

# Submittal Data

PROJECT:	UNIT TAG:	QUANTITY:
REPRESENTATIVE: _____	TYPE OF SERVICE:	DATE: _____
ENGINEER:	SUBMITTED BY:	DATE:
CONTRACTOR:	APPROVED BY:	DATE:
	ORDER NO.:	DATE:

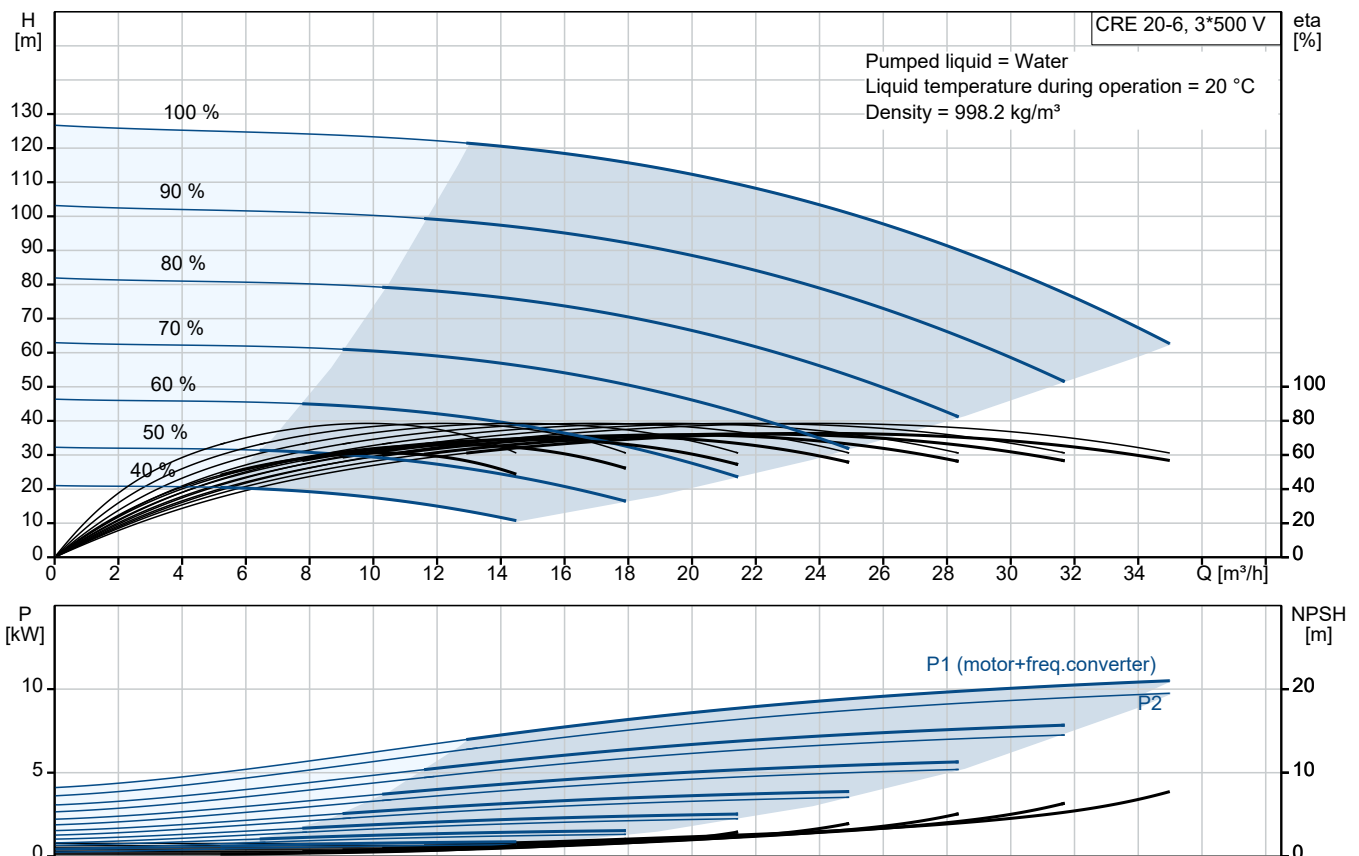


## CRE 20-6 A-F-A-E-HQQE

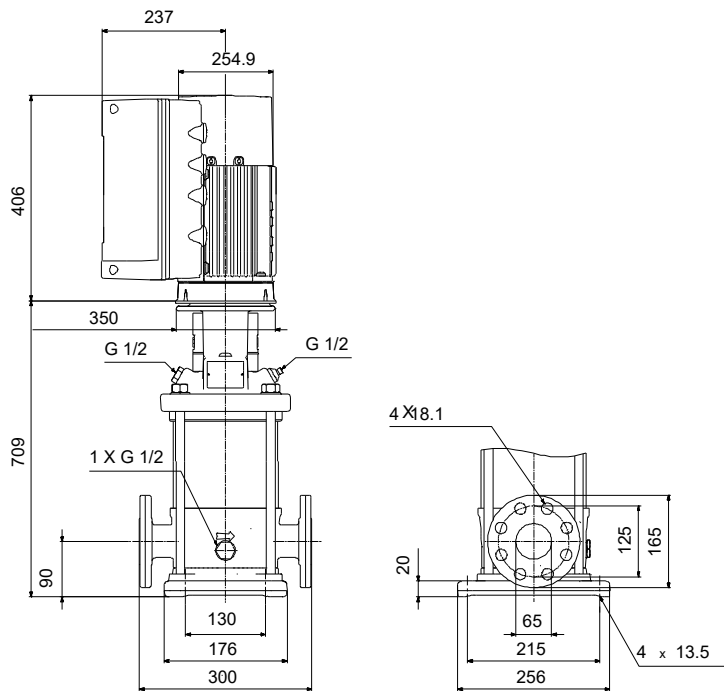
Vertical, multistage centrifugal pump with integrated frequency converter. The pump head and base are in cast iron - all other wetted parts are in stainless steel (EN 1.4301)

Note! Product picture may differ from actual product

Conditions of Service		Pump Data		Motor Data	
Liquid:	Water	Max pressure at stated temp:	16 bar / 120 °C	Rated power - P2:	11 kW
Temperature:	20 °C	Liquid temperature range:	-20 .. 120 °C	Rated voltage:	380-500 V
Specific Gravity:	1.000	Maximum ambient temperature:	50 °C	Mains frequency:	50 / 60 Hz
		Shaft seal:	HQQE	Enclosure class:	IP55
		Product number:	On request	Insulation class:	F
				Motor protection:	ELEC
				Motor type:	160MH
				Eta 1/1:	93.1 %



# Submittal Data



## Materials:

Base:	Cast iron
Base:	EN 1561 EN-GJL-200
Base:	ASTM A48-25B
Impeller:	Stainless steel
Impeller:	AISI 304
Impeller:	EN 1.4301
Material code:	A
Code for rubber:	E

**Qty. Description**

1 CRE 20-6 A-F-A-E-HQQE



**Note! Product picture may differ from actual product**

Product No.: On request

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 DIN flanges.

The pump is fitted with a 3-phase, fan-cooled, permanent-magnet, synchronous motor. The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.

The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement. An operating panel on the motor terminal box enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The Grundfos Eye indicator on the operating panel provides visual indication of pump status:

- "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)
- "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)
- "Alarm": Motor has stopped (flashing red indicator lights).

Communication with the pump is possible by means of Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".

The terminal box has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required:

- two dedicated digital inputs
- three analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5-3.5 V
- 5 V voltage supply to potentiometer and sensor
- one analog output, 0-10 V, 0(4)-20 mA
- two configurable digital inputs or open-collector outputs
- two Pt100/Pt1000 inputs
- LiqTec, dry-running protection sensor input
- Grundfos Digital Sensor input and output
- 24 V voltage supply for sensors
- two signal-relay outputs (potential-free contacts)
- GENIbus connection
- interface for Grundfos CIM fieldbus module.

### Further product details

An external sensor can be connected if controlled pump operation based on for example flow, differential pressure or temperature is required.

An operating panel on the motor terminal box enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The Grundfos Eye indicator on the operating panel provides visual indication of pump status:

- "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)
- "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)

**Qty. Description**

1

- "Alarm": Motor has stopped (flashing red indicator lights).

Communication with the pump is possible by means of Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".

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.

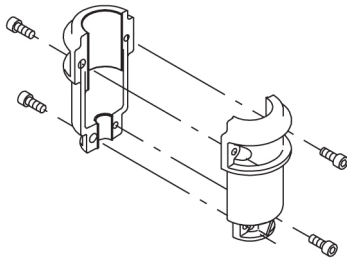
The entire process consists of these elements:

- 1) Alkaline-based cleaning.
- 2) Zinc phosphating.
- 3) Cathodic electro-deposition.
- 4) Curing to a dry film thickness 18-22 my m.

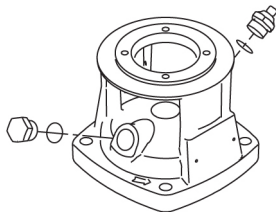
The colour code for the finished product is NCS 9000/RAL 9005.

## Pump

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.



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.



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.

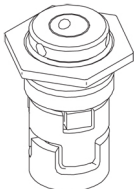
Seal faces:

- 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)

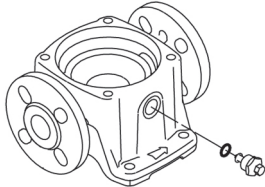
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



**Qty. Description**

1 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 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 IE5 in accordance with IEC 60034-30-2.

The motor requires no external motor protection. The motor control unit incorporates protection against slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.

The terminal box has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required:

- two dedicated digital inputs
- three analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5-3.5 V
- 5 V voltage supply to potentiometer and sensor
- one analog output, 0-10 V, 0(4)-20 mA
- two configurable digital inputs or open-collector outputs
- two Pt100/Pt1000 inputs
- LiqTec, dry-running protection sensor input
- Grundfos Digital Sensor input and output
- 24 V voltage supply for sensors
- two signal-relay outputs (potential-free contacts)
- GENIbus connection
- interface for Grundfos CIM fieldbus module.

**Technical data**

Liquid:

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

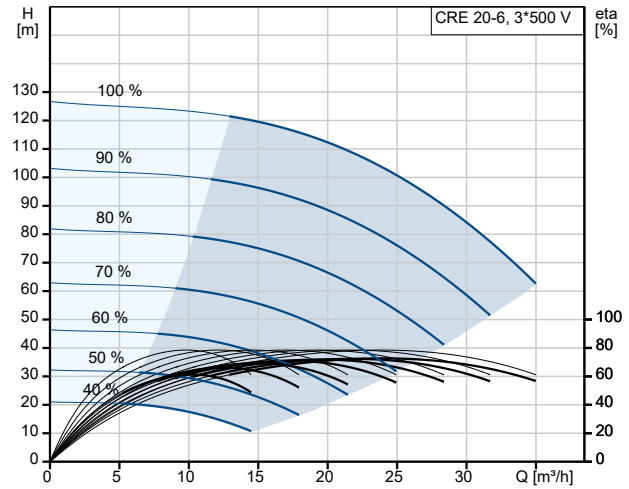
Technical:

Pump speed on which pump data are based: 3529 rpm  
Rated flow: 25.3 m<sup>3</sup>/h  
Rated head: 101.9 m  
Pump orientation: Vertical  
Shaft seal arrangement: Single  
Code for shaft seal: HQQE  
Approvals: CE,EAC,UKCA,SEPRO  
Approvals for drinking water: WRAS,ACS  
Curve tolerance: ISO9906:2012 3B

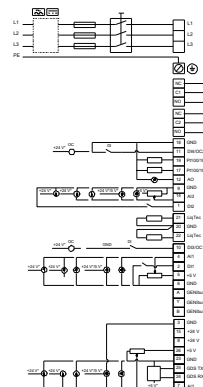
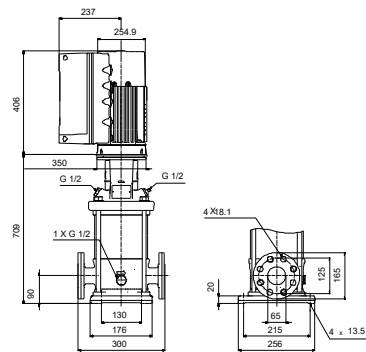
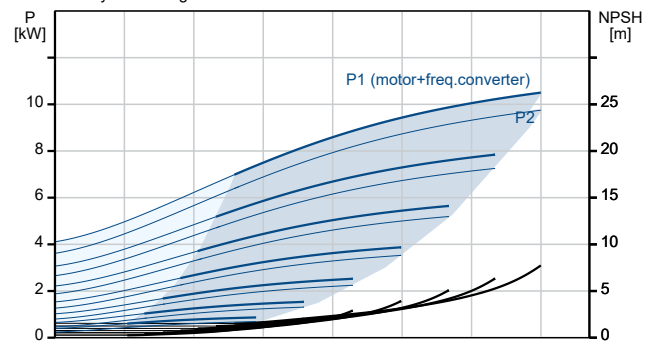
Materials:

Qty.	Description
1	<p>Base: Cast iron EN 1561 EN-GJL-200 ASTM A48-25B</p> <p>Impeller: Stainless steel EN 1.4301 AISI 304</p> <p>Bearing: SIC</p> <p>Installation: Maximum ambient temperature: 50 °C Maximum operating pressure: 16 bar Max pressure at stated temp: 16 bar / 120 °C 16 bar / -20 °C</p> <p>Type of connection: DIN Size of inlet connection: DN 50 Size of outlet connection: DN 50 Pressure rating for connection: PN 25 Flange size for motor: FF300</p> <p>Electrical data: Motor standard: IEC Motor type: 160MH Rated power - P2: 11 kW Power (P2) required by pump: 11 kW Over/undersize motor: Standard motor size Mains frequency: 50 / 60 Hz Rated voltage: 3 x 380-500 V Service factor: 0.00 Rated current: 20.3-16.0 A Cos phi - power factor: 0.93-0.90 Rated speed: 360-4000 rpm IE Efficiency class: IE5 Motor efficiency at full load: 93.1 % Enclosure class (IEC 34-5): IP55 Insulation class (IEC 85): F Motor No: 98971053</p> <p>Controls: Frequency converter: Built-in Pressure sensor: N</p> <p>Others: Terminal box position: 6 Minimum efficiency index, MEI ≥: 0.70 Net weight: 119 kg Gross weight: 150 kg Shipping volume: 0.619 m³ Danish VVS No.: 386005006 Finnish LVI No.: 4925666 Country of origin: HU Custom tariff no.: 84137075</p>

Description	Value
<b>General information:</b>	
Product name:	CRE 20-6 A-F-A-E-HQQE
Product No:	On request
EAN number:	On request
Price:	€ 14327.51
<b>Technical:</b>	
Pump speed on which pump data are based:	3529 rpm
Rated flow:	25.3 m <sup>3</sup> /h
Rated head:	101.9 m
Maximum head:	128 m
Stages:	6
Impellers:	6
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals:	CE,EAC,UKCA,SEPRO
Approvals for drinking water:	WRAS,ACS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
<b>Materials:</b>	
Base:	Cast iron
Base:	EN 1561 EN-GJL-200
Base:	ASTM A48-25B
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
<b>Installation:</b>	
Maximum ambient temperature:	50 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C
Max pressure at stated temp:	16 bar / -20 °C
Type of connection:	DIN
Size of inlet connection:	DN 50
Size of outlet connection:	DN 50
Pressure rating for connection:	PN 25
Flange size for motor:	FF300
Connect code:	F
<b>Liquid:</b>	
Pumped liquid:	Water
Liquid temperature range:	-20 .. 120 °C
Selected liquid temperature:	20 °C
Density:	998.2 kg/m <sup>3</sup>
<b>Electrical data:</b>	
Motor standard:	IEC
Motor type:	160MH
Rated power - P2:	11 kW
Power (P2) required by pump:	11 kW
Over/undersize motor:	Standard motor size
Mains frequency:	50 / 60 Hz
Rated voltage:	3 x 380-500 V



Pumped liquid = Water  
Liquid temperature during operation = 20 °C  
Density = 998.2 kg/m<sup>3</sup>





Company name:

Created by:

Phone:

Date:

20/10/2024

Description	Value
Service factor:	0.00
Rated current:	20.3-16.0 A
Cos phi - power factor:	0.93-0.90
Rated speed:	360-4000 rpm
IE Efficiency class:	IE5
Motor efficiency at full load:	93.1 %
Enclosure class (IEC 34-5):	IP55
Insulation class (IEC 85):	F
Built-in motor protection:	ELEC
Motor No:	98971053
<b>Controls:</b>	
Control panel:	Standard
Function Module:	FM300 - Advanced
Frequency converter:	Built-in
Pressure sensor:	N
<b>Others:</b>	
Terminal box position:	6
Minimum efficiency index, MEI $\geq$ :	0.70
Net weight:	119 kg
Gross weight:	150 kg
Shipping volume:	0.619 m <sup>3</sup>
Config. file no:	99059205
Danish VVS No.:	386005006
Finnish LVI No.:	4925666
Country of origin:	HU
Custom tariff no.:	84137075