



POMPTECHNIEK • SERVICE • ONDERHOUD

## **Inventflow: Grundfos A-partner**

### **Grundfos CRN 1-3 A-P-A-E-HQQE**

Find the pump here:

<https://inventflow.nl/en/pompenfilter/crn/grundfos-crn-1-3-a-p-a-e-hqqe>

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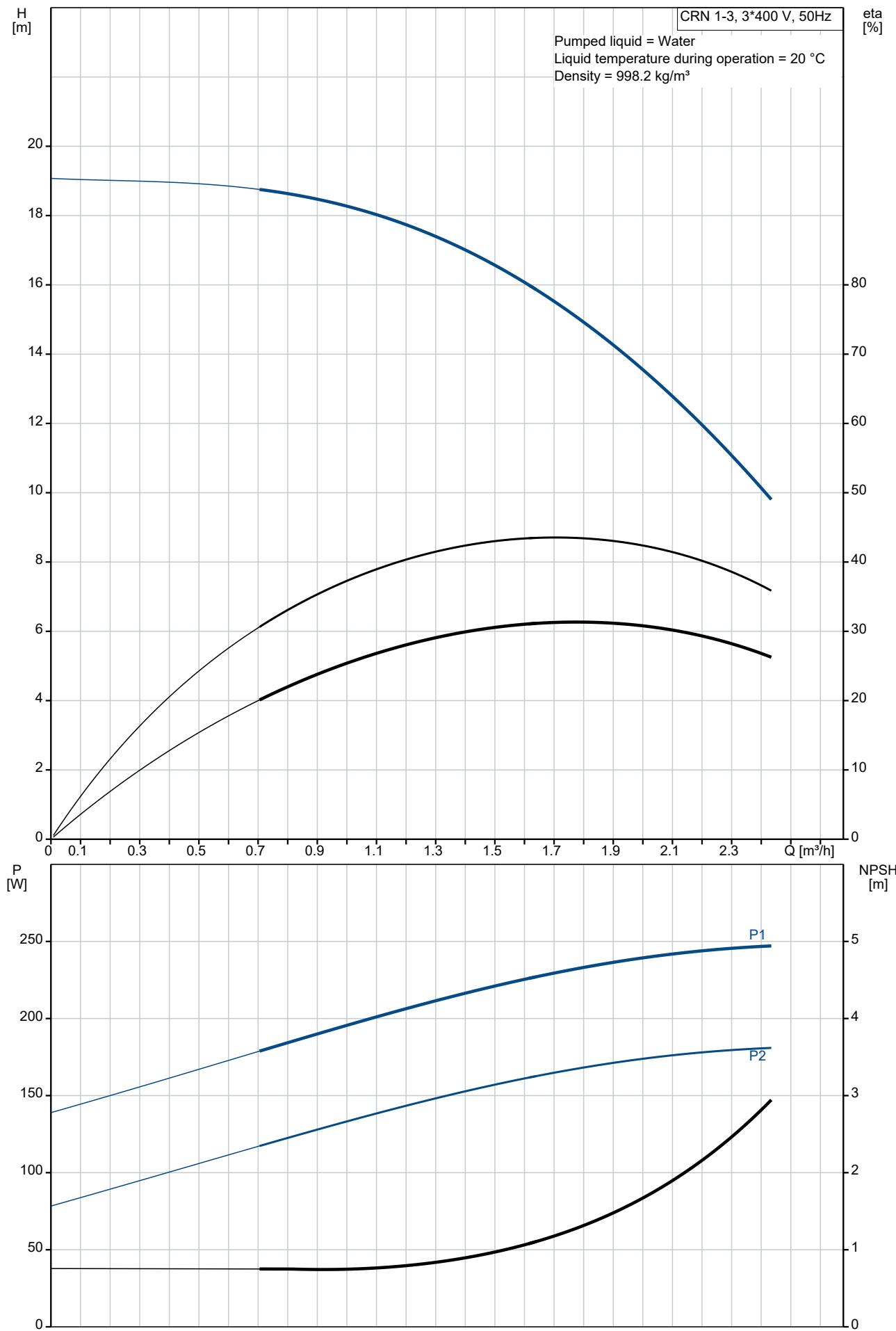
#### **Datasheet**



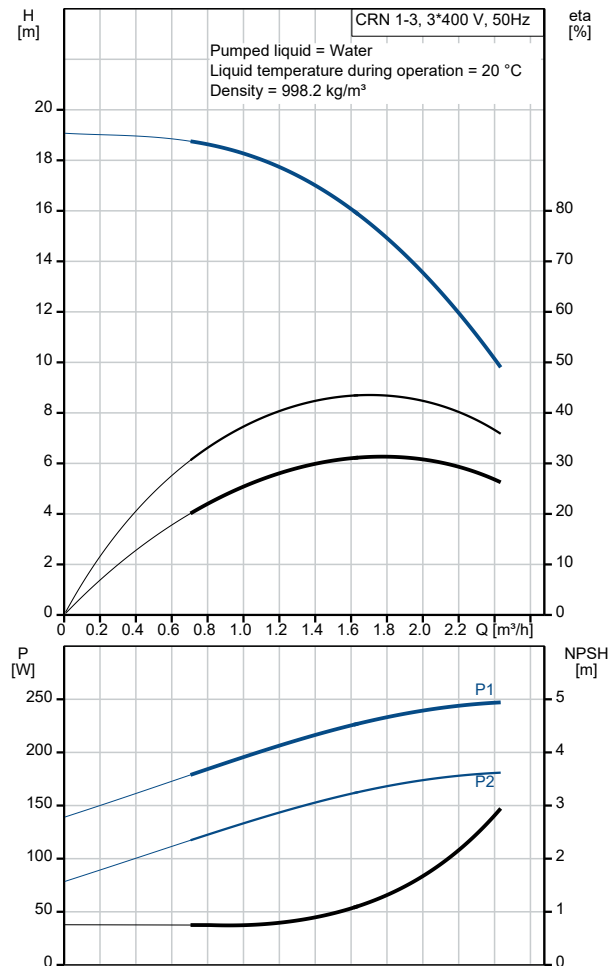
| Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <p><b>CRN 1-3 A-P-A-E-HQQE</b></p>  <p>Product No.: <a href="#">96516478</a><br/> Vertical, non-self-priming, multistage, in-line, centrifugal pump for installation in pipe systems and mounting on a foundation.</p> <p>The pump has the following characteristics:</p> <ul style="list-style-type: none"> <li>- Impellers, intermediate chambers and outer sleeve are made of</li> </ul> <p>Impeller: Stainless steel, EN 1.4401.</p> <ul style="list-style-type: none"> <li>- Pump head cover and base are made of</li> </ul> <p>Pump housing: Stainless steel, EN 1.4408.</p> <ul style="list-style-type: none"> <li>- The shaft seal has assembly length according to EN 12756.</li> <li>- Power transmission is via cast iron split coupling.</li> </ul> <p>Flange standard: - Pipework connection is via PJE flanges/couplings.</p> <p>Phase: The motor is a 3-phase AC motor.</p> <p>Controls:</p> <p>Frequency converter: NONE</p> <p>Liquid:</p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: -20 .. 120 °C</p> <p>Selected liquid temperature: 20 °C</p> <p>Density: 998.2 kg/m<sup>3</sup></p> <p>Technical:</p> <p>Pump speed on which pump data are based: 2873 rpm</p> <p>Rated flow: 1.8 m<sup>3</sup>/h</p> <p>Rated head: 15.6 m</p> <p>Pump orientation: Vertical</p> <p>Shaft seal arrangement: Single</p> <p>Code for shaft seal: HQQE</p> <p>Approvals on nameplate: CE, EAC, ACS</p> <p>Curve tolerance: ISO9906:2012 3B</p> <p>Materials:</p> <p>Base: Stainless steel<br/> EN 1.4408<br/> AISI 316</p> <p>Impeller: Stainless steel<br/> EN 1.4401<br/> AISI 316</p> <p>Bearing: SIC</p> <p>Installation:</p> <p>Maximum ambient temperature: 60 °C</p> <p>Maximum operating pressure: 25 bar</p> <p>Max pressure at stated temp: 25 bar / 120 °C<br/> 25 bar / -20 °C</p> <p>Type of connection: PJE</p> |

| Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Size of inlet connection: DN 32<br>Size of outlet connection: DN 32<br>Pressure rating for connection: PN 50<br>Flange size for motor: FT85<br><br>Electrical data:<br>Motor standard: IEC<br>Motor type: 71A<br>IE Efficiency class: IE3<br>Rated power - P2: 0.37 kW<br>Power (P2) required by pump: 0.37 kW<br>Mains frequency: 50 Hz<br>Rated voltage: 3 x 220-240D/380-415Y V<br>Rated current: 1.74/1.00 A<br>Starting current: 490-530 %<br>Cos phi - power factor: 0.80-0.70<br>Rated speed: 2850-2880 rpm<br>Efficiency: IE3 73,8%<br>Motor efficiency at full load: 73.8 %<br>Motor efficiency at 3/4 load: 79.0 %<br>Motor efficiency at 1/2 load: 75.5 %<br>Number of poles: 2<br>Enclosure class (IEC 34-5): 55 Dust/Jetting<br>Insulation class (IEC 85): F<br>Motor No: 85805102<br><br>Others:<br>Minimum efficiency index, MEI ≥: 0.70<br>Net weight: 16.6 kg<br>Gross weight: 19.3 kg<br>Shipping volume: 0.054 m <sup>3</sup><br>Danish VVS No.: 385910003<br>Country of origin: HU<br>Custom tariff no.: 84137075 |

96516478 CRN 1-3 A-P-A-E-HQQE 50 Hz

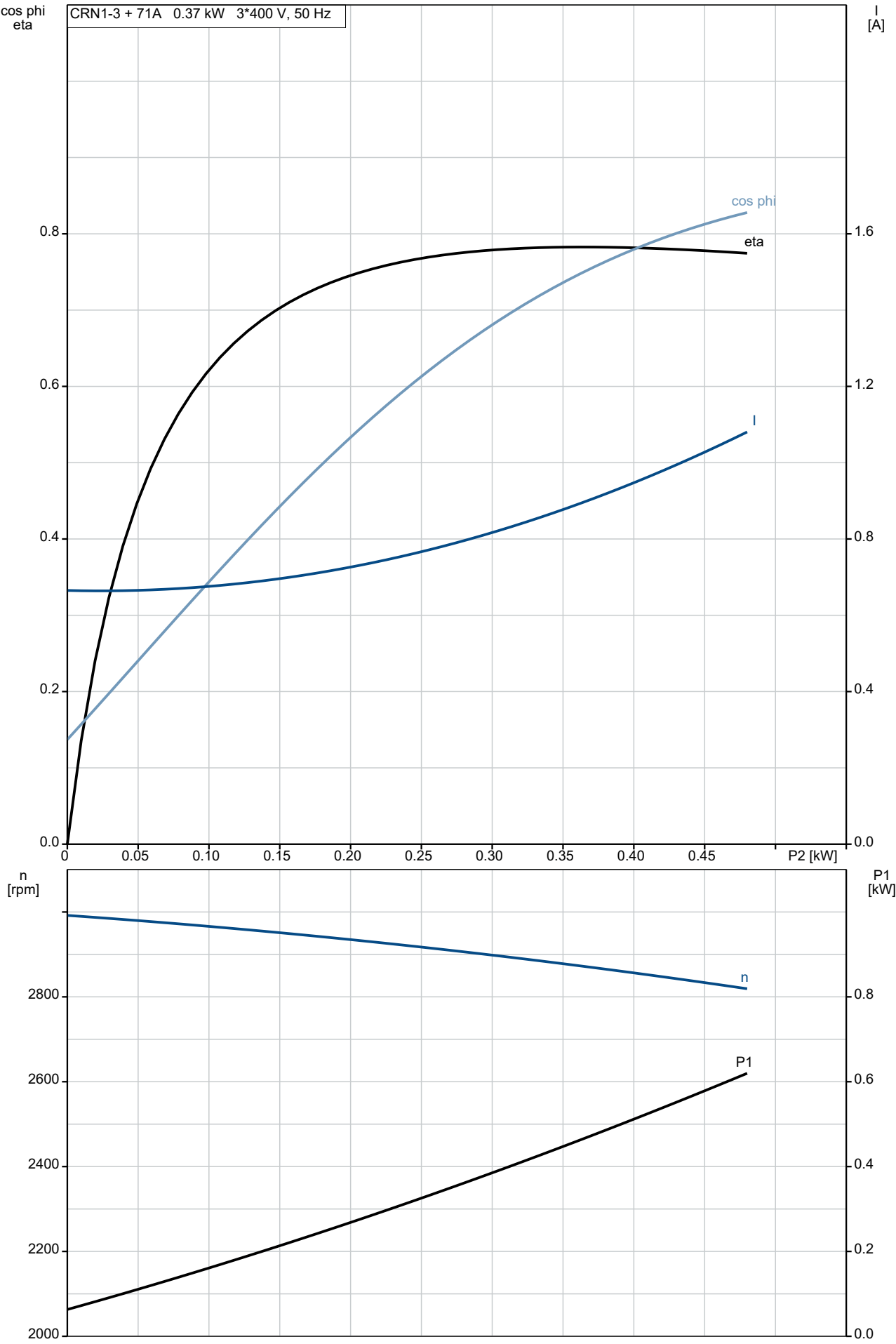


| Description                              | Value                      |
|------------------------------------------|----------------------------|
| <b>General information:</b>              |                            |
| Product name:                            | CRN 1-3<br>A-P-A-E-HQQE    |
| Product No:                              | 96516478                   |
| EAN number:                              | 5700396744049              |
| <b>Technical:</b>                        |                            |
| Pump speed on which pump data are based: | 2873 rpm                   |
| Rated flow:                              | 1.8 m³/h                   |
| Rated head:                              | 15.6 m                     |
| Maximum head:                            | 19.2 m                     |
| Stages:                                  | 3                          |
| Impellers:                               | 3                          |
| Number of reduced-diameter impellers:    | 0                          |
| Low NPSH:                                | N                          |
| Pump orientation:                        | Vertical                   |
| Shaft seal arrangement:                  | Single                     |
| Code for shaft seal:                     | HQQE                       |
| Approvals on nameplate:                  | CE, EAC, ACS               |
| Curve tolerance:                         | ISO9906:2012 3B            |
| Pump version:                            | A                          |
| Model:                                   | A                          |
| <b>Materials:</b>                        |                            |
| Base:                                    | Stainless steel            |
| Base:                                    | EN 1.4408                  |
| Base:                                    | AISI 316                   |
| Impeller:                                | Stainless steel            |
| Impeller:                                | EN 1.4401                  |
| Impeller:                                | AISI 316                   |
| Material code:                           | A                          |
| Code for rubber:                         | E                          |
| Bearing:                                 | SIC                        |
| <b>Installation:</b>                     |                            |
| Maximum ambient temperature:             | 60 °C                      |
| Maximum operating pressure:              | 25 bar                     |
| Max pressure at stated temp:             | 25 bar / 120 °C            |
| Max pressure at stated temp:             | 25 bar / -20 °C            |
| Type of connection:                      | PJE                        |
| Size of inlet connection:                | DN 32                      |
| Size of outlet connection:               | DN 32                      |
| Pressure rating for connection:          | PN 50                      |
| Flange size for motor:                   | FT85                       |
| Connect code:                            | P                          |
| <b>Liquid:</b>                           |                            |
| Pumped liquid:                           | Water                      |
| Liquid temperature range:                | -20 .. 120 °C              |
| Selected liquid temperature:             | 20 °C                      |
| Density:                                 | 998.2 kg/m³                |
| <b>Electrical data:</b>                  |                            |
| Motor standard:                          | IEC                        |
| Motor type:                              | 71A                        |
| IE Efficiency class:                     | IE3                        |
| Rated power - P2:                        | 0.37 kW                    |
| Power (P2) required by pump:             | 0.37 kW                    |
| Mains frequency:                         | 50 Hz                      |
| Rated voltage:                           | 3 x 220-240D/380-415Y<br>V |
| Rated current:                           | 1.74/1.00 A                |
| Starting current:                        | 490-530 %                  |
| Cos phi - power factor:                  | 0.80-0.70                  |
| Rated speed:                             | 2850-2880 rpm              |
| Efficiency:                              | IE3 73,8%                  |
| Motor efficiency at full load:           | 73.8 %                     |
| Motor efficiency at 3/4 load:            | 79.0 %                     |
| Motor efficiency at 1/2 load:            | 75.5 %                     |

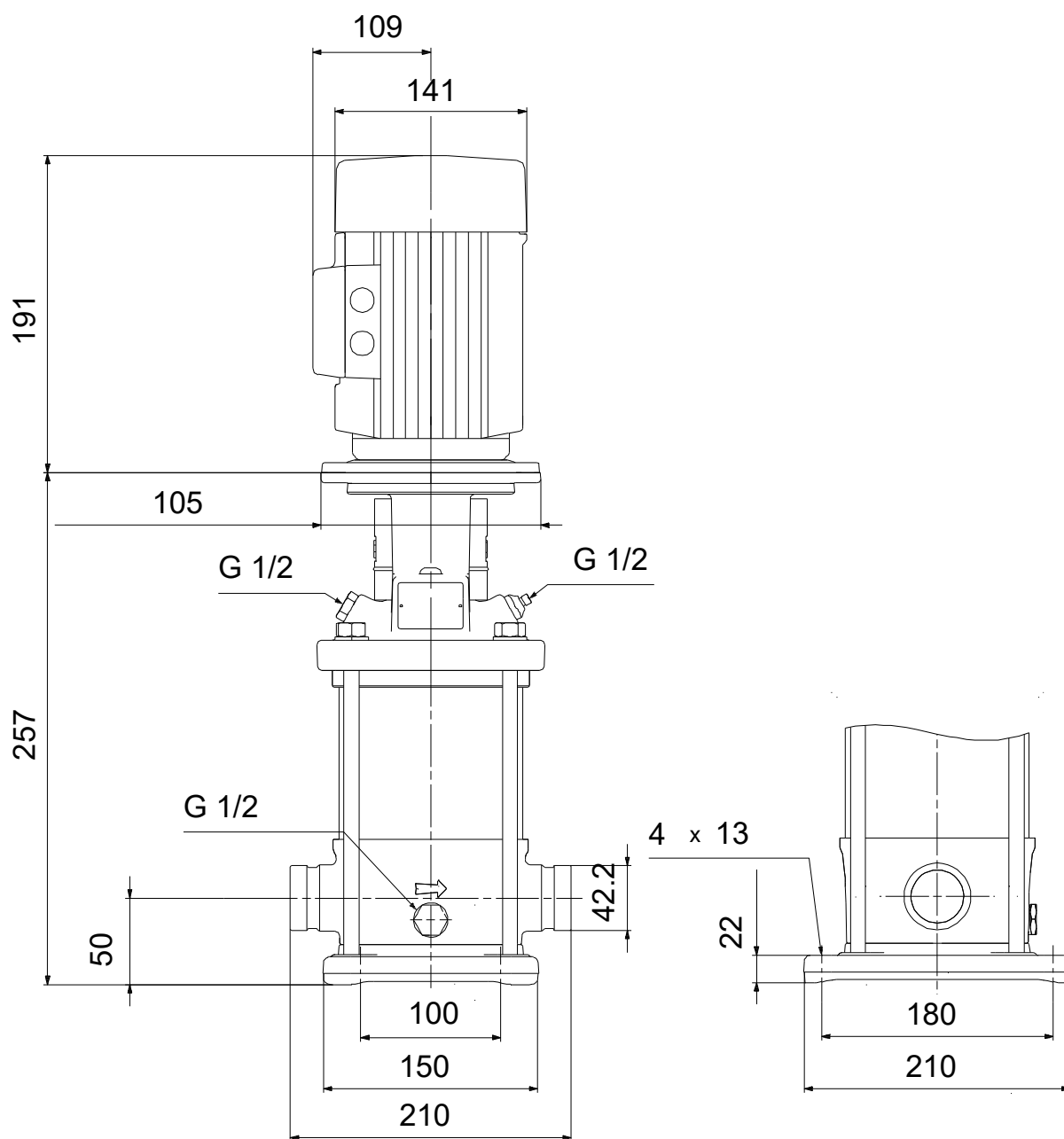


| Description                      | Value           |
|----------------------------------|-----------------|
| Number of poles:                 | 2               |
| Enclosure class (IEC 34-5):      | 55 Dust/Jetting |
| Insulation class (IEC 85):       | F               |
| Motor protec:                    | NONE            |
| Motor No:                        | 85805102        |
| <b>Controls:</b>                 |                 |
| Frequency converter:             | NONE            |
| <b>Others:</b>                   |                 |
| Minimum efficiency index, MEI ≥: | 0.70            |
| Net weight:                      | 16.6 kg         |
| Gross weight:                    | 19.3 kg         |
| Shipping volume:                 | 0.054 m³        |
| Danish VVS No.:                  | 385910003       |
| Country of origin:               | HU              |
| Custom tariff no.:               | 84137075        |

96516478 CRN 1-3 A-P-A-E-HQQE 50 Hz



# 96516478 CRN 1-3 A-P-A-E-HQQE 50 Hz



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

**Spare parts CRN 1-3, Product No. 96516478**  
**Produced After 0401 (production year and week number)**

| Pos   | Omschrijving              | Opmerking tekst | Classificatie Gegevens   | Onderdeelnr. | Aanta | Eenheid |
|-------|---------------------------|-----------------|--------------------------|--------------|-------|---------|
| - 80  | Kit, chamber stack        |                 |                          | 96453508     | 1     | pcs     |
| - 4a  | Chamber w. bearing cpl.   |                 |                          |              | 1     |         |
|       | Vane                      |                 |                          |              | 1     |         |
|       | Retainer                  |                 |                          |              | 1     |         |
|       | Guide vane                |                 |                          |              | 6     |         |
| 4a    | Intermediate chamber      |                 |                          |              | 1     |         |
| 45    | Neck ring                 |                 |                          |              | 1     |         |
| 47    | Bearing bush              |                 |                          |              | 1     |         |
| 65    | Retainer for seal ring    |                 |                          |              | 1     |         |
| 65    | Neck ring retainer        |                 |                          |              | 1     |         |
| - 4   | Chamber cpl.              |                 |                          |              | 1     |         |
| 4a    | Intermediate chamber      |                 |                          |              | 1     |         |
| 45    | Neck ring                 |                 |                          |              | 1     |         |
| 65    | Neck ring retainer        |                 |                          |              | 1     |         |
| - 5a  | Chamber cpl.              |                 |                          |              | 1     |         |
|       | Vane                      |                 |                          |              | 1     |         |
| 4a    | Intermediate chamber      |                 |                          |              | 1     |         |
| 45    | Neck ring                 |                 |                          |              | 1     |         |
| 65    | Retainer for seal ring    |                 |                          |              | 1     |         |
| 65    | Neck ring retainer        |                 |                          |              | 1     |         |
| - 44a | Guide vane                |                 |                          |              | 1     |         |
|       | Plate                     |                 |                          |              | 1     |         |
| 50    | Top plate                 |                 |                          |              | 1     |         |
| 47a   | Bearing ring              |                 |                          |              | 1     |         |
| 49    | Impeller cpl.             |                 |                          |              | 3     |         |
| 51    | Shaft, spline, cpl.       |                 |                          |              | 1     |         |
| 64d   | Spacing pipe              |                 | Internal diameter: 12,85 |              | 1     |         |
|       |                           |                 | Outer diameter: 15,85    |              |       |         |
|       |                           |                 | Length (mm): 4,50        |              |       |         |
| 64c   | Clamp, splined            |                 | Internal diameter: 8,5   |              | 1     |         |
|       |                           |                 | Outer diameter: 15       |              |       |         |
| 64a   | Spacing pipe              |                 |                          |              | 1     |         |
| 66    | Wedge lock washer         |                 |                          |              | 1     |         |
| 67    | Lock nut                  |                 | Thread: M8               |              | 1     |         |
| -     | Kit, coupling             |                 |                          | 00415060     | 1     | pcs     |
| 9     | Hex socket head cap screw |                 | Designation: DIN 912     |              | 4     |         |
|       |                           |                 | Length (mm): 20          |              |       |         |
|       |                           |                 | Thread: M6               |              |       |         |
| 10a   | Coupling half             |                 |                          |              | 2     |         |
| 10    | Shaft pin                 |                 | Diameter: 5              |              | 1     |         |
|       |                           |                 | Length (mm): 26          |              |       |         |
| -     | Kit, coupling guard       |                 |                          | 96505130     | 1     | pcs     |
| 7.a   | Combi Slot Torx screw     |                 |                          |              | 4     |         |
| 7     | Coupling guard            |                 |                          |              | 2     |         |
| -     | Kit, gaskets              |                 |                          | 96455090     | 1     | pcs     |
| 37    | O-ring                    |                 |                          |              | 2     |         |
| 38    | O-ring                    |                 |                          |              | 1     |         |
| 38    | O-ring                    |                 |                          |              | 2     |         |
| 109   | O-ring                    |                 | Diameter: 22,00          |              | 1     |         |
|       |                           |                 | Material type: EPDM      |              |       |         |
|       |                           |                 | Thickness: 2,75          |              |       |         |
| -     | Kit, plug                 |                 |                          | 96505133     | 1     | pcs     |
| - 18  | Air vent screw            |                 |                          |              | 1     |         |
|       | Spindle                   |                 |                          |              | 1     |         |
|       | Plug                      |                 |                          |              | 1     |         |
| 23b   | Spindle                   |                 |                          |              | 1     |         |
| 25    | Plug                      |                 |                          |              | 1     |         |
| 25    | Plug                      |                 |                          |              | 1     |         |
| 38    | O-ring                    |                 |                          |              | 1     |         |

| Pos   | Omschrijving                  | Opmerking tekst | Classificatie | Gegevens                       | Onderdeelnr. | Aanta | Eenheid |
|-------|-------------------------------|-----------------|---------------|--------------------------------|--------------|-------|---------|
| 38    | O-ring                        |                 |               |                                |              | 2     |         |
| 38    | O-ring                        |                 |               | Diameter: 16,3                 |              | 1     |         |
|       |                               |                 |               | Material type: FKM             |              |       |         |
|       |                               |                 |               | Thickness: 2,4                 |              |       |         |
| 38    | O-ring                        |                 |               | Diameter: 16,3                 |              | 2     |         |
|       |                               |                 |               | Material type: FKM             |              |       |         |
|       |                               |                 |               | Thickness: 2,4                 |              |       |         |
| -     | Kit, shaft seal HQQE          |                 |               |                                | 96455086     | 1     | pcs     |
| 105   | Shaft seal                    |                 |               | Material type: HQQE            |              | 1     |         |
| -     | Kit, wear parts               |                 |               | Material type: SILICON CARBIDE | 96455095     | 1     | pcs     |
| - 4a  | Chamber w. bearing cpl.       |                 |               |                                |              | 1     |         |
|       | Vane                          |                 |               |                                |              | 1     |         |
|       | Retainer                      |                 |               |                                |              | 1     |         |
|       | Guide vane                    |                 |               |                                |              | 6     |         |
| 4a    | Intermediate chamber          |                 |               |                                |              | 1     |         |
| 45    | Neck ring                     |                 |               |                                |              | 1     |         |
| 47    | Bearing bush                  |                 |               |                                |              | 1     |         |
| 65    | Retainer for seal ring        |                 |               |                                |              | 1     |         |
| 65    | Neck ring retainer            |                 |               |                                |              | 1     |         |
| 45    | Neck ring                     |                 |               |                                |              | 8     |         |
| 47a   | Bearing ring                  |                 |               |                                |              | 1     |         |
| 64d   | Spacing pipe                  |                 |               | Internal diameter: 12,85       |              | 1     |         |
|       |                               |                 |               | Outer diameter: 15,85          |              |       |         |
|       |                               |                 |               | Length (mm): 4,50              |              |       |         |
| 64c   | Clamp, splined                |                 |               | Internal diameter: 8,5         |              | 1     |         |
|       |                               |                 |               | Outer diameter: 15             |              |       |         |
| 65    | Neck ring retainer            |                 |               |                                |              | 8     |         |
| 66    | Wedge lock washer             |                 |               |                                |              | 1     |         |
| 67    | Lock nut                      |                 |               | Thread: M8                     |              | 1     |         |
| 441 b | Gasket                        |                 |               |                                |              | 2     |         |
| -     | Motor                         |                 |               |                                | 85900331     | 1     | pcs     |
| -     | Kit, Ball bearing             |                 |               |                                | 96279730     | 1     |         |
| 111   | Ball bearing                  |                 |               | Designation: 6204.2Z.C3.SYN    |              | 1     |         |
| 111   | Ball bearing                  |                 |               |                                |              | 1     |         |
| 157   | O-ring                        |                 |               | Diameter: 32                   |              | 1     |         |
|       |                               |                 |               | Material type: NBR             |              |       |         |
|       |                               |                 |               | Thickness: 2                   |              |       |         |
| 158   | Waved washer                  |                 |               |                                |              | 1     |         |
|       | Kit, fan                      |                 |               |                                | 96279721     | 1     |         |
|       | Kit, fan cover                |                 |               |                                | 96279720     | 1     |         |
| -     | Kit, flange                   |                 |               |                                | 96279727     | 1     |         |
| 156 b | Flange                        |                 |               |                                |              | 1     |         |
| 159c  | Seal ring                     |                 |               |                                |              | 1     |         |
| 184   | Gasket                        |                 |               | Internal diameter: 114,80      |              | 1     |         |
|       |                               |                 |               | Outer diameter: 121,20         |              |       |         |
|       |                               |                 |               | Thickness: 0,25                |              |       |         |
| 185   | Pan head screw                |                 |               |                                |              | 4     |         |
| 186   | Drain plug                    |                 |               |                                |              | 1     |         |
|       | Kit, shaft seal               |                 |               |                                | 96279722     | 1     |         |
| -     | Kit, terminal box             |                 |               |                                | 96279724     | 1     |         |
| 152   | Pan head thread forming screw |                 |               |                                |              | 4     |         |
| 164 a | Terminal box w/gasket         |                 |               |                                |              | 1     |         |
| 164   | Terminal box cover w/gasket   |                 |               |                                |              | 1     |         |
| 173 a | Washer                        |                 |               | Designation: SQUARE            |              | 1     |         |
|       |                               |                 |               | Internal diameter: 5,5         |              |       |         |
|       |                               |                 |               | Outer diameter: 10X10          |              |       |         |
|       |                               |                 |               | Thickness: 1,5                 |              |       |         |
| 173 a | Base                          |                 |               |                                |              | 1     |         |

| Pos   | Omschrijving                  | Opmerking tekst         | Classificatie Gegevens      | Onderdeelnr. | Aanta | Eenheid |
|-------|-------------------------------|-------------------------|-----------------------------|--------------|-------|---------|
| 173   | Pan head thread forming screw |                         | Designation: COMBI TORX T25 |              | 1     |         |
| 173   | Pan head screw                |                         | Designation: DIN 7985       |              | 1     |         |
| 175   | Pan head screw                |                         | Designation: DIN 7985       |              | 2     |         |
| 176   | Terminal cpl.                 |                         |                             |              | 1     |         |
| 1a    | Pump head                     |                         |                             | 96588196     | 1     | pcs     |
| 2     | Pump cover                    |                         |                             | 96588244     | 1     | pcs     |
| - 4a  | Chamber w. bearing cpl.       |                         |                             | 97690603     | 1     | pcs     |
| 65    | Retainer for seal ring        |                         |                             | 99812852     | 1     |         |
| 4a    | Chamber w. bearing cpl.       |                         |                             | 98371226     | 1     | pcs     |
| - 4   | Chamber cpl.                  |                         |                             | 97690021     | 1     | pcs     |
| 45    | Neck ring                     |                         |                             | 96536194     | 1     |         |
| 65    | Neck ring retainer            |                         |                             | 99490745     | 1     |         |
| 65    | Neck ring retainer            |                         |                             | 99490747     | 1     |         |
| 4     | Chamber cpl.                  |                         |                             | 96547663     | 1     | pcs     |
| 4     | Chamber cpl.                  |                         |                             | 98371223     | 1     | pcs     |
| 5a    | Chamber cpl.                  |                         |                             | 98371222     | 1     | pcs     |
| 5a    | Chamber cpl.                  |                         |                             | 97564654     | 1     | pcs     |
| 6     | Base                          |                         |                             | 96588139     | 1     | pcs     |
| 7.a   | Combi Slot Torx screw         |                         |                             | 96886324     | 4     | pcs     |
| 10    | Shaft pin                     | Diameter: 5             |                             | 96536473     | 1     | pcs     |
|       |                               | Length (mm): 26         |                             |              |       |         |
| 10    | Shaft pin                     | Diameter: 5             |                             | 96587588     | 1     | pcs     |
|       |                               | Length (mm): 26         |                             |              |       |         |
| 18    | Air vent screw                |                         |                             | 96547461     | 1     | pcs     |
| 18    | Air vent screw                |                         |                             | 95061351     | 1     | pcs     |
| - 25a | Drain plug w/bypass valve     |                         |                             | 96588243     | 1     | pcs     |
| 38    | O-ring                        |                         |                             | 99198815     | 1     |         |
| 38    | O-ring                        |                         |                             | 99412727     | 1     |         |
| 25    | Plug                          |                         |                             | 96536013     | 1     | pcs     |
| 26    | Staybolt                      | Length (mm): 155        |                             | 98985638     | 4     | pcs     |
|       |                               | Thread: M12             |                             |              |       |         |
| 32    | Washer                        | Designation: DIN 125 A2 |                             | 99944263     | 4     | pcs     |
|       |                               | Internal diameter: 13   |                             |              |       |         |
|       |                               | Outer diameter: 24      |                             |              |       |         |
|       |                               | Thickness: 2,5          |                             |              |       |         |
| 37    | O-ring                        |                         |                             | 96547656     | 2     | pcs     |
| 38    | O-ring                        |                         |                             | 99198815     | 2     | pcs     |
| 38    | O-ring                        |                         |                             | 99412727     | 2     | pcs     |
| 44a   | Guide vane                    |                         |                             | 98488445     | 1     | pcs     |
| 47a   | Bearing ring                  |                         |                             | 97905743     | 1     | pcs     |
| 47a   | Bearing ring                  |                         |                             | 96547649     | 1     | pcs     |
| 49    | Impeller cpl.                 |                         |                             | 98287177     | 3     | pcs     |
| 49    | Impeller cpl.                 |                         |                             | 96547666     | 3     | pcs     |
| 49    | Impeller cpl.                 |                         |                             | 98394399     | 3     | pcs     |
| 51    | Shaft, spline, cpl.           |                         |                             | 96588198     | 1     | pcs     |
| 55    | Outer sleeve                  |                         |                             | 98811252     | 1     | pcs     |
| 56    | Base plate                    |                         |                             | 96588142     | 1     | pcs     |
| 60    | Formed wire spring            |                         |                             | 99935918     | 1     | pcs     |
| 64c   | Clamp, splined                | Internal diameter: 8,5  |                             | 98496968     | 1     | pcs     |
|       |                               | Outer diameter: 15      |                             |              |       |         |
| 64a   | Spacing pipe                  |                         |                             | 96536198     | 1     | pcs     |
| 66    | Wedge lock washer             |                         |                             | 96536157     | 1     | pcs     |
| 66    | Wedge lock washer             |                         |                             | 92575609     | 1     | pcs     |
| 67    | Lock nut                      | Thread: M8              |                             | 98277008     | 1     | pcs     |
| 105   | Shaft seal                    | Material type: HQQE     |                             | 96983415     | 1     | pcs     |