

## CRN20-12 A-FGJ-G-V-HQQV 3x400/690 50 HZ

Grundfos pump 96500660



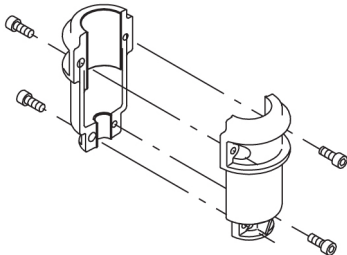
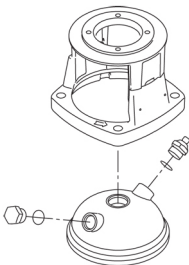
Thank you for your interest in our products. Please contact us for more information, or visit our website

<https://www.lenntech.com/grundfos/CRN20/96500660/CRN-20-12-A-FGJ-G-V-HQQV.html>

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

tel. +31 152 610 900

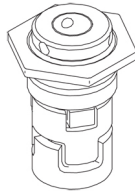
fax. +31 152 616 289

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>CRN 20-12 A-FGJ-A-V-HQQV</b></p>  <p>Product No.: On request</p> <p>Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in contact with the liquid are in high-grade stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via combined DIN-ANSI-JIS flanges.</p> <p>The pump is fitted with a 3-phase, fan-cooled 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 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>  <p>The pump head and flange for motor mounting is made in one piece (cast iron). The pump head cover is a separate component (stainless steel). The pump head has a combined 1/2" priming plug and vent screw.</p>  <p>The pump is fitted with a balanced O-ring seal unit with a rigid torque-transmission system. This seal type is assembled in a cartridge unit which makes replacement safe and easy. Due to the balancing, this seal type is suitable for high-pressure applications. The cartridge construction also protects the pump shaft from possible wear from a dynamic O-ring between pump shaft and shaft seal.</p> <p>Primary seal:</p> <ul style="list-style-type: none"> <li>• Rotating seal ring material: silicon carbide (SiC)</li> <li>• Stationary seat material: silicon carbide (SiC)</li> </ul> |

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: FKM (fluorocarbon rubber)

FKM has excellent resistance to oils and chemicals. Above 90 °C, FKM should only be used in media without water.



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 pump has a stainless steel base mounted on a separate base plate. This base and base plate are kept in position by the tension of the staybolts which hold the pump together. The outlet side of the base has a combined drain plug and bypass valve. The pump is secured to the foundation by four bolts through the base plate. The flanges and base are cast in one piece and prepared for connection by means of DIN, ANSI or JIS.

## Motor

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).

Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II).

Electrical tolerances comply with IEC 60034.

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

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.

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.

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 Grundfos Product Center.

## Technical data

### Controls:

Frequency converter: NONE

### Liquid:

Pumped liquid: Water  
Liquid temperature range: -20 .. 90 °C  
Liquid temperature during operation: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

### Technical:

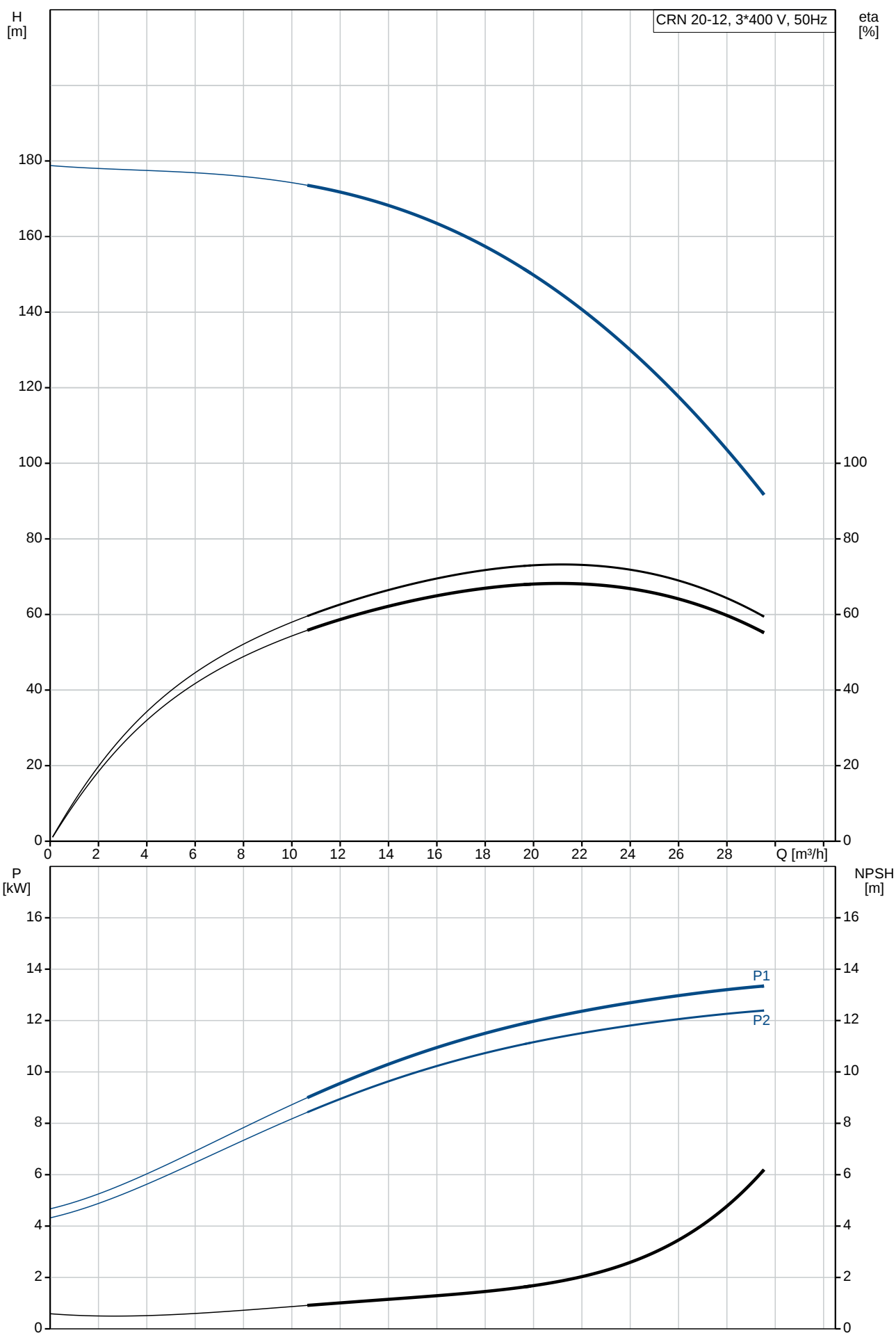
Rated flow: 21 m<sup>3</sup>/h  
Rated head: 142.7 m  
Pump orientation: Vertical  
Shaft seal arrangement: Single  
Code for shaft seal: HQQV  
Approvals on nameplate: CE, EAC  
Curve tolerance: ISO9906:2012 3B

### Materials:

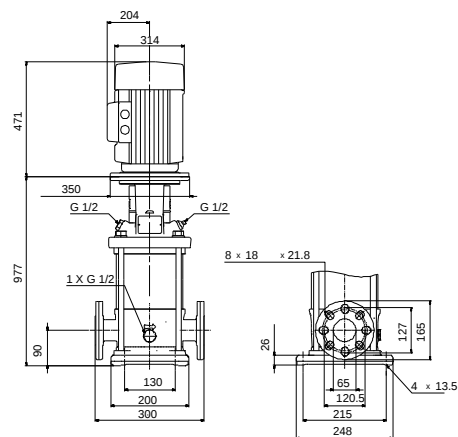
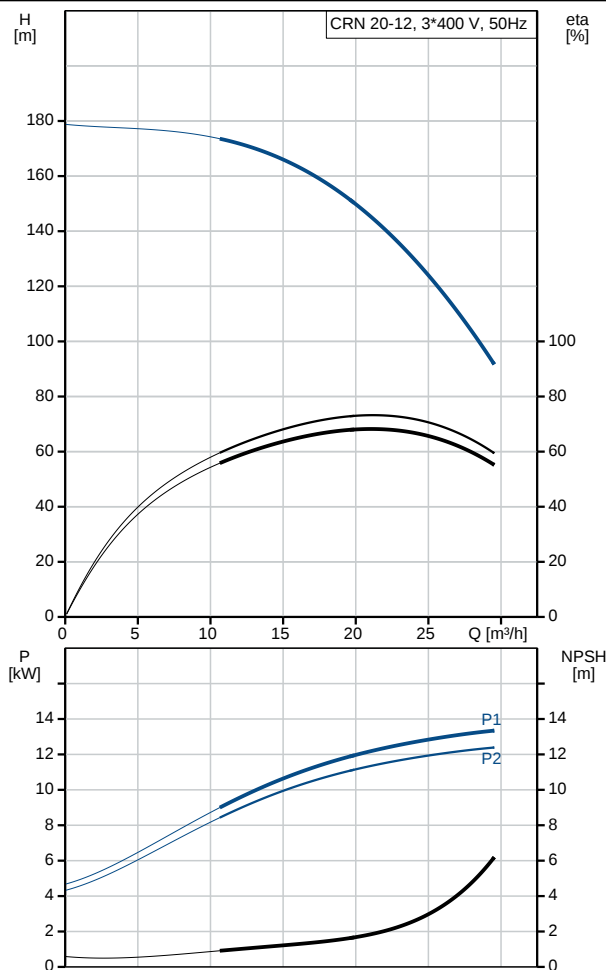
Base: Stainless steel  
EN 1.4408

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p> Impeller: AISI 316<br/> Stainless steel<br/> EN 1.4401<br/> AISI 316<br/> Bearing: SIC </p> <p> <b>Installation:</b><br/> Maximum ambient temperature: 60 °C<br/> Maximum operating pressure: 25 bar<br/> Max pressure at stated temp: 25 bar / 90 °C<br/> 25 bar / -20 °C<br/> Type of connection: DIN / ANSI / JIS<br/> Size of inlet connection: DN 50<br/> 2 inch<br/> Size of outlet connection: DN 50<br/> 2 inch<br/> Pressure rating for pipe connection: PN 25<br/> Flange rating inlet: 300 lb<br/> Flange size for motor: FF300 </p> <p> <b>Electrical data:</b><br/> Motor standard: IEC<br/> Motor type: 160MD<br/> IE Efficiency class: IE3<br/> Rated power - P2: 15 kW<br/> Power (P2) required by pump: 15 kW<br/> Mains frequency: 50 Hz<br/> Rated voltage: 3 x 380-415D/660-690Y 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 %<br/> Motor efficiency at 1/2 load: 92.4 %<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><br/> Minimum efficiency index, MEI ≥: 0.7<br/> Net weight: 162 kg<br/> Gross weight: 190 kg<br/> Shipping volume: 0.488 m³ </p> |

# On request CRN 20-12 A-FGJ-A-V-HQQV 50 Hz

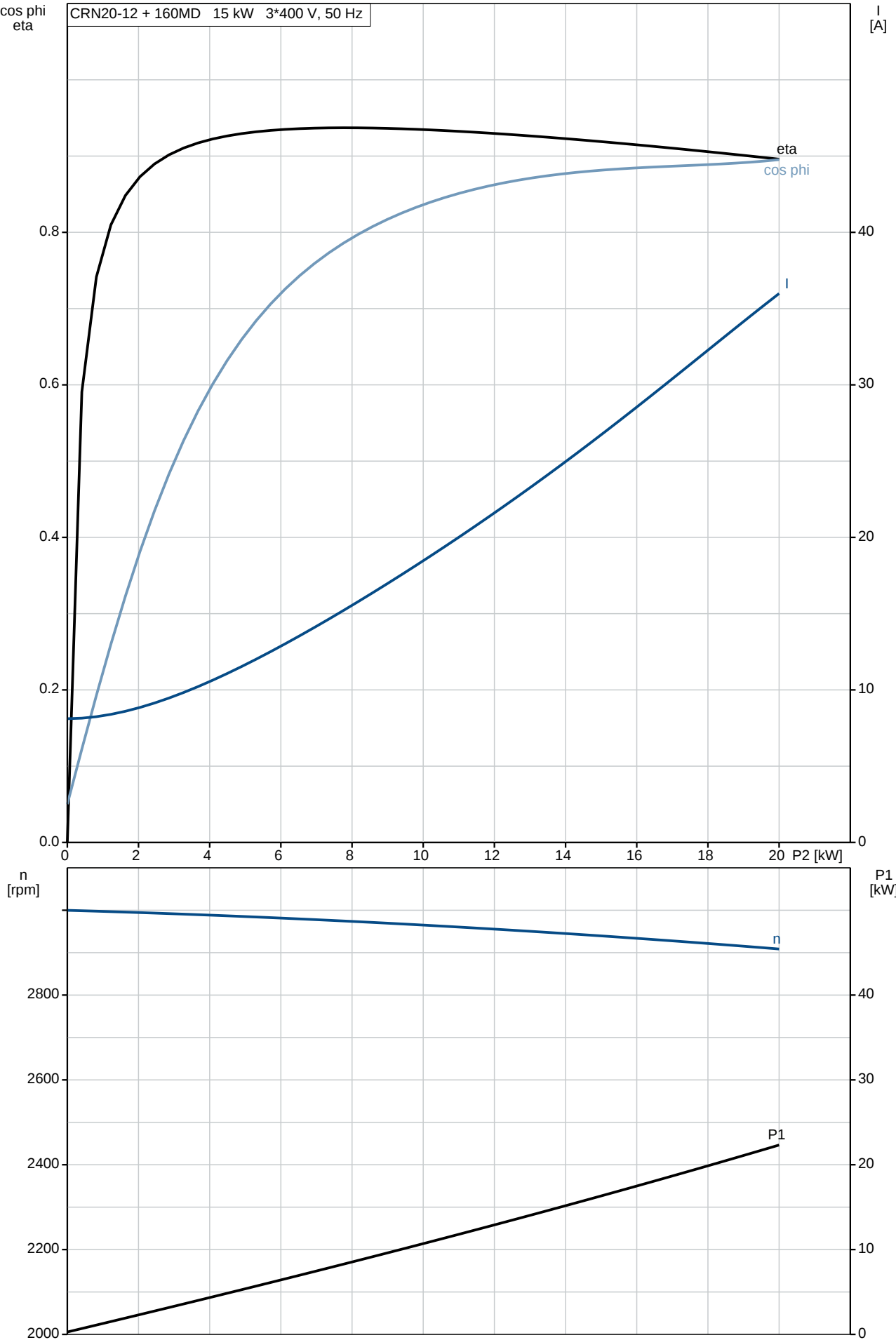


| Description                           | Value                             |
|---------------------------------------|-----------------------------------|
| <b>General information:</b>           |                                   |
| Product name:                         | CRN 20-12 A-FGJ-A-V-HQQV          |
| Product No:                           | On request                        |
| EAN number:                           | On request                        |
| <b>Technical:</b>                     |                                   |
| Rated flow:                           | 21 m <sup>3</sup> /h              |
| Rated head:                           | 142.7 m                           |
| Stages:                               | 12                                |
| Impellers:                            | 12                                |
| Number of reduced-diameter impellers: | 0                                 |
| Low NPSH:                             | N                                 |
| Pump orientation:                     | Vertical                          |
| Shaft seal arrangement:               | Single                            |
| Code for shaft seal:                  | HQQV                              |
| Approvals on nameplate:               | CE, EAC                           |
| Curve tolerance:                      | ISO9906:2012 3B                   |
| Pump version:                         | A                                 |
| Model:                                | A                                 |
| <b>Materials:</b>                     |                                   |
| Base:                                 | Stainless steel<br>EN 1.4408      |
|                                       | AISI 316                          |
| Impeller:                             | Stainless steel<br>EN 1.4401      |
|                                       | AISI 316                          |
| Material code:                        | A                                 |
| Code for rubber:                      | V                                 |
| Bearing:                              | SIC                               |
| <b>Installation:</b>                  |                                   |
| Maximum ambient temperature:          | 60 °C                             |
| Maximum operating pressure:           | 25 bar                            |
| Max pressure at stated temp:          | 25 bar / 90 °C<br>25 bar / -20 °C |
| Type of connection:                   | DIN / ANSI / JIS                  |
| Size of inlet connection:             | DN 50<br>2 inch                   |
| Size of outlet connection:            | DN 50<br>2 inch                   |
| Pressure rating for pipe connection:  | PN 25                             |
| Flange rating inlet:                  | 300 lb                            |
| Flange size for motor:                | FF300                             |
| Connect code:                         | FGJ                               |
| <b>Liquid:</b>                        |                                   |
| Pumped liquid:                        | Water                             |
| Liquid temperature range:             | -20 .. 90 °C                      |
| Liquid temperature during operation:  | 20 °C                             |
| Density:                              | 998.2 kg/m <sup>3</sup>           |
| <b>Electrical data:</b>               |                                   |
| Motor standard:                       | IEC                               |
| Motor type:                           | 160MD                             |
| IE Efficiency class:                  | IE3                               |
| Rated power - P2:                     | 15 kW                             |
| Power (P2) required by pump:          | 15 kW                             |
| Mains frequency:                      | 50 Hz                             |
| Rated voltage:                        | 3 x 380-415D/660-690Y 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 %                            |

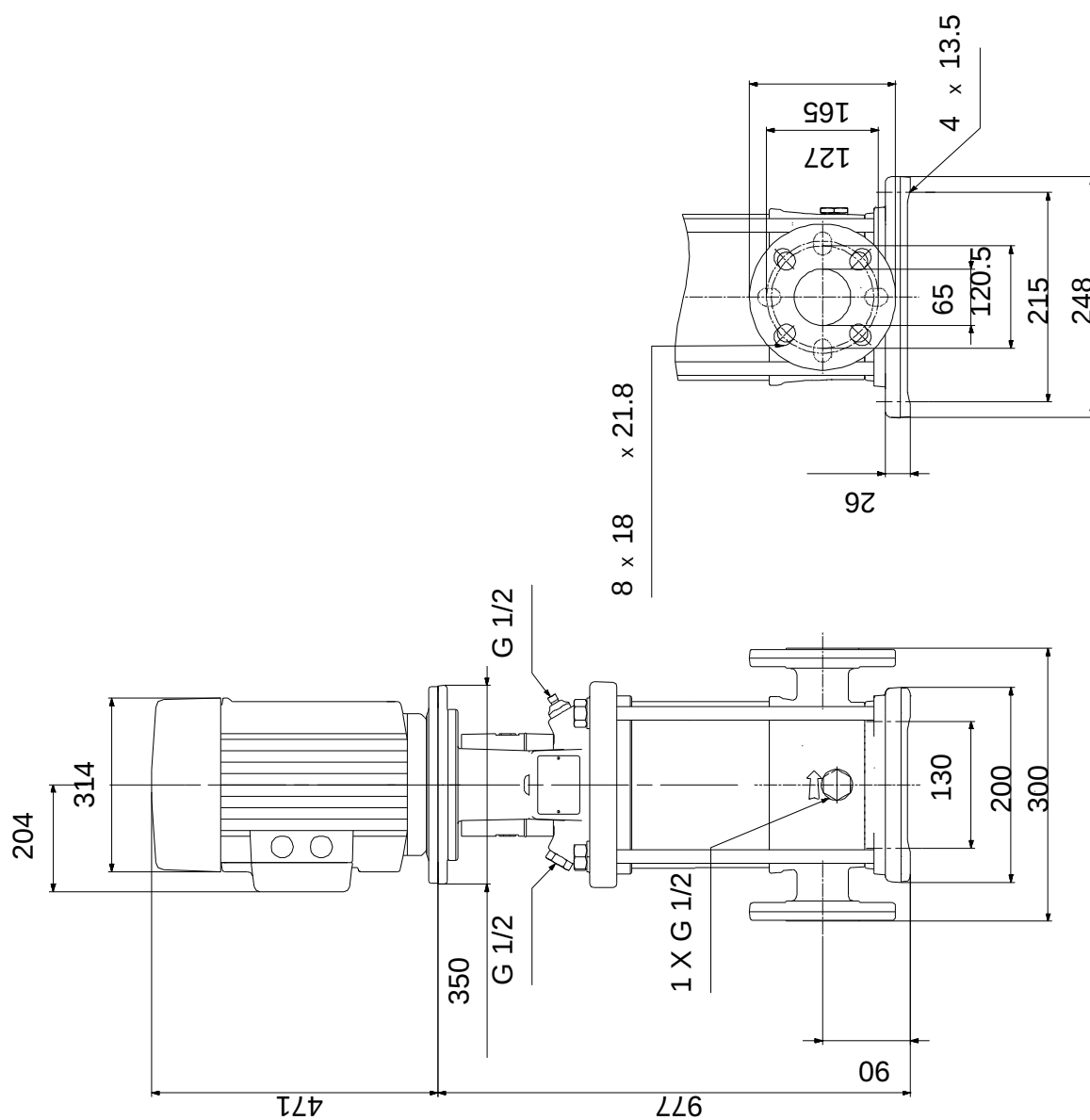


| Description                      | Value                |
|----------------------------------|----------------------|
| Motor efficiency at 1/2 load:    | 92.4 %               |
| Number of poles:                 | 2                    |
| Enclosure class (IEC 34-5):      | 55 Dust/Jetting      |
| Insulation class (IEC 85):       | F                    |
| Motor protec:                    | PTC                  |
| Motor No:                        | 85U17526             |
| <b>Controls:</b>                 |                      |
| Frequency converter:             | NONE                 |
| <b>Others:</b>                   |                      |
| Minimum efficiency index, MEI ≥: | 0.7                  |
| Net weight:                      | 162 kg               |
| Gross weight:                    | 190 kg               |
| Shipping volume:                 | 0.488 m <sup>3</sup> |

# On request CRN 20-12 A-FGJ-A-V-HQQV 50 Hz



# On request CRN 20-12 A-FGJ-A-V-HQQV 50 Hz



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

# Exploded view



Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

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



**Parts list CRN 20-12, 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        |       |
| 56   | Base plate                |            |                           |           | 1        |       |
| 201  | Flange                    |            |                           |           | 2        |       |
| 203  | Lock ring                 |            |                           |           | 2        |       |
| -    | Rubber module             |            |                           |           | 1        | pcs   |
| 37   | O-ring                    |            | Material type: FKM        |           | 2        |       |
| 38   | O-ring                    |            | Diameter: 16,3            |           | 1        |       |
|      |                           |            | Material type: FKM        |           |          |       |
|      |                           |            | Thickness: 2,4            |           |          |       |
| 38a  | O-ring                    |            | Diameter: 5,3             |           | 1        |       |
|      |                           |            | Material type: FKM        |           |          |       |
|      |                           |            | Thickness: 2,4            |           |          |       |
| 60   | Spring                    |            |                           |           | 4        |       |
| 100  | O-ring                    |            | Diameter: 16,3            |           | 2        |       |
|      |                           |            | Material type: FKM        |           |          |       |
|      |                           |            | Thickness: 2,4            |           |          |       |
| - 2  | Pump head cpl.            |            |                           |           | 1        | pcs   |
| 1    | Flange                    |            |                           |           | 1        |       |
| 2    | Pump head                 |            |                           |           | 1        |       |
| 7    | Coupling guard            |            |                           |           | 2        |       |
| - 18 | Air vent screw            |            |                           |           | 1        |       |
|      | Plug                      |            |                           |           | 1        |       |
|      | Spindle                   |            |                           |           | 1        |       |
| 23   | Plug                      |            |                           |           | 1        |       |
| 28   | Hex head screw            |            | Length (mm): 25           |           | 4        |       |
|      |                           |            | Thread: M12               |           |          |       |
| 28a  | Hex head screw            |            | Length (mm): 45           |           | 4        |       |
|      |                           |            | Thread: M16               |           |          |       |
| 36   | Hex nut                   |            | Thread: M16               |           | 4        |       |
| 37.a | O-ring                    |            |                           |           | 1        |       |
| 76   | Nameplate                 |            |                           |           | 1        |       |
| 76a  | Rivet                     |            |                           |           | 1        |       |
| 77   | Pump cover                |            |                           |           | 1        |       |
| - 8  | Coupling                  |            |                           |           | 1        | pcs   |
| 9    | Hex socket head cap screw |            | Designation: DIN 912      |           | 4        |       |
|      |                           |            | Length (mm): 25           |           |          |       |
|      |                           |            | Thread: M10               |           |          |       |
| 10   | Shaft pin                 |            | Diameter: 5               |           | 1        |       |
|      |                           |            | Length (mm): 26           |           |          |       |
| 10a  | Coupling half             |            |                           |           | 2        |       |
| 26   | Staybolt                  |            | Length (mm): 720          |           | 4        | pcs   |
| 36   | Nut                       |            | Thread: M16               |           | 4        | pcs   |
| 55   | Outer sleeve              |            |                           |           | 1        | pcs   |
| 66a  | Washer                    |            | Designation: DIN 125 A2   |           | 4        | pcs   |
|      |                           |            | Internal diameter: 17     |           |          |       |
|      |                           |            | Outer diameter: 30        |           |          |       |
|      |                           |            | Thickness: 3              |           |          |       |
| - 80 | Chamber stack             |            |                           |           | 1        | pcs   |
| - 3  | Top intermediate chamber  |            |                           |           | 1        |       |
|      | Cover plate               |            |                           |           | 1        |       |
|      | Guide vane                |            |                           |           | 10       |       |
| 3    | Intermediate chamber      |            |                           |           | 1        |       |
| - 4  | Intermediate chamber cpl. |            |                           |           | 8        |       |
|      | Intermediate chamber      |            |                           |           | 1        |       |
| 45   | Neck ring cpl.            |            |                           |           | 1        |       |
| 65   | Retainer                  |            |                           |           | 1        |       |

| Pos   | Description               | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|---------------------------|------------|---------------------------|-----------|----------|-------|
| - 4a  | Intermediate chamber cpl. |            |                           |           | 3        |       |
|       | Guide vane                |            |                           |           | 10       |       |
|       | Bearing plate             |            |                           |           | 1        |       |
|       | Bearing bush              |            |                           |           | 1        |       |
|       | Intermediate chamber      |            |                           |           | 1        |       |
|       | Guide cup                 |            |                           |           | 1        |       |
|       | Sand Lifter               |            |                           |           | 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        |       |
| 45    | Neck ring cpl.            |            |                           |           | 1        |       |
| 65    | Retainer                  |            |                           |           | 1        |       |
| 44b   | Inlet part                |            |                           |           | 1        |       |
| 47a   | Bearing ring              |            |                           |           | 3        |       |
| - 49  | Impeller cpl.             |            |                           |           | 12       |       |
|       | Impeller                  |            |                           |           | 1        |       |
| 49c   | Wear ring                 |            |                           |           | 1        |       |
| - 51  | Shaft, spline, cpl.       |            |                           |           | 1        |       |
|       | Bar                       |            |                           |           | 1        |       |
| 62    | Stop ring                 |            |                           |           | 1        |       |
| 64b   | Spacing bush              |            | Length (mm): 5.00         |           | 1        |       |
| 64b   | Spacing bush              |            |                           |           | 3        |       |
| 64c   | Spacing pipe              |            | Length (mm): 12.7         |           | 1        |       |
| 66    | Wedge lock washer         |            |                           |           | 1        |       |
| 69    | Spacing pipe              |            | Length (mm): 43.6         |           | 8        |       |
| 69    | Spacing pipe              |            | Internal diameter: 17,5   |           | 3        |       |
|       |                           |            | Length (mm): 17           |           |          |       |
| 69    | Spacing bush              |            |                           |           | 1        |       |
| 105   | Shaft seal                |            | Material type: HQQV       |           | 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.*

*All information is copyright Grundfos.*



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

<https://www.lenntech.com>

tel. +31 152 610 900

fax. +31 152 616 289