

## CRNE1-4 A-FGJ-G-V-HQQV 3x380-500 60HZ

Grundfos pump 98389509



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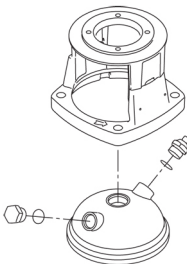
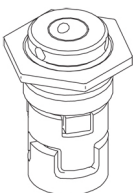
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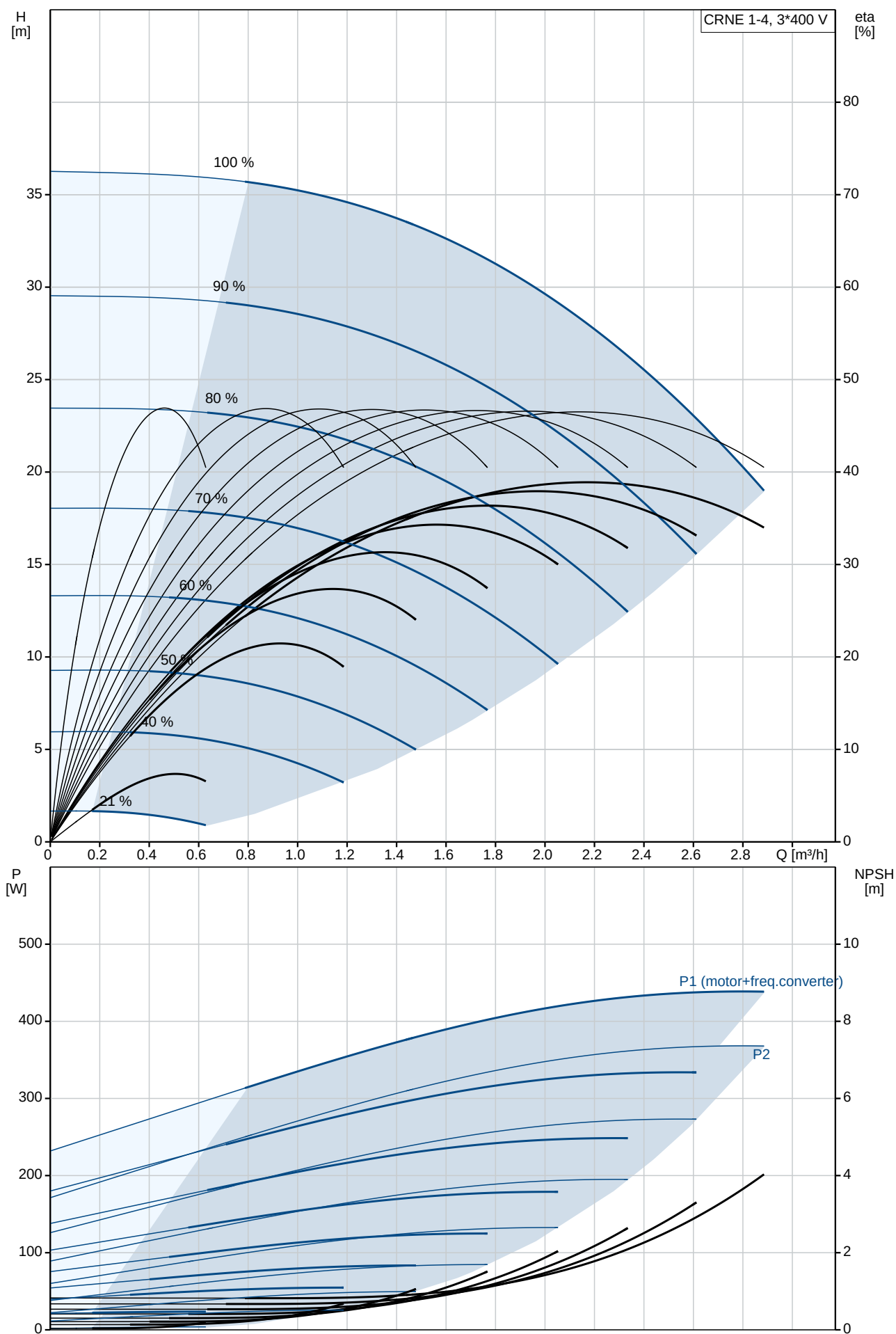
| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|          | 1    | <p><b>CRNE 1-4 A-FGJ-A-V-HQQV</b></p>  <p>Product No.: On request</p> <p>Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in contact with the liquid are in high-grade 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 combined DIN-ANSI-JIS flanges.</p> <p>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>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. 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 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>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>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"> <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><b>Further product details</b></p> <p>An external sensor can be connected if controlled pump operation based on for example flow, differential pressure or temperature is required.</p> <p>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 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>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> |

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|          |      | <p>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:</p> <ol style="list-style-type: none"> <li>1) Alkaline-based cleaning.</li> <li>2) Zinc phosphating.</li> <li>3) Cathodic electro-deposition.</li> <li>4) Curing to a dry film thickness 18-22 my m.</li> </ol> <p>The colour code for the finished product is NCS 9000/RAL 9005.</p> <p><b>Pump</b></p> <p>A standard split coupling connects the pump and motor shaft. It is enclosed in the pump head/motor stool by means of two coupling guards.</p>  <p>The pump head and flange for motor mounting is made in one piece (cast iron). The pump head cover is a separate component (stainless steel). The pump head has a combined 1/2" priming plug and vent screw.</p>  <p>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.</p> <p>Primary seal:</p> <ul style="list-style-type: none"> <li>• Rotating seal ring material: silicon carbide (SiC)</li> <li>• Stationary seat material: silicon carbide (SiC)</li> </ul> <p>This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.</p> <p>Secondary seal material: FKM (fluorocarbon rubber)</p> <p>FKM has excellent resistance to oils and chemicals. Above 90 °C, FKM should only be used in media without water.</p>  <p>The shaft seal is screwed into the pump head.</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 pump has a stainless-steel base mounted on a separate base plate. This base and base plate are kept in position by the tension of the staybolts which hold the pump together. The outlet side of the base has a combined drain plug and bypass valve. The pump is secured to the foundation by four bolts through the base plate. The flanges and base are cast in one piece and prepared for connection by means of DIN, ANSI or JIS.</p> |

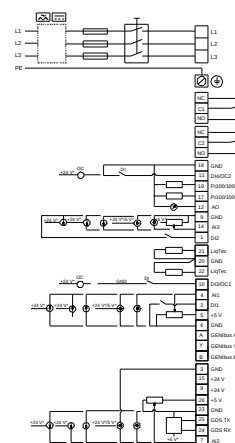
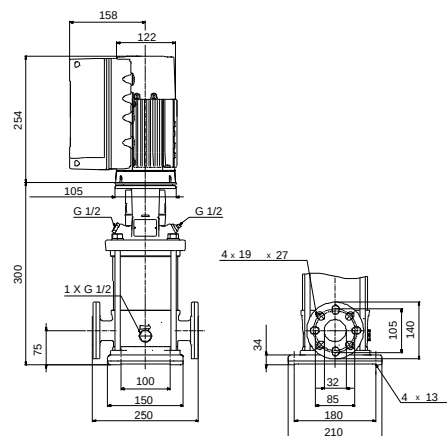
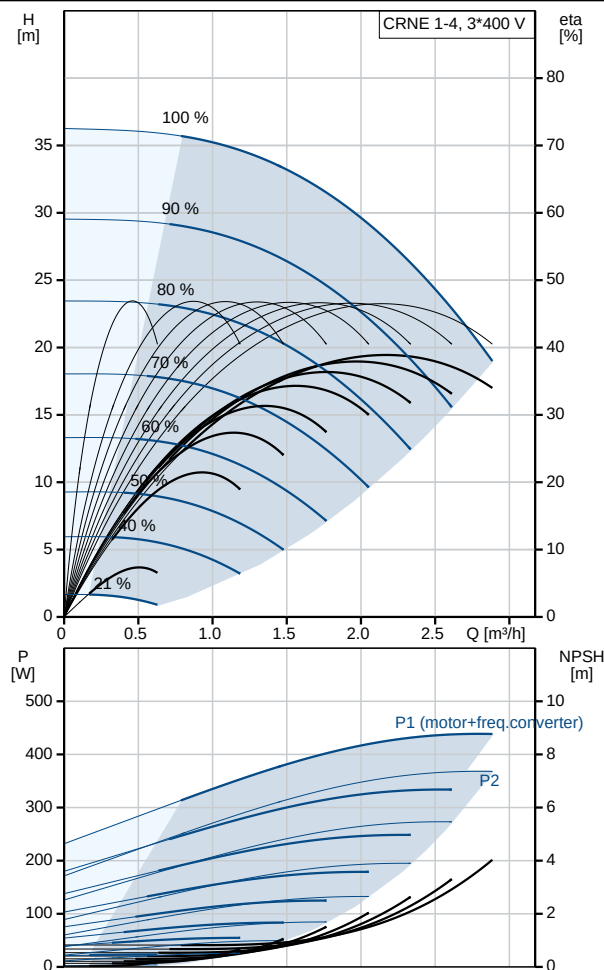
| Position                             | Qty.                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
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|                                      |                                          | <p><b>Motor</b></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 tapped-hole flange (FT).</p> <p>Motor-mounting designation in accordance with IEC 60034-7: IM B 14 (Code I) / IM 3601 (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"><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><b>Technical data</b></p> <p><b>Controls:</b></p> <table><tr><td>Frequency converter:</td><td>Built-in</td></tr><tr><td>Pressure sensor:</td><td>N</td></tr></table> <p><b>Liquid:</b></p> <table><tr><td>Pumped liquid:</td><td>Water</td></tr><tr><td>Liquid temperature range:</td><td>-20 .. 90 °C</td></tr><tr><td>Liquid temperature during operation:</td><td>20 °C</td></tr><tr><td>Density:</td><td>998.2 kg/m³</td></tr></table> <p><b>Technical:</b></p> <table><tr><td>Rated flow:</td><td>2.2 m³/h</td></tr><tr><td>Rated head:</td><td>28.2 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>HQQV</td></tr><tr><td>Approvals on nameplate:</td><td>CE, EAC</td></tr><tr><td>Curve tolerance:</td><td>ISO9906:2012 3B</td></tr></table> <p><b>Materials:</b></p> <table><tr><td>Base:</td><td>Stainless steel<br/>EN 1.4408<br/>AISI 316</td></tr><tr><td>Impeller:</td><td>Stainless steel<br/>EN 1.4401<br/>AISI 316</td></tr><tr><td>Bearing:</td><td>SIC</td></tr></table> <p><b>Installation:</b></p> <table><tr><td>Maximum ambient temperature:</td><td>50 °C</td></tr><tr><td>Maximum operating pressure:</td><td>25 bar</td></tr><tr><td>Max pressure at stated temp:</td><td>25 bar / 90 °C<br/>25 bar / -20 °C</td></tr><tr><td>Type of connection:</td><td>DIN / ANSI / JIS</td></tr><tr><td>Size of inlet connection:</td><td>DN 25/32<br/>1 1/4 inch</td></tr><tr><td>Size of outlet connection:</td><td>DN 25/32<br/>1 1/4 inch</td></tr><tr><td>Pressure rating for pipe connection:</td><td>PN 25</td></tr><tr><td>Flange rating inlet:</td><td>300 lb</td></tr></table> | Frequency converter: | Built-in | Pressure sensor: | N | Pumped liquid: | Water | Liquid temperature range: | -20 .. 90 °C | Liquid temperature during operation: | 20 °C | Density: | 998.2 kg/m³ | Rated flow: | 2.2 m³/h | Rated head: | 28.2 m | Pump orientation: | Vertical | Shaft seal arrangement: | Single | Code for shaft seal: | HQQV | Approvals on nameplate: | CE, EAC | Curve tolerance: | ISO9906:2012 3B | Base: | Stainless steel<br>EN 1.4408<br>AISI 316 | Impeller: | Stainless steel<br>EN 1.4401<br>AISI 316 | Bearing: | SIC | Maximum ambient temperature: | 50 °C | Maximum operating pressure: | 25 bar | Max pressure at stated temp: | 25 bar / 90 °C<br>25 bar / -20 °C | Type of connection: | DIN / ANSI / JIS | Size of inlet connection: | DN 25/32<br>1 1/4 inch | Size of outlet connection: | DN 25/32<br>1 1/4 inch | Pressure rating for pipe connection: | PN 25 | Flange rating inlet: | 300 lb |
| Frequency converter:                 | Built-in                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Pressure sensor:                     | N                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Pumped liquid:                       | Water                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Liquid temperature range:            | -20 .. 90 °C                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Liquid temperature during operation: | 20 °C                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Density:                             | 998.2 kg/m³                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Rated flow:                          | 2.2 m³/h                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Rated head:                          | 28.2 m                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Pump orientation:                    | Vertical                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Shaft seal arrangement:              | Single                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Code for shaft seal:                 | HQQV                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Approvals on nameplate:              | CE, EAC                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Curve tolerance:                     | ISO9906:2012 3B                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Base:                                | Stainless steel<br>EN 1.4408<br>AISI 316 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Impeller:                            | Stainless steel<br>EN 1.4401<br>AISI 316 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Bearing:                             | SIC                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Maximum ambient temperature:         | 50 °C                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Maximum operating pressure:          | 25 bar                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Max pressure at stated temp:         | 25 bar / 90 °C<br>25 bar / -20 °C        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Type of connection:                  | DIN / ANSI / JIS                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Size of inlet connection:            | DN 25/32<br>1 1/4 inch                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Size of outlet connection:           | DN 25/32<br>1 1/4 inch                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Pressure rating for pipe connection: | PN 25                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |
| Flange rating inlet:                 | 300 lb                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |          |                  |   |                |       |                           |              |                                      |       |          |             |             |          |             |        |                   |          |                         |        |                      |      |                         |         |                  |                 |       |                                          |           |                                          |          |     |                              |       |                             |        |                              |                                   |                     |                  |                           |                        |                            |                        |                                      |       |                      |        |

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p>Flange size for motor: FT85</p> <p><b>Electrical data:</b></p> <p>Motor standard: IEC</p> <p>Motor type: 71A</p> <p>IE Efficiency class: IE5</p> <p>Rated power - P2: 0.37 kW</p> <p>Power (P2) required by pump: 0.37 kW</p> <p>Mains frequency: 50 Hz</p> <p>Rated voltage: 3 x 380-500 V</p> <p>Rated current: 1.05-1.00 A</p> <p>Cos phi - power factor: 0.68-0.54</p> <p>Rated speed: 360-4000 rpm</p> <p>Efficiency: 84.5%</p> <p>Motor efficiency at full load: 84.5 %</p> <p>Enclosure class (IEC 34-5): IP55</p> <p>Insulation class (IEC 85): F</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI <math>\geq</math> 0.7</p> <p>Net weight: 25.6 kg</p> <p>Gross weight: 28.5 kg</p> <p>Shipping volume: 0.143 m<sup>3</sup></p> |

# On request CRNE 1-4 A-FGJ-A-V-HQQV 50 Hz



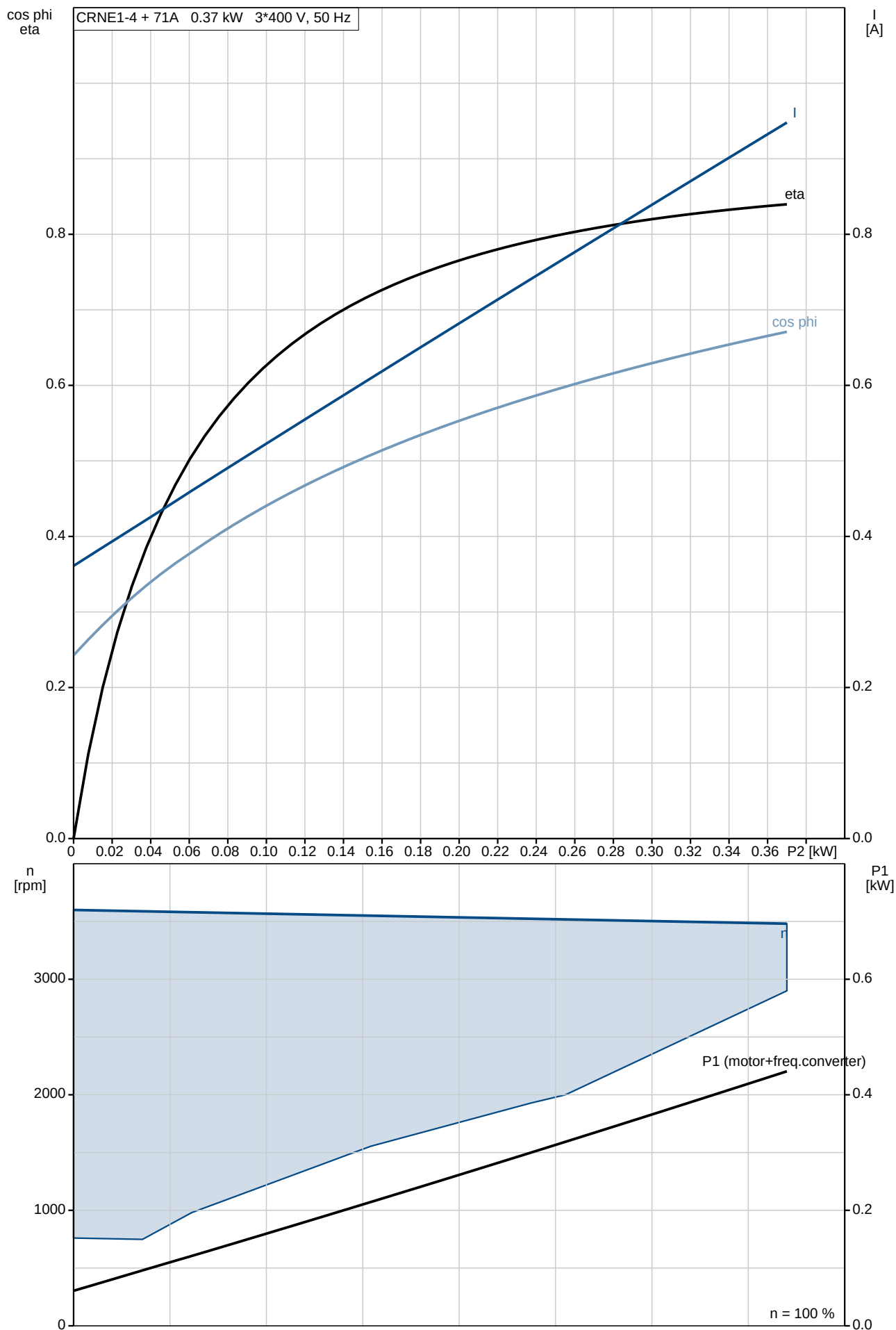
| Description                           | Value                   |
|---------------------------------------|-------------------------|
| <b>General information:</b>           |                         |
| Product name:                         | CRNE 1-4 A-FGJ-A-V-HQQV |
| Product No:                           | On request              |
| EAN number:                           | On request              |
| <b>Technical:</b>                     |                         |
| Rated flow:                           | 2.2 m³/h                |
| Rated head:                           | 28.2 m                  |
| Stages:                               | 4                       |
| Impellers:                            | 4                       |
| Number of reduced-diameter impellers: | 0                       |
| Low NPSH:                             | N                       |
| Pump orientation:                     | Vertical                |
| Shaft seal arrangement:               | Single                  |
| Code for shaft seal:                  | HQQV                    |
| Approvals on nameplate:               | CE, EAC                 |
| Curve tolerance:                      | ISO9906:2012 3B         |
| Pump version:                         | A                       |
| Model:                                | A                       |
| <b>Materials:</b>                     |                         |
| Base:                                 | Stainless steel         |
|                                       | EN 1.4408               |
|                                       | AISI 316                |
| Impeller:                             | Stainless steel         |
|                                       | EN 1.4401               |
|                                       | AISI 316                |
| Material code:                        | A                       |
| Code for rubber:                      | V                       |
| Bearing:                              | SIC                     |
| <b>Installation:</b>                  |                         |
| Maximum ambient temperature:          | 50 °C                   |
| Maximum operating pressure:           | 25 bar                  |
| Max pressure at stated temp:          | 25 bar / 90 °C          |
|                                       | 25 bar / -20 °C         |
| Type of connection:                   | DIN / ANSI / JIS        |
| Size of inlet connection:             | DN 25/32                |
|                                       | 1 1/4 inch              |
| Size of outlet connection:            | DN 25/32                |
|                                       | 1 1/4 inch              |
| Pressure rating for pipe connection:  | PN 25                   |
| Flange rating inlet:                  | 300 lb                  |
| Flange size for motor:                | FT85                    |
| Connect code:                         | FGJ                     |
| <b>Liquid:</b>                        |                         |
| Pumped liquid:                        | Water                   |
| Liquid temperature range:             | -20 .. 90 °C            |
| Liquid temperature during operation:  | 20 °C                   |
| Density:                              | 998.2 kg/m³             |
| <b>Electrical data:</b>               |                         |
| Motor standard:                       | IEC                     |
| Motor type:                           | 71A                     |
| IE Efficiency class:                  | IE5                     |
| Rated power - P2:                     | 0.37 kW                 |
| Power (P2) required by pump:          | 0.37 kW                 |
| Mains frequency:                      | 50 Hz                   |
| Rated voltage:                        | 3 x 380-500 V           |
| Rated current:                        | 1.05-1.00 A             |
| Cos phi - power factor:               | 0.68-0.54               |
| Rated speed:                          | 360-4000 rpm            |
| Efficiency:                           | 84.5%                   |
| Motor efficiency at full load:        | 84.5 %                  |
| Enclosure class (IEC 34-5):           | IP55                    |
| Insulation class (IEC 85):            | F                       |



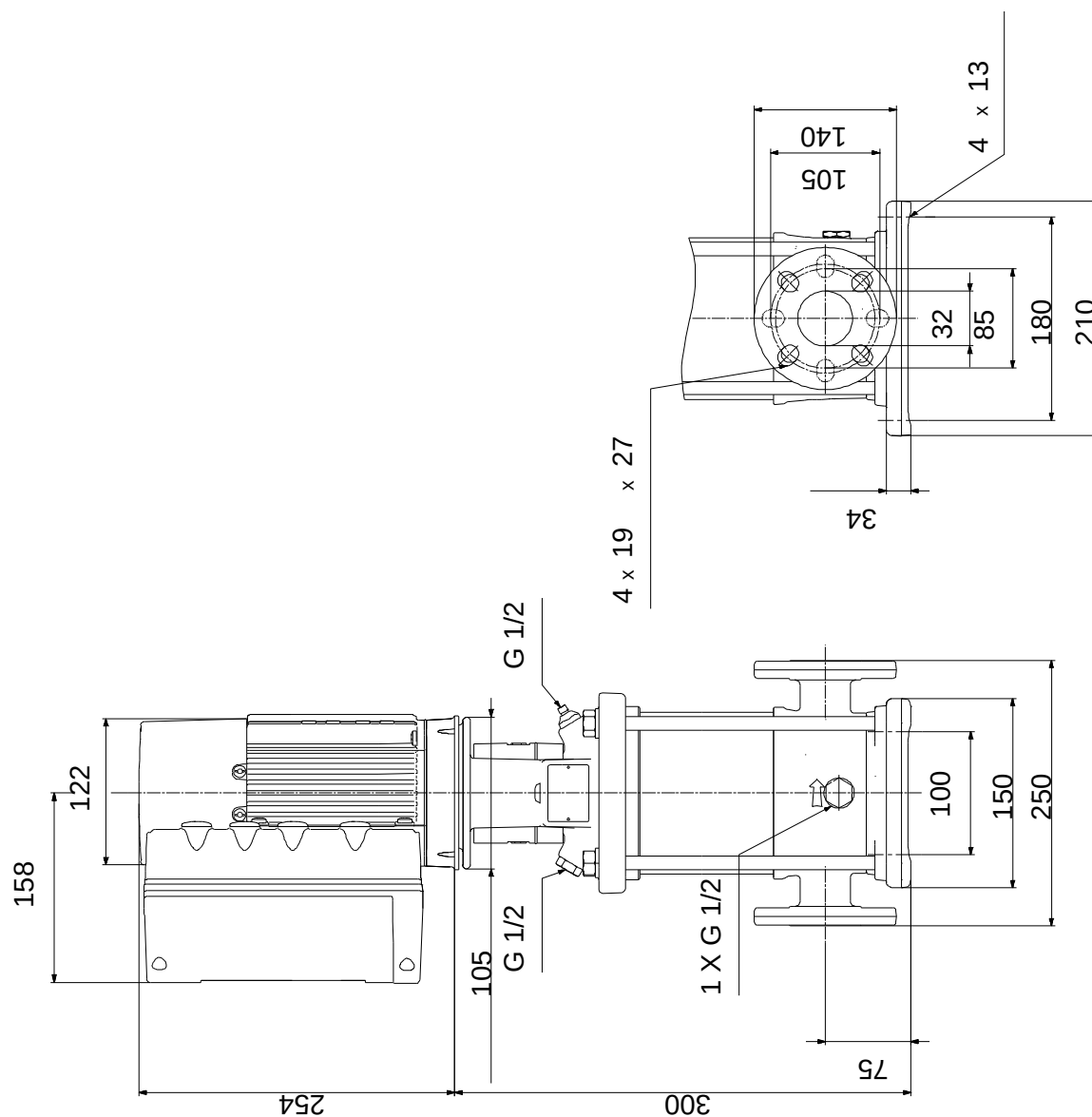
| Description                      | Value            |
|----------------------------------|------------------|
| Motor protec:                    | YES              |
| Motor No:                        | 98190218         |
| <b>Controls:</b>                 |                  |
| Control panel:                   | Standard         |
| Function Module:                 | FM300 - Advanced |
| Frequency converter:             | Built-in         |
| Pressure sensor:                 | N                |
| <b>Others:</b>                   |                  |
| Minimum efficiency index, MEI ≥: | 0.7              |
| Net weight:                      | 25.6 kg          |
| Gross weight:                    | 28.5 kg          |
| Shipping volume:                 | 0.143 m³         |



# On request CRNE 1-4 A-FGJ-A-V-HQQV 50 Hz

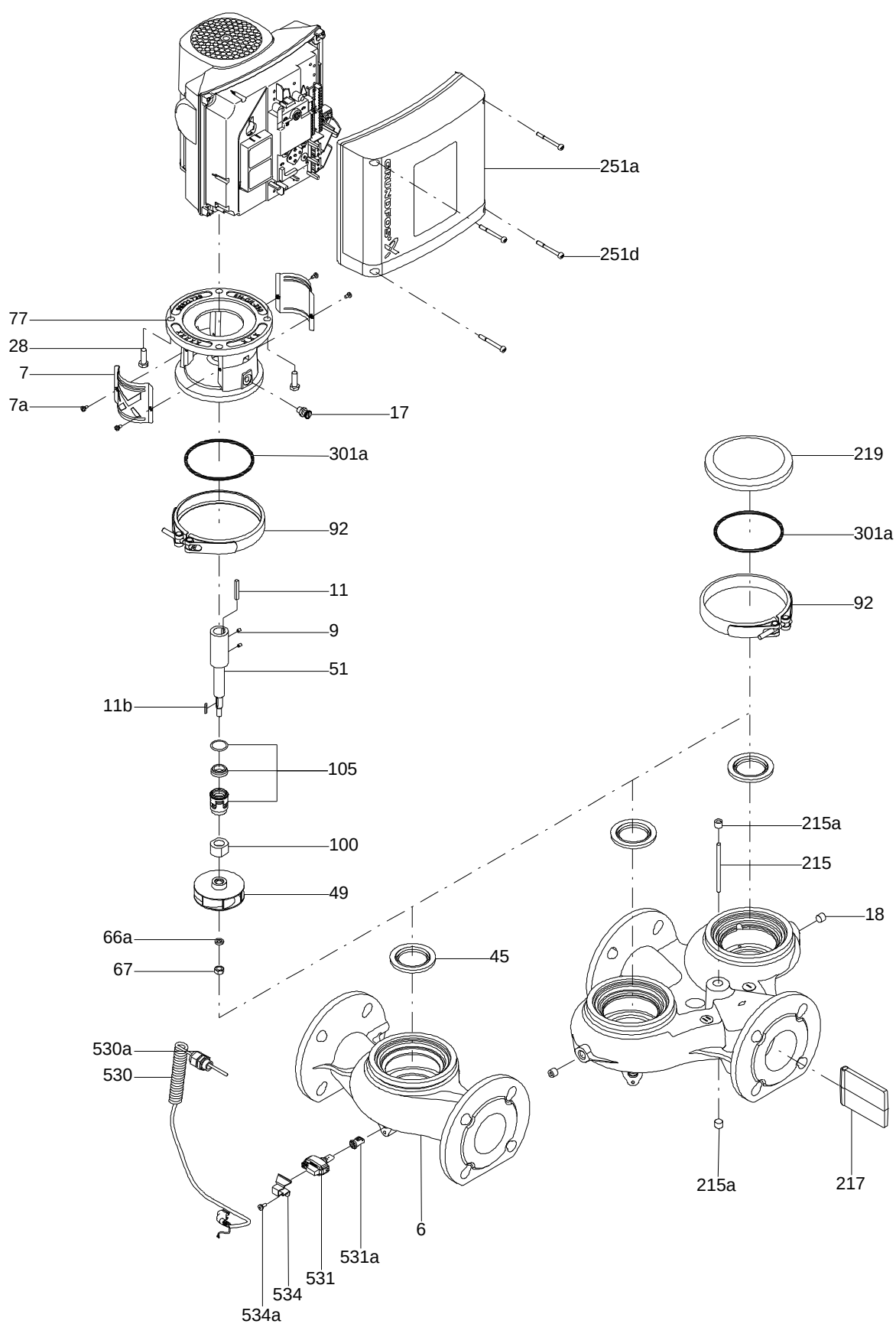


# On request CRNE 1-4 A-FGJ-A-V-HQQV 50 Hz



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

# Exploded view

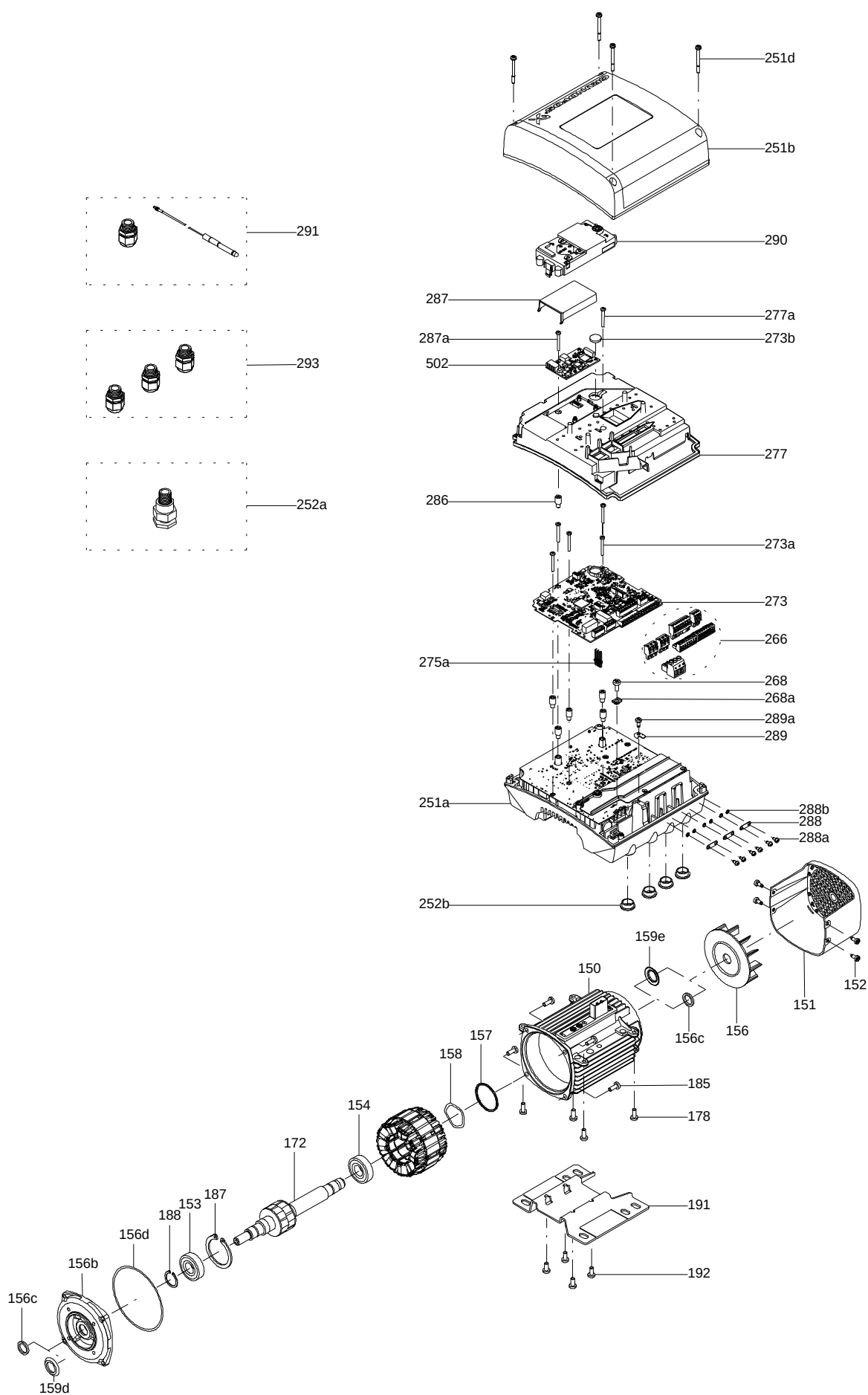


Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

**Exploded view ( TM057026 for MGE model H/I )**



**Parts list CRNE 1-4, Product No. On request**  
**Valid from 25.12.2012 (1252)**

| Pos  | Description                   | Annotation | Données de classification   | Référence | Quantité | Unité |
|------|-------------------------------|------------|-----------------------------|-----------|----------|-------|
| -    | Motor                         |            |                             |           | 1        | pcs   |
|      | Terminal                      |            |                             |           | 3        |       |
|      | Pan head thread forming screw |            |                             |           | 4        |       |
| 150  | Stator housing                |            |                             |           | 1        |       |
| 150  | Stator                        |            |                             |           | 1        |       |
| 151  | Fan cover                     |            |                             |           | 1        |       |
| 152  | Pan head thread forming screw |            |                             |           | 6        |       |
| 152  | Pan head thread forming screw |            |                             |           | 1        |       |
| 152  | Pan head thread forming screw |            |                             |           | 4        |       |
| 152  | Pan head thread forming screw |            |                             |           | 1        |       |
| 153  | Ball bearing                  |            | Designation: 6204.2Z.C3.SYN |           | 1        |       |
| 154  | Ball bearing                  |            | Designation: 6204.2Z.C3.SYN |           | 1        |       |
| 156  | Fan                           |            |                             |           | 1        |       |
| 156b | Flange                        |            |                             |           | 1        |       |
| 156d | Gasket                        |            | Internal diameter: 114,80   |           | 1        |       |
|      |                               |            | Outer diameter: 121,20      |           |          |       |
|      |                               |            | Thickness: 0,25             |           |          |       |
| 157  | O-ring                        |            | Diameter: 47                |           | 1        |       |
|      |                               |            | Material type: NBR          |           |          |       |
|      |                               |            | Thickness: 3                |           |          |       |
| 158  | Waved washer                  |            |                             |           | 1        |       |
| 159c | Seal ring                     |            |                             |           | 1        |       |
| 159c | Seal ring                     |            |                             |           | 1        |       |
| 166  | Torx Screw                    |            |                             |           | 2        |       |
| 172  | Shaft w/rotor                 |            |                             |           | 1        |       |
| 173a | Base                          |            |                             |           | 1        |       |
| 185  | Cross recess Pan head screw   |            |                             |           | 4        |       |
| 186  | Drain plug                    |            |                             |           | 1        |       |
| 203  | Terminal plug                 |            |                             |           | 1        |       |
| 251a | Control box                   |            |                             |           | 1        |       |
| 251b | Control box                   |            |                             |           | 1        |       |
| 251d | Pan head thread forming screw |            |                             |           | 4        |       |
| 266  | Connector plug 3-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 3-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 3-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 8-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 8-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 8-pole         |            |                             |           | 1        |       |
| 266  | Connector plug 10-pole        |            |                             |           | 1        |       |
| 268  | Pan head screw                |            |                             |           | 1        |       |
| 273  | Funct. Module cpl.            |            |                             |           | 1        |       |
| 273b | Battery                       |            |                             |           | 1        |       |
| 275a | Pin                           |            |                             |           | 1        |       |
| 277  | Isolation cover               |            |                             |           | 1        |       |
| 277a | Cross recess Pan head screw   |            |                             |           | 1        |       |
| 277a | Cross recess Pan head screw   |            |                             |           | 1        |       |
| 277a | Cross recess Pan head screw   |            |                             |           | 4        |       |
| 286  | Spacer                        |            |                             |           | 1        |       |
| 286  | Spacer                        |            |                             |           | 1        |       |
| 287  | Cover                         |            |                             |           | 1        |       |
| 288  | Wire clamp                    |            |                             |           | 3        |       |
| 288b | Washer                        |            |                             |           | 6        |       |
| 289  | Wire clamp                    |            |                             |           | 1        |       |
| 290  | Control panel, cpl.           |            |                             |           | 1        |       |
| 300  | Plug cpl.                     |            |                             |           | 4        |       |
| 301  | Jumper                        |            |                             |           | 1        |       |
| -    | Base cpl.                     |            |                             |           | 1        | pcs   |
| 6    | Base                          |            |                             |           | 1        |       |
| 56   | Base plate                    |            |                             |           | 1        |       |

| Pos   | Description               | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|---------------------------|------------|---------------------------|-----------|----------|-------|
| 201.a | Flange                    |            |                           |           | 2        |       |
| 203   | Lock ring                 |            |                           |           | 2        |       |
| -     | Sealing parts             |            |                           | 1         |          | pcs   |
| - 25  | Drain plug w/bypass valve |            |                           |           | 1        |       |
| 38    | O-ring                    |            | Diameter: 16,3            |           | 1        |       |
|       |                           |            | Material type: FKM        |           |          |       |
|       |                           |            | Thickness: 2,4            |           |          |       |
| 37    | O-ring                    |            | Diameter: 137,5           |           | 2        |       |
|       |                           |            | Material type: FKM        |           |          |       |
|       |                           |            | Thickness: 3,3            |           |          |       |
| 100   | O-ring                    |            | Diameter: 16,3            |           | 2        |       |
|       |                           |            | Material type: FKM        |           |          |       |
|       |                           |            | Thickness: 2,4            |           |          |       |
| - 2   | Pump head cpl.            |            |                           | 1         |          | pcs   |
| 2     | Pump head                 |            |                           |           | 1        |       |
| 7     | Coupling guard            |            |                           |           | 2        |       |
| 7.a   | Combi Slot Torx screw     |            |                           |           | 4        |       |
| - 18  | Air vent screw            |            |                           |           | 1        |       |
|       | Plug                      |            |                           |           | 1        |       |
|       | Spindle                   |            |                           |           | 1        |       |
| 23a   | Plug                      |            |                           |           | 1        |       |
| 28    | Hex head screw            |            | Length (mm): 20           |           | 4        |       |
|       |                           |            | Thread: M6                |           |          |       |
| 60    | Formed wire spring        |            |                           |           | 1        |       |
| 77    | Pump cover                |            |                           |           | 1        |       |
| - 8   | Coupling                  |            |                           | 1         |          | pcs   |
| 9     | Hex socket head cap screw |            | Designation: DIN 912      |           | 4        |       |
|       |                           |            | Length (mm): 20           |           |          |       |
|       |                           |            | Thread: M6                |           |          |       |
| 10    | Shaft pin                 |            | Diameter: 5               |           | 1        |       |
|       |                           |            | Length (mm): 26           |           |          |       |
| 10a   | Coupling half             |            |                           |           | 2        |       |
| 26    | Staybolt                  |            | Length (mm): 169          |           | 4        | pcs   |
|       |                           |            | Thread: M12               |           |          |       |
| 36    | Nut                       |            | Thread: M12               |           | 4        | pcs   |
| 55    | Outer sleeve              |            |                           |           | 1        | pcs   |
| 66a   | Washer                    |            | Designation: DIN 125 A2   |           | 4        | pcs   |
|       |                           |            | Internal diameter: 13     |           |          |       |
|       |                           |            | Outer diameter: 24        |           |          |       |
|       |                           |            | Thickness: 2,5            |           |          |       |
| - 80  | Chamber stack             |            |                           | 1         |          | pcs   |
| - 4   | Chamber cpl.              |            |                           |           | 2        |       |
| 4a    | Intermediate chamber      |            |                           |           | 1        |       |
| 45    | Neck ring                 |            |                           |           | 1        |       |
| 65    | Neck ring retainer        |            |                           |           | 1        |       |
| - 4a  | Chamber w. bearing cpl.   |            |                           |           | 1        |       |
| 4a    | Intermediate chamber      |            |                           |           | 1        |       |
| 45    | Neck ring                 |            |                           |           | 1        |       |
| 65    | Neck ring retainer        |            |                           |           | 1        |       |
| - 5a  | Chamber cpl.              |            |                           |           | 1        |       |
| 4a    | Intermediate chamber      |            |                           |           | 1        |       |
| 45    | Neck ring                 |            |                           |           | 1        |       |
| 65    | Neck ring retainer        |            |                           |           | 1        |       |
| 36    | Lock nut                  |            | Thread: M8                |           | 1        |       |
| 47a   | Bearing ring, rotating    |            |                           |           | 1        |       |
| 49    | Impeller cpl.             |            |                           |           | 4        |       |
| - 50a | Guide vane                |            |                           |           | 1        |       |
|       | Plate                     |            |                           |           | 1        |       |
| 50b   | Top plate                 |            |                           |           | 1        |       |
| 51    | Shaft, spline, cpl.       |            |                           |           | 1        |       |
| 64a   | Spacing pipe              |            |                           |           | 2        |       |
| 64a   | Spacing pipe              |            | Internal diameter: 12,85  |           | 1        |       |
|       |                           |            | Outer diameter: 15,85     |           |          |       |
|       |                           |            | Length (mm): 4,50         |           |          |       |

| Pos   | Description           | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|-----------------------|------------|---------------------------|-----------|----------|-------|
| 64c   | Clamp, splined        |            | Internal diameter: 8,5    |           | 1        |       |
|       |                       |            | Outer diameter: 15        |           |          |       |
| 66    | Wedge lock washer     |            |                           |           | 1        |       |
| - 105 | Shaft seal            |            | Material type: HQQV       |           | 1        | pcs   |
|       | O-ring                |            |                           |           | 1        |       |
|       | O-ring                |            |                           |           | 1        |       |
|       | O-ring                |            |                           |           | 1        |       |
|       | Seal driver, upper    |            |                           |           | 1        |       |
|       | Seal driver, lower    |            |                           |           | 1        |       |
|       | Spacer ring           |            |                           |           | 1        |       |
|       | Pipe                  |            |                           |           | 1        |       |
|       | Plug                  |            |                           |           | 1        |       |
|       | Plug                  |            |                           |           | 1        |       |
|       | Compression spring    |            |                           |           | 1        |       |
|       | Socket set screw      |            |                           |           | 3        |       |
| 103   | Seal ring, stationary |            |                           |           | 1        |       |
| 105   | Seal ring, rotating   |            |                           |           | 1        |       |
| 109   | O-ring                |            |                           |           | 1        |       |
| 113   | Driver                |            |                           |           | 1        |       |



*Disclaimer: The information about the Grundfos pump in this document may be outdated.*

*Data may be subject to alterations without further notice.*

*Please contact us to verify the data above is still accurate/up-to-date.*

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