.6	27.1	0.04
	3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 3-2	11.6	14.1
CM 3-3		12.4	14.9	0.02
CM 3-4		12.7	15.2	0.02
CM 3-5		15.9	18.4	0.03
CM 3-6		17.2	19.7	0.03
CM 3-7		24.0	26.5	0.04
CM 3-8		29.8	32.3	0.05
CM 3-9		29.9	32.4	0.05
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)		CM 3-2	11.6	14.1
	CM 3-3	12.4	14.9	0.02
	CM 3-4	12.7	15.2	0.02
	CM 3-5	15.9	18.4	0.03
	CM 3-6	17.2	19.7	0.03
	CM 3-7	24.0	26.5	0.04
	CM 3-8	29.8	32.3	0.05
	CM 3-9	29.9	32.4	0.05

CM 5-I and CM 5-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 5-2	12.3	14.8	0.02
	CM 5-3	12.4	14.9	0.02
	CM 5-4	14.1	16.6	0.03
	CM 5-5	15.5	18.0	0.03
	CM 5-6	21.8	24.3	0.04
	CM 5-7	21.9	24.4	0.04
	CM 5-8	22.5	25.0	0.04
	CM 5-9	24.7	27.2	0.04
	CM 5-10	25.3	27.8	0.05
	CM 5-11	25.4	27.9	0.05
	1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A)	CM 5-2	11.6	14.1
CM 5-3		12.4	14.9	0.02
CM 5-4		15.5	18.0	0.03
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 5-2	16.5	19.0	0.03
	CM 5-3	17.1	19.6	0.03
	CM 5-4	24.7	27.2	0.04
	CM 5-5	25.3	27.8	0.04
	CM 5-6	28.3	30.8	0.05
	CM 5-7	28.9	31.4	0.05
	CM 5-8	29.0	31.5	0.05
	CM 5-9	31.5	34.0	0.08
	CM 5-10	31.6	34.1	0.08
	CM 5-11	13.7	16.2	0.02
	CM 5-12	14.9	17.4	0.04
	CM 5-13	23.0	25.5	0.04
	3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 5-2	12.3	14.8
CM 5-3		15.2	17.7	0.02
CM 5-4		23.0	25.5	0.03
CM 5-5		28.5	31.0	0.04
CM 5-6		29.1	31.6	0.04
CM 5-7		29.2	31.7	0.04
CM 5-8		32.8	35.3	0.05
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)		CM 5-2	12.3	14.8
	CM 5-3	15.2	17.7	0.02
	CM 5-4	23.0	25.5	0.03
	CM 5-5	28.5	31.0	0.04
	CM 5-6	29.1	31.6	0.04
	CM 5-7	29.2	31.7	0.04
	CM 5-8	32.8	35.3	0.05

CM 10-I and CM 10-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 10-1	17.6	20.1	0.04
	CM 10-2	24.8	27.3	0.04
	CM 10-3	27.1	29.6	0.04
1 x 115/230 V, 60 Hz (supply voltage B) 1 x 220 V, 60 Hz (supply voltage A) 3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 10-1	16.3	18.8	0.04
	CM 10-2	19.0	21.5	0.04
	CM 10-3	30.3	32.8	0.04
	CM 10-4	33.2	35.7	0.05
	CM 10-5	34.6	37.1	0.08
	CM 10-6	37.7	40.2	0.08
	CM 10-7	54.3	56.8	0.08
	CM 10-8	54.5	57.0	0.08
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 10-1	18.8	21.3	0.04
	CM 10-2	32.1	34.6	0.04
	CM 10-3	35.3	37.8	0.04
	CM 10-4	48.0	50.5	0.05
	CM 10-5	49.4	51.9	0.08
3 x 208-230/440-480 V, 60 Hz (supply voltage E) 3 x 575 V, 60 Hz (supply voltage H) 3 x 400 V, 50/60 Hz (supply voltage I) 3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J) 3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)	CM 10-1	18.8	21.3	0.04
	CM 10-2	32.1	34.6	0.04
	CM 10-3	35.3	37.8	0.04
	CM 10-4	48.0	50.5	0.05
	CM 10-5	49.4	51.9	0.08

CM 15-I and CM 15-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 15-1	24.5	27.0	0.04
	CM 15-2	26.8	29.3	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 15-1	18.7	21.2	0.04
	CM 15-2	30.0	32.5	0.04
	CM 15-3	35.2	37.7	0.04
	CM 15-4	51.2	53.7	0.05
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 15-1	31.8	34.3	0.04
	CM 15-2	35.0	37.5	0.04
	CM 15-3	47.0	49.5	0.05
3 x 208-230/440-480 V, 60 Hz (supply voltage E)	CM 15-1	31.8	34.3	0.04
3 x 575 V, 60 Hz (supply voltage H)	CM 15-2	35.0	37.5	0.04
3 x 400 V, 50/60 Hz (supply voltage I)	CM 15-3	47.0	49.5	0.05
3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)	CM 15-3	47.0	49.5	0.05

CM 25-I and CM 25-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 25-1	26.6	29.1	0.04
	CM 25-1	29.8	32.3	0.04
3 x 220-240/380-415 V, 50 Hz (supply voltage F)	CM 25-2	35.0	37.5	0.04
	CM 25-3	50.3	52.8	0.05
	CM 25-4	51.6	54.1	0.05
	CM 25-1	34.8	37.3	0.04
3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)	CM 25-2	46.8	49.3	0.05
	CM 25-1	34.8	37.3	0.04
3 x 208-230/440-480 V, 60 Hz (supply voltage E)	CM 25-1	34.8	37.3	0.04
3 x 575 V, 60 Hz (supply voltage H)	CM 25-3	46.8	49.3	0.05
3 x 400 V, 50/60 Hz (supply voltage I)	CM 25-3	46.8	49.3	0.05
3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)	CM 25-3	46.8	49.3	0.05

CM self-priming pumps

Stainless steel

CM 1-I

(I = EN 1.4301/AISI 304)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 1-3	11.7	14.2	0.02
	CM 1-4	12.7	15.2	0.02
	CM 1-5	13.1	15.6	0.02
	CM 1-6	13.7	16.2	0.03
1 x 220 V, 60 Hz (supply voltage A)	CM 1-3	11.7	14.2	0.02
	CM 1-4	12.0	14.5	0.02

CM 3-I

(I = EN 1.4301/AISI 304)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 3-3	12.4	14.9	0.02
	CM 3-4	12.7	15.2	0.02
	CM 3-5	13.1	15.6	0.02
	CM 3-6	15.1	17.6	0.03
1 x 220 V, 60 Hz (supply voltage A)	CM 3-3	11.7	14.2	0.02
	CM 3-4	12.0	14.5	0.02

CM 5-I

(I = EN 1.4301/AISI 304)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 220-240 V, 50 Hz (supply voltage C)	CM 5-3	12.4	14.9	0.02
	CM 5-4	14.1	16.6	0.03
	CM 5-5	15.5	18.0	0.03
	CM 5-6	21.8	24.3	0.04
	CM 5-7	21.9	24.4	0.04
1 x 220 V, 60 Hz (supply voltage A)	CM 5-3	12.4	14.9	0.02
	CM 5-4	15.5	18.0	0.03

CME non-self-priming pumps

Cast iron CME 1-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 1-2	12.8	16.3	0.02
	CME 1-3	13.1	16.6	0.02
	CME 1-4	13.3	16.8	0.02
	CME 1-5	14.4	17.9	0.03
3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 1-2	13.7	17.2	0.03
	CME 1-3	14.0	17.5	0.03
	CME 1-4	14.2	17.7	0.03
	CME 1-5	15.3	18.8	0.03

CME 3-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 3-2	12.8	16.3	0.02
	CME 3-3	13.9	17.4	0.02
	CME 3-4	14.1	17.6	0.02
	CME 3-5	14.4	17.9	0.03
3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 3-2	13.7	17.2	0.03
	CME 3-3	15.1	18.6	0.02
	CME 3-4	15.0	18.5	0.03
	CME 3-5	15.3	18.8	0.03

CME 5-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 5-2	13.5	17.0	0.02
	CME 5-3	13.8	17.3	0.02
	CME 5-4	17.4	20.9	0.03
	CME 5-2	14.4	17.9	0.03
3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 5-3	14.7	18.2	0.03
	CME 5-4	18.2	21.7	0.03
	CME 5-4	18.2	21.7	0.03
	CME 5-5	17.6	21.1	0.03

CME 10-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 10-3	63.5	67.0	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 10-3	60.2	63.7	0.08
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 10-1	22.7	26.2	0.02
3 x 380-500 V, 50/60 Hz (supply voltage S)	CME 10-1	23.6	27.1	0.03
3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 10-2	27.1	30.6	0.03

CME 15-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 15-2	62.1	65.6	0.08
	CME 15-3	67.0	70.5	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 15-2	58.8	62.3	0.08
	CME 15-3	63.2	66.7	0.08
3 x 380-500 V, 50/60 Hz (supply voltage S)	CME 15-1	25.8	29.3	0.03
3 x 440-480 V, 50/60 Hz (supply voltage T)				

CME 25-A

(A = cast iron EN-GJL-200)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 25-1	43.5	47.0	0.08
	CME 25-2	66.3	69.8	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 25-1	58.2	61.7	0.08
	CME 25-2	62.5	66.0	0.08

Stainless steel**CME 1-I and CME 1-G**

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 1-2	13.5	17.0	0.02
	CME 1-3	13.6	17.1	0.02
	CME 1-4	13.9	17.4	0.02
	CME 1-5	15.0	18.5	0.02
	CME 1-6	15.6	19.1	0.03
	CME 1-7	15.7	19.2	0.03
	CME 1-8	16.3	19.8	0.03
	CME 1-9	17.8	21.3	0.03
	3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 1-2	14.3	17.8
CME 1-3		14.4	17.9	0.02
CME 1-4		14.7	18.2	0.03
CME 1-5		15.8	19.3	0.03
CME 1-6		16.4	19.9	0.03
CME 1-7		16.5	20.0	0.03
CME 1-8		17.1	20.6	0.03
CME 1-9		18.6	22.1	0.03

CME 3-I and CME 3-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 3-2	13.5	17.0	0.02
	CME 3-3	14.3	17.8	0.02
	CME 3-4	14.6	18.1	0.02
	CME 3-5	15.0	18.5	0.02
	CME 3-6	17.1	20.6	0.03
	CME 3-7	17.1	20.6	0.03
	3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 3-2	14.3	17.8
CME 3-3		15.1	18.6	0.02
CME 3-4		15.4	18.9	0.03
CME 3-5		15.8	19.3	0.03
CME 3-6		17.9	21.4	0.03
CME 3-7		17.9	21.4	0.03
CME 3-8		19.9	23.4	0.03
CME 3-9		20.0	23.5	0.03

CME 5-I and CME 5-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 5-7	36.9	40.4	0.08
	CME 5-8	37.5	41.0	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 5-4	30.0	33.5	0.08
	CME 5-5	30.3	33.8	0.08
	CME 5-6	33.8	37.3	0.08
	CME 5-7	33.9	37.4	0.08
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 5-2	14.2	17.7	0.02
	CME 5-3	14.3	17.8	0.02
	CME 5-4	16.1	19.6	0.03
	CME 5-2	15.0	18.5	0.02
3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 5-3	15.1	18.6	0.02
	CME 5-4	16.9	20.4	0.03
	CME 5-5	18.6	22.1	0.03
	CME 5-6	19.2	22.7	0.03

CME 10-I and CME 10-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 10-3	57.9	61.4	0.08
	CME 10-4	58.8	62.3	0.08
	CME 10-5	60.2	63.7	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 10-3	54.6	58.1	0.08
	CME 10-4	55.5	59.0	0.08
	CME 10-5	60.6	64.1	0.08
1 x 200-240 V, 50/60 Hz (supply voltage U)	CME 10-1	18.1	21.6	0.03
3 x 380-500 V, 50/60 Hz (supply voltage S)	CME 10-1	19.0	22.5	0.03
3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 10-2	22.1	0.0	0.03

CME 15-I and CME 15-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 15-2	57.6	61.1	0.08
	CME 15-3	62.0	65.5	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 15-2	54.3	57.8	0.08
	CME 15-3	58.2	61.7	0.08
3 x 380-500 V, 50/60 Hz (supply voltage S) 3 x 440-480 V, 50/60 Hz (supply voltage T)	CME 15-1	21.8	25.3	0.03

CME 25-I and CME 25-G

(I = EN 1.4301/AISI 304 and G = EN 1.4401/AISI 316)

Supply voltage	Pump type	Net weight [kg]	Gross weight [kg]	Shipping volume [m ³]
3 x 380-480 V, 50/60 Hz (supply voltage L)	CME 25-1	39.5	43.0	0.08
	CME 25-2	61.8	65.3	0.08
3 x 460-480 V, 60 Hz (supply voltage N)	CME 25-1	54.1	57.6	0.08
	CME 25-2	58.0	61.5	0.08

26. Motor data

Mains-operated motors, 50 Hz

1 x 220-240 V, 50 Hz (supply voltage C)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71A	0.3	1.8 - 2.4	0.95 - 0.86	67.4 - 61.4	6.1 - 8.2	2.800 - 2.830
71B	0.5	3.1 - 2.8	0.97 - 0.99	74 - 70	16.4 - 14.8	2.730 - 2.740
80A	0.67	4.4 - 4.0	0.99 - 0.99	71.8 - 73	17.2 - 15.6	2.720 - 2.800
80B	0.9	5.4 - 5.0	0.98 - 0.98	76 - 74	23.2 - 21.5	2.750 - 2.790
90SA	1.3	8.4 - 8.0	0.98 - 0.98	71 - 71	28.6 - 27.2	2.710 - 2.710
90SB	1.9	11.0 - 10.0	0.99 - 0.98	75 - 76	40.7 - 37.0	2.755 - 2.770

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71A	0.46	2.0 - 2.2 / 1.0 - 1.2	0.83 - 0.75	73.4 - 73.6	9.8 - 11.7 / 4.9 - 6.4	2.770 - 2.820
71B	0.65	2.8 - 3.1 / 1.6 - 1.8	0.82 - 0.72	73.9 - 72.9	16.2 - 19.2 / 9.3 - 11.2	2.770 - 2.820
80BA	0.85	3.5 - 3.8 / 2 - 2.22	0.77 - 0.68	79.7 - 79.3	21.0 - 24.3 / 12.0 - 14.2	2.840 - 2.870
80C	1.2	4.8 - 5.2 / 2.8 - 3	0.79 - 0.7	83 - 80.9	37.0 - 41.6 / 21.6 - 24.0	2.820 - 2.860
90SB	1.58	5.55 - 5.38 / 3.25 - 3	0.88 - 0.84	83.4 - 84.3	38.9 - 44.1 / 22.8 - 24.6	2.880 - 2.910
90SC	2.2	8.15 - 7.85 / 4.7 - 4.5	0.89 - 0.84	83.7 - 84.3	72.5 - 80.1 / 41.8 - 45.9	2.880 - 2.910
100LA	3.2	11.8 - 11.0 / 6.75 - 6.40	0.87 - 0.79	85.2 - 85.5	94.4 - 96.8 / 54.0 - 56.3	2.900 - 2.920
100LB	4.0	14.0 - 13.2 / 8.20 - 7.80	0.87 - 0.84	87.1 - 87.9	119.0 - 125.4 / 69.7 - 74.1	2.900 - 2.920
132SB	5.8	20.4 - 19.0 / 11.8 - 11.0	0.89 - 0.84	87.5 - 88.0	181.6 - 184.3 / 105.0 - 106.7	2.900 - 2.980
132SC	7.4	25.5 - 26.5 / 14.8 - 15.4	0.86 - 0.77	88.4 - 88.7	232.1 - 254.4 / 134.7 - 147.8	2.910 - 2.930

Mains-operated motors, 60 Hz

1 x 220 V, 60 Hz (supply voltage A)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
	[kW]	[hp]							
71B	0.60	0.80	1	4.1	4.1	0.98	71	16.8	3.300
80A	0.84	1.1	1	5.8	5.8	0.98	69.8	18.6	3.150
80B	1.14	1.5	1	7.35	7.35	0.99	73.5	19.8	3.270
90SB	1.54	2.0	1	9.8	9.8	0.98	74.8	37.2	3.330

1 x 115/230 V, 60 Hz (supply voltage B)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
	[kW]	[hp]							
71BA	0.60	0.8	1	7.6 / 3.9	7.6 / 3.9	0.76	69 - 66	19.8 / 10.1	3.240
80AA	0.78	1.06	1	10.6 / 5.4	10.6 / 5.4	0.65	69 - 68	31.8 / 16.2	3.240
80BA	1.10	1.50	1	14.0 / 7.0	14.0 / 7.0	0.94	71 - 69	44.8 / 22.4	3.320
90CC	1.50	2.03	1	19.5 / 9.8	19.5 / 9.8	0.97	72.9 - 69	78.0 / 39.2	3.360

3 x 208-230/440-480 V, 60 Hz (supply voltage E)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
	[kW]	[hp]							
71AA	0.43	0.58	1	1.9 - 1.7 / 1.0 - 0.8	1.9 - 1.7 / 1.0 - 0.8	0.85 - 0.81 / 0.85 - 0.81	76.0 - 78.6	11.2 - 11.1 / 5.9 - 5.2	3.360 - 3.420
71BA	0.74	1.0	1	3.4 - 3.6 / 1.7 - 1.8	3.4 - 3.6 / 1.7 - 1.8	0.89 - 0.83 / 0.89 - 0.83	76.0 - 78.4	20.1 - 23.4 / 10.0 - 11.7	3.220 - 3.370
80BA	1.04	1.4	1	4.1 - 3.95 / 2 - 2	4.1 - 3.95 / 2 - 2	0.8 - 0.71 / 0.8 - 0.71	83.6 - 83	26.7 - 31.6 / 13.0 - 16.0	3.430 - 3.460
80CB	1.28	1.7	1	5.1 - 4.9 / 2.48 - 2.46	5.1 - 4.9 / 2.48 - 2.46	0.82 - 0.75 / 0.82 - 0.79	83.5 - 83.8	34.7 - 37.7 / 16.9 - 18.9	3.420 - 3.460
90CC	1.7	2.3	1	6.25 - 5.85 / 2.98 - 2.85	6.25 - 5.85 / 2.98 - 2.85	0.83 - 0.84 / 0.83 - 0.84	85.9 - 85.8	53.1 - 55.0 / 25.3 - 26.8	3.440 - 3.520
90FA	2.5	3.4	1	8.95 - 8.5 / 4.3 - 4	8.95 - 8.5 / 4.3 - 4	0.9 - 0.81 / 0.9 - 0.81	86.1 - 86.9	81.4 - 89.3 / 39.1 - 42.0	3.490 - 3.520
100BB	4.0	5.4	1	14.8 - 14.2 / 7.2 - 7.0	14.8 - 14.2 / 7.2 - 7.0	0.86 - 0.80 / 0.86 - 0.80	88.5 - 89.2	177.6 - 123.5 / 86.4 - 60.9	3.520 - 3.530
132CA	6	8	1	21 - 20.4 / 10.5 - 10.2	21 - 20.4 / 10.5 - 10.2	0.88 - 0.82 / 0.88 - 0.82	89.4 - 89	189.0 - 234.6 / 94.5 - 117.3	3.520 - 3.540

3 x 575 V, 60 Hz (supply voltage H)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
	[kW]	[hp]							
71AA	0.43	0.58	1	0.7	0.7	0.84	76.0	4.6	3.340
71BA	0.74	1.0	1	1.3	1.3	0.84	76	8.5	3.340
80BA	1.04	1.4	1	1.55	1.55	0.8	85.2	11.8	3.450
80CB	1.28	1.7	1	1.84	1.84	0.82	85.7	15.3	3.440
90CC	1.7	2.3	1	2.89	2.89	0.83	85.9	27.7	3.440
90FA	2.5	3.4	1	3.5	3.5	0.9	85.9	20.7	3.490
100BB	4.0	5.4	1	5.7	5.7	0.88	88.5	49.6	3.500
132CA	6	8	1	8.2	8.2	0.86	89.2	106.6	3.520

Mains-operated motors, 50/60 Hz

3 x 220-240/380-415 V, 50 Hz; 3 x 220-255/380-440 V, 60 Hz (supply voltage O)

Frame size	P ₂ [kW]	Frequency [Hz]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71B	0.43	50	3.4 - 2.5 / 1.3 - 1.5	0.72 - 0.60	78 - 76	17.0 - 15.0 / 6.5 - 9.0	2.870 - 2.890
	0.74	60	3.4 - 2.9 / 1.6 - 1.7	0.87 - 0.84	75 - 77	17.0 - 17.4 / 8.0 - 10.2	3.280 - 3.350
80BA	0.6	50	3.46 - 4.24 / 2 - 2.45	0.55 - 0.43	84 - 80.1	33.2 - 36.5 / 19.2 - 21.1	2.920 - 2.930
	1.04	60	4.3 - 4.1 / 2.48 - 2.37	0.76 - 0.68	84.1 - 85.5	28.0 - 31.6 / 16.1 - 18.2	3.410 - 3.450
80C	0.74	50	4.24 - 5.2 / 2.45 - 3	0.55 - 0.43	84.6 - 81.3	40.7 - 46.8 / 23.5 - 27.0	2.920 - 2.930
	1.28	60	5.2 - 4.9 / 3 - 2.83	0.77 - 0.7	84.3 - 85.7	34.3 - 38.2 / 19.8 - 22.1	3.400 - 3.440

3 x 380-415 V, 50 Hz; 3 x 440-480 V, 60 Hz (supply voltage J)

Frame size	P ₂ [kW]	Frequency [Hz]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71AA	0.25	50	0.55 - 0.65	0.77 - 0.71	77 - 76	4.0 - 5.1	2.870 - 2.890
	0.43	60	0.95 - 0.80	0.85 - 0.82	76.0 - 78.6	5.6 - 5.2	3.360 - 3.420
71BA	0.43	50	1.4 - 1.5	0.76 - 0.66	77 - 76	7.7 - 9.0	2.860 - 2.890
	0.74	60	1.7 - 1.8	0.89 - 0.83	76.0 - 78.4	10.0 - 11.7	3.220 - 3.380
80BA	0.6	50	1.55 - 1.75	0.68 - 0.62	83.5 - 82	13.8 - 14.7	2.900 - 2.910
	1.04	60	2 - 2.1	0.85 - 0.75	82.5 - 82.9	14.6 - 16.8	3.420 - 3.460
80CB	0.74	50	1.95 - 2.1	0.72 - 0.62	85.2 - 84.1	18.1 - 20.4	2.900 - 2.920
	1.28	60	2.55 - 2.45	0.82 - 0.76	85.3 - 85.8	19.1 - 21.3	3.440 - 3.470
90CC	1	50	2.25 - 2.3	0.8 - 0.74	83.9 - 82.9	25.2 - 27.8	2.930 - 2.950
	1.7	60	2.98 - 2.85	0.88 - 0.84	86.1 - 86.9	25.3 - 26.8	3.490 - 3.510
90FA	1.45	50	3 - 3.2	0.83 - 0.81	86.8 - 87	36.0 - 41.6	2.920 - 2.950
	2.5	60	4.3 - 4	0.9 - 0.87	86.1 - 86.9	38.7 - 44.0	3.490 - 3.520
100BB	2.36	50	6.0 - 6.5	0.76 - 0.65	88 - 87	72.0 - 87.8	2.950 - 2.960
	4.0	60	7.3 - 7.5	0.86 - 0.80	88.5 - 89.2	87.6 - 65.3	3.520 - 3.530
132CA	3.5	50	7.9 - 8.7	0.76 - 0.64	88.5 - 87	122.5 - 133.5	2.950 - 2.960
	6	60	10.2 - 10.2	0.86 - 0.79	89.3 - 89.1	123.4 - 136.7	3.520 - 3.530

3 x 200/346 V, 50 Hz; 3 x 200-220/346-380 V, 60 Hz (supply voltage G)

Frame size	P ₂ [kW]	Frequency [Hz]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71AA	0.25	50	1.6 / 1.0	0.65	77 - 76	11.7 / 7.3	2.900
	0.43	60	2.0 - 1.8 / 1.15 - 1.05	0.85 - 0.8	76.0 - 78.6	11.8 - 11.7 / 6.8 - 6.8	3.370 - 3.424
71B	0.43	50	3.6 / 2.0	0.53	77 - 76	19.8 / 11.0	2.904
	0.74	60	3.3 - 3.5 / 2.0 - 2.2	0.83 - 0.76	76 - 78.4	19.5 - 22.8 / 11.8 - 14.3	3.380 - 3.429
80BA	0.6	50	4.6 / 2.66	0.56	82.4 - 82.4	42.8 / 24.7	2.930
	1.04	60	4.3 - 4.2 / 2.5 - 2.4	0.8 - 0.72	85 - 85	31.0 - 35.3 / 18.0 - 20.2	3.440 - 3.470
80C	0.74	50	6.1 / 3.53	0.61	84 - 84	51.9 / 30.0	2.910
	1.28	60	5.7 - 5.2 / 3.3 - 3	0.77 - 0.77	83.8 - 84.1	37.1 - 31.7 / 21.5 - 18.3	3.450 - 3.450
90SB	1	50	5.2 / 3	0.65	83 - 83	65.0 / 37.5	2.950
	1.7	60	6.6 - 6.3 / 3.8 - 3.6	0.83 - 0.84	85.9 - 85.8	56.1 - 63.0 / 32.3 - 36.0	3.440 - 3.520
90LC	1.45	50	6.5 / 3.8	0.75	86.6 - 86.6	88.4 / 51.7	2.950
	2.5	60	9.6 - 8.8 / 5.5 - 5.1	0.9 - 0.88	83.1 - 86.9	74.9 - 84.5 / 42.9 - 49.0	3.480 - 3.500
100LB	2.3	50	11.6 / 6.65	0.66	86.9 - 83.5	139.2 / 79.8	2.960
	4.0	60	14.8 - 13.8 / 8.55 - 8	0.89 - 0.85	87.5 - 89.4	177.6 - 165.6 / 102.6 - 96.0	3.510 - 3.530
112MC	3.5	50	19 / 11	0.62	88.2 - 88.2	285.0 / 165.0	2.960
	6.00	60	22.2 - 21.2 / 12.8 - 12.2	0.86 - 0.79	89.3 - 89	244.2 - 260.8 / 140.8 - 150.1	3.520 - 3.540

3 x 400 V, 50/60 Hz (supply voltage I)

Frame size	P ₂ [kW]	Frequency [Hz]	I _{1/1} [A]	Cos φ _{1/1}	η [%]	I _{start} [A]	Speed [min ⁻¹]
71AA	0.25	50	0.73	0.68	72.6	4.7	2.890
	0.43	60	1.0	0.86	73.5	6.5	3.320
71BA	0.43	50	1.68	0.53	71.1	10.9	2.890
	0.74	60	1.70	0.84	76.0	11.1	3.320
80BA	0.6	50	1.9	0.59	81.6	13.5	2.910
	1.04	60	2.18	0.83	83	13.5	3.400
80CB	0.74	50	2.28	0.57	82.4	13.9	2.920
	1.28	60	2.65	0.84	83.9	13.8	3.400
90CC	1	50	3	0.59	81.3	26.7	2.960
	1.7	60	3.2	0.87	81.3	23.7	3.510
90FA	1.45	50	3.0	0.83	86.8	36.0	2.920
	2.5	60	4.65	0.91	85.4	41.9	3.500
100BB	2.32	50	5.5	0.7	87	63.3	2.960
	4	60	7.35	0.89	87.6	63.2	3.500
132CA	3.5	50	8.8	0.65	88.2	145.2	2.960
	6	60	11.2	0.87	90	172.9	3.520

Speed-controlled motors

3 x 460-480 V, 60 Hz (supply voltage N)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}
	[kW]	[hp]				
90CC	1.50	2.00	1.15	3.1 - 3.1	3.6 - 3.6	0.87
90FA	2.20	3.00	1.15	3.7 - 3.7	4.3 - 4.3	0.91
112CA	4.0	5.5	1.15	6.1 - 6.1	7.0 - 7.0	0.92
132DA	5.5	7.5	1.15	8.9 - 8.9	10.2 - 10.2	0.94

3 x 380-480 V, 50/60 Hz (supply voltage L)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}
90SB	1.50	3.3 - 2.7	0.91 - 0.87
90LC	2.20	4.6 - 3.8	0.92 - 0.90
100LC	3.0	6.2 - 5	0.94 - 0.92
112MC	4.0	8.1 - 6.6	0.94 - 0.92
132SC	5.5	11 - 8.8	0.94 - 0.93
132SD	7.5	15 - 12	0.94 - 0.93

3 x 380-500 V, 50/60 Hz (supply voltage S)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}
71A	0.55	1.3 - 1.1	0.83 - 0.72
80B	1.1	2.15 - 1.8	0.91 - 0.82
90C	1.5	2.9 - 2.4	0.92 - 0.84
90D	2.2	4.15 - 3.4	0.93 - 0.87

3 x 440-480 V, 50/60 Hz (supply voltage T)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}
	[kW]	[hp]				
71A	0.55	0.75	1.25	1.2	1.5	0.76
80B	1.1	1.5	1.15	1.9	2.1	0.85
90C	1.5	2	1.15	2.6	2.9	0.87
90D	2.2	3	1.15	3.7	4.25	0.89

1 x 200-240 V, 50/60 Hz (supply voltage U)

Frame size	P ₂		Service factor	I _{1/1} [A]	Service factor current	Cos φ _{1/1}
	[kW]	[hp]				
71A	0.55	0.75	1	3.4 - 2.9	3.40-2.90	0.98
80B	1.1	1.5	1	6.55 - 5.45	6.55-5.45	0.99
90C	1.5	2	1	8.9 - 7.45	8.90-7.45	0.99

3 x 208-230 V, 50/60 Hz (supply voltage Q)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}
90CC	1.50	5.60 - 5.10	0.95 - 0.95
90SB	1.50	5.60 - 5.10	0.95 - 0.95
90LC	2.20	8.3 - 7.6	0.95 - 0.90
90FA	2.20	8.3 - 7.6	0.95 - 0.90
112MC	4.0	13.4 - 12.8	0.94 - 0.9
132SC	5.5	19.7 - 18.1	0.94 - 0.92

3 x 200-230 V, 50/60 Hz (supply voltage R)

Frame size	P ₂ [kW]	I _{1/1} [A]	Cos φ _{1/1}
90SB	1.50	5.60 - 5.10	0.95 - 0.95
90LC	2.20	8.3 - 7.6	0.95 - 0.90
112MC	4.0	13.4 - 12.8	0.94 - 0.9
132SC	5.5	19.7 - 18.1	0.94 - 0.92

Additional data for speed-controlled motors

New-generation CME (supply voltages S, T, U)

	Single-phase 0.37 to 1.5 kW (supply voltage U)	Three-phase 0.37 to 2.2 kW (supply voltage S, T)
Power supply to pump	1 x 200-240 V - 10 %/+ 10 %, 50/60 Hz, PE.	3 x 380-480 V - 10 %/+ 10 %, 50/60 Hz, PE. 3 x 380-500 V - 10 %/+ 10 %, 50/60 Hz, PE.
Backup fuse	Motor sizes of 0.37 to 0.75 kW: Max. 10 A. Motor sizes of 1.1 to 1.5 kW: Max. 16 A. Standard as well as quick-blow or slow-blow fuses may be used.	Motor sizes of 0.37 to 1.1 kW: Max. 6 A. Motor sizes of 1.5 to 2.2 kW: Max. 10 A. Standard as well as quick-blow or slow-blow fuses may be used.
External start/stop input	External potential-free contact. Maximum contact load: Voltage 5 VDC, current < 10 mA. Screened cable.* Maximum cable length: 500 m.	
Digital input	External potential-free contact. Maximum contact load: Voltage 5 VDC, current < 10 mA. Screened cable.*	
Setpoint signals	<ul style="list-style-type: none"> • Potentiometer 0-5 VDC, 10 kΩ (via internal voltage supply). Screened cable.* Maximum cable length: 100 m. • Voltage signal 0.5 - 3.5 VDC / 0-5 VDC / 0-10 VDC, R_i > 100 kΩ. Tolerance: + 0 %/- 3 % at maximum voltage signal. Screened cable.* Maximum cable length: 500 m. • Current signal 0-20 mADC / 4-20 mADC, R_i = 292 Ω. Tolerance: + 0 %/- 3 % at maximum current signal. Screened cable.* Maximum cable length: 500 m. 	
Power supply to sensors	The sensors are supplied with electricity via the motor terminal box. <ul style="list-style-type: none"> • 5 VDC - 5 %/+ 5 %. Maximum load: 50 mADC. • 24 VDC - 5 %/+ 5 %. Maximum load: 60 mADC. 	
Sensor signals	<ul style="list-style-type: none"> • Voltage signal 0.5 - 3.5 VDC / 0-5 VDC / 0-10 VDC, R_i > 100 kΩ. Tolerance: + 0 %/- 3 % at maximum voltage signal. Screened cable.* Maximum cable length: 500 m. • Current signal 0-20 mADC / 4-20 mADC, R_i = 292 Ω. Tolerance: + 0 %/- 3 % at maximum current signal. Screened cable.* Maximum cable length: 500 m. 	
Signal output	Potential-free changeover contact. Minimum contact load when in use: 5 VDC, 10 mA. Screened cable: 0.5 - 2.5 mm ² / 28-12 AWG. Maximum cable length: 500 m.	
Bus input	Grundfos GENIbus protocol, RS-485. Screened 3-core cable: 0.5 - 1.5 mm ² / 28-16 AWG. Maximum cable length: 500 m.	
EMC	EN 61800-3: <ul style="list-style-type: none"> • Residential areas, unlimited distribution, corresponding to CISPR 11, class B, group 1. • Industrial areas, unlimited distribution, corresponding to CISPR 11, class A, group 1. 	
Enclosure class	IP55 (IEC 34-5).	
Insulation class	F (IEC 85).	
Ambient temperature	During operation: -20-50 °C. During storage/transport: -30-60 °C.	
Relative air humidity	Maximum 95 %.	

* Cross-section minimum 0.5 mm² and maximum 1.5 mm².

CME (supply voltages L, N, Q, R)

Three-phase 1.5 - 7.5 kW (supply voltage L, N, R, Q)	
Power supply to pump	3 x 380-480 V - 10 %/+ 10 %, 50/60 Hz, PE. 3 x 460-480 V - 10 %/+ 10 %, 60 Hz, PE. 3 x 200-230 V - 10 %/+ 10 %, 50/60 Hz, PE. 3 x 208-230 V - 10 %/+ 10 %, 50/60 Hz, PE.
Backup fuse	Motor sizes of 1.5 to 5.5 kW: Max. 16 A. Motor size 7.5 kW: Max. 32 A. Standard as well as quick-blow or slow-blow fuses may be used.
External start/stop input	
Digital input	
Setpoint signals	<ul style="list-style-type: none"> Potentiometer 0-10 VDC, 10 kΩ (via internal voltage supply). Screened cable.* Maximum cable length: 100 m. Voltage signal 0-10 VDC, $R_i > 50 \text{ k}\Omega$. Tolerance: + 0 %/- 3 % at maximum voltage signal. Screened cable.* Maximum cable length: 500 m. Current signal DC 0-20 mA / 4-20 mA, $R_i = 250 \Omega$. Tolerance: + 0 %/- 3 % at maximum current signal. Screened cable.* Maximum cable length: 500 m.
Power supply to sensors	The sensors are supplied with electricity via the motor terminal box. <ul style="list-style-type: none"> 24 VDC - 10 %/+ 10 %. Maximum load: 40 mA.
Sensor signals	<ul style="list-style-type: none"> Voltage signal 0-10 VDC, $R_i > 50 \text{ k}\Omega$. Tolerance: + 0 %/- 3 % at maximum voltage signal. Screened cable.* Maximum cable length: 500 m. Current signal DC 0-20 mA / 4-20 mA, $R_i = 250 \Omega$. Tolerance: + 0 %/- 3 % at maximum current signal. Screened cable.* Maximum cable length: 500 m.
Signal output	Potential-free changeover contact. Maximum contact load: 250 VAC, 2 A. Minimum contact load: 5 VDC, 10 mA. Screened cable: 0.5 - 2.5 mm ² . Maximum cable length: 500 m.
Bus input	Grundfos GENIbus protocol, RS-485. 0.5 - 1.5 mm ² screened 2-core cable. Maximum cable length: 500 m.
EMC	<p>EN 61800-3: Note: When pumps fitted with 7.5 kW motors are installed in first environment (residential areas), an additional EMC filter is required to obtain class B, group 1 status.</p> <p>Motors of 0.55 to 5.5 kW: Electromagnetic disturbance - first environment (residential areas) - unrestricted distribution, corresponding to CISPR 11, class B, group 1.</p> <p>Motors of 7.5 kW: Electromagnetic disturbance - first environment (residential areas) - restricted distribution. Immunity to electromagnetic disturbance - second environment (industrial areas) - unrestricted distribution, corresponding to CISPR 11, class A, group 1.</p>
Enclosure class	IP55 (IEC 34-5).
Insulation class	F (IEC 85).
Ambient temperature	During operation: -20-40 °C. During storage/transport: -40-60 °C.
Relative air humidity	Maximum 95 %.

* Cross-section minimum 0.5 mm² and maximum 1.5 mm².

27. Customisation

Although the Grundfos CM and CME product range offers a number of pumps for different applications, customers require specific pump solutions to satisfy their needs. Below are the options available for customising the CM and CME pumps. Contact Grundfos for further information or for requests other than the ones mentioned below.

Motors

Motor with multiplug connection

Mains-operated motors fitted with a Harting® 10-pin multiplug connection, HAN 10 ES, enable easy connection to the mains.

Note: For CME pumps we offer the solutions shown on page 128.

The purpose of a multiplug connection is to facilitate the electrical installation and service of the pump. The multiplug functions as a plug-and-pump device.

Figure 36 shows the position of the multiplug on the mains-operated motor.

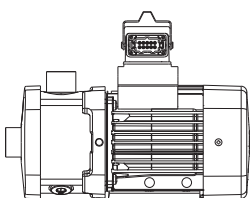
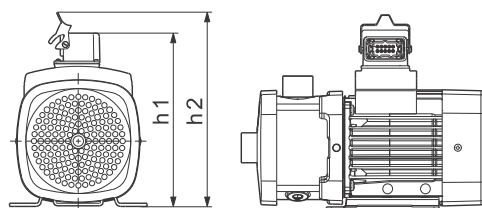


Fig. 36 Motor with multiplug connection



Fig. 37 Multiplug logo

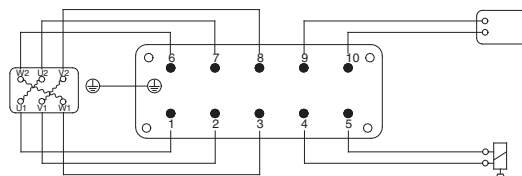
Dimensions



TM04 5847 4609

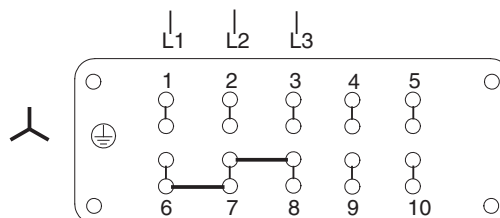
Pump type	Frame size	h1	h2
CM 1	71	206	237
CM 3	80	206	237
CM 5	90	263	294
	100	283	314
	71	231	262
	80	231	262
CM 10	90	273	304
CM 15	100	283	314
CM 25	112	309	340
	132	309	340

Plug connections



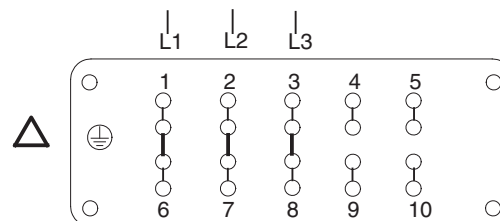
TM01 8702 0700

Fig. 38 Plug connection from motor



TM01 8703 0700

Fig. 39 Plug connection for star connection



TM01 8704 0700

Fig. 40 Plug connection for delta connection

Note: Wire bridges for connections are located in the plug.

TM04 5846 4109

TM02 0470 0700

Plug-and-pump solution for CME pumps

To facilitate electrical installation and service, we offer plug-and-pump solutions for CME pumps. These customised solutions are only available on request. Please contact Grundfos.

New-generation CME (supply voltages S, T, U)

The new-generation CME pumps can be fitted with receptacles in the cable entries of the motor for fast cable connection. Simply plug and pump.

Figure 41 shows how the new-generation CME pumps are connected.

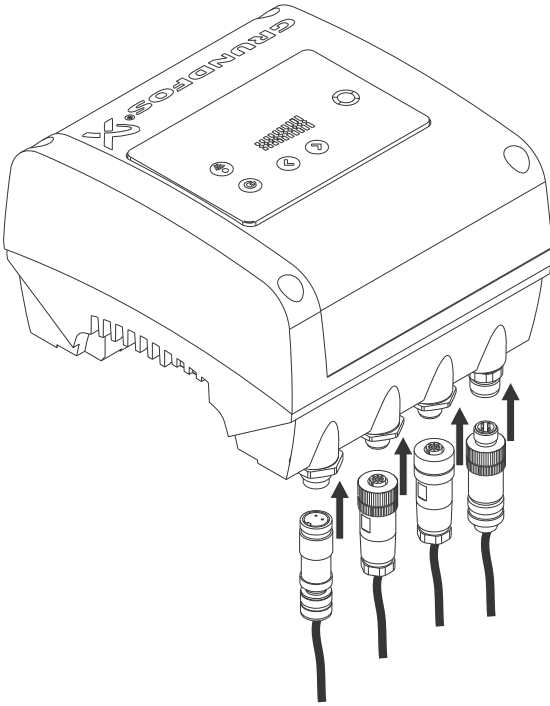


Fig. 41 Fast connection of CME pumps

TM05 7677 1413

CME (supply voltages L, N, Q, R)

These three-phase CME pumps can be customised with a detachable cable entry bar. When the cable entry bar is removed, it is possible to disconnect all electrical connections.

Figure 42 shows the location of the detachable cable entry bar on the motor terminal box as well as plugs for mains connection, sensor and communication.

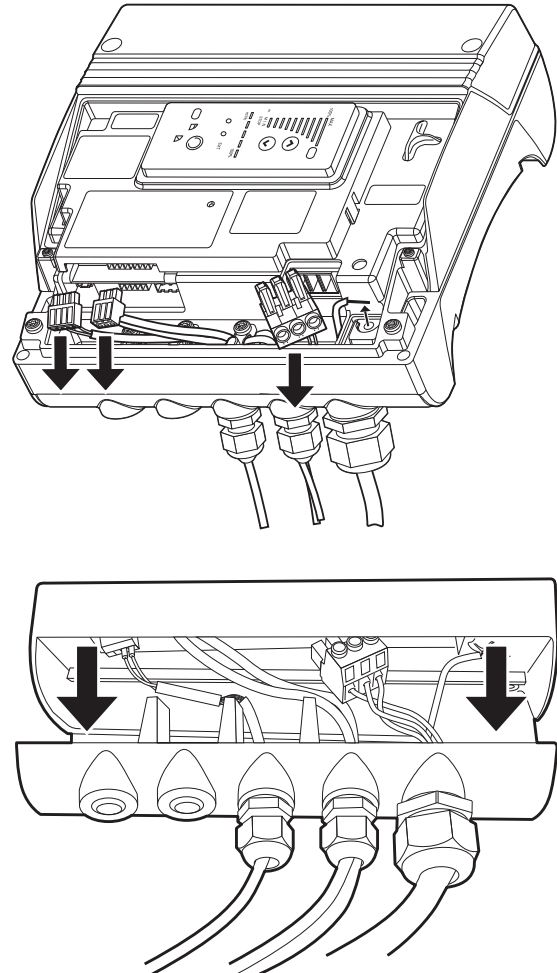


Fig. 42 Location of the detachable cable entry bar

TM03 1964 3405 - TM03 1962 3405

Motor with anti-condensation heater

CM



TM03 2440 4305

Fig. 43 Mains-operated motor with anti-condensation heater

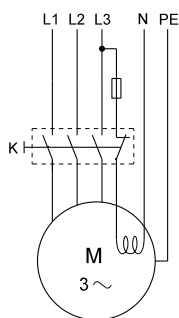
In applications where condensation in the motor may occur, we recommend that you install a motor with an anti-condensation heater on the stator coil ends. The heater keeps the motor temperature higher than the ambient temperature and prevents condensation. In areas with ambient temperatures below 0 °C, we recommend that you always use motors with anti-condensation heater.

High humidity may cause condensation in the motor. Slow condensation occurs as a result of a decreasing ambient temperature; rapid condensation occurs as a result of shock cooling caused by direct sunlight followed by rain.

Note: Rapid condensation is not to be confused with the phenomenon which occurs when the pressure inside the motor is lower than the atmospheric pressure. In such cases, moisture is sucked from the atmosphere into the motor through bearings, housings, etc.

In applications with constant humidity levels above 85 %, the drain holes in the drive-end flange must be open. This changes the enclosure class to IPX5. If IP55 protection is required due to operation in dusty environments, we recommend that you install a motor with anti-condensation heater.

Figure 44 shows a typical circuit of a three-phase motor with anti-condensation heater.



TM03 4058 1406

Fig. 44 Three-phase motor with anti-condensation heater

Legend

Symbol	Designation
K	Contactor
M	Motor

Note: Connect the anti-condensation heater to the power supply so that it is on when the motor is switched off.

The following motor sizes are available with anti-condensation heater:

Motors, 50/60 Hz	Power of heating unit [W]	
	1 x 24 V	1 x 190-250 V
71/80		23
90	38	31
100		38
112/132	2 x 38	2 x 38

CME

The MGE motors fitted to CME pumps incorporate a standstill heating function. No external heater on the stator coil is necessary.

The working principle is that AC voltage is applied to the motor windings. The applied AC voltage will not make the motor run, but will ensure that sufficient heat is generated to prevent condensation in the motor. The terminal box is kept warm and dry by the heat generated via the mains voltage connected. However, it is a condition that the terminal box is not exposed to open air. It must be provided with a suitable cover to protect it from rain and the drain plugs have to be removed to obtain ventilation in motor and terminal box. See [Operation in condensing environments](#), on page 21.

Motors with PTC sensors



Fig. 45 PTC sensor incorporated in windings

TM02 7038 2403

Built-in PTC sensors (thermistors) protect the motor against overheating. Single-phase motors are protected against slow and rapid overheating. Three-phase motors are protected against slow overheating.

We offer built-in PTC sensors to protect the motor.

Three-phase mains-operated motors with supply voltages F, G and O of 3 kW and up have PTC sensors as standard (UL-approved motors have no internal protection).

Note: PTC sensors must be connected to an external tripping unit connected to the control circuit.

Protection according to IEC 60034-11:

- slow and rapid overheating.

PTC sensors comply with DIN 44082.

Maximum voltage at the terminals, $U_{max} = 2.5$ VDC.

All tripping units available for DIN 44082 PTC sensors meet this requirement.

Figure 46 shows a typical circuit of a three-phase motor with PTC sensors.

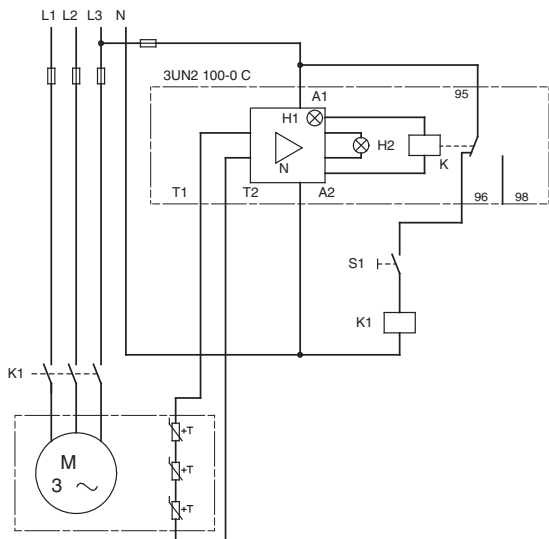


Fig. 46 Three-phase motor with PTC sensors

TM00 3365 1494

Legend

Symbol	Designation
S1	On/off switch
K1	Contactor
+T	PTC sensor (thermistor) in motor
M	Motor
3UN2 100-0 C	Tripping unit with automatic resetting
N	Amplifier
K	Output relay
H1	LED "Ready"
H2	LED "Tripped"
A1, A2	Connection for control voltage
T1, T2	Connection for PTC sensor loop

Motors with thermal switches (PTO)



Fig. 47 Thermal switch incorporated in windings

TM02 7042 2403

Built-in thermal switches protect the motor against overheating. Single-phase motors are protected against slow and rapid overheating. Three-phase motors are protected against slow overheating.

We offer mains-operated motors with bimetallic thermal switches in the motor windings.

Three-phase mains-operated motors with supply voltages F, G and O are available with built-in thermal switches.

Note: Thermal switches must be connected to an external control circuit to protect the motor against slow overheating. The thermal switches require no tripping unit.

Protection according to IEC 60034-11:

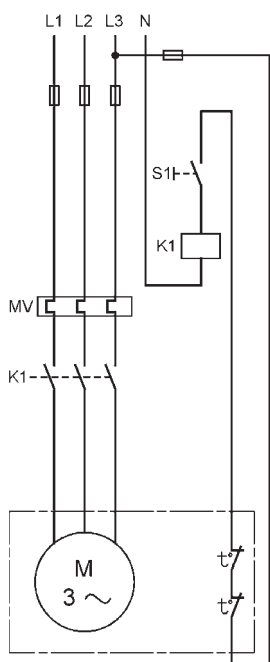
- slow and rapid overheating.

As protection against seizure, the motor must be connected to a motor-protective circuit breaker.

Thermal switches tolerate the following maximum loads:

U_{max}	250 VAC
I_N	1.5 A
I_{max}	5.0 A (locked-rotor and breaking current)

Figure 48 shows a typical circuit of a three-phase motor with built-in bimetallic thermal switches.



TM00 3964 1494

Fig. 48 Three-phase motor with thermal switches

Legend

Symbol	Designation
S1	On/off switch
K1	Contactor
t°	Thermal switch in motor
M	Motor
MV	Motor-protective circuit breaker

Undersize and oversize motors

The available motor sizes are shown in section *Motor data* on pages 120 to 124.

Undersize and oversize motors are defined as the next kW size below or above the fitted standard motor.

Note: The CM 1, 3 and 5 cannot be combined with frame sizes 112 and 132.

We recommend that you use an oversize motor if the operating conditions fall outside the standard conditions.

We especially recommend oversize motors in these cases:

- The pump is installed at an altitude of more than 1000 metres above sea level.
- The viscosity or density of the pumped liquid is higher than that of water.
- The ambient temperature exceeds 55 °C (CM).

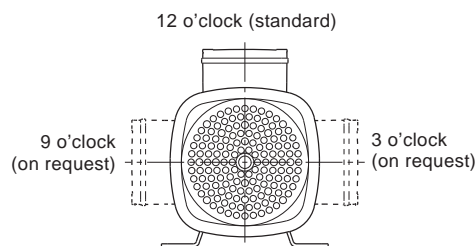
We recommend that you use an undersize motor if the operating conditions do not at all reach the standard conditions.

We especially recommend undersize motors in these cases:

- The viscosity or density of the pumped liquid is lower than that of water.
- The duty point of the pump is constant, and the flow rate is significantly lower than the recommended maximum flow rate.

Terminal box positions

As standard the terminal box is mounted in 12 o'clock position as shown in fig. 49. CM pumps with motor frame sizes of 71 and 80 are available with other terminal box positions on special request.



TM04 0357 1008

Fig. 49 Terminal box positions of frame sizes 71 and 80, as seen from fan cover side

Functional modules for CME pumps

CME pumps offer a number of advantages, depending on hardware combinations and software configuration of the motor. For example, various functional modules are available.

New-generation CME 0.37 - 2.2 kW (supply voltages S, T, U)

As standard, these CME pumps are fitted with the standard functional module. The basic or advanced module is available as a customised solution.

Basic functional module (FM 100)

The basic module has only the most necessary inputs for closed- and open-loop operation. The module also enables communication via a GENIbus connection.

The basic module has these connections:

- analog voltage input
- two digital inputs or one digital input and one open-collector output
- GENIbus connection.

Standard functional module (FM 200)

The standard module has more inputs and outputs than the basic module and is suitable for even more demanding applications.

The standard module has these connections:

- two analog inputs
- two digital inputs or one digital input and one open-collector output
- Grundfos Digital Sensor input and output
- two signal relay outputs
- GENIbus connection.

Advanced functional module (FM 300)

The advanced module has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required.

The advanced module has these connections:

- three analog inputs
- one analog output
- two dedicated digital inputs
- two configurable digital inputs or open-collector outputs
- Grundfos Digital Sensor input and output
- two Pt100/1000 inputs
- LiqTec sensor inputs
- two signal relay outputs
- GENIbus connection.

CME 0.37 - 7.5 kW (supply voltages K, L, M, N, Q, R)

As standard, these CME pumps are fitted with the standard functional module. The advanced functional module is available as a customised solution.

Standard functional module

The standard module is used for simple control of one parameter, for instance pressure, differential pressure, temperature, differential temperature or flow rate.

The standard module has these connections:

- one digital input
- one analog input.

Advanced functional module

The advanced module is identical to the standard module, but has additional connections for further control options.

The advanced module has these connections:

- three digital inputs
- one analog input
- one analog output.

Pumps

Pumping of liquids down to -30 °C

We offer custom-built pumps for the pumping of liquids down to -30 °C. The pumps have an oversize neck ring ensuring that impellers do not seize up as a result of thermal expansion.

We offer the above solution for CM and CME in I and G versions (stainless steel).

Surface treatment

Cleaned and dried pumps

We recommend cleaned and dried pumps for use in applications involving strict demands on cleanliness and surface quality, such as low content of silicone. Prior to assembly, all pump parts are cleaned in 60 to 70 °C water with a cleaning agent. All pump parts are then thoroughly rinsed in de-ionised water and dried. The pump is assembled without any use of silicone lubricants.

Cleaned and dried pumps are not performance-tested.

Electropolished stainless-steel pumps

Electropolished pumps are often used in the pharmaceutical industry and in the food and beverage industry where materials and surface quality must meet strict requirements to hygiene or corrosion resistance.

Electropolishing removes burrs as well as metallic and non-metallic inclusions, providing a smooth, clean and corrosion-resistant stainless-steel surface.

First, all components are pickled in a mixture of nitric and hydrofluoric acid. Subsequently, the components are electropolished in a mixture of sulphuric and phosphoric acid. Finally, the components are passivated in nitric acid.

To meet the strict hygienic requirements to material and surface quality, we offer electropolished stainless-steel pumps with the following surface quality:

Surface quality: $R_a \leq 0.8 \mu\text{m}$.

Alternative colouring

We offer custom-built pumps in any NCS- or RAL-specified colour to suit your requirements!

The used paint is water-based. Painted parts correspond to corrosion class III.

All pump types and sizes are available with alternative colouring.

Customised nameplate

We offer additional customised nameplates attached to the pump:

- A nameplate supplied by you.
- A Grundfos nameplate customised in terms of a specific duty point.
- A Grundfos nameplate with a tag number.

Note: The Grundfos standard nameplate is always fitted to the pump.

Shaft seal arrangements

The shaft seal is developed with customisation in mind. Depending on media, you may combine the seal faces in any way.

Available stationary seal faces: Q, B, U.

Available rotating seal faces: Q, V, U.

Rubber: E, V and K.

Note: For further details about seal face material codes, see *Identification* on page 11.

Alternative connection positions

The pump is available with various connection positions on special request. See fig. 50.

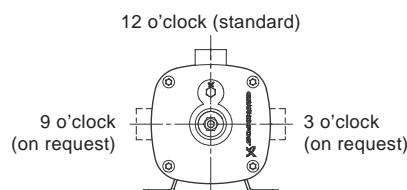


Fig. 50 Alternative connection positions as seen from pump inlet side

Note: On CM 1, 3 and 5 pumps fitted with motor frame sizes 71 and 80, the outlet can be positioned upon customer request without any issues. All other pump types cannot be factory tested if they are ordered with outlet positions that are not standard.

Alternative pipe connections

A wide range of pipe connections are available for the CM and CME pumps:

- Tri-Clamp®
- DIN, JIS, ANSI flange (combi flange)
- Victaulic® coupling
- Whitworth thread Rp
- internal NPT thread.

The available pipe connections are shown in fig. 51.

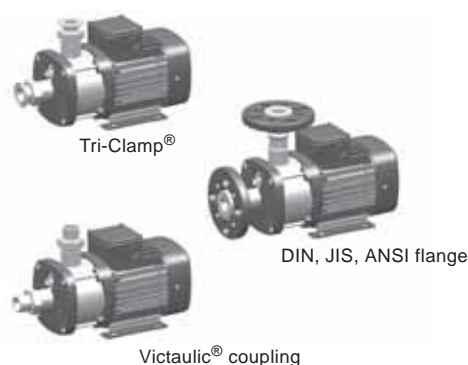


Fig. 51 Examples of pipe connections

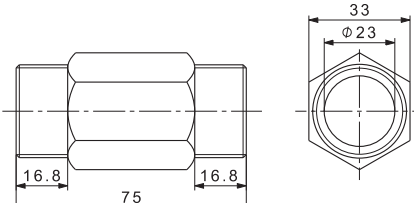
28. Accessories

Pipework connections

Various sets of flanges and couplings are available for pipework connection.

Distance piece

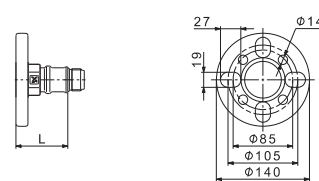
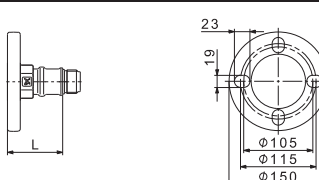
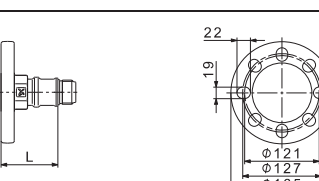
The distance piece is intended for mounting on the discharge port in order to improve the accessibility when connecting the pump to the piping system. The distance piece is made of brass.

Distance piece	Pump type	Pipework connection	Pump thread	Product number
	CM 1 CM 3 CM 5 TM04 5800 4009	1"	R	96587201

Flange sets for CM(E) (DIN/ANSI/JIS)

All materials in contact with the pumped liquids are made of stainless steel EN 1.4408/AISI 316.

The pipe stub is made of stainless steel EN 1.4408/AISI 316 and the flange part is made of cast iron EN-GJL-200.

Flange	Pump type	Pipework connection	Pump thread	L* [mm]		Product number
				Flange mounted on pump inlet	Flange mounted on pump outlet	
	CM 1 CM 3 CM 5 TM04 3867 0309	DN 32	Rp	49.0	78.0	96904693
			NPT			96904705
			Rp			96904696
			NPT			96904708
	CM 10 TM04 3869 0309	DN 40	Rp	44.0	68.0	96904699
			NPT			96904711
	CM 15 CM 25 TM04 3868 0309	DN 50	Rp	48.0	68.0	96904702
			NPT			96904714

* Length from outer edge of flange to pump suction or discharge port.

Note: Please pay attention to the compatibility between pump and flange before ordering. See tables below.

CM pumps compatible with DIN/ANSI/JIS flanges

Pump type	Material version	MG 71/80 1-ph	MG 71/80 3-ph	MG 90 1-ph	MG 90 3-ph	MG 100	MG 112
CM 1, 3, 5	Cast iron		•	•	•		
	Stainless steel	•	•		•	•	
CM 10, 15, 25	Cast iron	•	•	•	•	•	•
	Stainless steel	•	•	•	•	•	•

CME pumps compatible with DIN/ANSI/JIS flanges

Pump type	Material version	Supply voltages K, L, M, N, Q, R					Supply voltages S, T, U	
		MGE 71/80	MGE 90S	MGE 90L	MGE 100	MGE 112/132	MGE 71/80	MGE 90
CME 1, 3, 5	Cast iron		• ²⁾	•	•			
	Stainless steel	• ¹⁾		•	•			
CME 10, 15, 25	Cast iron	•		•	•	•	•	•
	Stainless steel	•		•	•	•	•	•

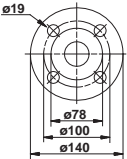
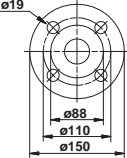
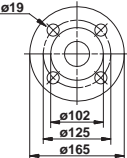
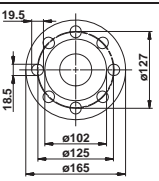
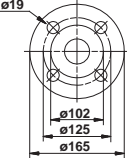
1) Only 10 mm clearance between flange and terminal box.

2) Only 9 mm clearance between flange and terminal box.

Counter-flanges for CM(E)-A

Counter-flanges for CM(E)-A pumps are made of cast iron EN-GJL-200.

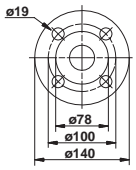
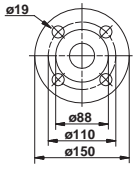
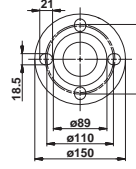
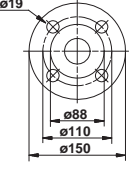
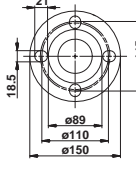
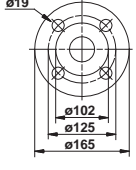
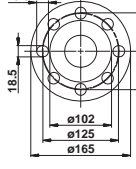
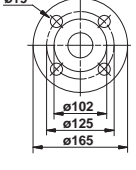
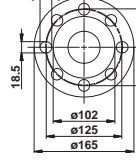
A counter-flange set consists of one counter-flange, one gasket, bolts and nuts.

Counter-flange	Pump type	Description	Rated pressure	Pipework connection	Product number
	TM03 0400 3705 CM(E) 1-A CM(E) 3-A CM(E) 5-A	Threaded	16 bar, EN 1092-2	Rp 1 1/4	00419901
		For welding	25 bar, EN 1092-2	32 mm, nominal	00419902
	TM03 0401 3705 CM(E) 10-A	Threaded	16 bar, EN 1092-2	Rp 1 1/2	00429902
		Threaded	16 bar, EN 1092-2	Rp 2	00429904
		For welding	25 bar, EN 1092-2	40 mm, nominal	00429901
		For welding	40 bar, special flange	50 mm, nominal	00429903
	TM03 0402 3705	Threaded	16 bar, EN 1092-2	Rp 2	00339903
		Threaded	16 bar, special flange	Rp 2 1/2	00339904
	TM02 7203 2803 CM(E) 15-A CM(E) 25-A	Threaded	16 bar, special flange	Rp 2 1/2	96509578
		For welding	25 bar, EN 1092-2	50 mm, nominal	00339901
	TM03 0402 3705	For welding	40 bar, special flange	65 mm, nominal	00339902

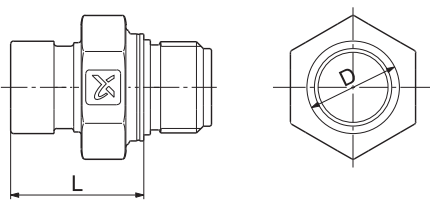
Counter-flanges for CM(E)-I/G

Counter-flanges for CM(E)-I/G pumps are made of stainless steel EN 1.4401/AISI 316.

A counter-flange set consists of one counter-flange, one gasket, bolts and nuts.

Counter-flange	Pump type	Description	Rated pressure	Pipework connection	Product number
	TM03 0400 3705 CM(E) 1-1/G CM(E) 3-1/G CM(E) 5-1/G	Threaded	16 bar, EN 1092-2	Rp 1 1/4	00415304
		For welding	25 bar, EN 1092-2	32 mm, nominal	00415305
	TM03 0401 3705	Threaded	16 bar, EN 1092-2	Rp 1 1/2	00425245
	TM02 7202 2803	Threaded	16 bar, EN 1092-2	Rp 2	96509570
	TM03 0401 3705	For welding	25 bar, EN 1092-2	40 mm, nominal	00425246
	TM02 7202 2803	For welding	25 bar, special flange	50 mm, nominal	96509571
	TM00 0402 3705	Threaded	16 bar, EN 1092-2	Rp 2	00335254
	TM02 7203 2803 CM(E) 15-1/G CM(E) 25-1/G	Threaded	16 bar, special flange	Rp 2 1/2	96509575
		Threaded	16 bar, special flange	Rp 2 1/2	96509579
	TM03 0402 3705	For welding	25 bar, EN 1092-2	50 mm, nominal	00335255
	TM00 7203 2803	For welding	25 bar, special flange	65 mm, nominal	96509573

Victaulic® connections for CM(E)

Victaulic® connection	Pump type	Pump thread	D [mm]	L* [mm]	Product number
	CM 1	Rp	33.7	48.5	96904694
	CM 3	NPT			96904706
	CM 5	Rp	33.7 / 42.4	48.5	96904697
		NPT			96904709
	CM 10	Rp	48.3	48.5	96904700
		NPT			96904712
CM 15	Rp	60.3	50.1	96904703	
CM 25	NPT			96904715	

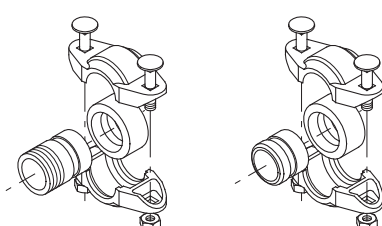
TM04 3865 0309

* Length from outer edge of connection to pump suction or discharge port.

Coupling, pipe stub and gasket for Victaulic® connections

Parts in contact with the pumped liquid are made of stainless steel EN 1.4401/AISI 316, and rubber.

A Victaulic® coupling set consists of two coupling halves (Victaulic, type 77), one gasket, one pipe stub (for welding or threaded), bolts and nuts.

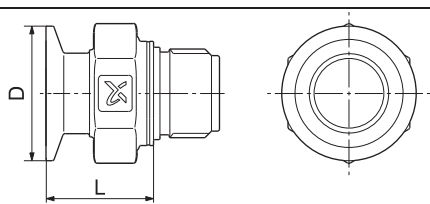
Coupling and pipe stub	Pump type	Pipe stub	Pipework connection	Rubber parts	Number of coupling sets required	Product number	
	CM(E) 1 CM(E) 3 CM(E) 5*	Threaded	R 1	EPDM	2	97575245	
				FKM	2	97575246	
		For welding	DN 25	EPDM	2	97575247	
				FKM	2	97575248	
		CM(E) 5**	Threaded	R 1 1/4	EPDM	1	00419911
					FKM	1	00419905
	For welding	DN 32	EPDM	1	00419912		
			FKM	1	00419904		
	CM(E) 10	Threaded	R 1 1/2	EPDM	2	97575249	
				FKM	2	97575250	
		For welding	DN 40	EPDM	2	97575251	
				FKM	2	97575252	
CM(E) 15 CM(E) 25	Threaded	R 2	EPDM	2	00339911		
			FKM	2	00339918		
	For welding	DN 50	EPDM	2	00339910		
			FKM	2	00339917		

TM00 3808 1094

* For discharge port. **Note:** Only one coupling set is required for the discharge port.

** For suction port.

Tri-Clamp® connections for CM(E)

Tri-Clamp®		Pump type	Pump thread	D [mm]	L* [mm]	Product number
	TM04 3866 0309	CM 1	Rp	50.4	40.3	96904695
		CM 3	NPT			96904707
		CM 5	Rp	50.4	35.3	96904698
			NPT			96904710
		CM 10	Rp	50.4	37.4	96904701
			NPT			96904713
CM 15	Rp	63.9	37.4	96904704		
CM 25	NPT			96904716		

* Length from outer edge of Tri-Clamp® connection to pump suction or discharge port.

Clamping ring, pipe stub and gasket for Tri-Clamp® connections

Pump type	Nominal diameter [mm]	Clamping ring		Pipe stub				Gasket	
		A [mm]	B [mm]	A [mm]	B [mm]	C [mm]	D [mm]	A [mm]	B [mm]
CM(E) 1, 3, 5, 10	38.0	92.0	59.5	21.5	50.5	35.6	38.6	35.3	50.5
CM(E) 15, 25	51.0	104.4	74.0	21.5	64.0	48.6	51.6	48.0	64.0

The clamping ring is made of stainless steel EN 1.4301/AISI 304.

The pipe stub is made of stainless steel EN 1.4401/AISI 316.

The gasket is made of PTFE or EPDM.

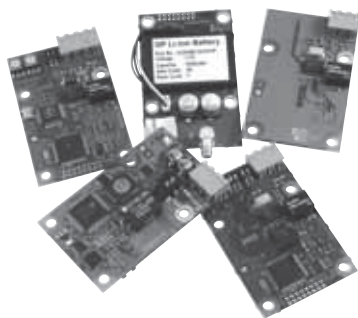
Pump type	Pipework connection	Connection material	Gasket	Pressure [bar]	Number of coupling sets required	Product number
CM(E) 1, 3, 5, 10	DN 32	Stainless steel	EPDM	16	2	96515374
			PTFE		2	96515375
EPDM	2		96515376			
PTFE	2		96515377			
CM(E) 15, 25	DN 50					

Potentiometer for CME

The potentiometer is for setpoint setting and start/stop of the CME pump.

Product	Product number
External potentiometer with cabinet for wall mounting	625468

Communication interface modules (CIM) for CME



TIM05 7508 1113

Fig. 52 Grundfos CIM modules

A CIM module is an add-on communication interface module for the new-generation MGE motors. The CIM module enables data transmission between the pump and an external system, for example a BMS (building management system) or SCADA system.

We offer the following CIM modules:

Unit type	Fieldbus protocol	Product number
CIM 50	GENIbus	96824631
CIM 100	LonWorks	96824797
CIM 150	PROFIBUS DP	96824793
CIM 200	Modbus RTU	96824796
CIM 250	GSM/GPRS	96824795
CIM 270	GRM	96898815
CIM 300	BACnet MS/TP	96893770

Communication interface units (CIU) for CME



GRA6118

Fig. 53 Grundfos CIU unit

A CIU unit enables communication of operating data, such as measured values and setpoints, between CME pumps and a building management system. The CIU unit incorporates a 24-240 VAC/VDC power supply module and a CIM module. It can either be mounted on a DIN rail or on a wall.

We offer the following CIU units:

Unit type	Fieldbus protocol	Product number
CIU 100	LonWorks	96753735
CIU 150	PROFIBUS DP	96753081
CIU 200	Modbus RTU	96753082
CIU 250	GSM	96787106
CIU 270	GRM	Contact Grundfos
CIU 300	BACnet MS/TP	96893769

Note: The CIU is not required for the new-generation CME pumps (supply voltages S, T, U).

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

Grundfos GO Remote

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

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

MI 202 and MI 204

The MI 202 and MI 204 are an add-on modules with built-in infrared and radio communication. The MI 202 can be used in conjunction with an Apple iPhone or iPod with 30-pin connector and iOS 5.0 or later, e.g. fourth generation iPhone or iPod.

The MI 204 can be used in conjunction with an Apple iPhone or iPod with Lightning connector, e.g. fifth generation iPhone or iPod.

(The MI 204 is also available together with an Apple iPod touch and a cover.)



Fig. 54 MI 202 and MI 204

Supplied with the product:

- Grundfos MI 202 or 204
- sleeve
- quick guide
- charger cable.

TM05 3887 1612 - TM05 7704 1513

MI 301

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



Fig. 55 MI 301

Supplied with the product:

- Grundfos MI 301
- battery charger
- quick guide.

Product numbers

Grundfos GO Remote variant	Product number
Grundfos MI 202	98046376
Grundfos MI 204	98424092
Grundfos MI 204 including iPod touch	98612711
Grundfos MI 301	98046408

TM05 3890 1712

Sensors for CME

The sensors must be fitted to the pipework with suitable fittings.

Accessory	Type	Supplier	Measuring range	Product number
Flowmeter	SITRANS FM MAGFLO MAG 5100 W	Siemens	1-5 m ³ (DN 25)	ID8285
Flowmeter	SITRANS FM MAGFLO MAG 5100 W	Siemens	3-10 m ³ (DN 40)	ID8286
Flowmeter	SITRANS FM MAGFLO MAG 5100 W	Siemens	6-30 m ³ (DN 65)	ID8287
Flowmeter	SITRANS FM MAGFLO MAG 5100 W	Siemens	20-75 m ³ (DN 100)	ID8288
Temperature sensor	TTA (0) 25	Carlo Gavazzi	0-25 °C	96432591
Temperature sensor	TTA (-25) 25	Carlo Gavazzi	-25-25 °C	96430194
Temperature sensor	TTA (50) 100	Carlo Gavazzi	50-100 °C	96432592
Temperature sensor	TTA (0) 150	Carlo Gavazzi	0-150 °C	96430195
Accessory for temperature sensor. All with 1/2 RG connection.	Protecting tube Ø9 x 50 mm	Carlo Gavazzi		96430201
	Protecting tube Ø9 x 100 mm	Carlo Gavazzi		96430202
	Cutting ring bush	Carlo Gavazzi		96430203
Temperature sensor, ambient temperature	WR 52	tmg (Plesner)	-50-50 °C	ID8295
Differential-temperature sensor	ETSD	Honsberg	0-20 °C	96409362
Differential-temperature sensor	ETSD	Honsberg	0-50 °C	96409363

Note: All sensors have 4-20 mA signal output.

Danfoss pressure sensor kits for CME pumps and CM pumps connected to Grundfos CUE

The kit comprises:	Pressure range [bar]	Temperature range	Product number
<ul style="list-style-type: none"> Danfoss pressure transmitter, type MBS 3000, with 2 m screened cable Connection: G 1/2 A (DIN 16288 - B6kt) 5 cable clips (black) Installation and operating instructions PT (400212) 	0-4	-40-85 °C	96428014
	0-6		96428015
	0-10		96428016
	0-16		96428017
	0-25		96428018

DPI differential-pressure sensor kit

The kit comprises:	Pressure range [bar]	Product number
<ul style="list-style-type: none"> 1 sensor incl. 0.9 m screened cable (7/16" connections) 1 original DPI bracket (for wall mounting) 1 Grundfos bracket (for mounting on motor) 2 M4 screws for mounting of sensor on bracket 1 M6 screw (self-cutting) for mounting on MGE 90/100 1 M8 screw (self-cutting) for mounting on MGE 112/132 3 capillary tubes (short/long) 2 fittings (1/4" - 7/16") 5 cable clips (black) Installation and operating instructions (480675) Service kit instructions 	0 - 0.6	96611522
	0 - 1.0	96611523
	0 - 1.6	96611524
	0 - 2.5	96611525
	0 - 4.0	96611526
	0 - 6.0	96611527
	0-10	96611550

MP 204 motor protector



TM03 1471 2205

Fig. 56 MP 204

The MP 204 is an electronic motor protector and data collecting unit. Apart from protecting the motor, it can also send information to a control unit via GENibus, like for instance:

- trip
- warning
- energy consumption
- input power
- motor temperature.

The MP 204 protects the motor primarily by measuring the motor current by means of a true RMS measurement.

The pump is protected secondarily by measuring the temperature with a Tempcon sensor, a Pt100/Pt1000 sensor and a PTC sensor/thermal switch.

The MP 204 is designed for single- and three-phase motors.

Note: The MP 204 must not be used together with frequency converters.

Features

- Phase-sequence monitoring
- indication of current or temperature
- input for PTC sensor/thermal switch
- indication of temperature in °C or °F
- 4-digit, 7-segment display
- setting and status reading with the Grundfos GO Remote
- setting and status reading via the Grundfos GENibus fieldbus.

Tripping conditions

- Overload
- underload (dry running)
- temperature
- missing phase
- phase sequence
- overvoltage
- undervoltage
- power factor ($\cos \varphi$)
- current unbalance.

Warnings

- Overload
- underload
- temperature
- overvoltage
- undervoltage
- power factor ($\cos \varphi$)
- run capacitor (single-phase operation)
- starting capacitor (single-phase operation)
- loss of communication in network
- harmonic distortion.

Learning function

- Phase sequence (three-phase operation)
- run capacitor (single-phase operation)
- starting capacitor (single-phase operation)
- identification and measurement of Pt100/Pt1000 sensor circuit.

Product number

Description	Product number
MP 204 motor protector	96079927

Cover for CM motor

The cover protects the motor from ingress of liquid, especially if the pump is installed in a vertically tilted position with the motor end pointing upwards.

Product number

Description	Product number
Cover for CM motors, frame sizes 71 and 80	97528743

Angled cable gland



TM05 0729 1411

Fig. 57 Angled cable gland with O-ring and lock nut

Description	Product number
Angled cable gland with O-ring and lock nut	97842998

29. Grundfos Product Center

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

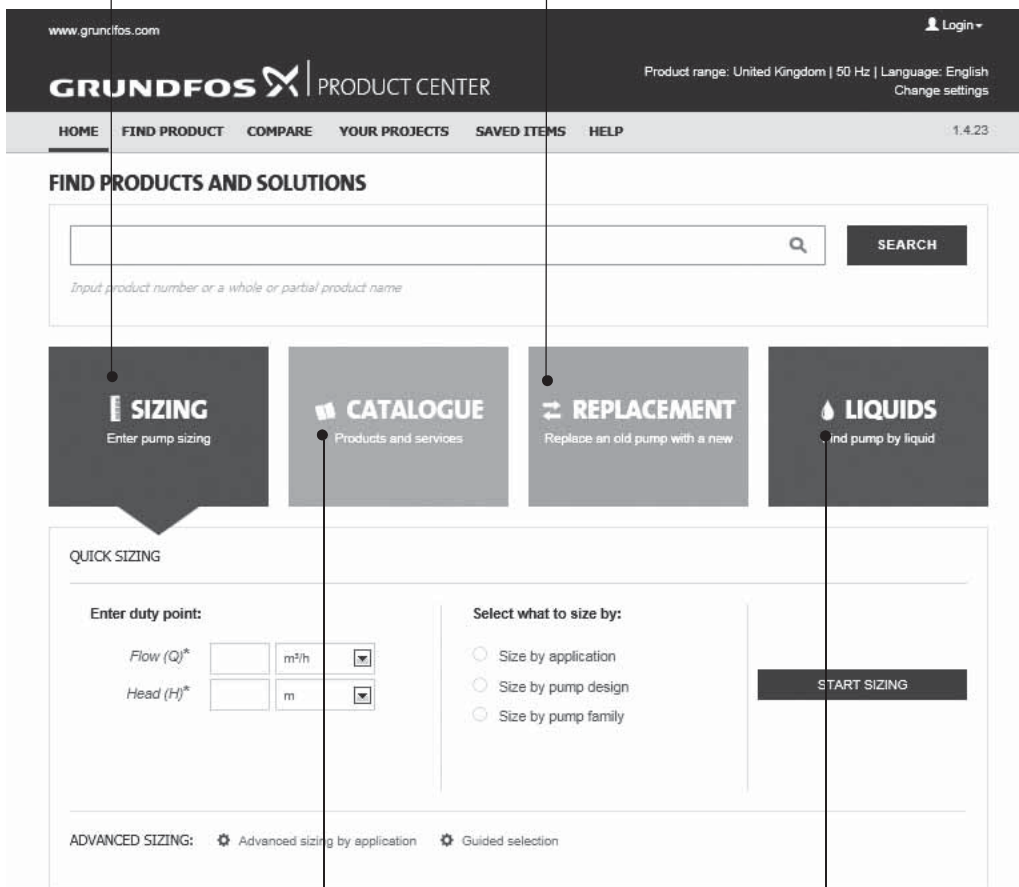
<http://product-selection.grundfos.com>



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

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

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



CATALOGUE gives you access to the Grundfos product catalogue.

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

All the information you need in one place

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

Downloads

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

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