

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

Grundfos pump 96500965



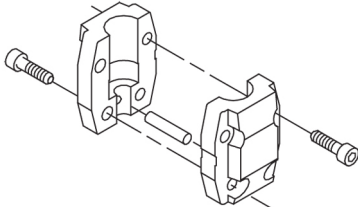
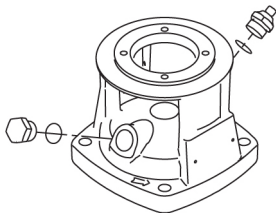
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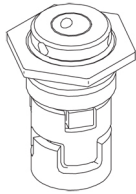
<https://www.lenntech.com/grundfos/CRFAM/96500965/CR-10-3-A-FJ-A-E-HQQE.html>

[info@lenntech.com](mailto:info@lenntech.com)

tel. +31 152 610 900

fax. +31 152 616 289

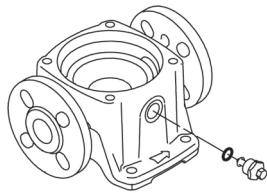
| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>CR 10-3 A-FJ-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 combined DIN-JIS flanges.</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 flanges and base are cast in one piece. 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 (I1/1).

## 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/m³

### Technical:

Rated flow: 10 m³/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:

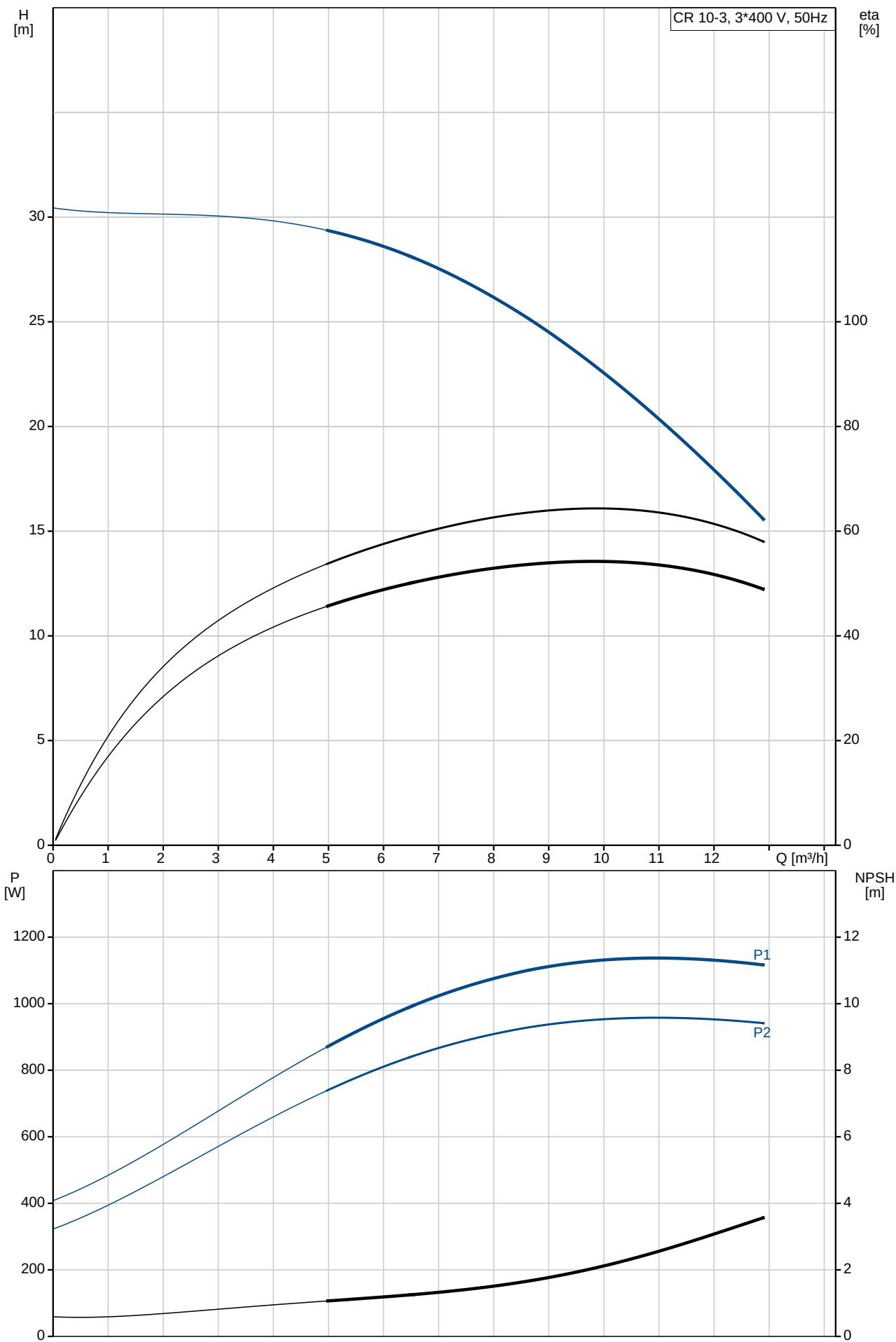
Base: Cast iron  
EN 1561 EN-GJL-200  
ASTM A48-25B  
Impeller: Stainless steel  
EN 1.4301  
AISI 304  
Bearing: SIC

### Installation:

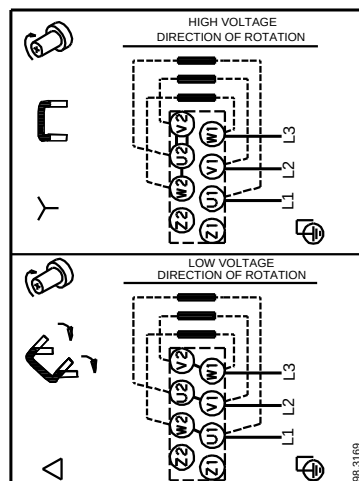
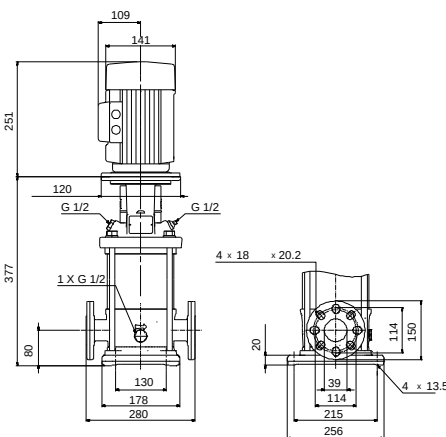
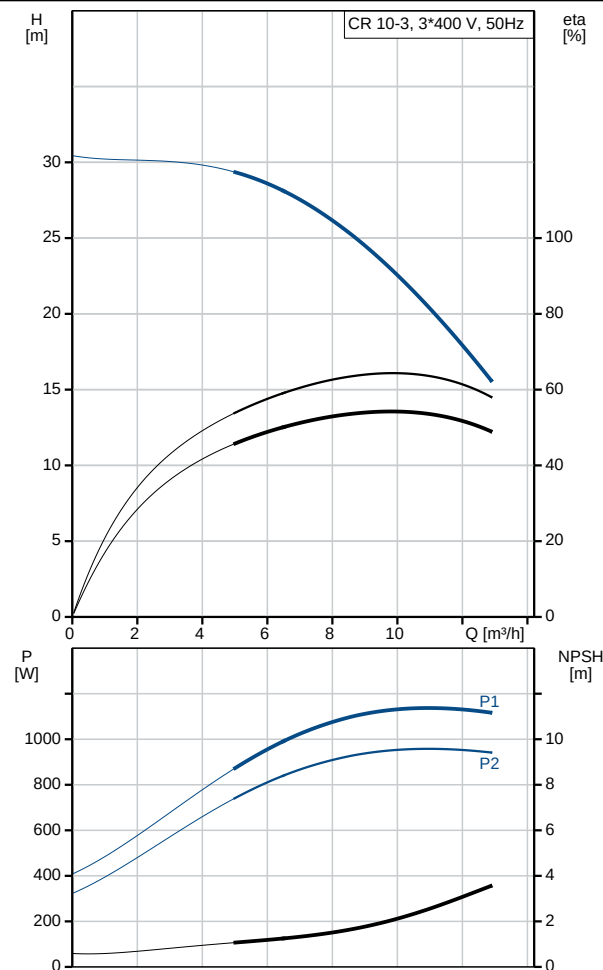
Maximum ambient temperature: 60 °C  
Maximum operating pressure: 16 bar

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p>Max pressure at stated temp: 16 bar / 120 °C<br/>16 bar / -20 °C</p> <p>Type of connection: DIN / JIS</p> <p>Size of inlet connection: DN 40<br/>1 1/2 inch</p> <p>Size of outlet connection: DN 40</p> <p>Pressure rating for pipe connection: PN 25</p> <p>Flange rating inlet: 300 lb</p> <p>Flange size for motor: FT100</p> <p><b>Electrical data:</b></p> <p>Motor standard: IEC</p> <p>Motor type: 80C</p> <p>IE Efficiency class: IE3</p> <p>Rated power - P2: 1.1 kW</p> <p>Power (P2) required by pump: 1.1 kW</p> <p>Mains frequency: 50 Hz</p> <p>Rated voltage: 3 x 220-240D/380-415Y V</p> <p>Rated current: 4.35/2.50 A</p> <p>Starting current: 450-500 %</p> <p>Cos phi - power factor: 0.83-0.76</p> <p>Rated speed: 2840-2870 rpm</p> <p>Efficiency: IE3 82,7%</p> <p>Motor efficiency at full load: 82.7 %</p> <p>Motor efficiency at 3/4 load: 84.6 %</p> <p>Motor efficiency at 1/2 load: 85.4 %</p> <p>Number of poles: 2</p> <p>Enclosure class (IEC 34-5): 55 Dust/Jetting</p> <p>Insulation class (IEC 85): F</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI ≥: 0.70</p> <p>Net weight: 39 kg</p> <p>Gross weight: 43 kg</p> <p>Shipping volume: 0.094 m³</p> |

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

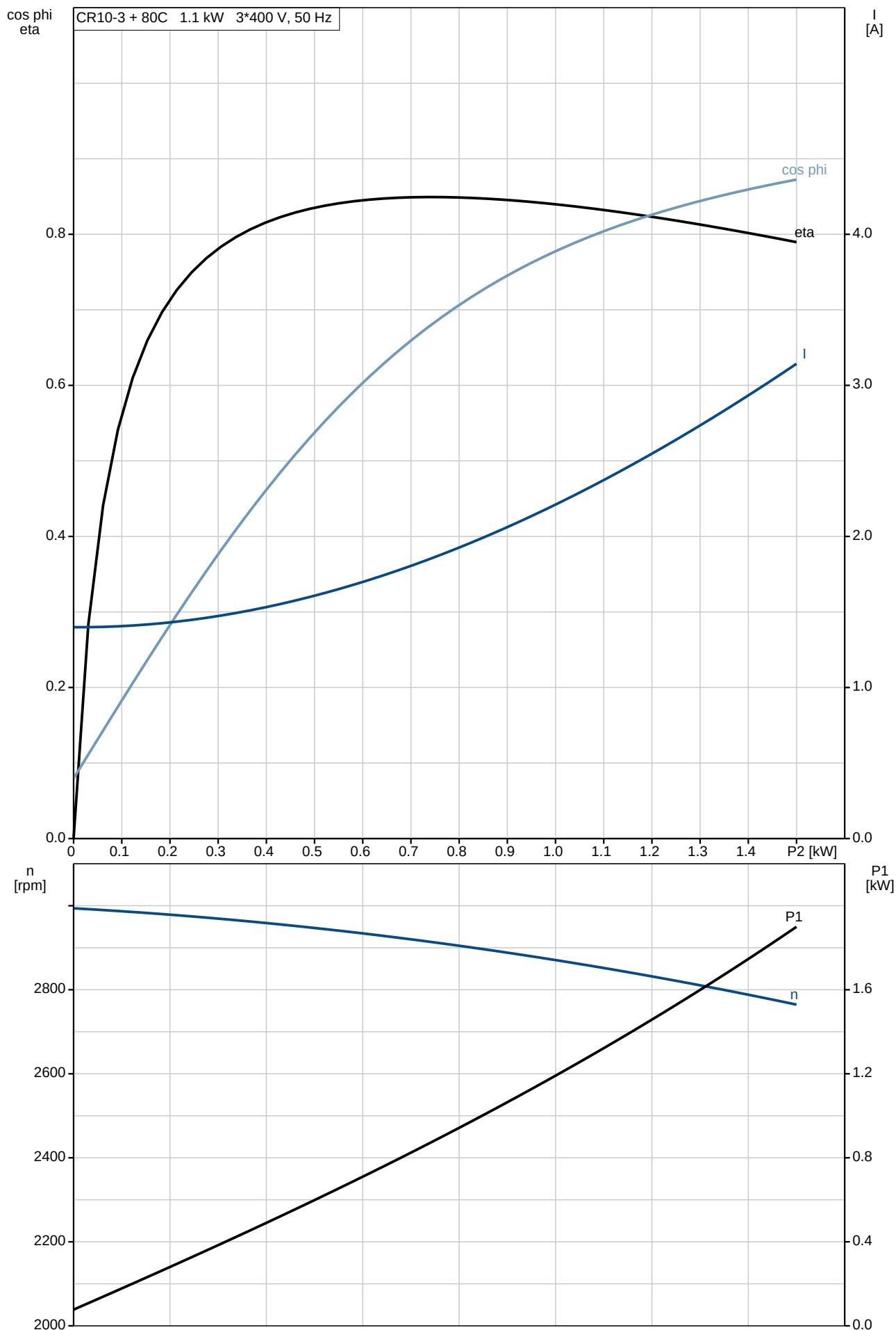


| Description                           | Value                   |
|---------------------------------------|-------------------------|
| <b>General information:</b>           |                         |
| Product name:                         | CR 10-3 A-FJ-A-E-HQQE   |
| Product No:                           | On request              |
| EAN number:                           | On request              |
| <b>Technical:</b>                     |                         |
| Rated flow:                           | 10 m³/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:                   | DIN / JIS               |
| Size of inlet connection:             | DN 40                   |
|                                       | 1 1/2 inch              |
| Size of outlet connection:            | DN 40                   |
| Pressure rating for pipe connection:  | PN 25                   |
| Flange rating inlet:                  | 300 lb                  |
| Flange size for motor:                | FT100                   |
| Connect code:                         | FJ                      |
| <b>Liquid:</b>                        |                         |
| Pumped liquid:                        | Water                   |
| Liquid temperature range:             | -20 .. 120 °C           |
| Liquid temperature during operation:  | 20 °C                   |
| Density:                              | 998.2 kg/m³             |
| <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                       |



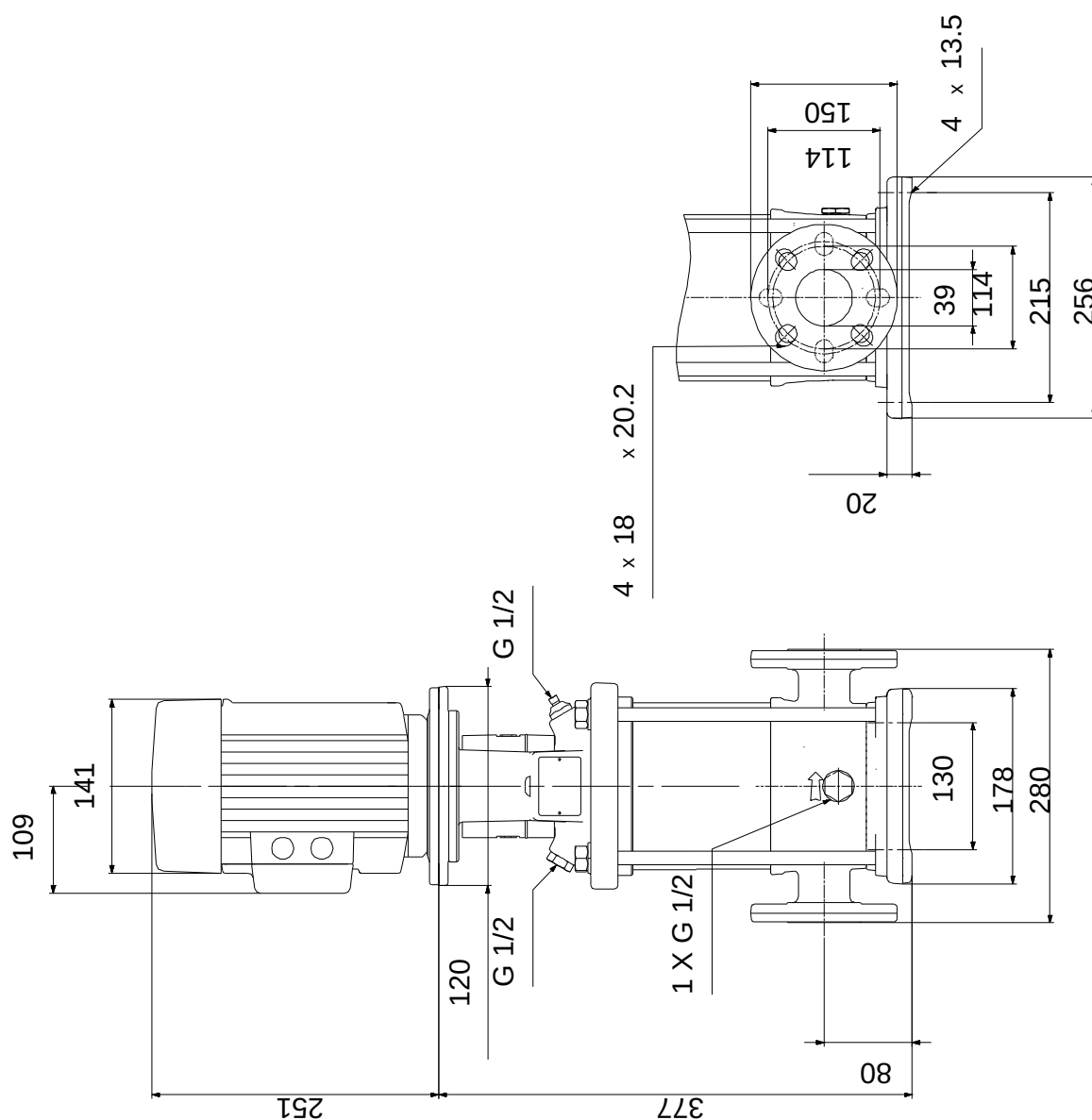
| Description                      | Value           |
|----------------------------------|-----------------|
| Enclosure class (IEC 34-5):      | 55 Dust/Jetting |
| Insulation class (IEC 85):       | F               |
| Motor protec:                    | NONE            |
| Motor No:                        | 85U05105        |
| <b>Controls:</b>                 |                 |
| Frequency converter:             | NONE            |
| <b>Others:</b>                   |                 |
| Minimum efficiency index, MEI ≥: | 0.70            |
| Net weight:                      | 39 kg           |
| Gross weight:                    | 43 kg           |
| Shipping volume:                 | 0.094 m³        |

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





# On request CR 10-3 A-FJ-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

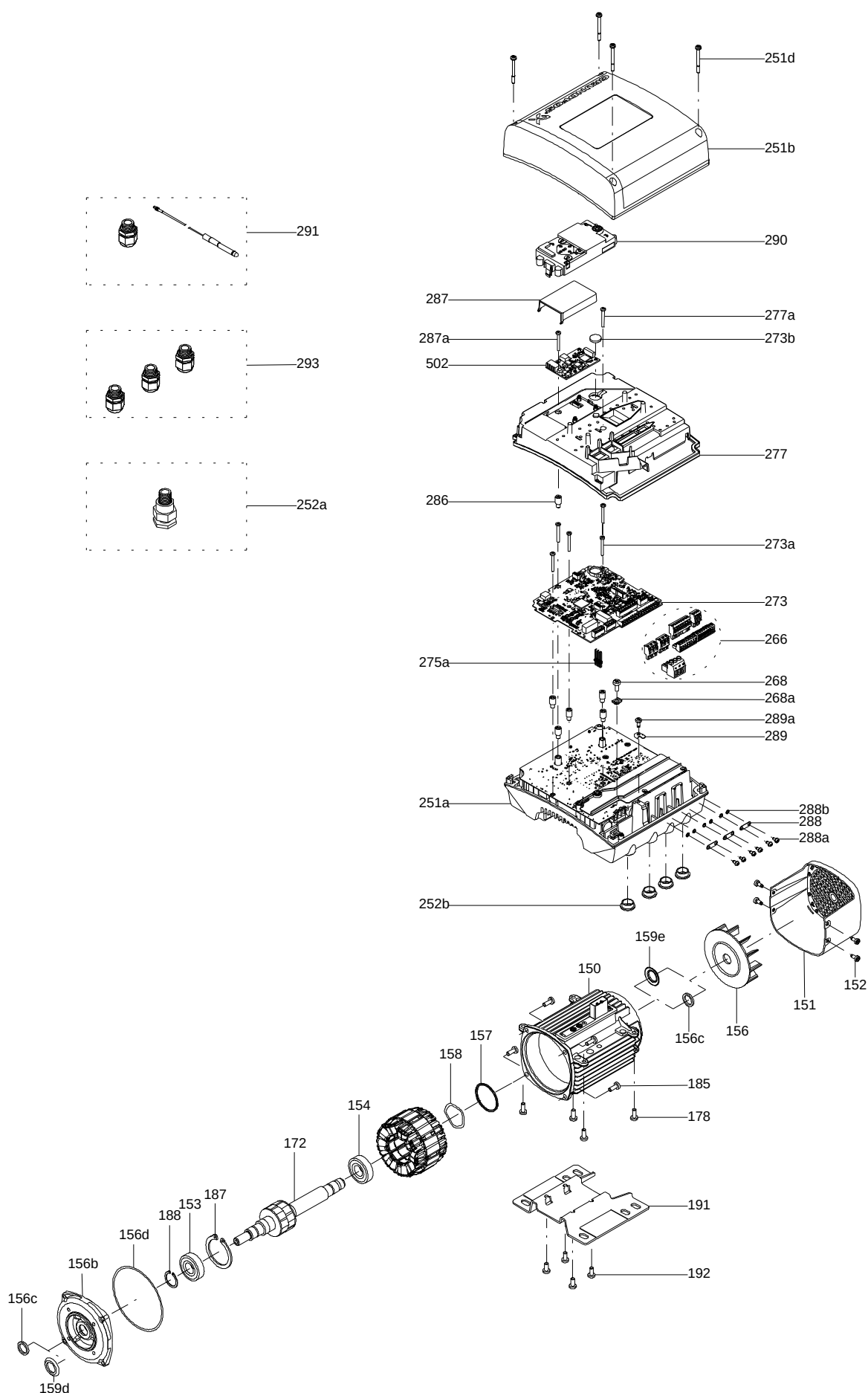


Sectional drawing (TM058200 for TPE2,TPE3)



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        |       |
| 25   | Drain plug                |            |                           |           | 1        |       |
| -    | 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       |       |
|      | Bearing plate             |            |                           |           | 1        |       |
|      | Bearing bush              |            |                           |           | 1        |       |
|      | Guide cup                 |            |                           |           | 1        |       |
| 3a   | Intermediate chamber      |            |                           |           | 1        |       |

| Pos   | Description         | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|---------------------|------------|---------------------------|-----------|----------|-------|
| 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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[info@lenntech.com](mailto:info@lenntech.com)

<https://www.lenntech.com>

tel. +31 152 610 900

fax. +31 152 616 289