

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

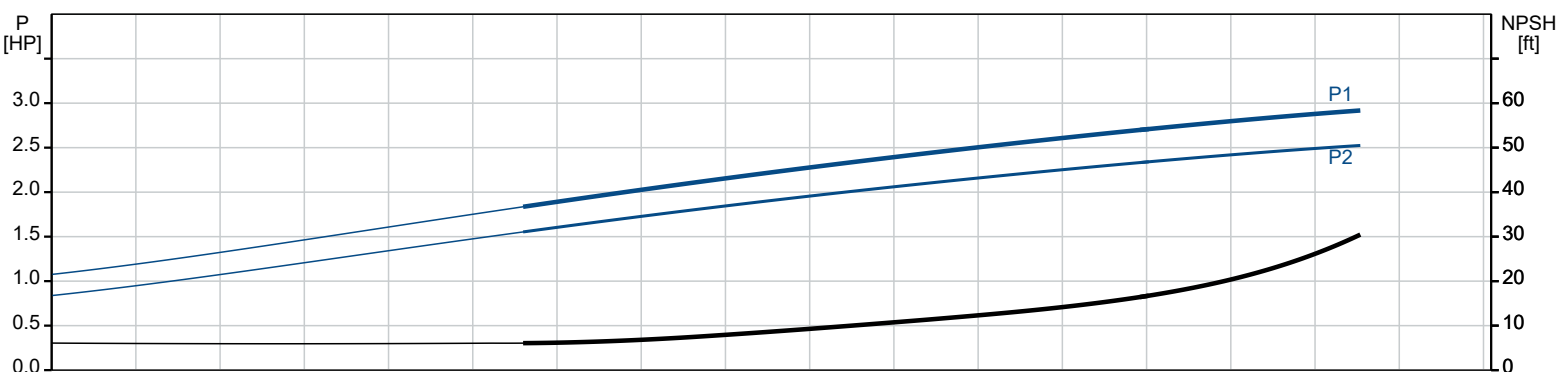
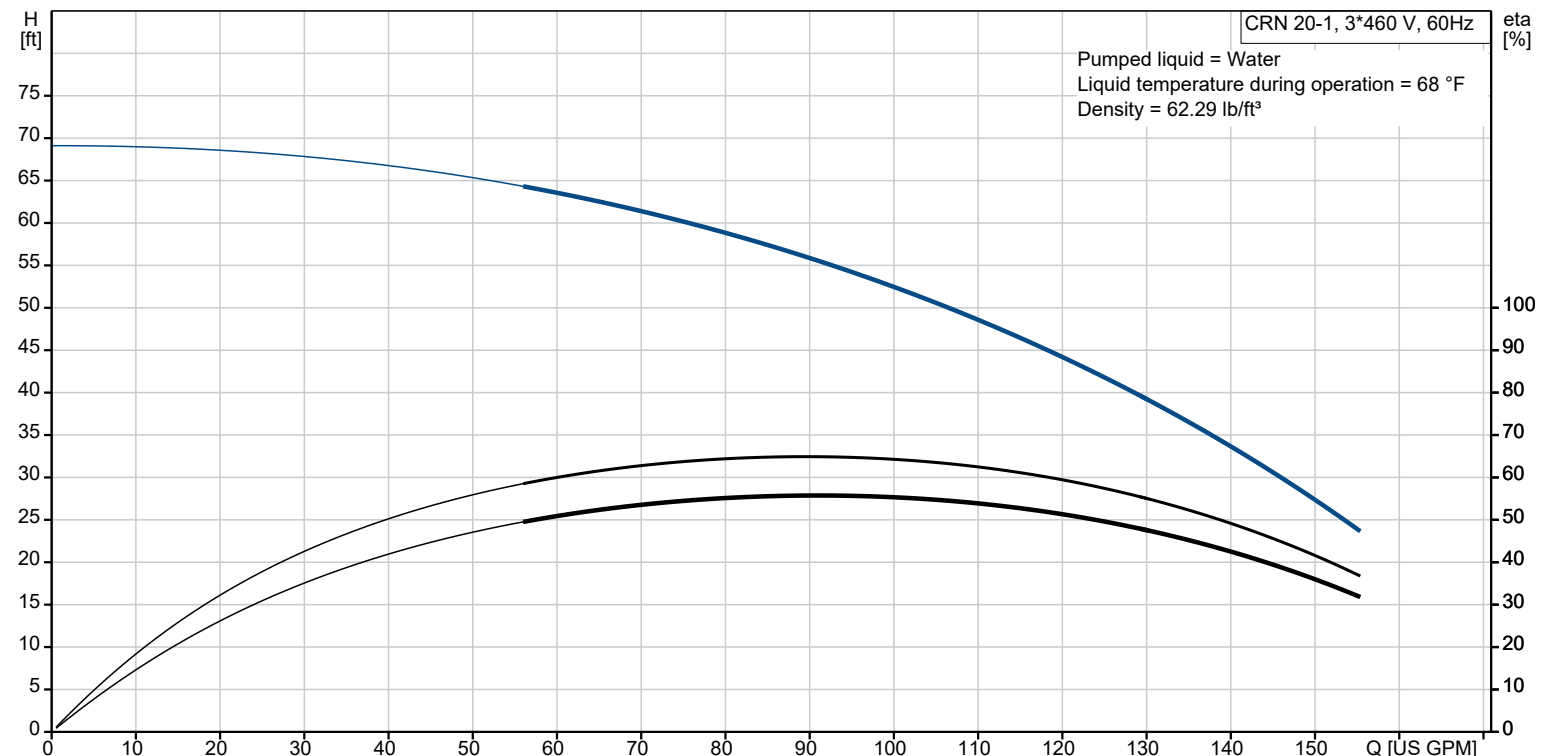


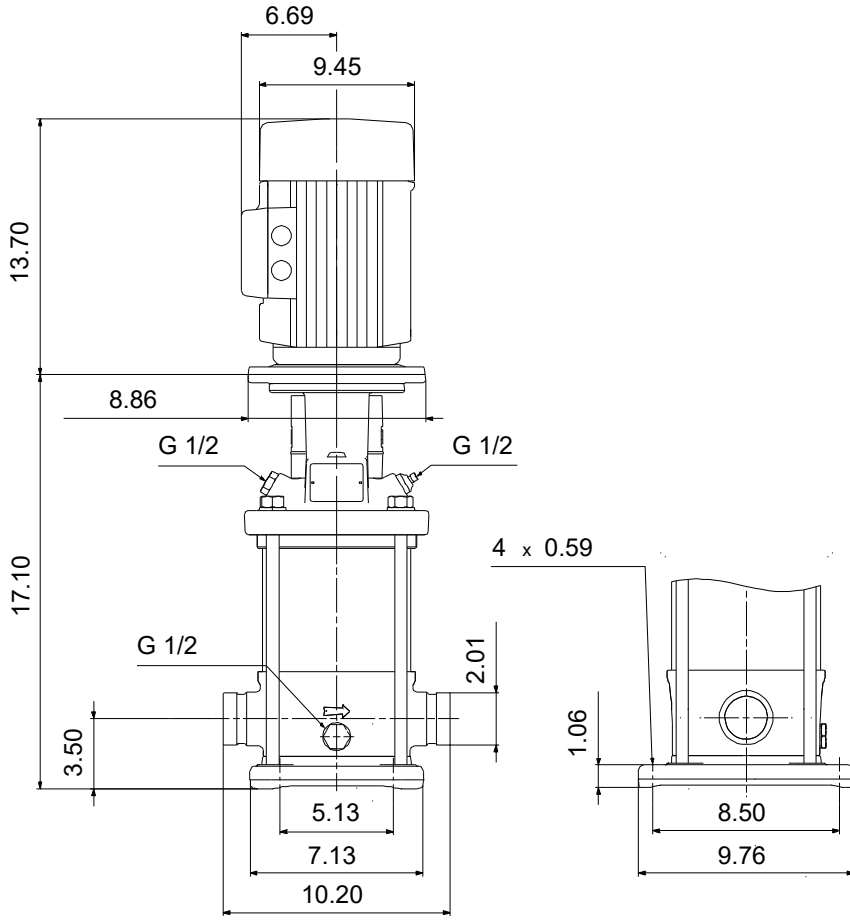
CRN 20-1 A-P-A-V-HQQV

Vertical, multistage centrifugal pump with suction and discharge ports on the same level. Pump materials in contact with the liquid are in high-grade stainless steel (EN 1.4401)

Note! Product picture may differ from actual product

Conditions of Service		Pump Data		Motor Data	
Liquid:	Water	Max pressure at stated temp:	363 psi / 194 °F	Rated power - P2:	3 HP
Temperature:	68 °F	Liquid temperature range:	-4 .. 194 °F	Rated voltage:	230/460 V
Specific Gravity:	1.000	Maximum ambient temperature:	104 °F	Mains frequency:	60 Hz
		Shaft seal:	HQQV	Enclosure class:	IP55
		Product number:	99917878	Insulation class:	F
				Motor protection:	NONE
				Motor type:	WEG
				Eta 1/1:	86.5 %





Materials:

Base:	Stainless steel
Base:	EN 1.4408
Base:	AISI 316
Impeller:	Stainless steel
Impeller:	AISI 316
Impeller:	EN 1.4401
Material code:	A
Code for rubber:	V

Qty.	Description
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1	CRN 20-1 A-P-A-V-HQQV
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Product No.: [99917878](#)

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 PJE (Victaulic®) couplings.

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.

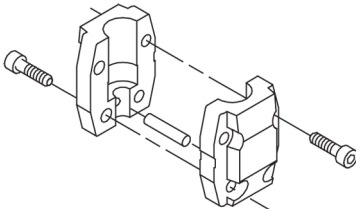
The entire process consists of these elements:

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

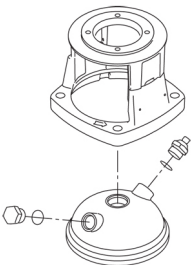
The colour code for the finished product is NCS 9000/RAL 9005.

Pump

A standard split coupling connects the pump and motor shaft. It is enclosed in the pump head/motor stool by means of two coupling guards.



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.



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)

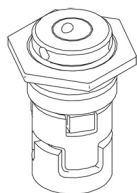
This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.

Secondary seal material: FKM (fluorocarbon rubber)

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

Qty.	Description
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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.

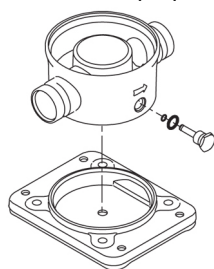
The pump has a stainless-steel base mounted on a separate base plate.

The base and base plate are kept in position by the tension of the staybolts which hold the pump together.

The outlet side of the base has a drain plug.

The pump is secured to the foundation by four bolts through the base plate.

The base is prepared for connection by means of PJE (Victualic®) couplings.



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 premium efficiency in accordance with EISA2007.

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).

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

Liquid:

Pumped liquid:	Water
Liquid temperature range:	-4 .. 194 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft ³

Technical:

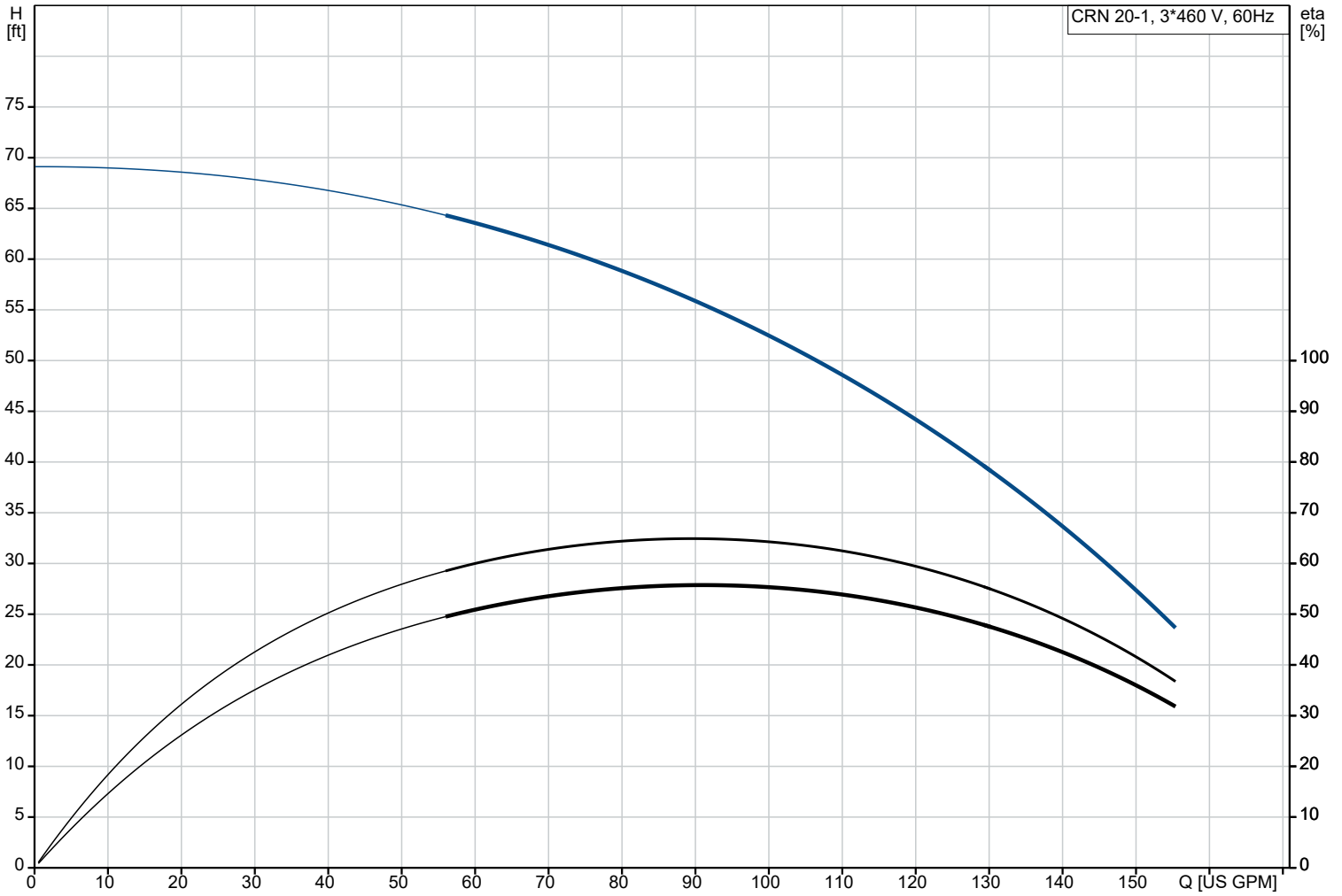
Pump speed on which pump data are based:	3461 rpm
Rated flow:	111 US GPM
Rated head:	49.54 ft
Actual impeller diameter:	4.13 in
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQV
Approvals:	CURUS
Curve tolerance:	ISO9906:2012 3B

Materials:

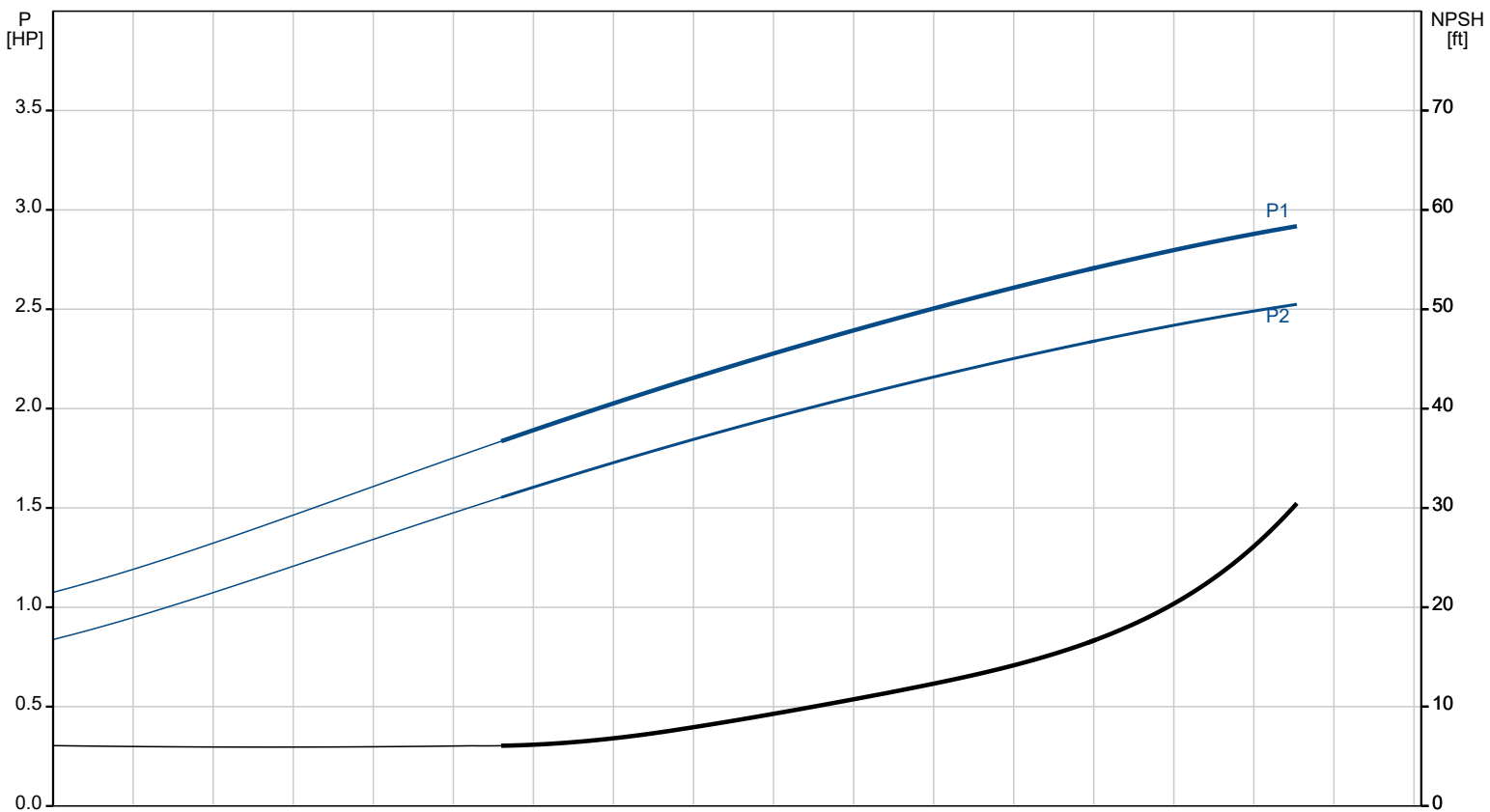
Base:	Stainless steel EN 1.4408 AISI 316
Impeller:	Stainless steel EN 1.4401 AISI 316
Bearing:	SIC

Qty.	Description
1	<p>Installation:</p> <p>t max amb: 104 °F</p> <p>Maximum operating pressure: 362.59 psi</p> <p>Max pressure at stated temp: 363 psi / 194 °F 363 psi / -4 °F</p> <p>Type of connection: PJE</p> <p>Size of inlet connection: DN 50</p> <p>Size of outlet connection: DN 50</p> <p>Pressure rating for connection: PN 50</p> <p>Flange size for motor: 182TC</p> <p>Electrical data:</p> <p>Motor standard: NEMA</p> <p>Motor type: WEG</p> <p>IE Efficiency class: IE3 / NEMA Premium</p> <p>Rated power - P2: 3 HP</p> <p>Power (P2) required by pump: 3 HP</p> <p>Mains frequency: 60 Hz</p> <p>Rated voltage: 3 x 230/460 V</p> <p>Service factor: 1.15</p> <p>Rated current: 7.34/3.67 A</p> <p>Starting current: 880 %</p> <p>Cos phi - power factor: 0.87</p> <p>Rated speed: 3515 rpm</p> <p>Efficiency: IE3 86,5%</p> <p>Motor efficiency at full load: 86.5 %</p> <p>Motor efficiency at 3/4 load: 86.5 %</p> <p>Motor efficiency at 1/2 load: 84 %</p> <p>Number of poles: 2</p> <p>Enclosure class (IEC 34-5): IP55</p> <p>Insulation class (IEC 85): F</p> <p>Motor No: 99883243</p> <p>Controls:</p> <p>Frequency converter: NONE</p> <p>Others:</p> <p>DOE Pump Energy Index CL: 0.91</p> <p>Net weight: 146 lb</p> <p>Gross weight: 161 lb</p> <p>Shipping volume: 8.26 ft³</p>

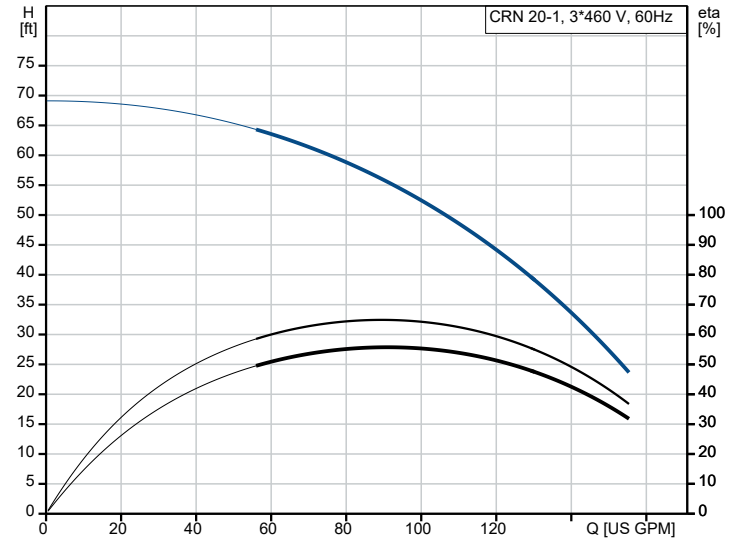
99917878 CRN 20-1 A-P-A-V-HQQV 60 Hz



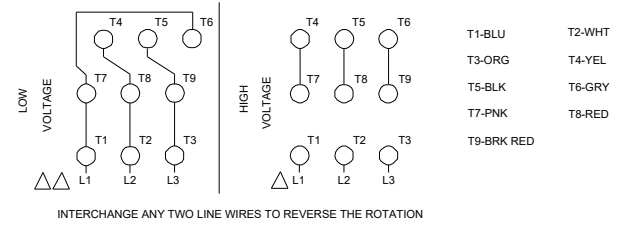
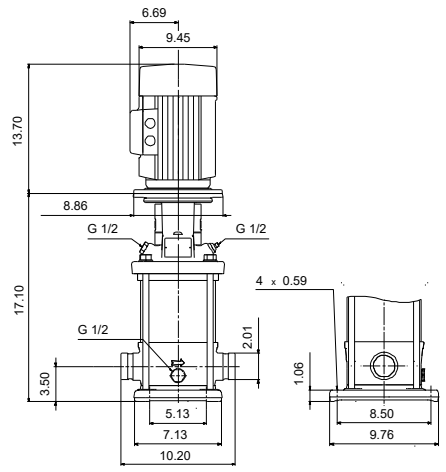
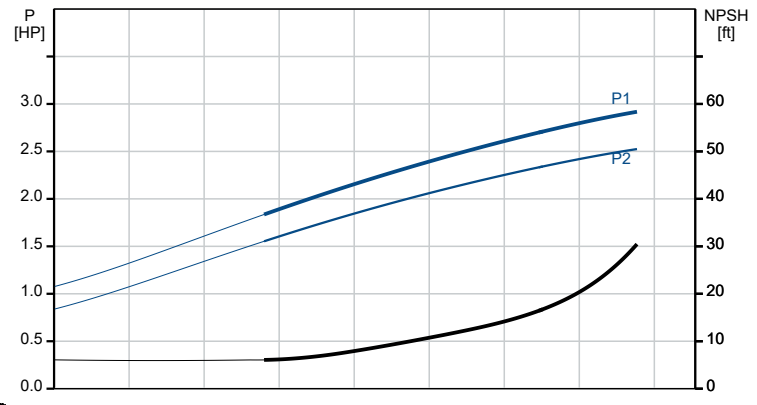
Pumped liquid = Water
Liquid temperature during operation = 68 °F
Density = 62.29 lb/ft³



Description	Value
General information:	
Product name:	CRN 20-1 A-P-A-V-HQQV
Product No:	99917878
EAN number:	5715114127066
Technical:	
Pump speed on which pump data are based:	3461 rpm
Rated flow:	111 US GPM
Rated head:	49.54 ft
Maximum head:	66.93 ft
Actual impeller diameter:	4.13 in
Stages:	2
Impellers:	1
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQV
Approvals:	CURUS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
Cooling:	IC 411
Materials:	
Base:	Stainless steel
Base:	EN 1.4408
Base:	AISI 316
Impeller:	Stainless steel
Impeller:	EN 1.4401
Impeller:	AISI 316
Material code:	A
Code for rubber:	V
Bearing:	SIC
Installation:	
t max amb:	104 °F
Maximum operating pressure:	362.59 psi
Max pressure at stated temp:	363 psi / 194 °F
Max pressure at stated temp:	363 psi / -4 °F
Type of connection:	PJE
Size of inlet connection:	DN 50
Size of outlet connection:	DN 50
Pressure rating for connection:	PN 50
Flange size for motor:	182TC
Connect code:	P
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-4 .. 194 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Electrical data:	
Motor standard:	NEMA
Motor type:	WEG
IE Efficiency class:	IE3 / NEMA Premium
Rated power - P2:	3 HP
Power (P2) required by pump:	3 HP
Mains frequency:	60 Hz
Rated voltage:	3 x 230/460 V
Service factor:	1.15
Rated current:	7.34/3.67 A
Starting current:	880 %
Full load SF current:	8.44/4.22 A
Cos phi - power factor:	0.87
Rated speed:	3515 rpm
Efficiency:	IE3 86,5%
Motor efficiency at full load:	86.5 %
Motor efficiency at 3/4 load:	86.5 %



Pumped liquid = Water
 Liquid temperature during operation = 68 °F
 Density = 62.29 lb/ft³





Company name:

Created by:

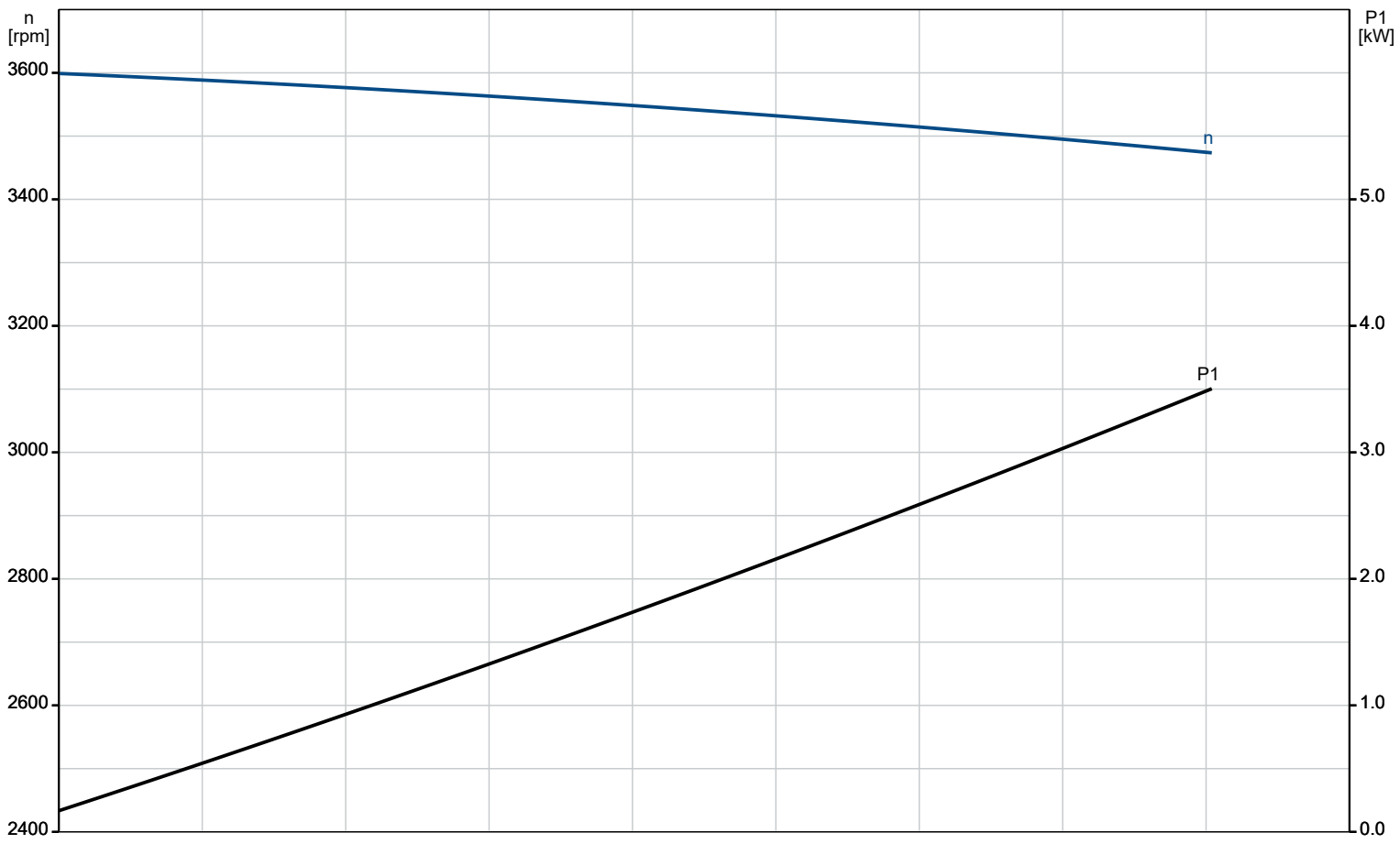
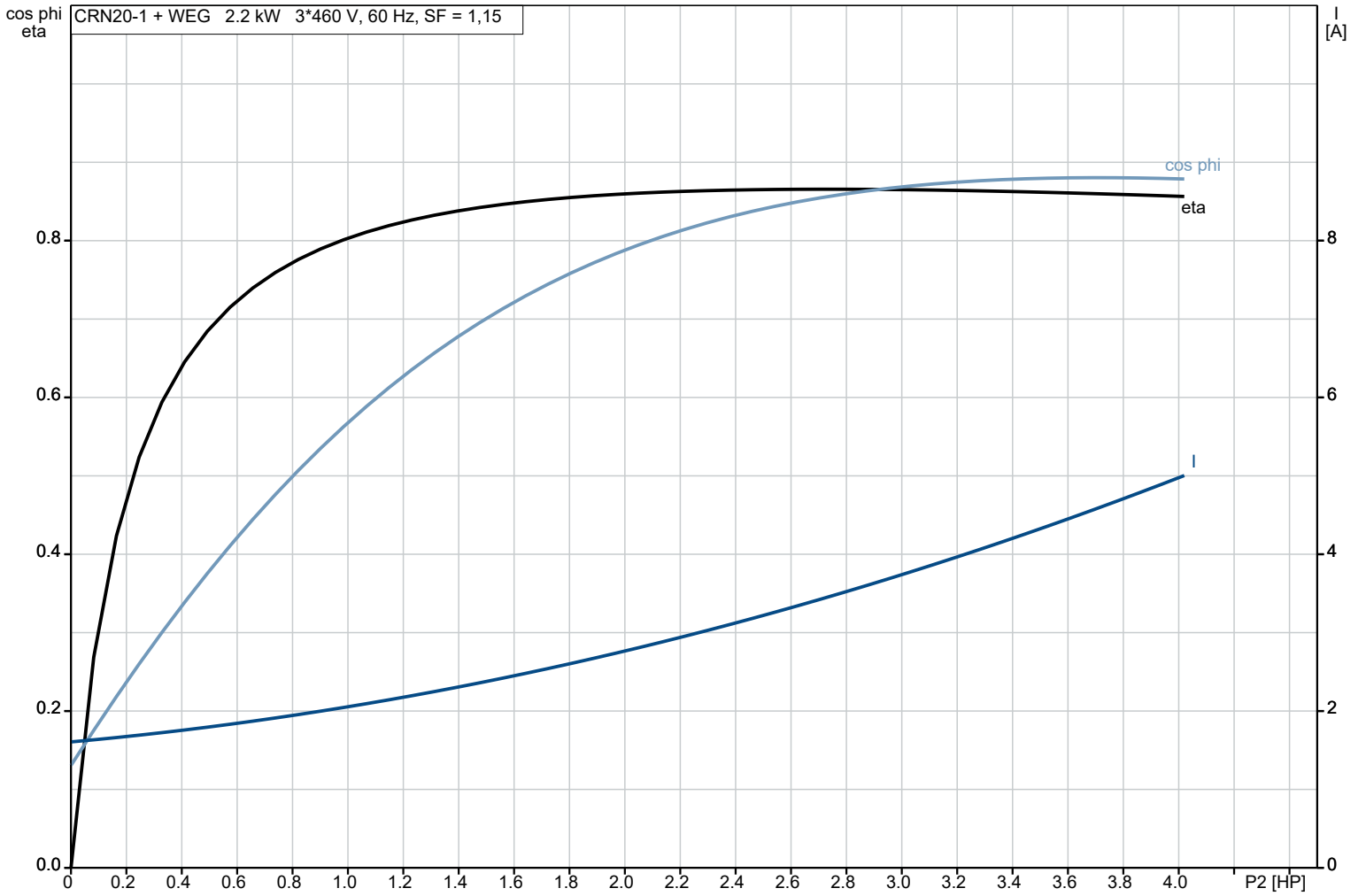
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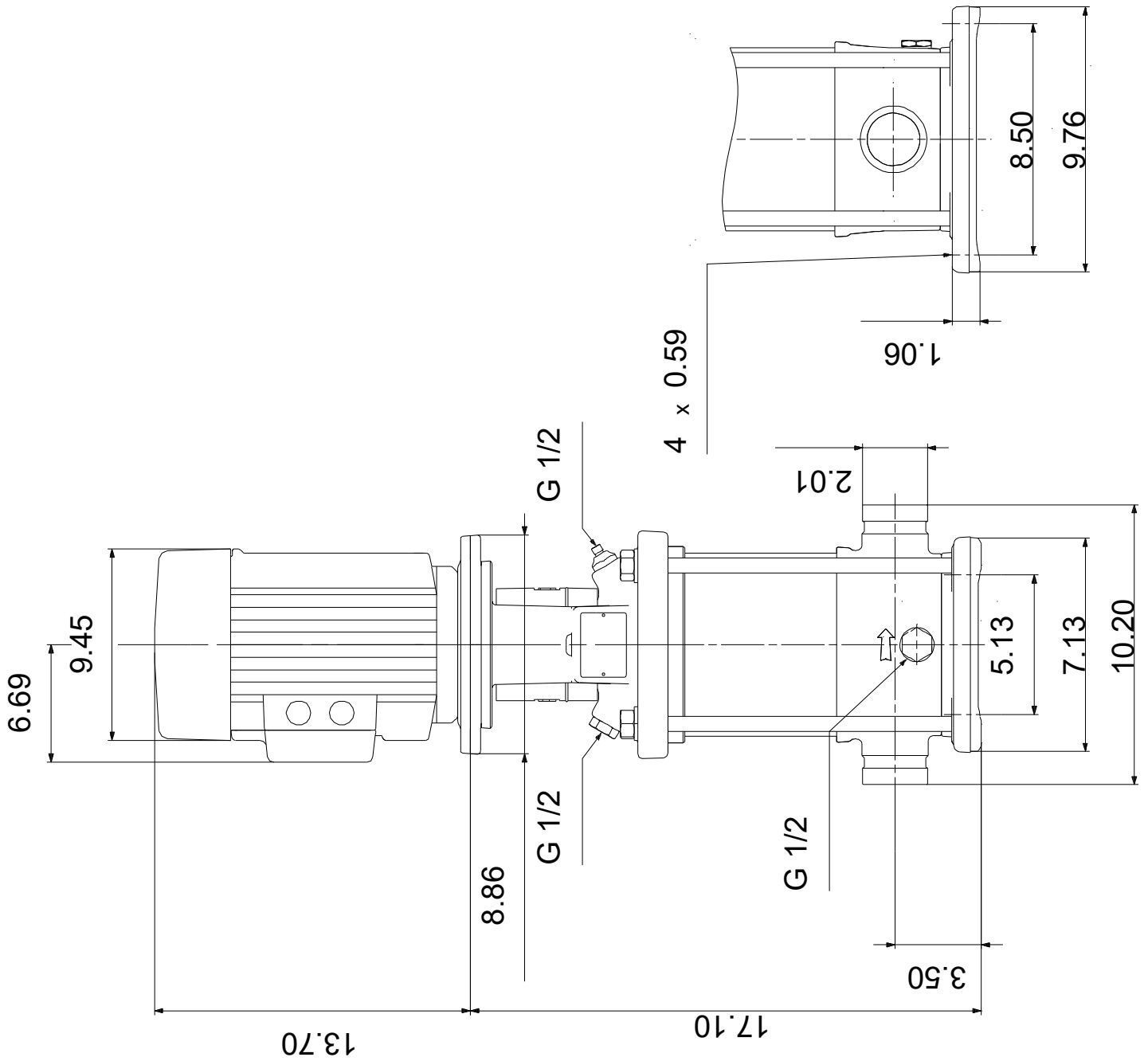
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Description	Value
Motor efficiency at 1/2 load:	84 %
Number of poles:	2
Enclosure class (IEC 34-5):	IP55
Insulation class (IEC 85):	F
Built-in motor protection:	NONE
Motor No:	99883243
Controls:	
Frequency converter:	NONE
Others:	
DOE Pump Energy Index CL:	0.91
Net weight:	146 lb
Gross weight:	161 lb
Shipping volume:	8.26 ft ³

99917878 CRN 20-1 A-P-A-V-HQQV 60 Hz



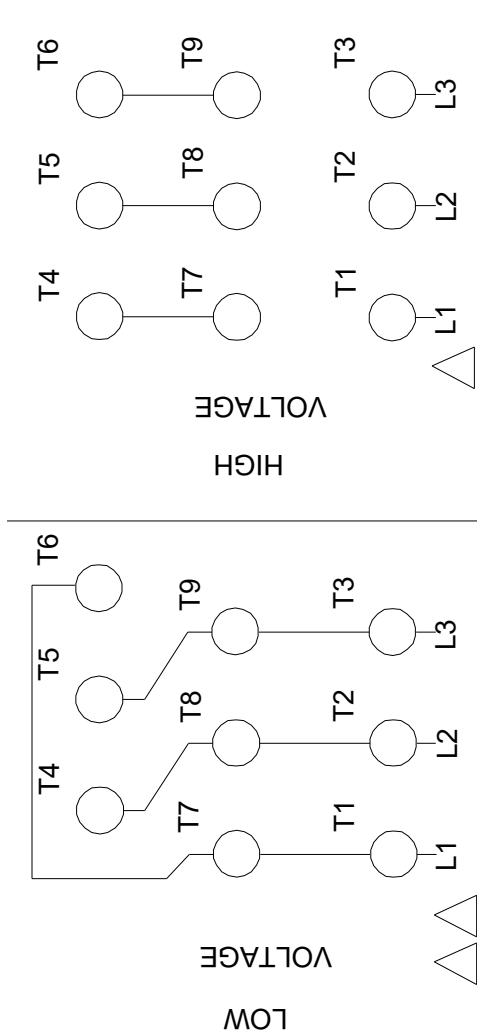
99917878 CRN 20-1 A-P-A-V-HQQV 60 Hz



99917878 CRN 20-1 A-P-A-V-HQQV 60 Hz

T2-WHT
T4-YEL
T6-GRY
T8-RED

T1-BLU
T3-ORG
T5-BLK
T7-PNK
T9-BRK RED



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