


Qty.	Description
1	<p data-bbox="199 338 507 365">CRE 45-2-1 A-F-A-E-HQQE</p>  <p data-bbox="199 660 464 687">Product No.: 99072014</p> <p data-bbox="199 719 1433 817">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). The pump head and base are in cast iron – all other wetted parts are in stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via DIN flanges.</p> <p data-bbox="199 862 1126 918">The pump is fitted with a 3-phase, fan-cooled, permanent-magnet, synchronous motor. The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.</p> <p data-bbox="199 920 1396 974">The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement.</p> <p data-bbox="199 976 1452 1052">An operating panel on the motor terminal box enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The Grundfos Eye indicator on the operating panel provides visual indication of pump status:</p> <ul data-bbox="239 1064 1460 1209" style="list-style-type: none"> • "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights) • "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights) • "Alarm": Motor has stopped (flashing red indicator lights). <p data-bbox="199 1211 1428 1288">Communication with the pump is possible by means of Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".</p> <p data-bbox="199 1290 1444 1344">The terminal box has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required:</p> <ul data-bbox="239 1355 901 1713" style="list-style-type: none"> • two dedicated digital inputs • three analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5 - 3.5 V • 5 V voltage supply to potentiometer and sensor • one analog output, 0-10 V, 0(4)-20 mA • two configurable digital inputs or open-collector outputs • two Pt100/Pt1000 inputs • LiqTec, dry-running protection sensor input • Grundfos Digital Sensor input and output • 24 V voltage supply for sensors • two signal-relay outputs (potential-free contacts) • GENIbus connection • interface for Grundfos CIM fieldbus module. <p data-bbox="199 1736 512 1769">Further product details</p> <p data-bbox="199 1771 1457 1825">An external sensor can be connected if controlled pump operation based on for example flow, differential pressure or temperature is required.</p> <p data-bbox="199 1827 1457 1904">An operating panel on the motor terminal box enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The Grundfos Eye indicator on the operating panel provides visual indication of pump status:</p> <ul data-bbox="239 1915 1460 2060" style="list-style-type: none"> • "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights) • "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights) • "Alarm": Motor has stopped (flashing red indicator lights).

Qty. Description

Communication with the pump is possible by means of Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".

Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process.

CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface.

An integral part of the process is a pretreatment.

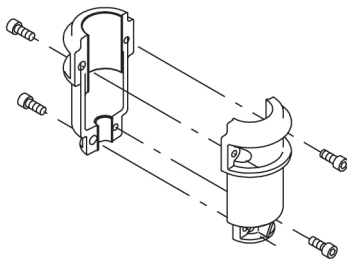
The entire process consists of these elements:

- 1) Alkaline-based cleaning.
- 2) Zinc phosphating.
- 3) Cathodic electro-deposition.
- 4) Curing to a dry film thickness 18-22 my m.

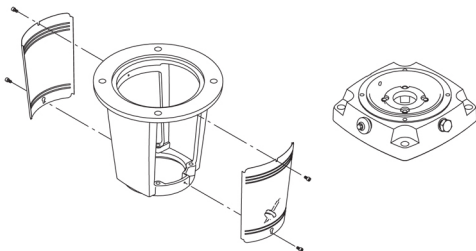
The colour code for the finished product is NCS 9000/RAL 9005.

Pump

A long split coupling connects the pump and motor shaft. It is enclosed in the motor stool by means of two coupling guards. The long coupling makes it possible to replace the shaft seal without removing the motor from the pump.



The motor stool connects the pump head and motor. The pump head has a combined 1/2" priming plug and vent screw.



The pump is fitted with a balanced O-ring seal unit with a rigid torque-transmission system.

This seal type is assembled in a cartridge unit which makes replacement safe and easy.

Due to the balancing, this seal type is suitable for high-pressure applications.

The cartridge construction also protects the pump shaft from possible wear from a dynamic O-ring between pump shaft and shaft seal.

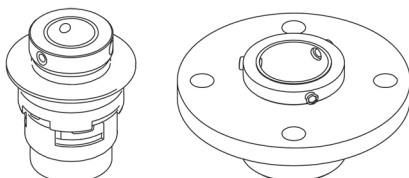
Primary seal:

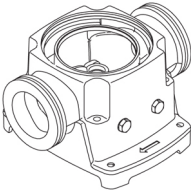
- Rotating seal ring material: silicon carbide (SiC)
- Stationary seat material: silicon carbide (SiC)

This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.

Secondary seal material: EPDM (ethylene-propylene rubber)

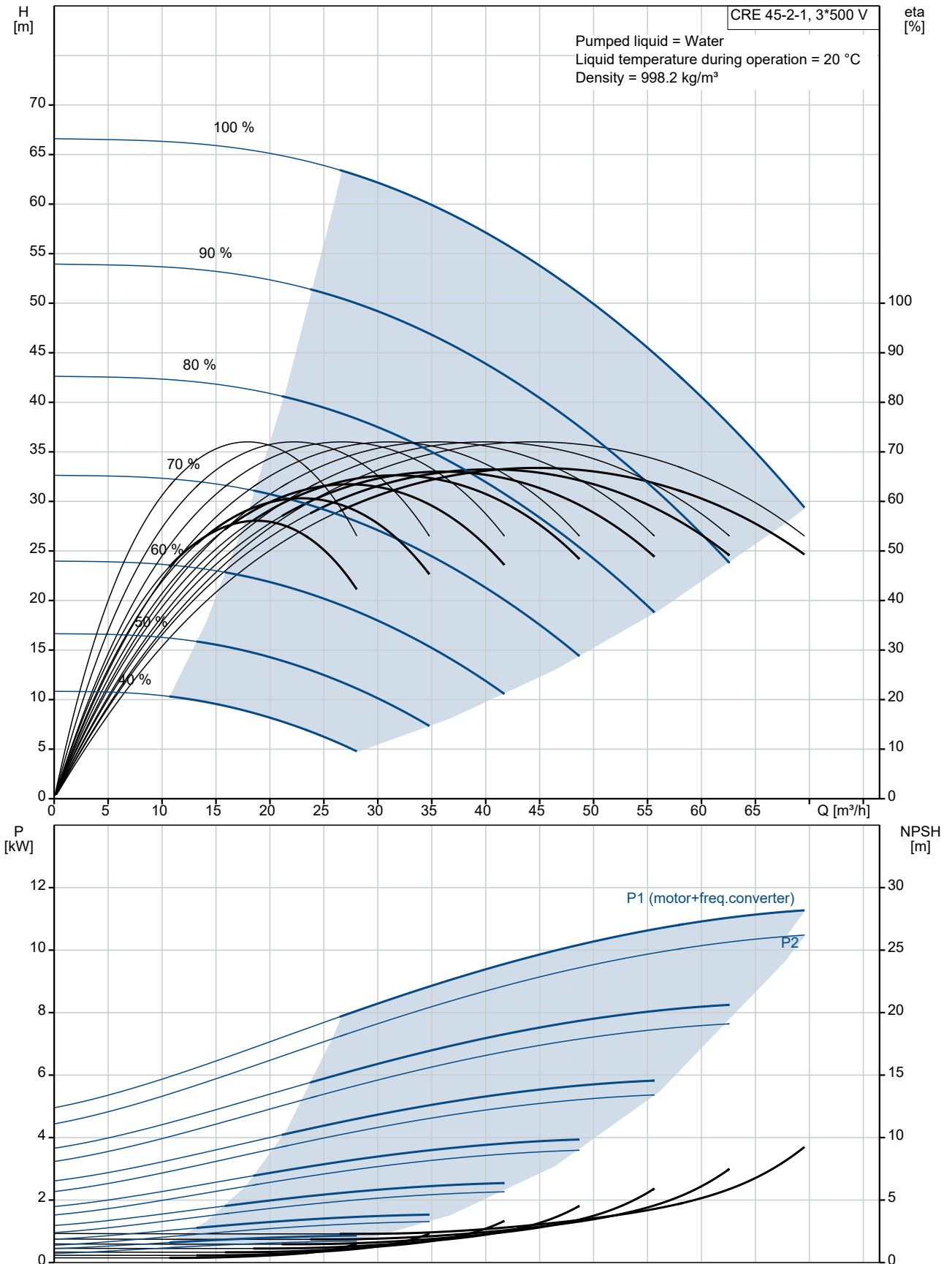
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



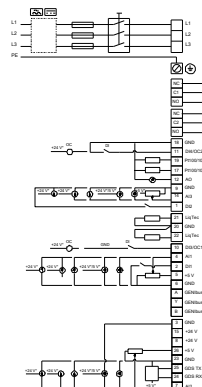
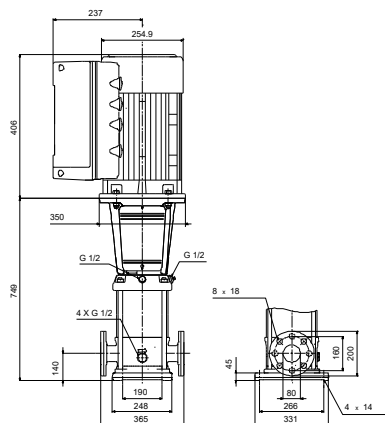
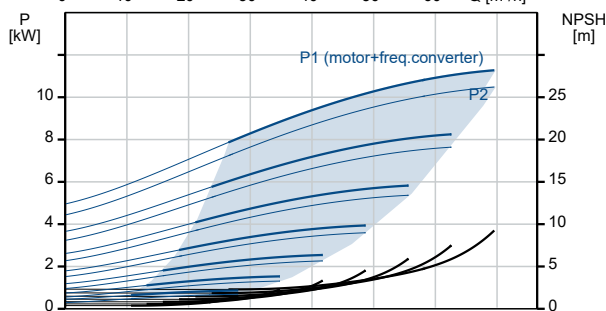
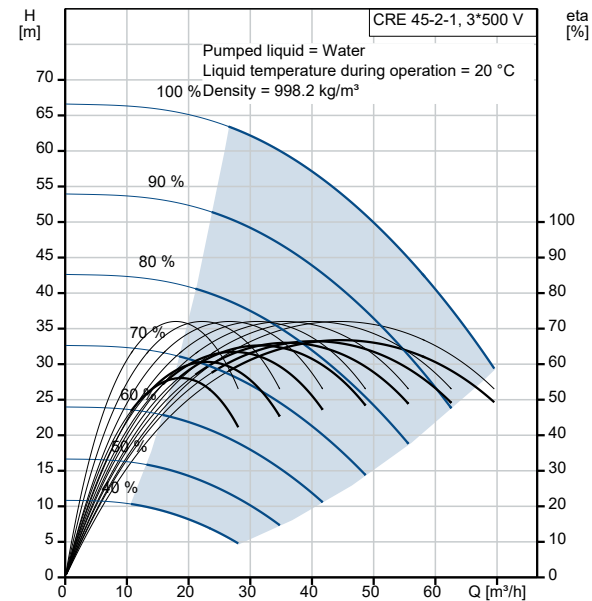
Qty.	Description																										
	<p>The shaft seal is retained in the pump head by a cover and screws. It can be replaced without removing the motor.</p> <p>The chambers and impellers are made of stainless-steel sheet. The chambers are provided with a PTFE neck ring offering improved sealing and high efficiency. The impellers have smooth surfaces, and the shape of the blades ensure a high efficiency.</p> <p>The base is made of cast iron. Both the inlet and the outlet side of the base have two pressure gauge tappings. The pump is secured to the foundation by four bolts through the base plate. The flanges are fastened to the base by means of locking rings.</p>  <p>Motor</p> <p>The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. The motor is flange-mounted with free-hole flange (FF).</p> <p>Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II).</p> <p>Electrical tolerances comply with IEC 60034.</p> <p>The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.</p> <p>The motor requires no external motor protection. The motor control unit incorporates protection against slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.</p> <p>The terminal box has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required:</p> <ul style="list-style-type: none"> • two dedicated digital inputs • three analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5 - 3.5 V • 5 V voltage supply to potentiometer and sensor • one analog output, 0-10 V, 0(4)-20 mA • two configurable digital inputs or open-collector outputs • two Pt100/Pt1000 inputs • LiqTec, dry-running protection sensor input • Grundfos Digital Sensor input and output • 24 V voltage supply for sensors • two signal-relay outputs (potential-free contacts) • GENIbus connection • interface for Grundfos CIM fieldbus module. <p>Technical data</p> <p>Liquid:</p> <table border="0"> <tr> <td>Pumped liquid:</td> <td>Water</td> </tr> <tr> <td>Liquid temperature range:</td> <td>-30 .. 120 °C</td> </tr> <tr> <td>Selected liquid temperature:</td> <td>20 °C</td> </tr> <tr> <td>Density:</td> <td>998.2 kg/m³</td> </tr> </table> <p>Technical:</p> <table border="0"> <tr> <td>Pump speed on which pump data are based:</td> <td>3529 rpm</td> </tr> <tr> <td>Rated flow:</td> <td>54 m³/h</td> </tr> <tr> <td>Rated head:</td> <td>51.7 m</td> </tr> <tr> <td>Pump orientation:</td> <td>Vertical</td> </tr> <tr> <td>Shaft seal arrangement:</td> <td>Single</td> </tr> <tr> <td>Code for shaft seal:</td> <td>HQQE</td> </tr> <tr> <td>Approvals:</td> <td>CE,EAC,UKCA</td> </tr> <tr> <td>Approvals for drinking water:</td> <td>WRAS,ACS</td> </tr> <tr> <td>Curve tolerance:</td> <td>ISO9906:2012 3B</td> </tr> </table>	Pumped liquid:	Water	Liquid temperature range:	-30 .. 120 °C	Selected liquid temperature:	20 °C	Density:	998.2 kg/m ³	Pump speed on which pump data are based:	3529 rpm	Rated flow:	54 m ³ /h	Rated head:	51.7 m	Pump orientation:	Vertical	Shaft seal arrangement:	Single	Code for shaft seal:	HQQE	Approvals:	CE,EAC,UKCA	Approvals for drinking water:	WRAS,ACS	Curve tolerance:	ISO9906:2012 3B
Pumped liquid:	Water																										
Liquid temperature range:	-30 .. 120 °C																										
Selected liquid temperature:	20 °C																										
Density:	998.2 kg/m ³																										
Pump speed on which pump data are based:	3529 rpm																										
Rated flow:	54 m ³ /h																										
Rated head:	51.7 m																										
Pump orientation:	Vertical																										
Shaft seal arrangement:	Single																										
Code for shaft seal:	HQQE																										
Approvals:	CE,EAC,UKCA																										
Approvals for drinking water:	WRAS,ACS																										
Curve tolerance:	ISO9906:2012 3B																										

Qty.	Description
	<p>Materials:</p> <p>Base: Cast iron EN 1563 EN-GJS-500-7 ASTM A536 80-55-06</p> <p>Impeller: Stainless steel EN 1.4301 AISI 304</p> <p>Bearing: SIC</p> <p>Support bearing: Graflon</p> <p>Installation:</p> <p>t max amb: 50 °C</p> <p>Maximum operating pressure: 16 bar</p> <p>Max pressure at stated temp: 16 bar / 120 °C 16 bar / -30 °C</p> <p>Type of connection: DIN</p> <p>Size of inlet connection: DN 80</p> <p>Size of outlet connection: DN 80</p> <p>Pressure rating for connection: PN 40</p> <p>Flange size for motor: FF300</p> <p>Electrical data:</p> <p>Motor standard: IEC</p> <p>Motor type: 160MH</p> <p>IE Efficiency class: IE5</p> <p>Rated power - P2: 11 kW</p> <p>Power (P2) required by pump: 11 kW</p> <p>Mains frequency: 50 / 60 Hz</p> <p>Rated voltage: 3 x 380-500 V</p> <p>Rated current: 20.3-16.0 A</p> <p>Cos phi - power factor: 0.93-0.90</p> <p>Rated speed: 360-4000 rpm</p> <p>Efficiency: 93.1%</p> <p>Motor efficiency at full load: 93.1 %</p> <p>Enclosure class (IEC 34-5): IP55</p> <p>Insulation class (IEC 85): F</p> <p>Motor No: 98971053</p> <p>Controls:</p> <p>Frequency converter: Built-in</p> <p>Pressure sensor: N</p> <p>Others:</p> <p>Minimum efficiency index, MEI ≥: 0.70</p> <p>Net weight: 136 kg</p> <p>Gross weight: 169 kg</p> <p>Shipping volume: 0.495 m³</p> <p>Danish VVS No.: 386007071</p> <p>Finnish LVI No.: 4925716</p>

99072014 CRE 45-2-1 A-F-A-E-HQQE



Description	Value
General information:	
Product name:	CRE 45-2-1 A-F-A-E-HQQE
Product No:	99072014
EAN number:	5712606202638
Price:	
Technical:	
Pump speed on which pump data are based:	3529 rpm
Rated flow:	54 m ³ /h
Rated head:	51.7 m
Maximum head:	67.8 m
Stages:	2
Impellers:	2
Number of reduced-diameter impellers:	1
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals:	CE,EAC,UKCA
Approvals for drinking water:	WRAS,ACS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	B
Materials:	
Base:	Cast iron
Base:	EN 1563 EN-GJS-500-7
Base:	ASTM A536 80-55-06
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
Support bearing:	Graflon
Installation:	
t max amb:	50 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C
Max pressure at stated temp:	16 bar / -30 °C
Type of connection:	DIN
Size of inlet connection:	DN 80
Size of outlet connection:	DN 80
Pressure rating for connection:	PN 40
Flange size for motor:	FF300
Connect code:	F
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-30 .. 120 °C
Selected liquid temperature:	20 °C
Density:	998.2 kg/m ³
Electrical data:	
Motor standard:	IEC
Motor type:	160MH
IE Efficiency class:	IE5
Rated power - P2:	11 kW
Power (P2) required by pump:	11 kW
Mains frequency:	50 / 60 Hz
Rated voltage:	3 x 380-500 V





Company name:

Created by:

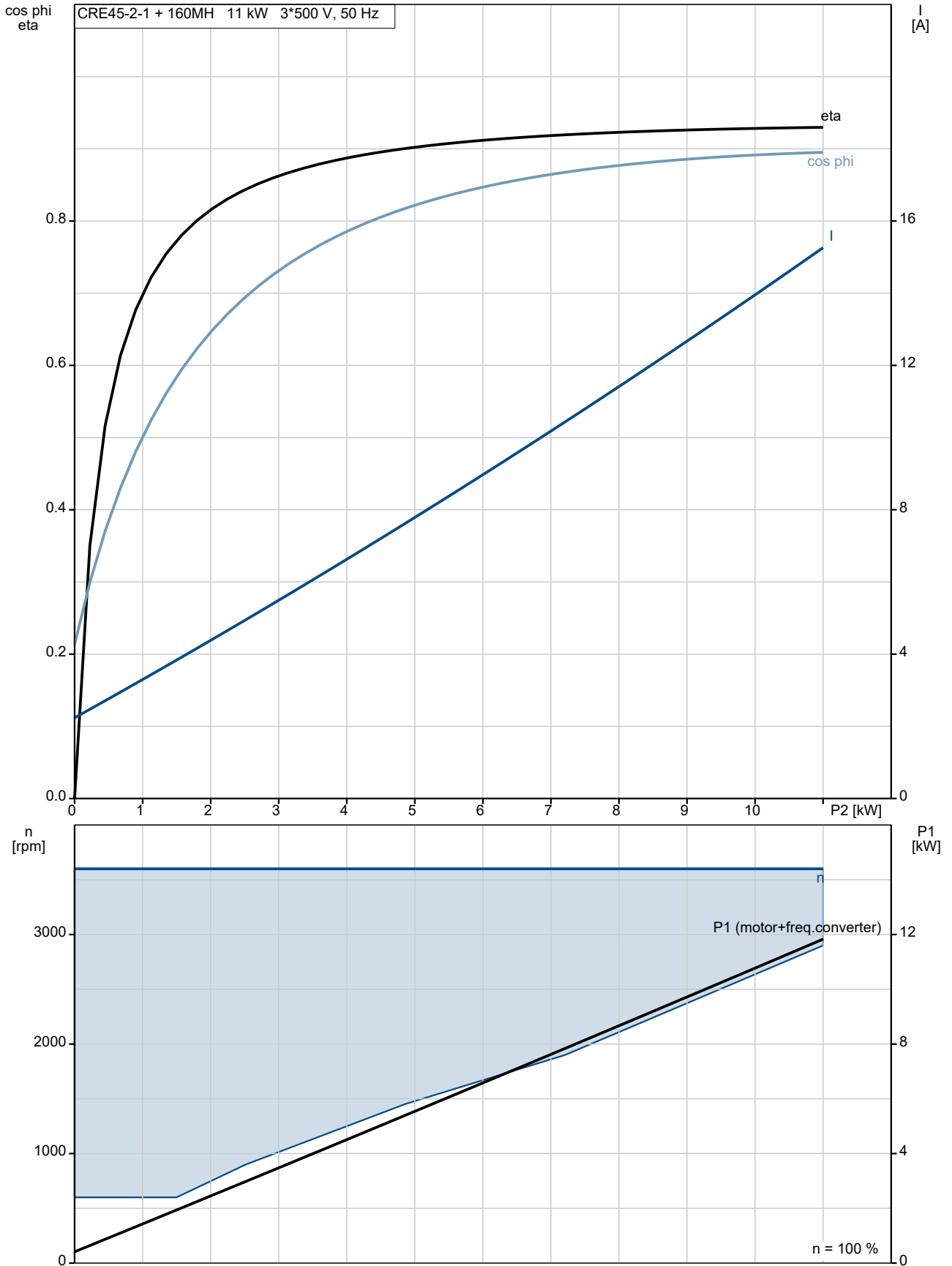
Phone:

Date:

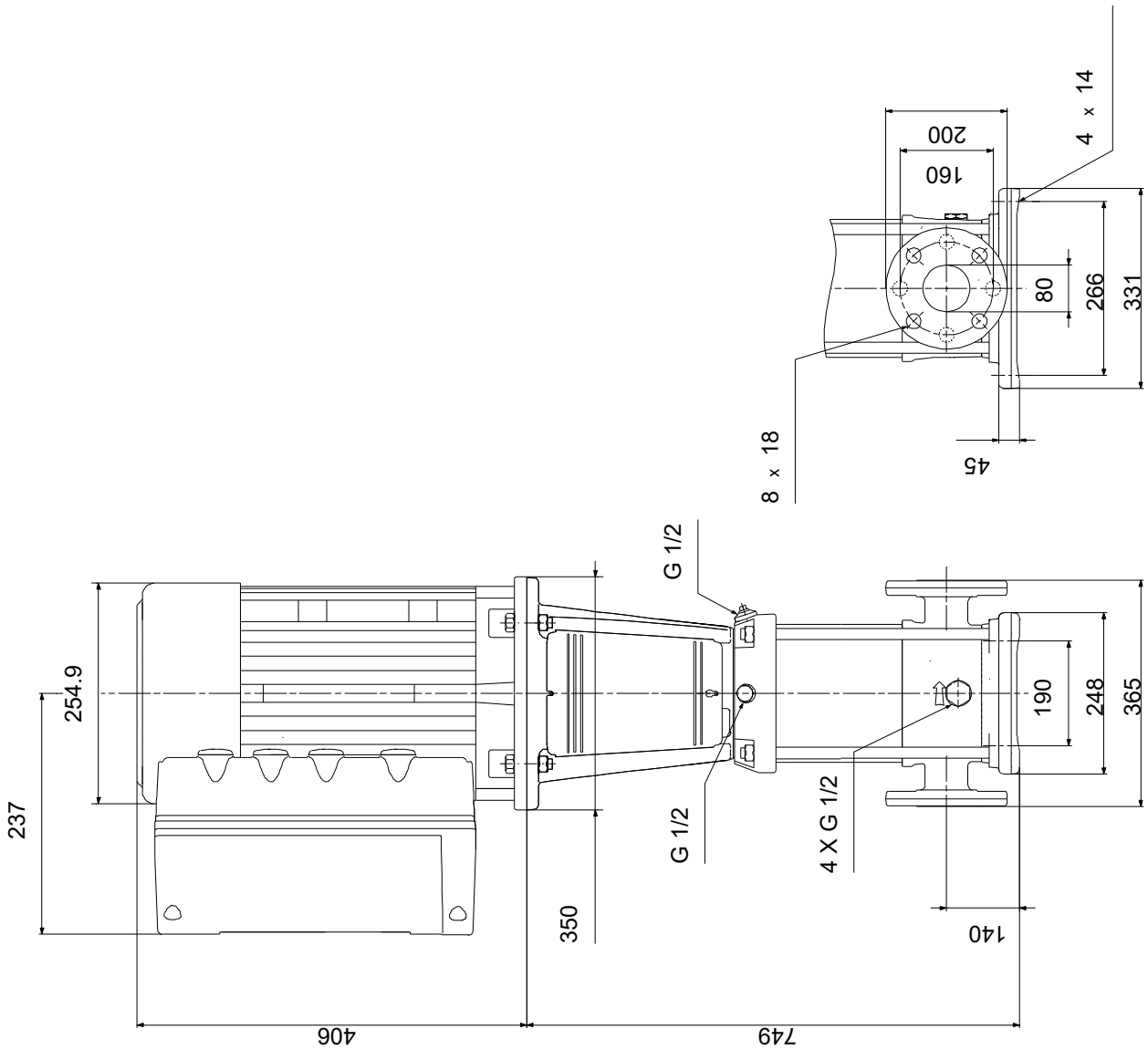
14/02/2022

Description	Value
Rated current:	20.3-16.0 A
Cos phi - power factor:	0.93-0.90
Rated speed:	360-4000 rpm
Efficiency:	93.1%
Motor efficiency at full load:	93.1 %
Enclosure class (IEC 34-5):	IP55
Insulation class (IEC 85):	F
Built-in motor protection:	ELEC
Motor No:	98971053
Controls:	
Control panel:	Standard
Function Module:	FM300 - Advanced
Frequency converter:	Built-in
Pressure sensor:	N
Others:	
Minimum efficiency index, MEI \geq :	0.70
Net weight:	136 kg
Gross weight:	169 kg
Shipping volume:	0.495 m ³
Config. file no:	99059364
Danish VVS No.:	386007071
Finnish LVI No.:	4925716

99072014 CRE 45-2-1 A-F-A-E-HQQE

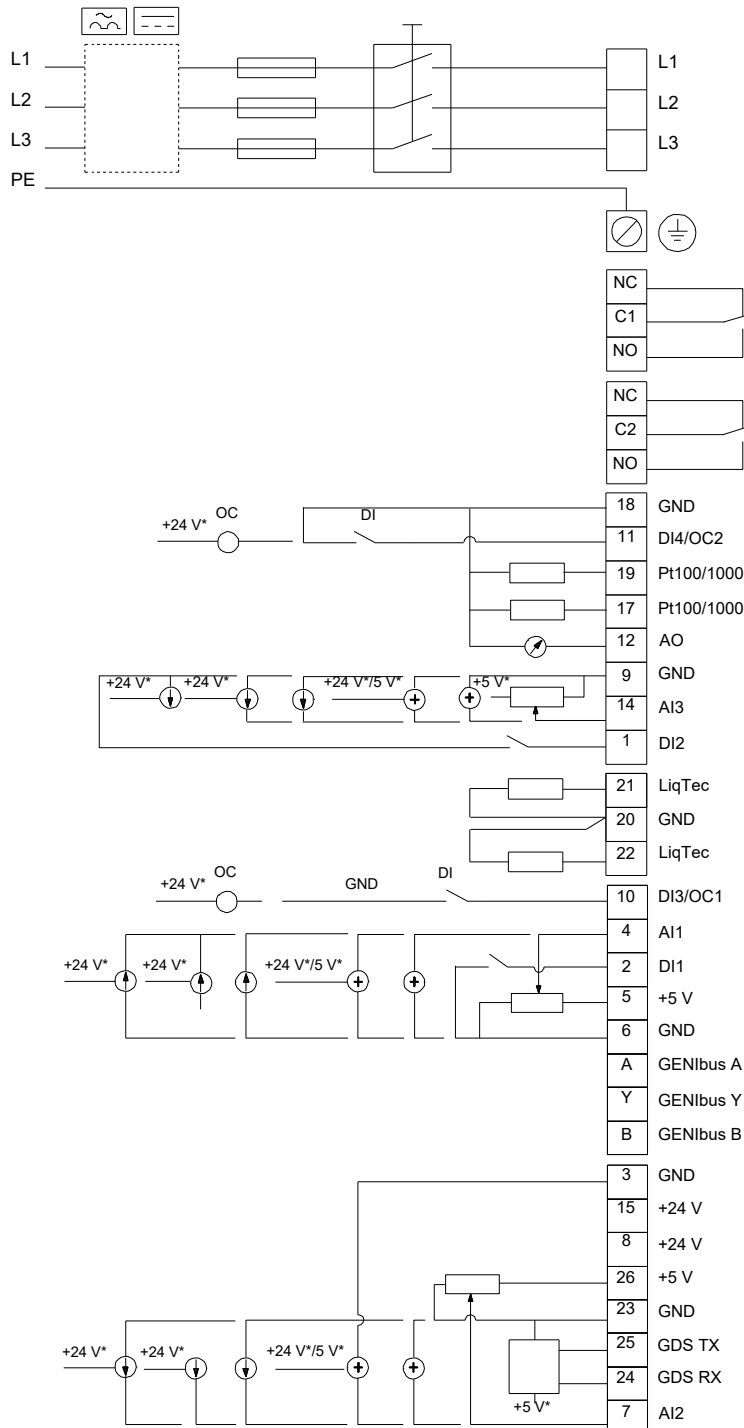


99072014 CRE 45-2-1 A-F-A-E-HQQE



Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

99072014 CRE 45-2-1 A-F-A-E-HQQE



Note! All units are in [mm] unless others are stated.