


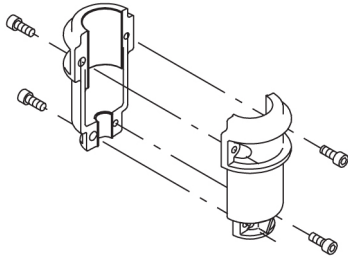
| Qty. | Description   |
|------|---|
| 1    | <p data-bbox="201 159 507 188"><b>CRE 45-2-1 A-F-A-E-HQQE</b></p>  <p data-bbox="201 481 464 510">Product No.: <a href="#">99072014</a></p> <p data-bbox="201 542 1430 640">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (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="201 683 1126 712">The pump is fitted with a 3-phase, fan-cooled, permanent-magnet, synchronous motor.</p> <p data-bbox="201 714 1015 743">The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.</p> <p data-bbox="201 745 1394 797">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="201 799 1449 875">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="240 887 1458 1032" style="list-style-type: none"> <li>• "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)</li> <li>• "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)</li> <li>• "Alarm": Motor has stopped (flashing red indicator lights).</li> </ul> <p data-bbox="201 1034 1422 1111">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="201 1117 1437 1169">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="240 1176 900 1529" style="list-style-type: none"> <li>• two dedicated digital inputs</li> <li>• three analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5 - 3.5 V</li> <li>• 5 V voltage supply to potentiometer and sensor</li> <li>• one analog output, 0-10 V, 0(4)-20 mA</li> <li>• two configurable digital inputs or open-collector outputs</li> <li>• two Pt100/Pt1000 inputs</li> <li>• LiqTec, dry-running protection sensor input</li> <li>• Grundfos Digital Sensor input and output</li> <li>• 24 V voltage supply for sensors</li> <li>• two signal-relay outputs (potential-free contacts)</li> <li>• GENIbus connection</li> <li>• interface for Grundfos CIM fieldbus module.</li> </ul> <p data-bbox="201 1561 512 1590"><b>Further product details</b></p> <p data-bbox="201 1597 1449 1648">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="201 1655 1449 1731">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="240 1738 1458 1883" style="list-style-type: none"> <li>• "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)</li> <li>• "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)</li> <li>• "Alarm": Motor has stopped (flashing red indicator lights).</li> </ul> <p data-bbox="201 1888 1422 1964">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="201 1971 1394 2022">Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process.</p> <p data-bbox="201 2029 1430 2080">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.</p> |

**Qty. Description**

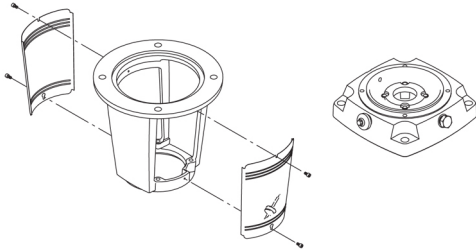
- 1 An integral part of the process is a pretreatment.  
The entire process consists of these elements:
- 1) Alkaline-based cleaning.
  - 2) Zinc phosphating.
  - 3) Cathodic electro-deposition.
  - 4) Curing to a dry film thickness 18-22 my m.
- The colour code for the finished product is NCS 9000/RAL 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.

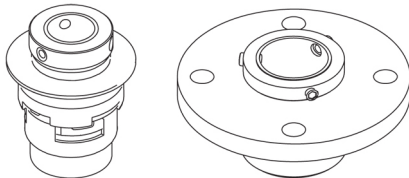
Seal faces:

- 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.



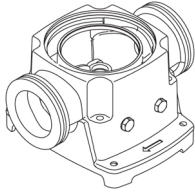
The shaft seal is retained in the pump head by a cover and screws. It can be replaced without removing the motor.

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.

The base is made of cast iron. Both the inlet and the outlet side of the base have two pressure gauge tapings. 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.

**Qty. Description**

1

**Motor**

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).

Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II).

Electrical tolerances comply with IEC 60034.

The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.

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.

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:

- 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.

**Technical data****Liquid:**

Pumped liquid: Water  
 Liquid temperature range: -30 .. 120 °C  
 Selected liquid temperature: 20 °C  
 Density: 998.2 kg/m<sup>3</sup>

**Technical:**

Pump speed on which pump data are based: 3529 rpm  
 Rated flow: 54 m<sup>3</sup>/h  
 Rated head: 51.7 m  
 Pump orientation: Vertical  
 Shaft seal arrangement: Single  
 Code for shaft seal: HQQE  
 Approvals and markings: CE,EAC,UKCA,SEPRO  
 Approvals for drinking water: WRAS,ACS  
 Curve tolerance: ISO9906:2012 3B

**Materials:**

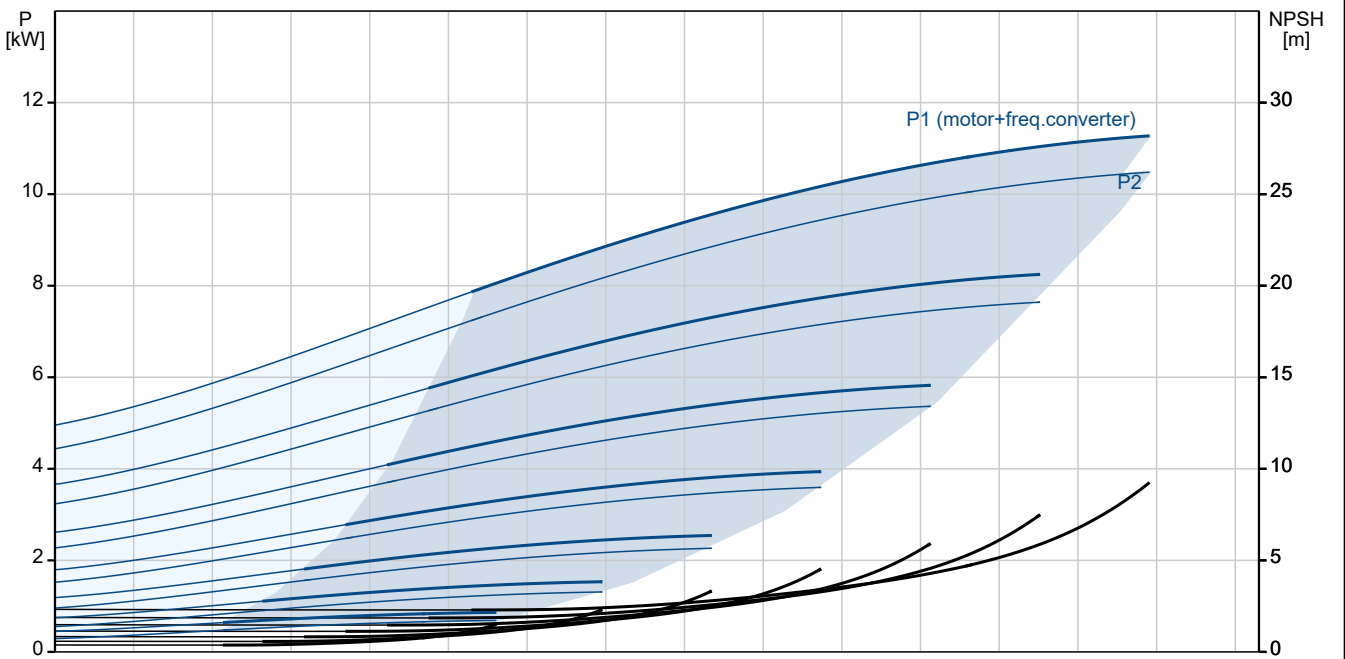
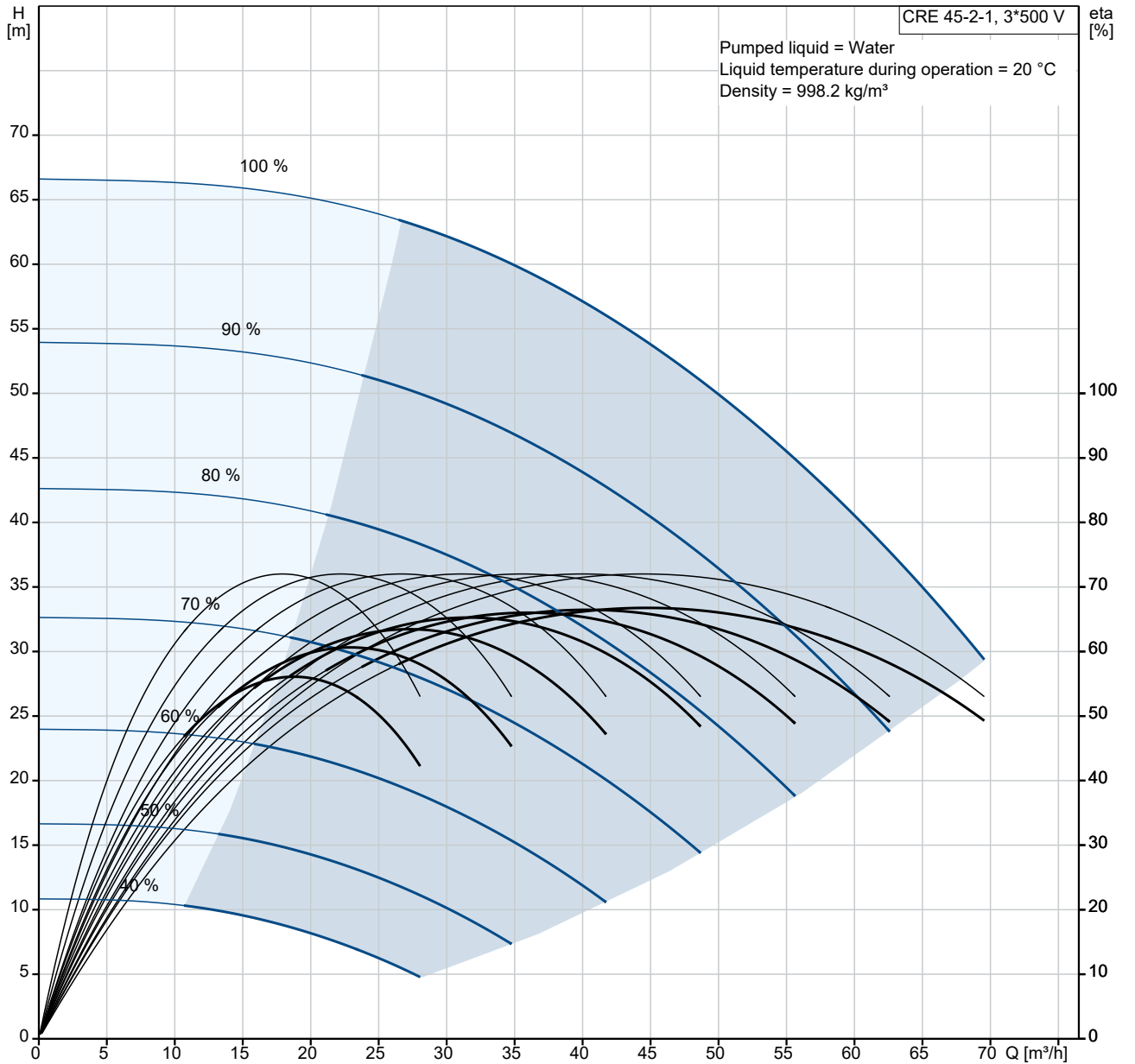
Base: Cast iron  
 EN 1563 EN-GJS-500-7  
 ASTM A536 80-55-06  
 Impeller: Stainless steel  
 EN 1.4301  
 AISI 304  
 Bearing arrangement: SIC  
 Support bearing: Graflon

**Installation:**

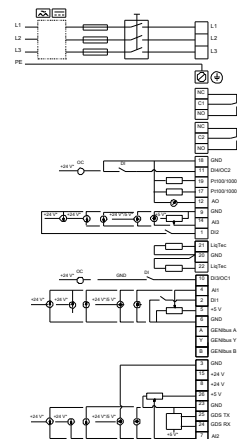
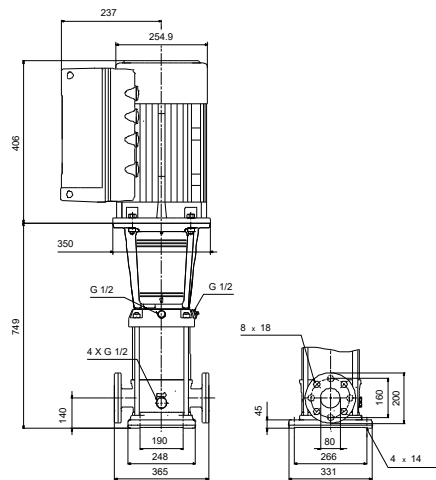
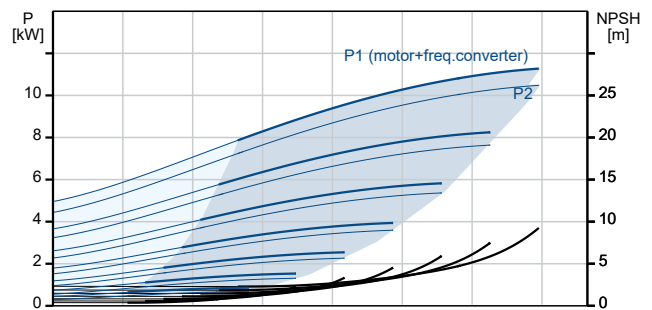
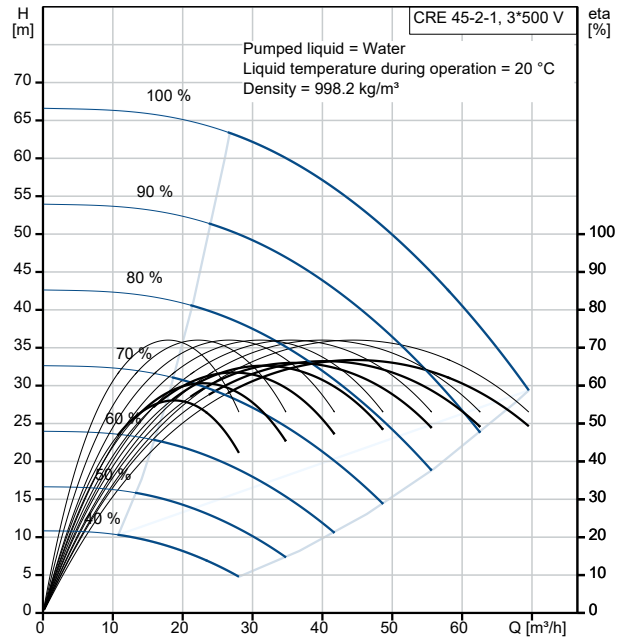
t max amb: 50 °C  
 Maximum operating pressure: 16 bar  
 Max pressure at stated temp: 16 bar / 120 °C  
 16 bar / -30 °C

| Qty. | Description   |
|------|---|
| 1    | Type of connection: DIN<br>Size of inlet connection: DN 80<br>Size of outlet connection: DN 80<br>Pressure rating for connection: PN 40<br>Flange size for motor: FF300   |
|      | Electrical data:<br>Motor standard: IEC<br>Motor type: 160MH<br>IE Efficiency class: IE5<br>Rated power - P2: 11 kW<br>Power (P2) required by pump: 11 kW<br>Over/undersize motor: Standard motor size<br>Mains frequency: 50 / 60 Hz<br>Rated voltage: 3 x 380-500 V<br>Rated current: 20.3-16.0 A<br>Cos phi - power factor: 0.93-0.90<br>Rated speed: 360-4000 rpm<br>Efficiency: 93.1%<br>Motor efficiency at full load: 93.1 %<br>Enclosure class (IEC 34-5): IP55<br>Insulation class (IEC 85): F<br>Motor No: 98971053 |
|      | Controls:<br>Frequency converter: Built-in<br>Pressure sensor: N  |
|      | Others:<br>Minimum efficiency index, MEI $\geq$ : 0.70<br>Net weight: 136 kg<br>Gross weight: 169 kg<br>Shipping volume: 0.495 m <sup>3</sup><br>Danish VVS No.: 386007071<br>Finnish LVI No.: 4925716<br>Country of origin: GB<br>Custom tariff no.: 84137075  |

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

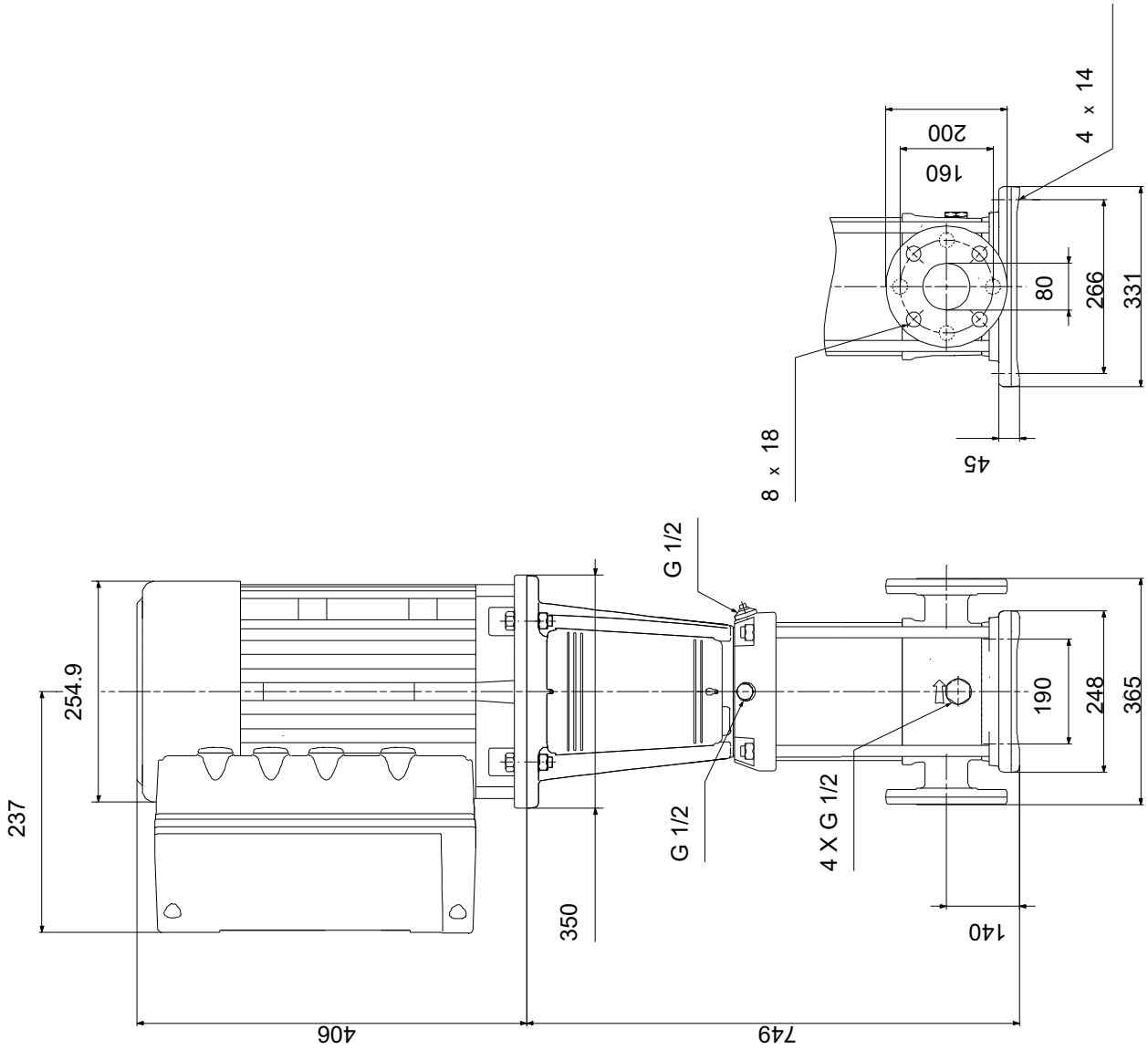


| Description   | Value                      |
|---|----------------------------|
| <b>General information:</b>                                       |                            |
| Product name:   | CRE 45-2-1<br>A-F-A-E-HQQE |
| Product No:   | 99072014                   |
| EAN number:   | 5712606202638              |
| <b>Technical:</b>   |                            |
| Pump speed on which pump data are based:                          | 3529 rpm                   |
| Rated flow:   | 54 m³/h                    |
| Rated head:   | 51.7 m                     |
| Maximum head:   | 67.8 m                     |
| Number of 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 and markings:   | CE,EAC,UKCA,SEPRO          |
| Approvals for drinking water:                                     | WRAS,ACS                   |
| Curve tolerance:  | ISO9906:2012 3B            |
| Pump version:   | A                          |
| The first model is called A which is followed by model B, C etc.: | B                          |
| <b>Materials:</b>   |                            |
| 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 arrangement:  | SIC                        |
| Support bearing:  | Graflon                    |
| <b>Installation:</b>  |                            |
| 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                          |
| <b>Liquid:</b>  |                            |
| Pumped liquid:  | Water                      |
| Liquid temperature range:   | -30 .. 120 °C              |
| Selected liquid temperature:                                      | 20 °C                      |
| Density:  | 998.2 kg/m³                |
| <b>Electrical data:</b>   |                            |
| Motor standard:   | IEC                        |
| Motor type:   | 160MH                      |
| IE Efficiency class:  | IE5                        |
| Rated power - P2:   | 11 kW                      |
| Power (P2) required by pump:                                      | 11 kW                      |
| Over/undersize motor:   | Standard motor size        |
| Mains frequency:  | 50 / 60 Hz                 |
| Rated voltage:  | 3 x 380-500 V              |
| 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%                      |



| Description                      | Value                |
|----------------------------------|----------------------|
| Enclosure class (IEC 34-5):      | IP55                 |
| Insulation class (IEC 85):       | F                    |
| Built-in motor protection:       | ELEC                 |
| Motor No:                        | 98971053             |
| <b>Controls:</b>                 |                      |
| Control panel:                   | Standard             |
| Function Module:                 | FM300 - Advanced     |
| Frequency converter:             | Built-in             |
| Pressure sensor:                 | N                    |
| <b>Others:</b>                   |                      |
| Minimum efficiency index, MEI ≥: | 0.70                 |
| Net weight:                      | 136 kg               |
| Gross weight:                    | 169 kg               |
| Shipping volume:                 | 0.495 m <sup>3</sup> |
| Config. file no:                 | 99059364             |
| Danish VVS No.:                  | 386007071            |
| Finnish LVI No.:                 | 4925716              |
| Country of origin:               | GB                   |
| Custom tariff no.:               | 84137075             |

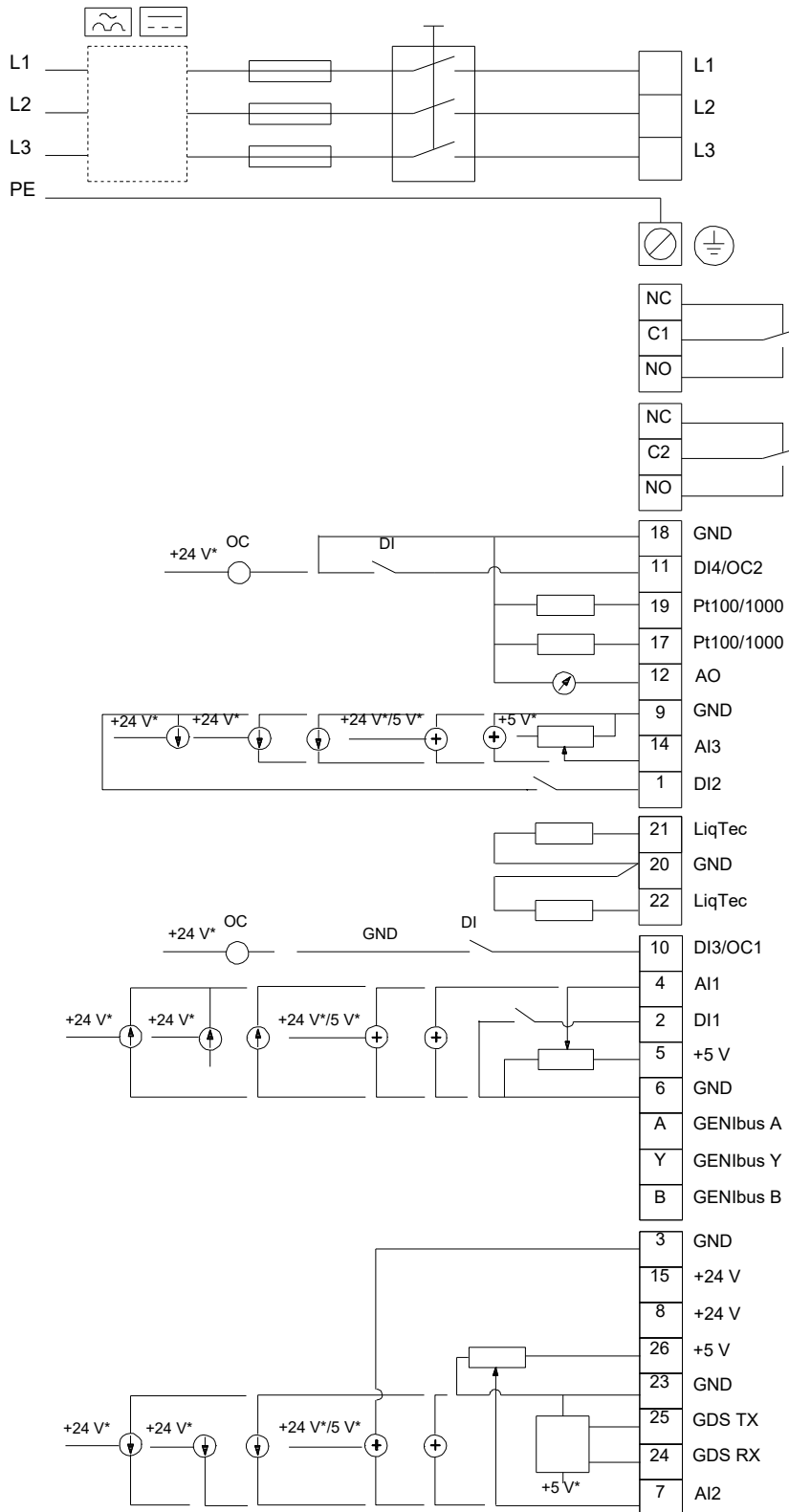
# 99072014 CRE 45-2-1 A-F-A-E-HQQE



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.

**Order Data:**

| <b>Position</b> | <b>Your pos.</b> | <b>Product name</b> | <b>Amount</b> | <b>Product No</b> | <b>Total</b>     |
|-----------------|------------------|---------------------|---------------|-------------------|------------------|
|                 |                  | CRE 45-2-1          | 1             | 99072014          | Price on request |
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