

## CR10-03 A-A-A-E-HQQE 3x230/400 50 HZ

Grundfos pump 96500981



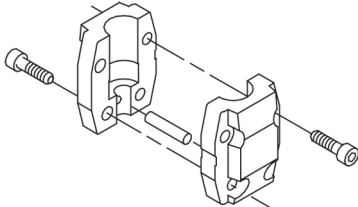
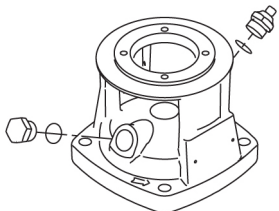
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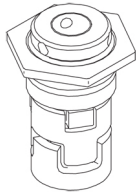
<https://www.lenntech.com/grundfos/CRFAM/96500981/CR-10-3-A-A-A-E-HQQE.html>

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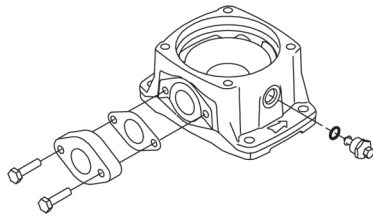
| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>CR 10-3 A-A-A-E-HQQE</b></p>  <p>Product No.: On request</p> <p>Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). The pump head and base are in cast iron – all other wetted parts are in stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via oval flanges with internal Rp threads.</p> <p>The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p><b>Further product details</b></p> <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, pump head cover and flange for motor mounting is made in one piece. 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: EPDM (ethylene-propylene rubber)</p> <p>EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.</p> |



The shaft seal is screwed into the pump head.

The chambers and impellers are made of stainless-steel sheet. The chambers are provided with a PTFE neck ring offering improved sealing and high efficiency. The impellers have smooth surfaces, and the shape of the blades ensure a high efficiency.

The base is made of cast iron. The oval flanges are bolted to the base. The outlet side of the base has a drain plug. The pump is secured to the foundation by four bolts through the base plate.



## Motor

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).

Motor-mounting designation in accordance with IEC 60034-7: IM B 14 (Code I) / IM 3601 (Code II).

Electrical tolerances comply with IEC 60034.

The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.

The motor does not incorporate motor protection and must be connected to a motor-protective circuit breaker which can be manually reset. The motor-protective circuit breaker must be set according to the rated current of the motor (I<sub>1</sub>/1).

## Technical data

### Controls:

Frequency converter: NONE

### Liquid:

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

### Technical:

Rated flow: 10 m<sup>3</sup>/h  
 Rated head: 23.1 m  
 Pump orientation: Vertical  
 Shaft seal arrangement: Single  
 Code for shaft seal: HQQE  
 Approvals on nameplate: CE, EAC, ACS  
 Curve tolerance: ISO9906:2012 3B

### Materials:

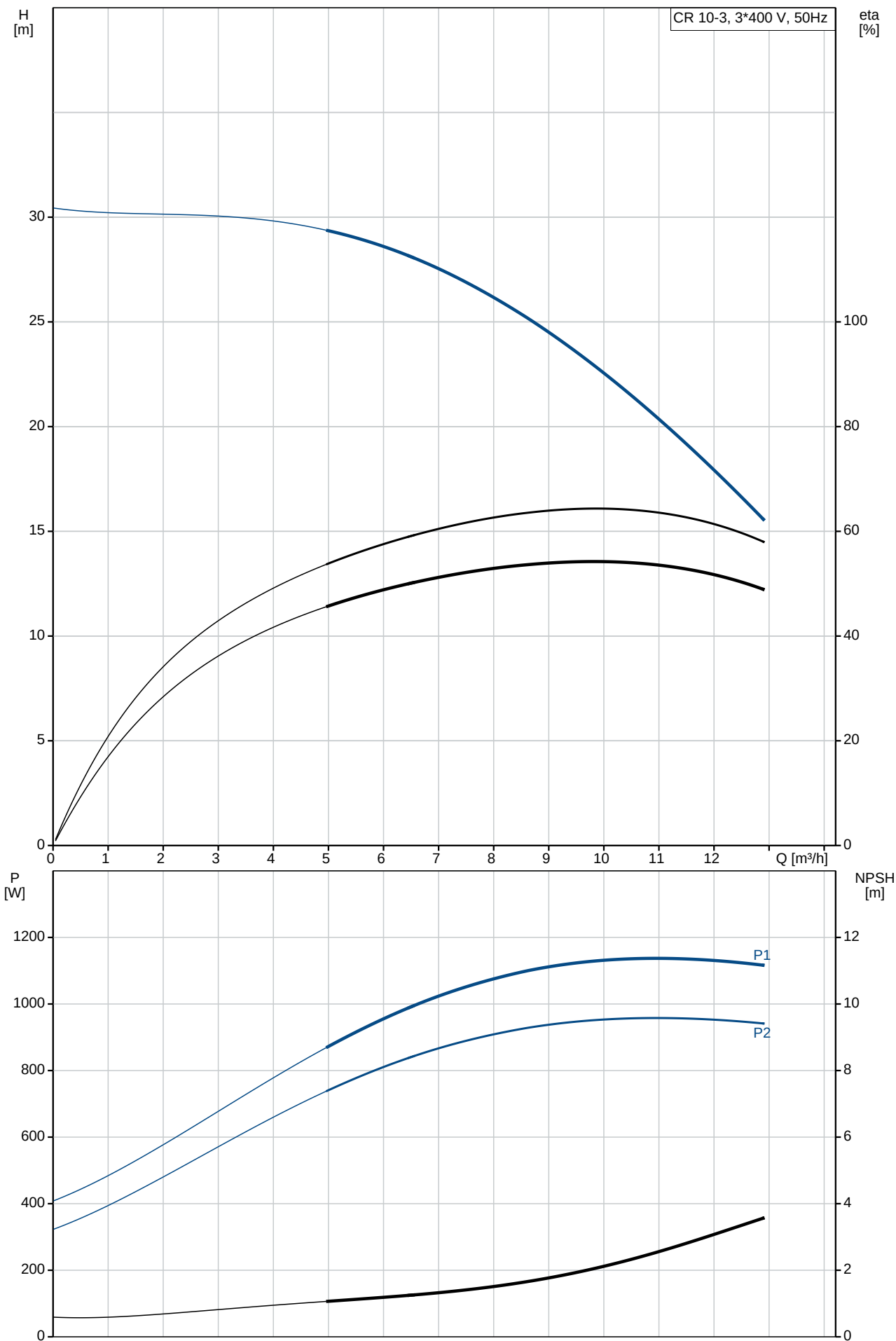
Base: Cast iron  
 EN 1561 EN-GJL-200  
 ASTM A48-25B  
 Impeller: Stainless steel  
 EN 1.4301  
 AISI 304  
 Bearing: SIC

### Installation:

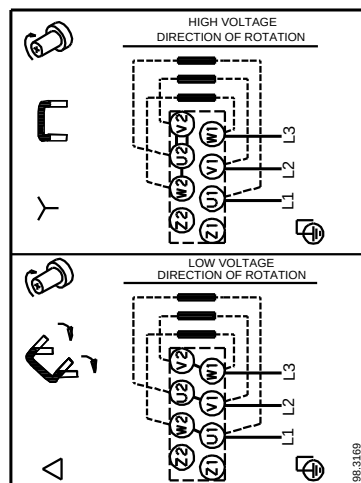
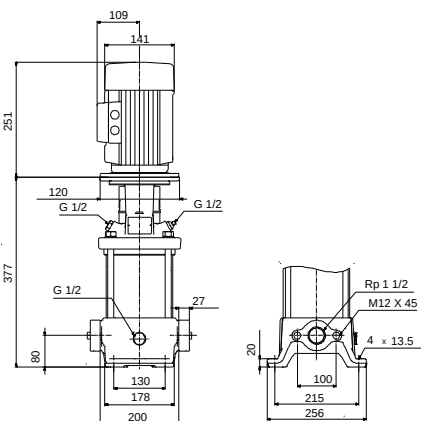
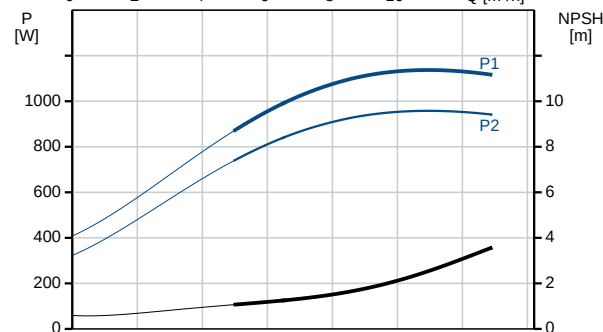
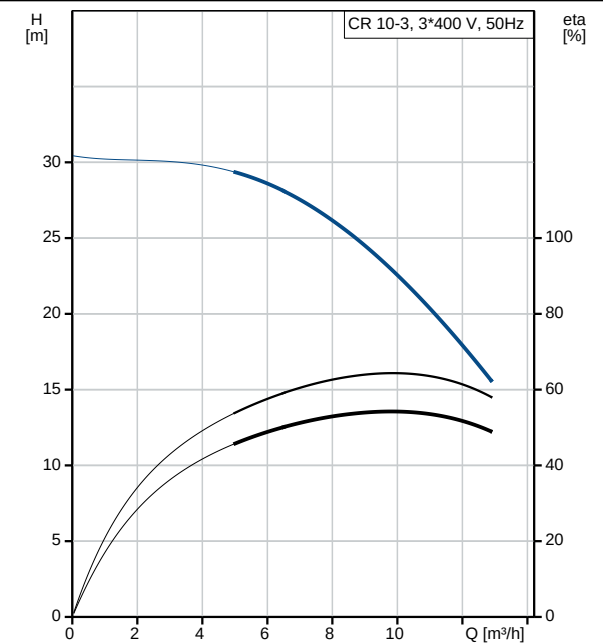
Maximum ambient temperature: 60 °C

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p>Maximum operating pressure: 16 bar<br/> Max pressure at stated temp: 16 bar / 120 °C<br/> 16 bar / -20 °C</p> <p>Type of connection: Oval / Rp<br/> Size of inlet connection: 1 1/2 inch<br/> Size of outlet connection: 1 1/2 inch<br/> Pressure rating for pipe connection: PN 16<br/> Flange size for motor: FT100</p> <p><b>Electrical data:</b></p> <p>Motor standard: IEC<br/> Motor type: 80C<br/> IE Efficiency class: IE3<br/> Rated power - P2: 1.1 kW<br/> Power (P2) required by pump: 1.1 kW<br/> Mains frequency: 50 Hz<br/> Rated voltage: 3 x 220-240D/380-415Y V<br/> Rated current: 4.35/2.50 A<br/> Starting current: 450-500 %<br/> Cos phi - power factor: 0.83-0.76<br/> Rated speed: 2840-2870 rpm<br/> Efficiency: IE3 82,7%<br/> Motor efficiency at full load: 82.7 %<br/> Motor efficiency at 3/4 load: 84.6 %<br/> Motor efficiency at 1/2 load: 85.4 %<br/> Number of poles: 2<br/> Enclosure class (IEC 34-5): 55 Dust/Jetting<br/> Insulation class (IEC 85): F</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI ≥: 0.70<br/> Net weight: 37 kg<br/> Gross weight: 40 kg<br/> Shipping volume: 0.094 m³<br/> Danish VVS No.: 385903030<br/> Norwegian NRF no.: 9040458</p> |

On request CR 10-3 A-A-A-E-HQQE 50 Hz

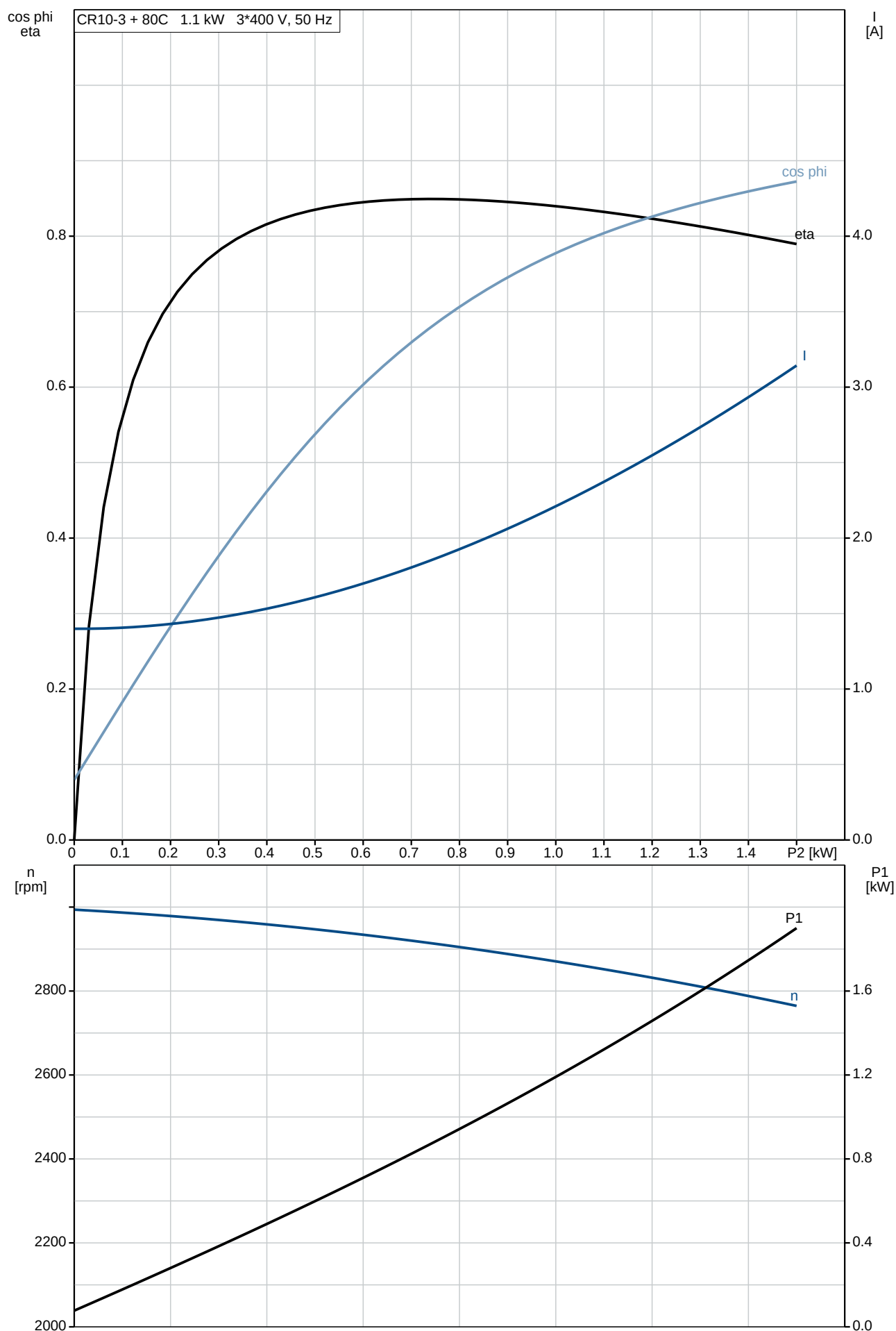


| Description                           | Value                   |
|---------------------------------------|-------------------------|
| <b>General information:</b>           |                         |
| Product name:                         | CR 10-3 A-A-A-E-HQQE    |
| Product No:                           | On request              |
| EAN number:                           | On request              |
| <b>Technical:</b>                     |                         |
| Rated flow:                           | 10 m <sup>3</sup> /h    |
| Rated head:                           | 23.1 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:                                 | Cast iron               |
|                                       | EN 1561 EN-GJL-200      |
|                                       | ASTM A48-25B            |
| Impeller:                             | Stainless steel         |
|                                       | EN 1.4301               |
|                                       | AISI 304                |
| Material code:                        | A                       |
| Code for rubber:                      | E                       |
| Bearing:                              | SIC                     |
| <b>Installation:</b>                  |                         |
| Maximum ambient temperature:          | 60 °C                   |
| Maximum operating pressure:           | 16 bar                  |
| Max pressure at stated temp:          | 16 bar / 120 °C         |
|                                       | 16 bar / -20 °C         |
| Type of connection:                   | Oval / Rp               |
| Size of inlet connection:             | 1 1/2 inch              |
| Size of outlet connection:            | 1 1/2 inch              |
| Pressure rating for pipe connection:  | PN 16                   |
| Flange size for motor:                | FT100                   |
| Connect code:                         | A                       |
| <b>Liquid:</b>                        |                         |
| Pumped liquid:                        | Water                   |
| Liquid temperature range:             | -20 .. 120 °C           |
| Liquid temperature during operation:  | 20 °C                   |
| Density:                              | 998.2 kg/m <sup>3</sup> |
| <b>Electrical data:</b>               |                         |
| Motor standard:                       | IEC                     |
| Motor type:                           | 80C                     |
| IE Efficiency class:                  | IE3                     |
| Rated power - P2:                     | 1.1 kW                  |
| Power (P2) required by pump:          | 1.1 kW                  |
| Mains frequency:                      | 50 Hz                   |
| Rated voltage:                        | 3 x 220-240D/380-415Y V |
| Rated current:                        | 4.35/2.50 A             |
| Starting current:                     | 450-500 %               |
| Cos phi - power factor:               | 0.83-0.76               |
| Rated speed:                          | 2840-2870 rpm           |
| Efficiency:                           | IE3 82,7%               |
| Motor efficiency at full load:        | 82.7 %                  |
| Motor efficiency at 3/4 load:         | 84.6 %                  |
| Motor efficiency at 1/2 load:         | 85.4 %                  |
| Number of poles:                      | 2                       |
| Enclosure class (IEC 34-5):           | 55 Dust/Jetting         |
| Insulation class (IEC 85):            | F                       |

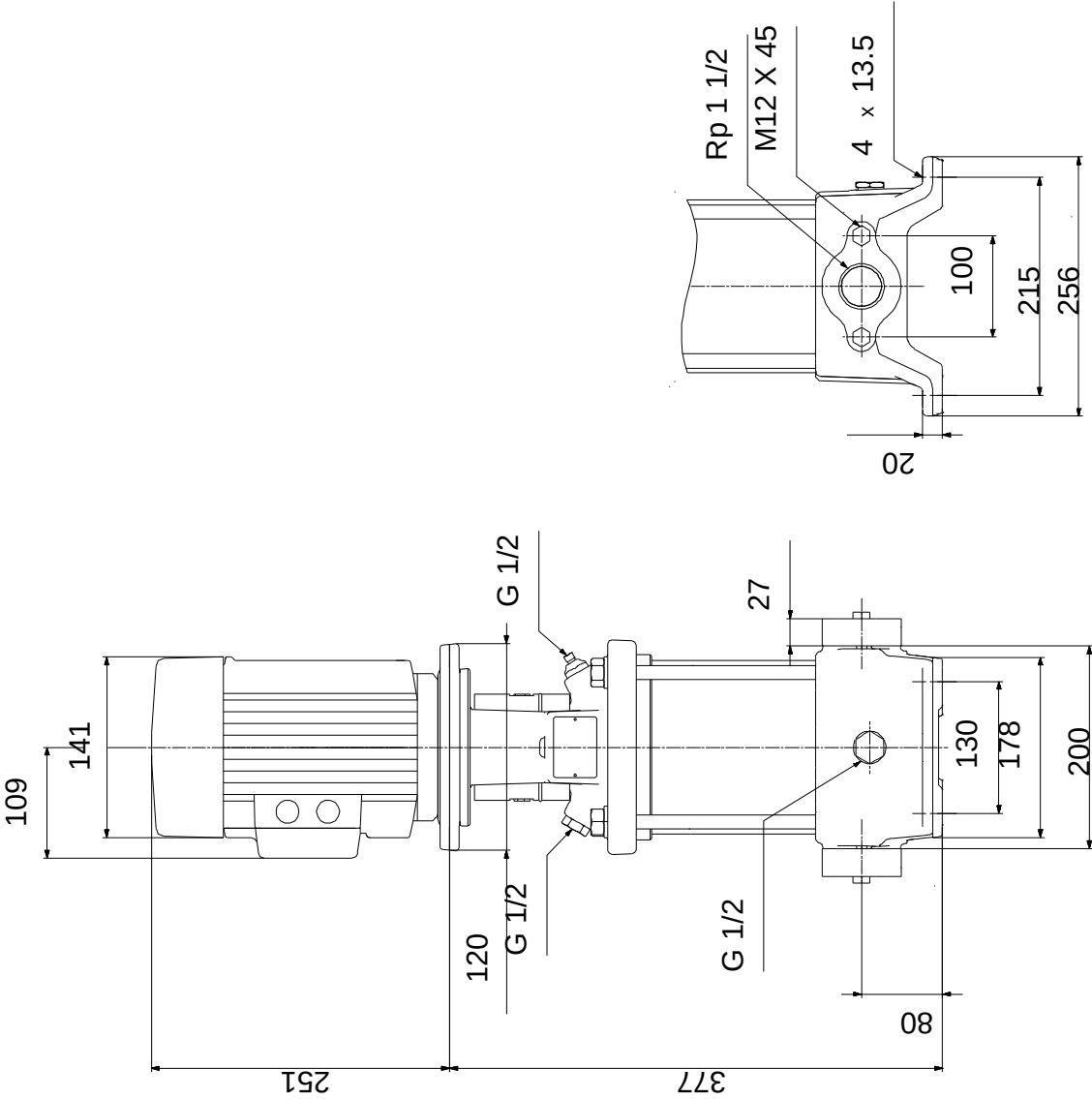


| Description                      | Value     |
|----------------------------------|-----------|
| Motor protec:                    | NONE      |
| Motor No:                        | 85U05105  |
| <b>Controls:</b>                 |           |
| Frequency converter:             | NONE      |
| <b>Others:</b>                   |           |
| Minimum efficiency index, MEI ≥: | 0.70      |
| Net weight:                      | 37 kg     |
| Gross weight:                    | 40 kg     |
| Shipping volume:                 | 0.094 m³  |
| Danish VVS No.:                  | 385903030 |
| Norwegian NRF no.:               | 9040458   |

# On request CR 10-3 A-A-A-E-HQQE 50 Hz

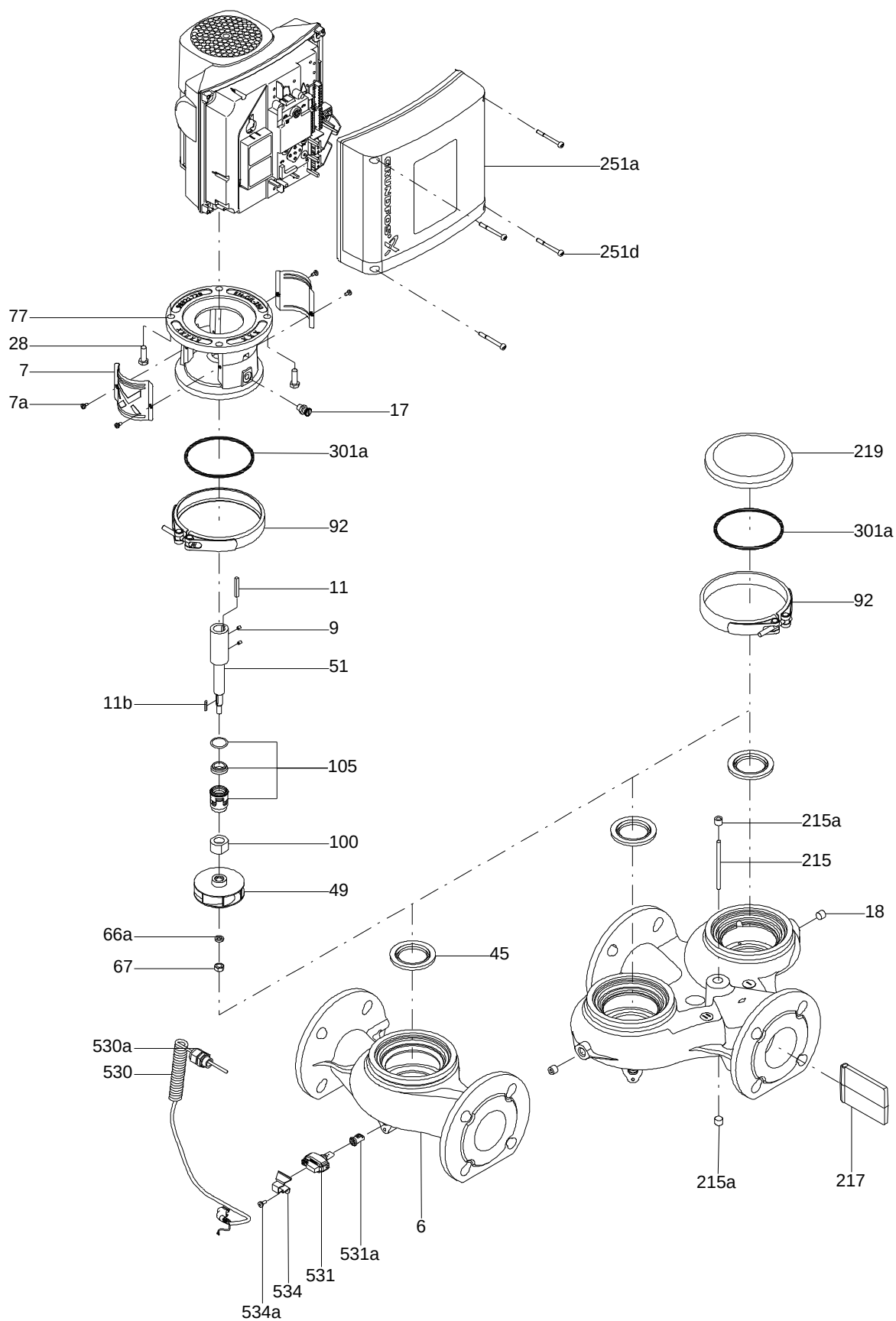


On request CR 10-3 A-A-A-E-HQQE 50 Hz

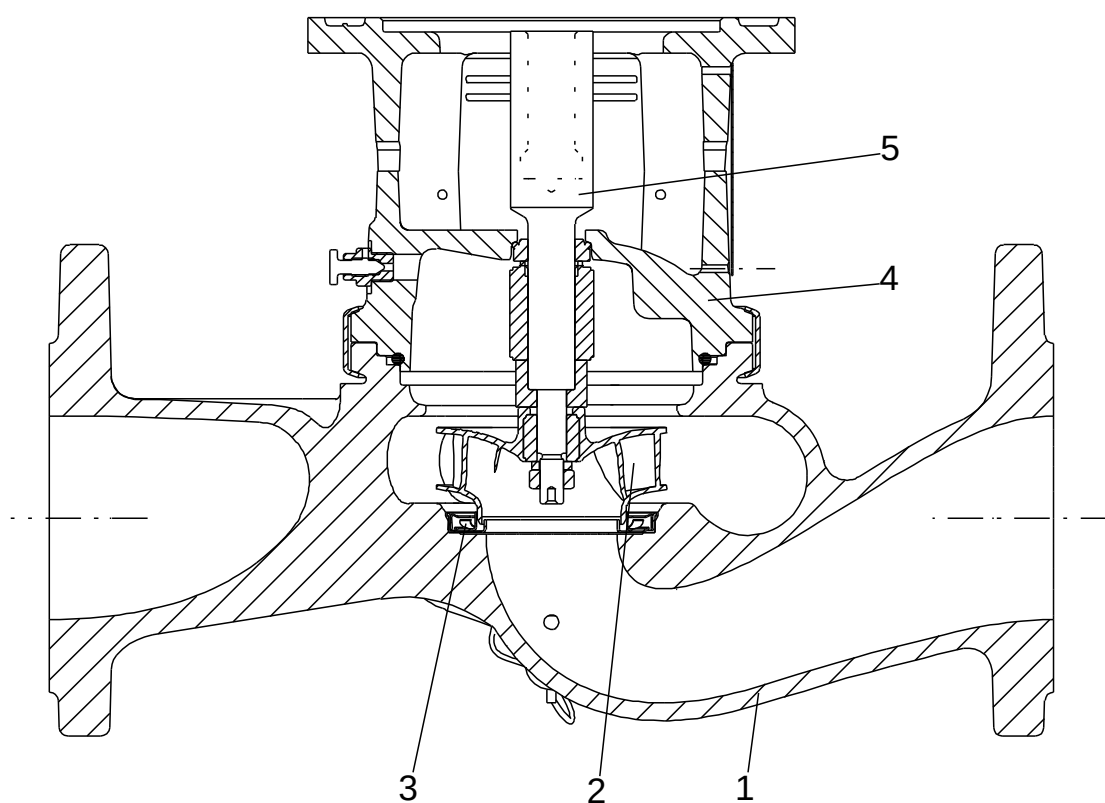


Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

# Exploded view

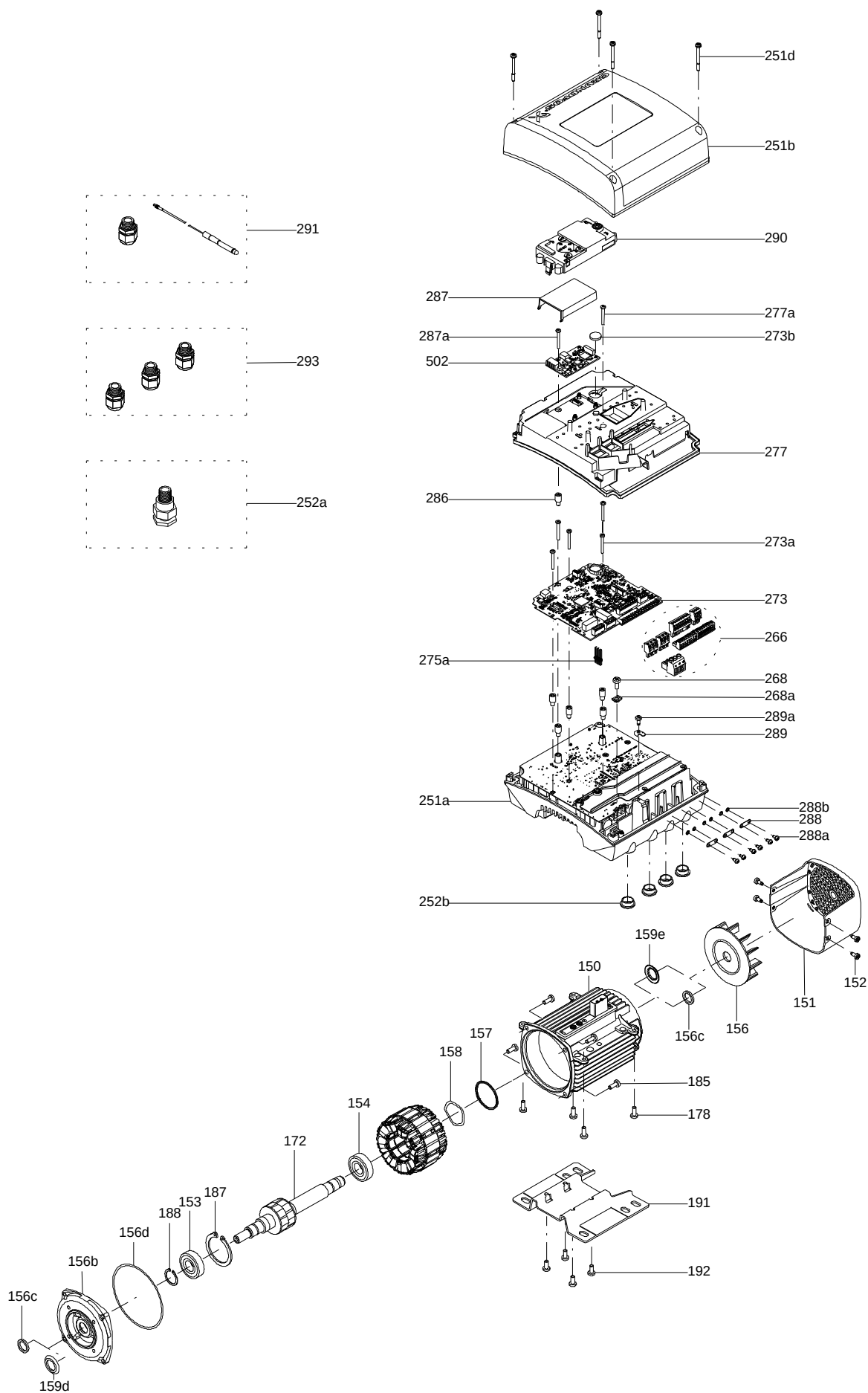


Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

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



**Parts list CR 10-3, Product No. On request**  
**Valid from 1.1.2011 (1152)**

| Pos  | Description               | Annotation | Données de classification | Référence | Quantité | Unité |
|------|---------------------------|------------|---------------------------|-----------|----------|-------|
| +    | Motor                     |            |                           |           | 1        | pcs   |
| -    | Base cpl.                 |            |                           |           | 1        | pcs   |
| 6    | Base                      |            |                           |           | 1        |       |
| 12   | Flange                    |            | Thread: RP 1 1/2          |           | 2        |       |
| 25   | Drain plug                |            |                           |           | 1        |       |
| 35   | Hex head screw            |            | Length (mm): 45 MM        |           | 4        |       |
|      |                           |            | Thread: M12               |           |          |       |
| 415  | Gasket                    |            |                           |           | 2        |       |
| -    | Rubber module             |            |                           |           | 1        | pcs   |
| 20   | Spring                    |            |                           |           | 4        |       |
| 37   | O-ring                    |            |                           |           | 2        |       |
| 38   | O-ring                    |            | Diameter: 16,3            |           | 1        |       |
|      |                           |            | Material type: EPDM       |           |          |       |
|      |                           |            | Thickness: 2,4            |           |          |       |
| 38a  | O-ring                    |            | Diameter: 5,3             |           | 1        |       |
|      |                           |            | Material type: EPDM       |           |          |       |
|      |                           |            | Thickness: 2,4            |           |          |       |
| 100  | O-ring                    |            | Diameter: 16,3            |           | 2        |       |
|      |                           |            | Material type: EPDM       |           |          |       |
|      |                           |            | 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        |       |
| 23   | Plug                      |            |                           |           | 1        |       |
| 28   | Hex head screw            |            | Length (mm): 25 MM        |           | 4        |       |
|      |                           |            | Thread: M6                |           |          |       |
| 76   | Nameplate                 |            |                           |           | 1        |       |
| 76a  | Rivet                     |            |                           |           | 2        |       |
| - 8  | Coupling cpl.             |            |                           |           | 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): 163          |           | 4        | pcs   |
|      |                           |            | Thread: M16               |           |          |       |
| 36   | Hex nut                   |            | Thread: M16               |           | 4        | pcs   |
| 55   | Outer sleeve              |            |                           |           | 1        | pcs   |
| 66a  | Washer                    |            | Designation: DIN 125 A    |           | 4        | pcs   |
|      |                           |            | Internal diameter: 17     |           |          |       |
|      |                           |            | Outer diameter: 30        |           |          |       |
|      |                           |            | Thickness: 3              |           |          |       |
| - 80 | Chamber stack             |            | Bearing type: SIC         |           | 1        | pcs   |
| - 4  | Intermediate chamber cpl. |            |                           |           | 1        |       |
|      | Guide vane                |            |                           |           | 10       |       |
| 3    | Top intermediate chamber  |            |                           |           | 1        |       |
| - 4  | Intermediate chamber cpl. |            |                           |           | 1        |       |
|      | Guide vane                |            |                           |           | 10       |       |
|      | Guide cup                 |            |                           |           | 1        |       |
| 3a   | Intermediate chamber      |            |                           |           | 1        |       |
| 45   | Neck ring cpl.            |            |                           |           | 1        |       |
| 65   | Retainer                  |            |                           |           | 1        |       |
| - 4a | Intermediate chamber cpl. |            |                           |           | 1        |       |
|      | Guide vane                |            |                           |           | 10       |       |

| Pos   | Description          | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|----------------------|------------|---------------------------|-----------|----------|-------|
|       | Bearing plate        |            |                           |           | 1        |       |
|       | Bearing bush         |            |                           |           | 1        |       |
|       | Guide cup            |            |                           |           | 1        |       |
| 3a    | Intermediate chamber |            |                           |           | 1        |       |
| 45    | Neck ring cpl.       |            |                           |           | 1        |       |
| 65    | Retainer             |            |                           |           | 1        |       |
| 26.b  | Hex head screw       |            |                           |           | 2        |       |
| 26.c  | Washer               |            | Designation: DIN 125A     |           | 2        |       |
|       |                      |            | Thickness: 1,6            |           |          |       |
| 26a   | Strap cpl.           |            |                           |           | 2        |       |
| 36    | Lock nut             |            | Thread: M8                |           | 1        |       |
| - 44a | Inlet part cpl.      |            |                           |           | 1        |       |
|       | Inlet part           |            |                           |           | 1        |       |
|       | Guide cup            |            |                           |           | 1        |       |
| 45    | Neck ring cpl.       |            |                           |           | 1        |       |
| 65    | Retainer             |            |                           |           | 1        |       |
| 44b   | Inlet part           |            |                           |           | 1        |       |
| 47a   | Bearing ring         |            |                           |           | 1        |       |
| 49    | Impeller cpl.        |            |                           |           | 3        |       |
| - 51  | Shaft, spline, cpl.  |            |                           |           | 1        |       |
|       | Bar                  |            |                           |           | 0        |       |
| 62    | Stop ring            |            |                           |           | 1        |       |
| 64    | Spacing bush         |            | Length (mm): 9.00         |           | 1        |       |
| 64.d  | Spacer               |            |                           |           | 1        |       |
| 64c   | Spacing pipe         |            | Length (mm): 12.7         |           | 1        |       |
| 66    | Wedge lock washer    |            |                           |           | 1        |       |
| 69    | Spacing pipe         |            | Length (mm): 29.05        |           | 1        |       |
| 69    | Spacing bush         |            | Length (mm): 18.00        |           | 1        |       |
| 105   | Shaft seal           |            | Material type: HQQE       |           | 1        | pcs   |

*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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