Company name:
Created by:
Phone:

Date: 17/02/2019

Qty.	Description
1	**CRN 45-5-2 A-F-A-E-HQQE**

Product No.: 96123124

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 DIN flanges.

The pump is fitted with a 3-phase, fan-cooled asynchronous motor.

Further product details

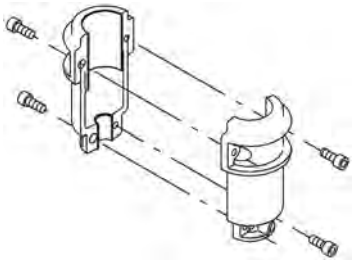
Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An 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.

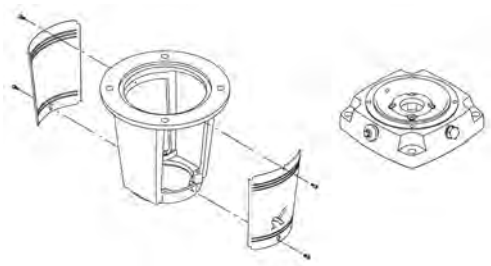
The colour code for the finished product is NCS 9000/RAL 9005.

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 motor stool connects the pump head and motor. 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.

Qty.	Description

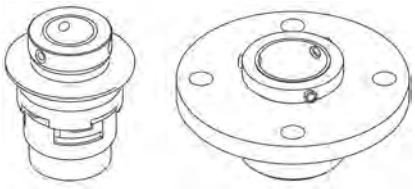
Primary seal:

- 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)

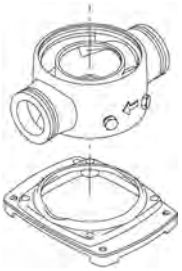
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



The shaft seal is retained in the pump head by a cover and screws. It can be replaced without removing the motor.

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. The base and base plate are kept in position by the tension of the staybolts which hold the pump together. Both the inlet and the outlet side of the base have two pressure gauge tappings. The pump is secured to the foundation by four bolts through the base plate. The flanges are fastened to the base by means of locking rings.



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

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Qty.	Description	
	Liquid temperature range:	-40 .. 120 °C
	Liquid temperature during operation:	20 °C
	Density:	998.2 kg/m³
	Technical:	
	Pump speed on which pump data are based:	2934 rpm
	Rated flow:	45 m³/h
	Rated head:	92.8 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:	Stainless steel
		EN 1.4408
		AISI 316
	Impeller:	Stainless steel
		EN 1.4401
		AISI 316
	Bearing:	SIC
	Support bearing:	Graflon
	Installation:	
	Maximum ambient temperature:	60 °C
	Maximum operating pressure:	16 bar
	Max pressure at stated temp:	16 bar / 120 °C
		16 bar / -40 °C
	Type of connection:	DIN
	Size of inlet connection:	DN 80
	Size of outlet connection:	DN 80
	Pressure rating for pipe connection:	PN 40
	Flange size for motor:	FF300
	Electrical data:	
	Motor standard:	IEC
	Motor type:	160LB
	IE Efficiency class:	IE3
	Rated power - P2:	18.5 kW
	Power (P2) required by pump:	18.5 kW
	Mains frequency:	50 Hz
	Rated voltage:	3 x 380-415D/660-690Y V
	Rated current:	34,5-32,5/20,0-18,8 A
	Starting current:	830-980 %
	Cos phi - power factor:	0.89-0.85
	Rated speed:	2940-2950 rpm
	Efficiency:	IE3 92,4%
	Motor efficiency at full load:	92.4-92.4 %
	Motor efficiency at 3/4 load:	93.2 %
	Motor efficiency at 1/2 load:	93.2 %
	Number of poles:	2
	Enclosure class (IEC 34-5):	55 Dust/Jetting
	Insulation class (IEC 85):	F
	Others:	
	Minimum efficiency index, MEI â‰¥:	0.70
	Net weight:	195 kg
	Gross weight:	228 kg

Company name:
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Phone:

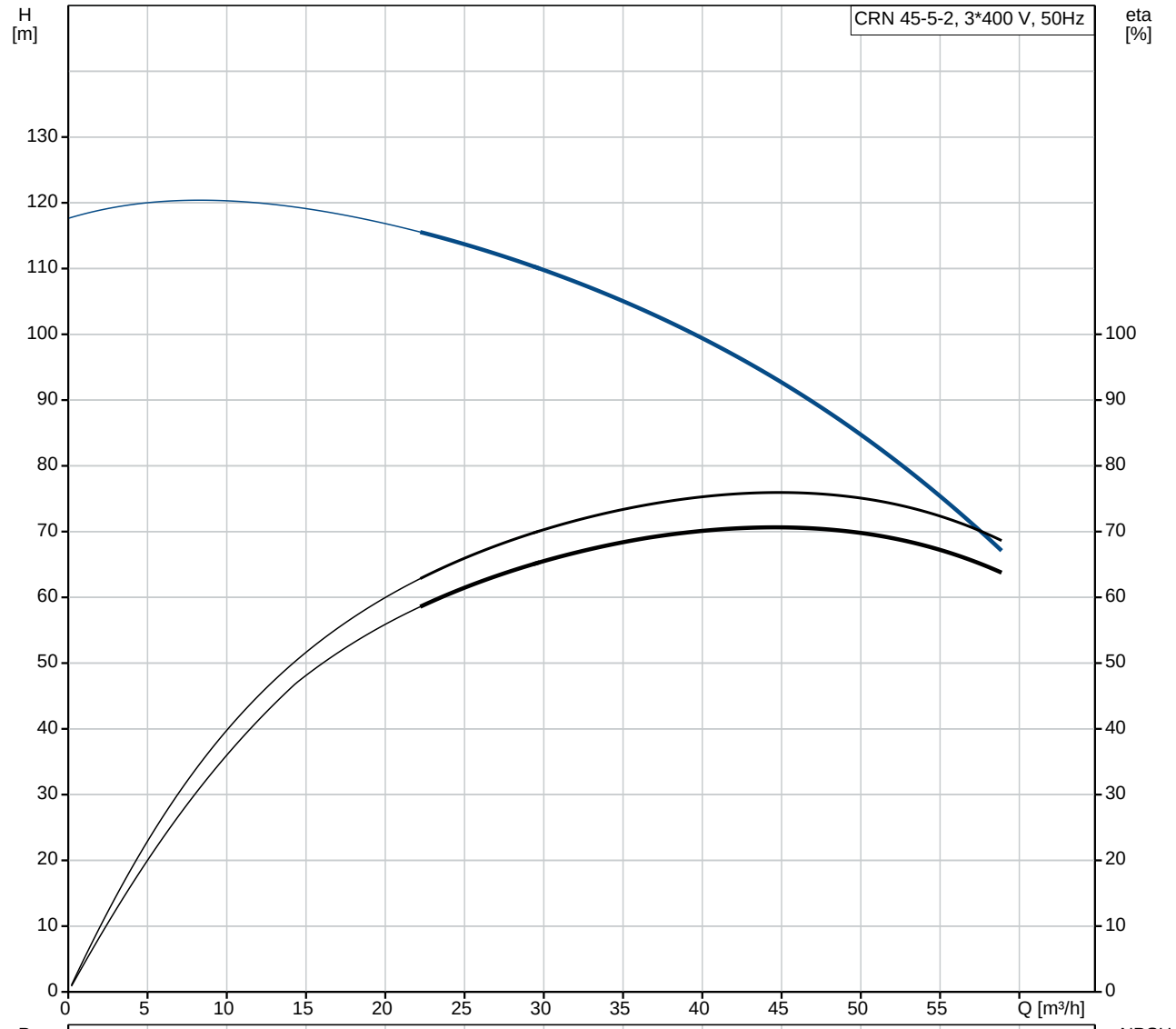
Date: 17/02/2019

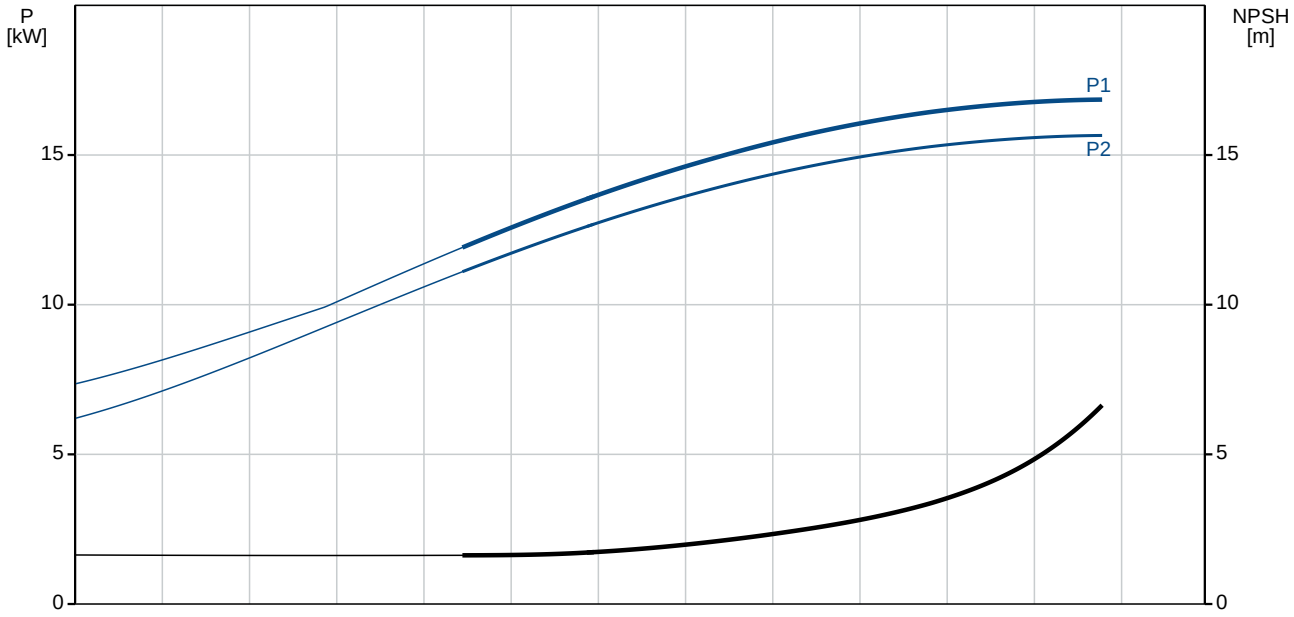
Qty.	Description	
	Shipping volume:	0.495 m³
	Danish VVS No.:	385917052

Company name:
Created by:
Phone:

Date: 17/02/2019

96123124 CRN 45-5-2 A-F-A-E-HQQE 50 Hz





Company name:
Created by:
Phone:

Date: 17/02/2019

Description	Value
General information:	
Product name:	CRN 45-5-2 A-F-A-E-HQQE
Product No:	96123124
EAN number:	5700396691695
Technical:	
Pump speed on which pump data are based:	2934 rpm
Rated flow:	45 m³/h
Rated head:	92.8 m
Head max:	117.8 m
Stages:	5
Impellers:	5
Number of reduced-diameter impellers:	2
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:	B
Materials:	
Base:	Stainless steel
	EN 1.4408
	AISI 316
Impeller:	Stainless steel
	EN 1.4401
	AISI 316
Material code:	A
Code for rubber:	E
Bearing:	SIC
Support bearing:	Graflon
Installation:	
Maximum ambient temperature:	60 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C
	16 bar / -40 °C
Type of connection:	DIN
Size of inlet connection:	DN 80
Size of outlet connection:	DN 80
Pressure rating for pipe connection:	PN 40
Flange size for motor:	FF300
Connect code:	F
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-40 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m³
Electrical data:	
Motor standard:	IEC
Motor type:	160LB
IE Efficiency class:	IE3
Rated power - P2:	18.5 kW
Power (P2) required by pump:	18.5 kW
Mains frequency:	50 Hz
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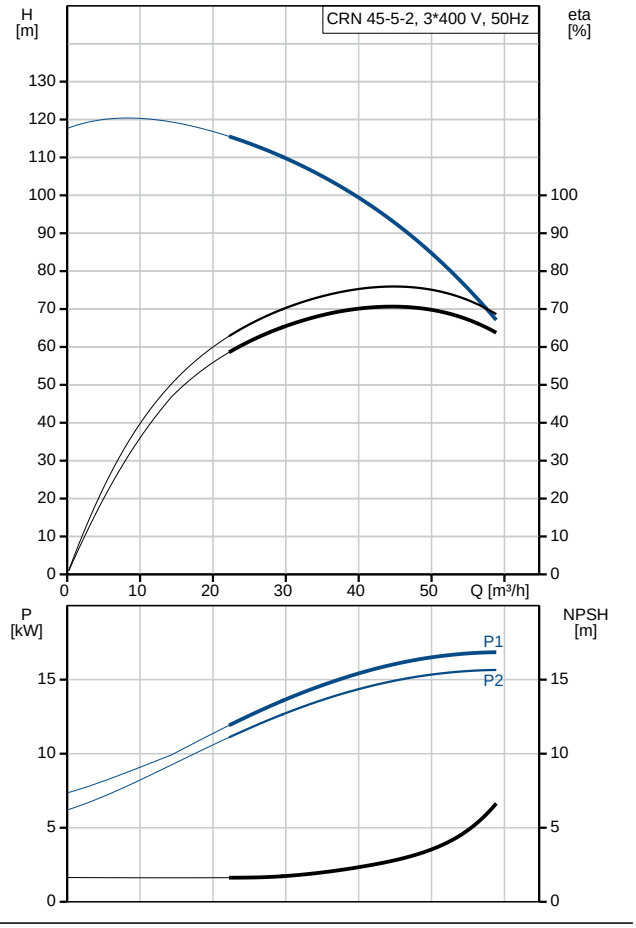

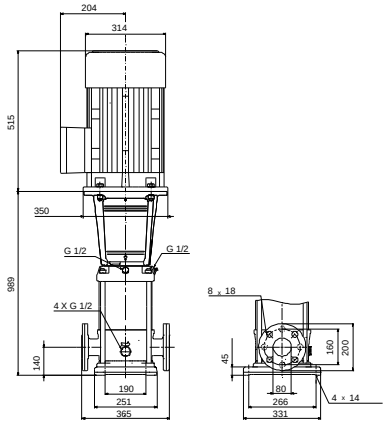

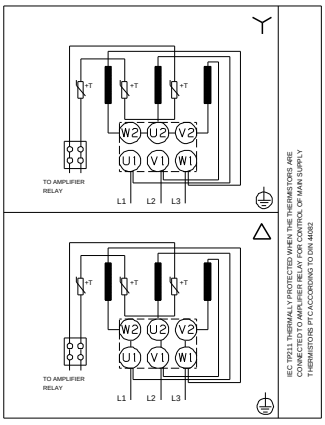

Company name:
Created by:
Phone:

Date: 17/02/2019

Description	Value
Starting current:	830-980 %
Cos phi - power factor:	0.89-0.85
Rated speed:	2940-2950 rpm
Efficiency:	IE3 92,4%
Motor efficiency at full load:	92.4-92.4 %
Motor efficiency at 3/4 load:	93.2 %
Motor efficiency at 1/2 load:	93.2 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U17528
Controls:	
Frequency converter:	NONE
Others:	
Minimum efficiency index, MEI â‰¥:	0.70
Net weight:	195 kg
Gross weight:	228 kg
Shipping volume:	0.495 m³
Danish VVS No.:	385917052

Company name:
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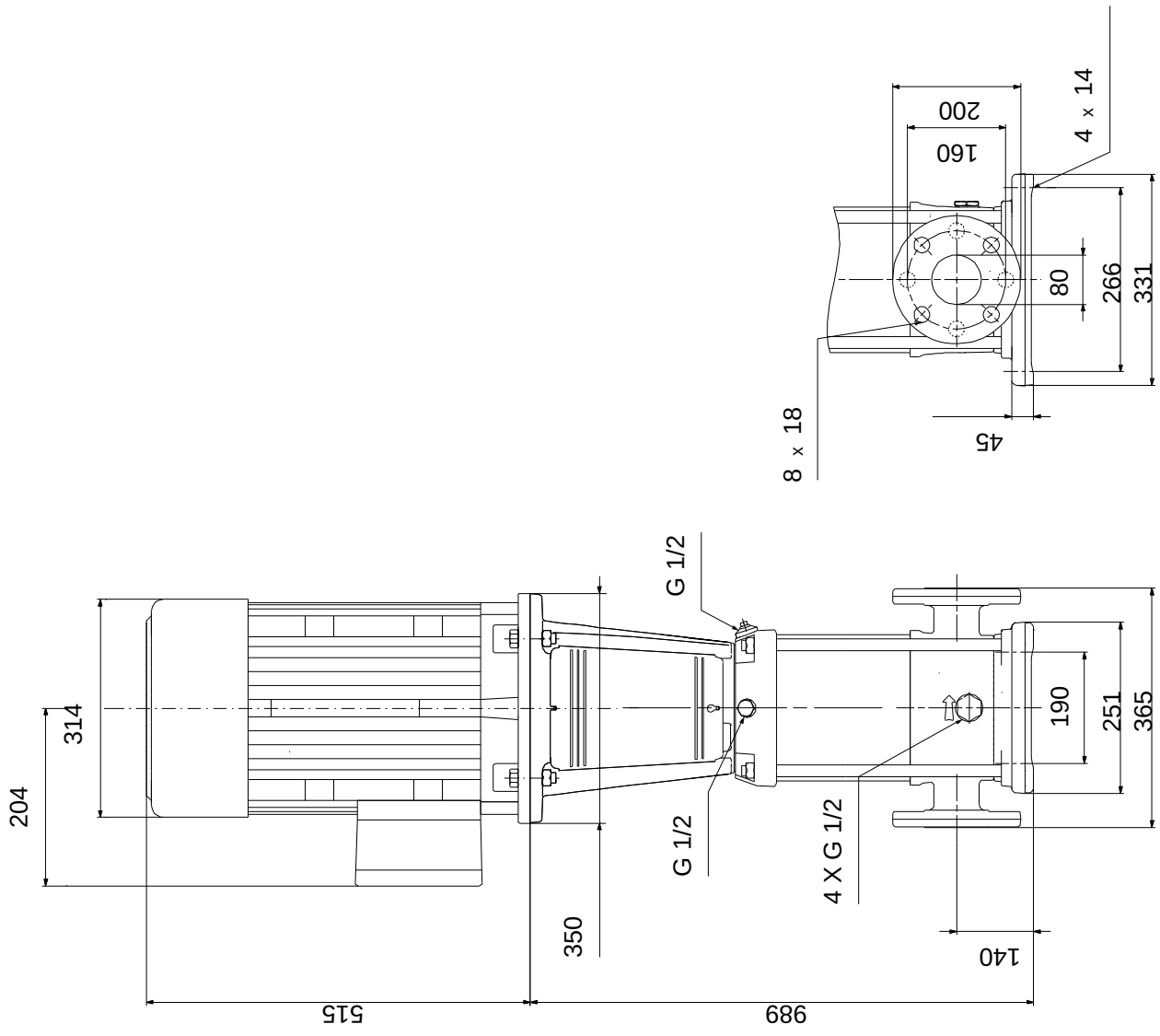
96123124 CRN 45-5-2 A-F-A-E-HQQE 50 Hz



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

Company name:
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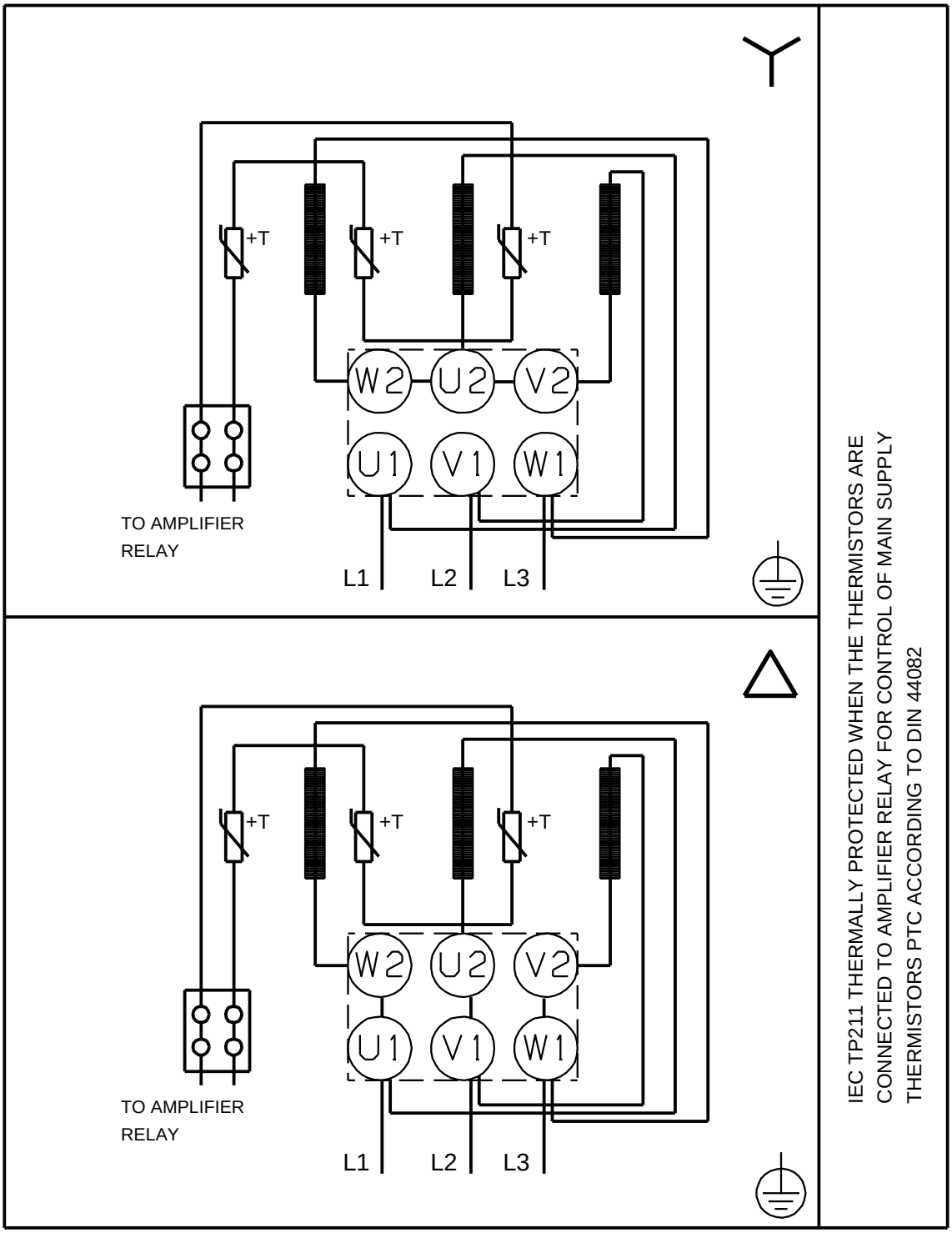
Date: 17/02/2019

96123124 CRN 45-5-2 A-F-A-E-HQQE 50 Hz



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