

## CR15-17 A-F-A-E-HQQE 3x400/690 50 HZ

Grundfos Pump 96501904



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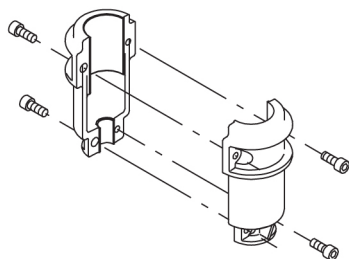
<http://www.lenntech.com/grundfos/CRFAM/96501904/CR-15-17-A-F-A-E-HQQE.html>

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

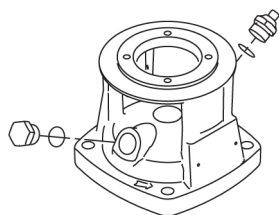
tel. +31-15-261.09.00

fax. +31-15-261.62.89

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>CR 15-17 A-F-A-E-HQQE</b></p>  <p><b>Note! Product picture may differ from actual product</b></p> <p>Product No.: <a href="#">96501904</a></p> <p>Vertical, multistage centrifugal pump with suction and discharge ports on same the level (in-line) enabling installation in a horizontal one-pipe system. 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 service and access. Power transmission is via a split coupling. Pipework connection is via DIN flanges.</p> <p>The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p><b>Further product details</b></p> <p>The product carries the Grundfos Blueflux<sup>®</sup> label. It represents the best from Grundfos within energy-efficient motors and frequency converters. Grundfos Blueflux<sup>®</sup> solutions either meet or exceed legislative requirements such as the EuP IE3 grade.</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 long split coupling connects the pump and motor shaft. It is enclosed in the motor stool by means of two coupling guards. The long coupling makes it possible to replace the shaft seal without removing the motor from the pump.</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 air vent screw.



The pump is fitted with a balanced O-ring seal unit with 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.

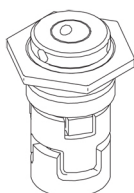
#### Primary seal:

- Rotating seal ring material: Silicon carbide (SiC)
- Stationary seat material: Silicon carbide (SiC)

This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.

Secondary seal material: EPDM (ethylene-propylene rubber)

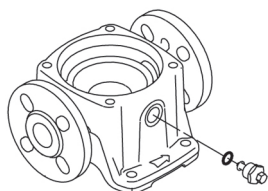
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



The shaft seal is 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 surface, and the shape of the blades ensure a high efficiency.

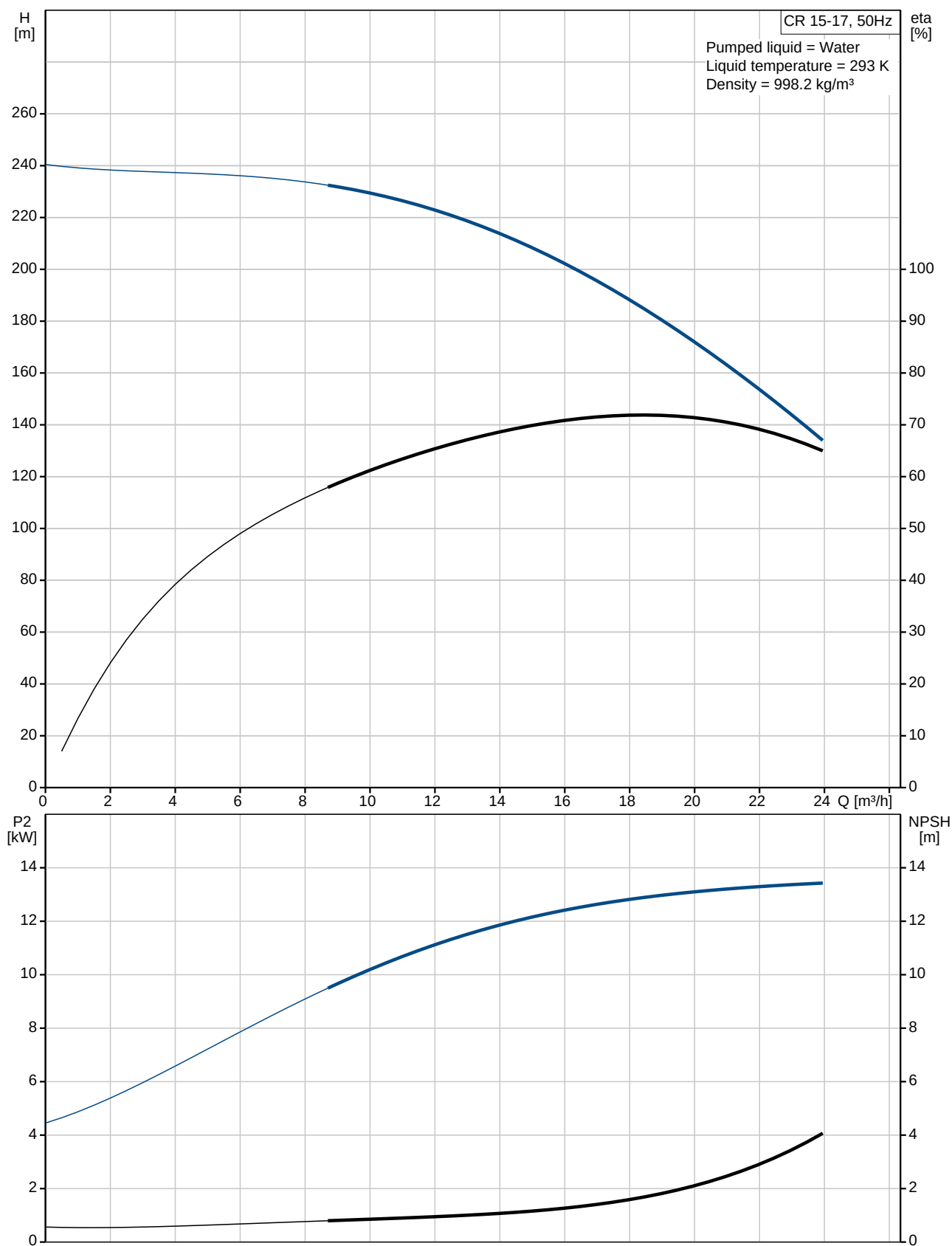
The base is made of cast iron. The flanges and base are cast in one piece. The discharge side of the base has a drain plug. The pump is secured to the foundation by four bolts through the base plate.



| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p><b>Motor</b></p> <p>The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. The motor is flange-mounted with free-hole flange (FF).</p> <p>Motor mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II). Electrical tolerances comply with IEC 60034.</p> <p>The motor efficiency is classified as IE3 in accordance with IEC 60034-30.</p> <p>The motor has thermistors (PTC sensors) in the windings in accordance with DIN 44081/DIN 44082. The protection reacts to both slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.</p> <p>Thermal switches must be connected to an external control circuit in a way which ensures that the automatic reset cannot cause accidents. The motors must be connected to a motor-protective circuit breaker according to local regulations.</p> <p>The motor can be connected to a variable speed drive for adjustment of pump performance to any duty point. Grundfos CUE offers a range of variable speed drives. Please find more information in Win-/WebCAPS.</p> <p><b>Technical data</b></p> <p><b>Liquid:</b></p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: 253 .. 393 K</p> <p>Liquid temp: 293 K</p> <p>Density: 998.2 kg/m<sup>3</sup></p> <p><b>Technical:</b></p> <p>Speed for pump data: 2923 rpm</p> <p>Rated flow: 17 m<sup>3</sup>/h</p> <p>Rated head: 192 m</p> <p>Shaft seal: HQQE</p> <p>Approvals on nameplate: CE,TR</p> <p>Curve tolerance: ISO 9906:1999 Annex A</p> <p><b>Materials:</b></p> <p>Pump housing: Cast iron<br/>EN-JL1030<br/>ASTM A48-30 B</p> <p>Impeller: Stainless steel<br/>DIN W.-Nr. 1.4301<br/>AISI 304</p> <p><b>Installation:</b></p> <p>Maximum ambient temperature: 333 K</p> <p>Max pressure at stated temp: 25 bar / 120 °C<br/>25 bar / -20 °C</p> <p>Flange standard: DIN</p> <p>Pipe connection: DN 50</p> <p>Pressure stage: PN 25</p> <p>Flange size for motor: FF300</p> <p><b>Electrical data:</b></p> <p>Motor type: 160MD</p> <p>IE Efficiency class: IE3</p> <p>Number of poles: 2</p> <p>Rated power - P2: 15 kW</p> |

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | Power (P2) required by pump: 15 kW<br>15 kW<br>Mains frequency: 50 Hz<br>Rated voltage: 3 x 380-415 D/660-690 Y V<br>Rated current: 28,0-26,0/16,2-15,6 A<br>Starting current: 660-780 %<br>Cos phi - power factor: 0,89-0,87<br>Rated speed: 2930-2950 rpm<br>Efficiency: IE3 91,9%<br>Motor efficiency at full load: 91,9-91,9 %<br>Motor efficiency at 3/4 load: 92,4-92,7 %<br>Motor efficiency at 1/2 load: 92,4-92,3 %<br>Enclosure class (IEC 34-5): 55 (Protect. water jets/dust)<br>Insulation class (IEC 85): F<br><br><b>Others:</b><br>Label: Grundfos Blueflux<br>Minimum efficiency index, MEI $\geq$ : 0.7<br>Net weight: 175 kg<br>Gross weight: 206 kg<br>Shipping volume: 0.56 m3 |

**96501904 CR 15-17 50 Hz**



| Description   | Value                 |
|---------------|-----------------------|
| Product name: | CR 15-17 A-F-A-E-HQQE |
| Product No:   | 96501904              |
| EAN number:   | 5700396231549         |

#### Technical:

|                         |                       |
|-------------------------|-----------------------|
| Speed for pump data:    | 2923 rpm              |
| Rated flow:             | 17 m³/h               |
| Rated head:             | 192 m                 |
| Head max:               | 239 m                 |
| Impellers:              | 17                    |
| Shaft seal:             | HQQE                  |
| Approvals on nameplate: | CE, TR                |
| Curve tolerance:        | ISO 9906:1999 Annex A |
| Pump type:              | CR 15                 |
| Stages:                 | 17                    |
| Pump version:           | A                     |
| Model:                  | A                     |

#### Materials:

|                  |                                                  |
|------------------|--------------------------------------------------|
| Pump housing:    | Cast iron<br>EN-JL1030<br>ASTM A48-30 B          |
| Impeller:        | Stainless steel<br>DIN W.-Nr. 1.4301<br>AISI 304 |
| Material code:   | A                                                |
| Code for rubber: | E                                                |

#### Installation:

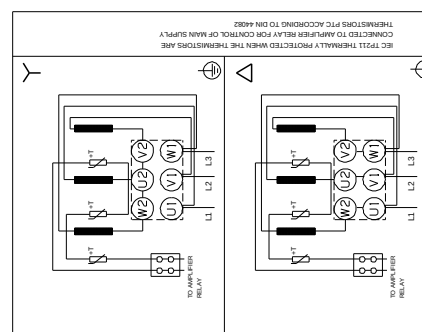
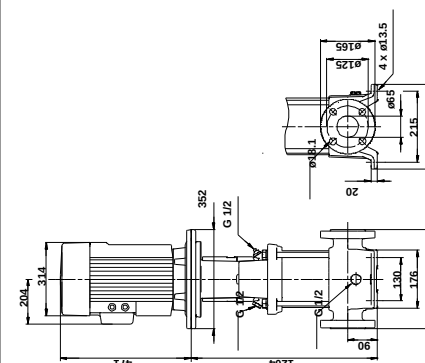
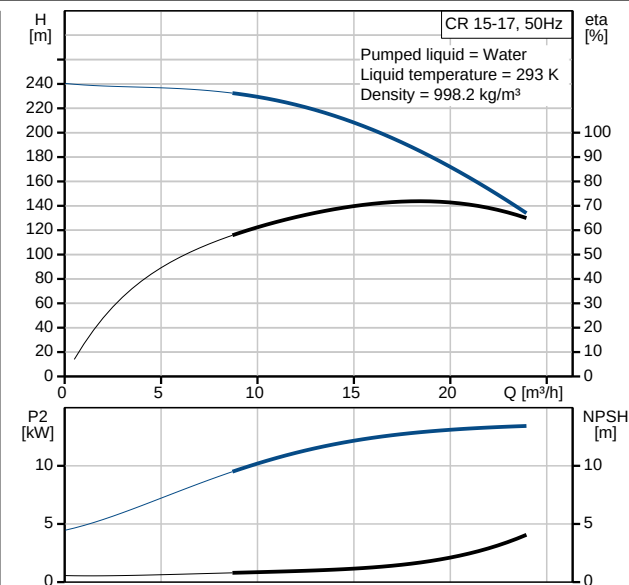
|                              |                                    |
|------------------------------|------------------------------------|
| Maximum ambient temperature: | 333 K                              |
| Max pressure at stated temp: | 25 bar / 120 °C<br>25 bar / -20 °C |
| Flange standard:             | DIN                                |
| Connect code:                | F                                  |
| Pipe connection:             | DN 50                              |
| Pressure stage:              | PN 25                              |
| Flange size for motor:       | FF300                              |

#### Liquid:

|                           |              |
|---------------------------|--------------|
| Pumped liquid:            | Water        |
| Liquid temperature range: | 253 .. 393 K |
| Liquid temp:              | 293 K        |
| Density:                  | 998.2 kg/m³  |

#### Electrical data:

|                                |                               |
|--------------------------------|-------------------------------|
| Motor type:                    | 160MD                         |
| IE Efficiency class:           | IE3                           |
| Number of poles:               | 2                             |
| Rated power - P2:              | 15 kW                         |
| Power (P2) required by pump:   | 15 kW<br>15 kW                |
| Mains frequency:               | 50 Hz                         |
| Rated voltage:                 | 3 x 380-415 D/660-690 Y V     |
| Rated current:                 | 28,0-26,0/16,2-15,6 A         |
| Starting current:              | 660-780 %                     |
| Cos phi - power factor:        | 0,89-0,87                     |
| Rated speed:                   | 2930-2950 rpm                 |
| Efficiency:                    | IE3 91,9%                     |
| Motor efficiency at full load: | 91,9-91,9 %                   |
| Motor efficiency at 3/4 load:  | 92,4-92,7 %                   |
| Motor efficiency at 1/2 load:  | 92,4-92,3 %                   |
| Enclosure class (IEC 34-5):    | 55 (Protect. water jets/dust) |
| Insulation class (IEC 85):     | F                             |
| Motor protec:                  | PTC                           |

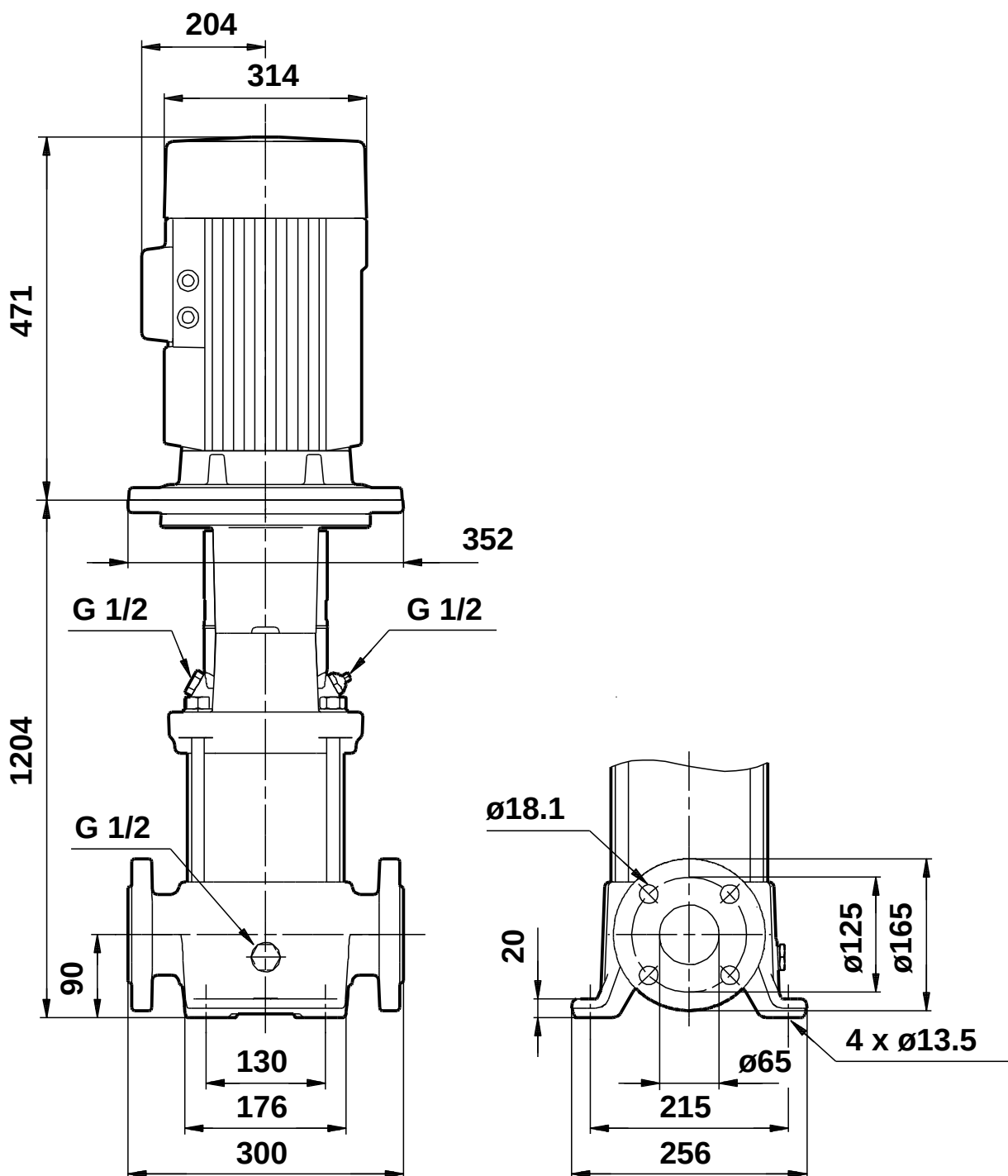




**Company name:** Lenntech BV - lenntech.com  
**Created by:** info@lenntech.com  
**Phone:** +31 15 2610900  
**Fax:** +31 15 2616289  
**Date:** -

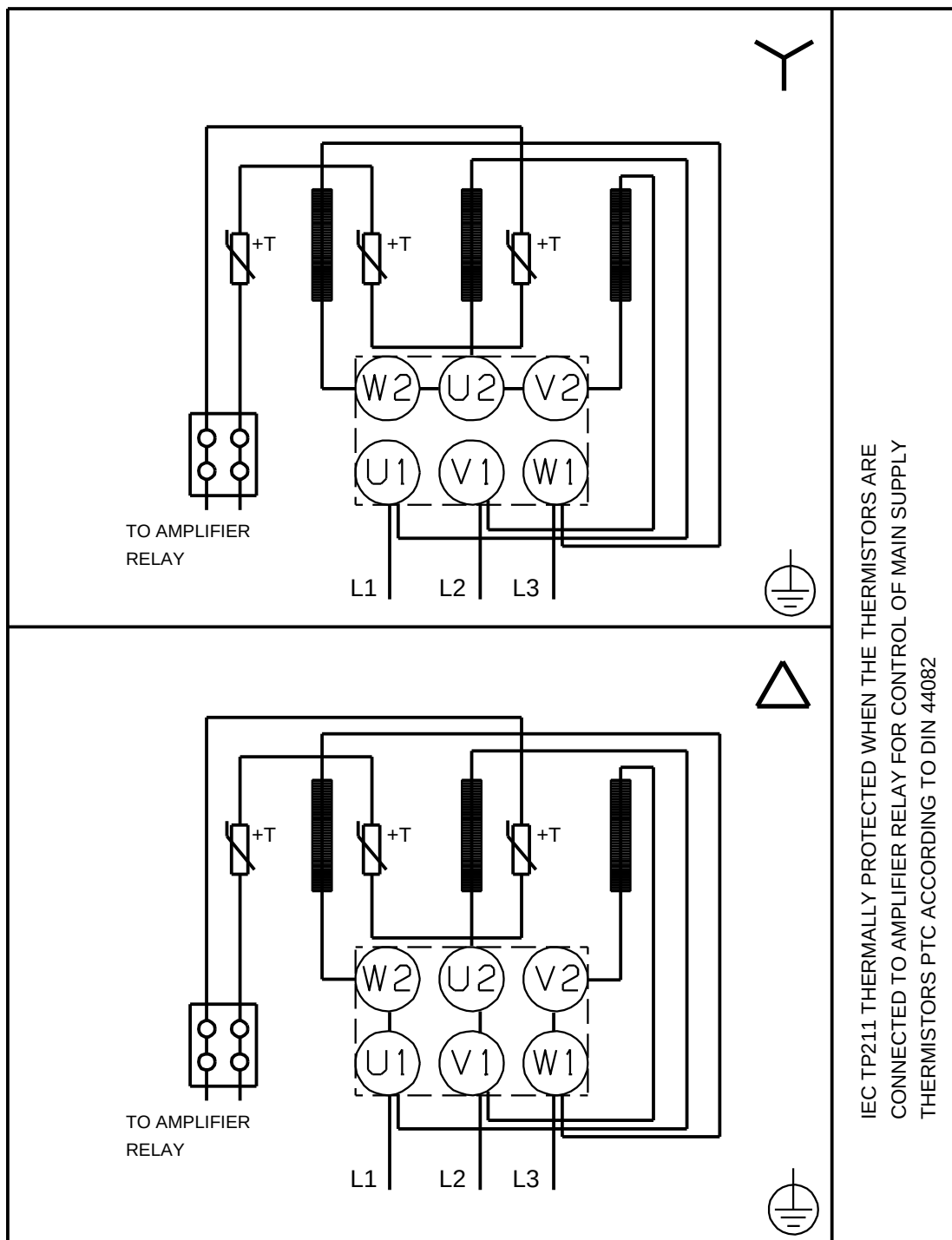
| Description                      | Value             |
|----------------------------------|-------------------|
| Motor No:                        | 85U17526          |
| <b>Others:</b>                   |                   |
| Label:                           | Grundfos Blueflux |
| Minimum efficiency index, MEI ≥: | 0.7               |
| Net weight:                      | 175 kg            |
| Gross weight:                    | 206 kg            |
| Shipping volume:                 | 0.56 m3           |

96501904 CR 15-17 50 Hz



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

96501904 CR 15-17 50 Hz



IEC TP211 THERMALLY PROTECTED WHEN THE THERMISTORS ARE  
CONNECTED TO AMPLIFIER RELAY FOR CONTROL OF MAIN SUPPLY  
THERMISTORS PTC ACCORDING TO DIN 44082

Note! All units are in [mm] unless others are stated.

*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)

[www.lenntech.com](http://www.lenntech.com)

tel. +31-15-261.09.00

fax. +31-15-261.62.89