

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

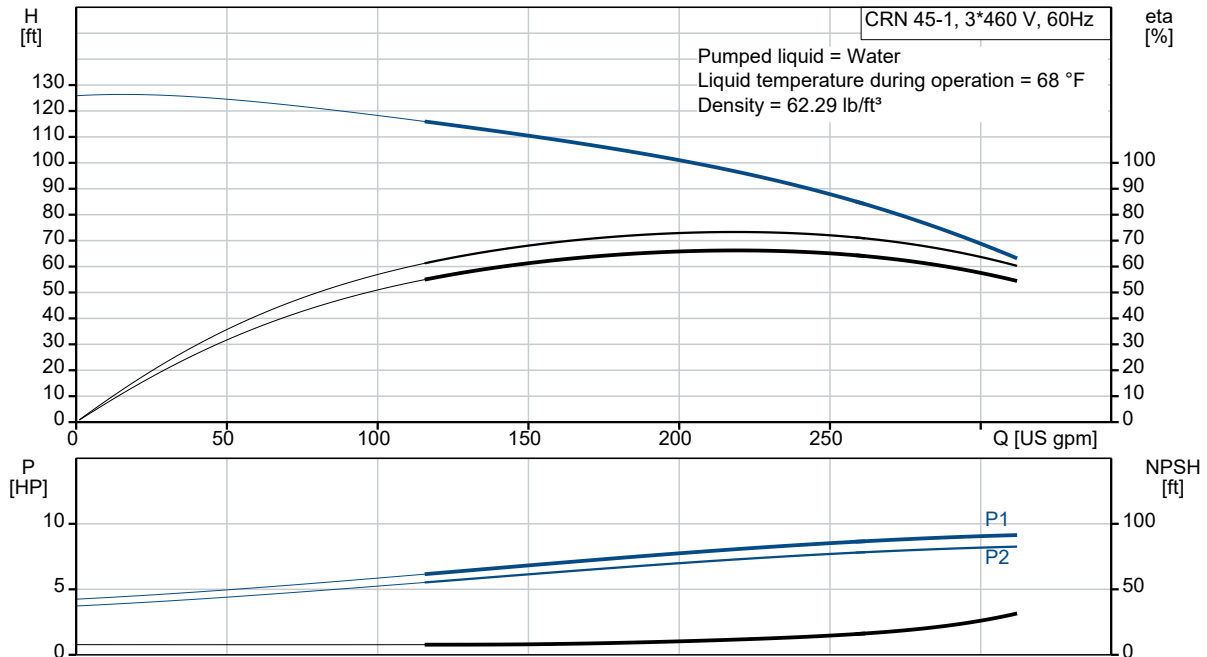


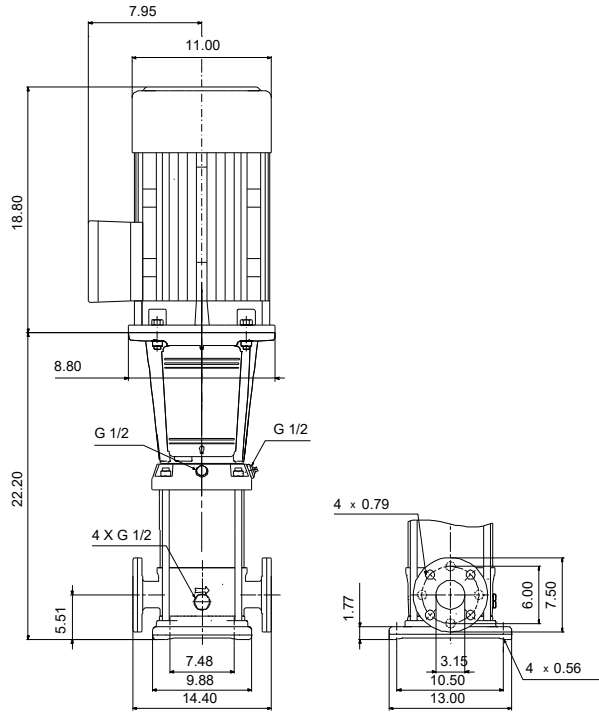
### CRN 45-1 A-G-A-V-HQQV

Vertical, multistage centrifugal pump with suction and discharge ports on same the level. Pump materials in contact with the liquid are in high-grade stainless steel (EN 1.4401) (AISI 316)

Product photo could vary from the actual product


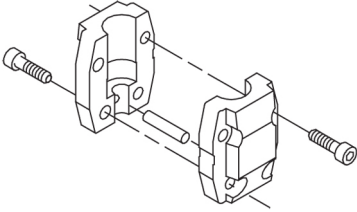
| Conditions of Service   | Pump Data  | Motor Data                   |
|-------------------------|--|------------------------------|
| Efficiency: _____       | Max pressure at stated temperature: 232 psi / 194 °F | Rated power - P2: 10 HP      |
| Liquid: Water           | Liquid temperature range: -4 .. 194 °F               | Rated voltage: 208-230/460 V |
| Temperature: 68 °F      | Maximum ambient temperature: 104 °F                  | Main frequency: 60 Hz        |
| NPSH required: ft       | Shaft seal: HQQV                                     | Enclosure class: IP55        |
| Specific Gravity: 1.000 | Product number: 99918223                             | Insulation class: F          |
|                         |  | Motor protection: NONE       |
|                         |  | Motor type: WEG              |
|                         |  | Eff. 1/1: 90.2 %             |

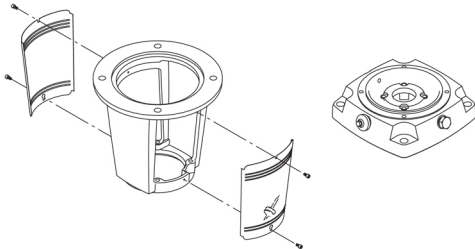




**Materials:**

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

| Count | Description  |
|-------|--|
| 1     | <p data-bbox="298 411 586 443"><b>CRN 45-1 A-G-A-V-HQQV</b></p>  <p data-bbox="298 730 558 762">Product No.: <a href="#">99918223</a></p> <p data-bbox="298 791 1409 890">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 ANSI flanges.</p> <p data-bbox="298 932 1008 963">The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p data-bbox="298 993 607 1024"><b>Further product details</b></p> <p data-bbox="298 1031 1284 1079">Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process.</p> <p data-bbox="298 1085 1312 1134">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.</p> <p data-bbox="298 1140 813 1171">An integral part of the process is a pretreatment.</p> <p data-bbox="298 1178 794 1209">The entire process consists of these elements:</p> <ol data-bbox="321 1215 794 1318" 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 data-bbox="298 1325 980 1356">The colour code for the finished product is NCS 9000/RAL 9005.</p> <p data-bbox="298 1386 380 1417"><b>Pump</b></p> <p data-bbox="298 1423 1409 1472">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.</p>  <p data-bbox="298 1717 1390 1766">The motor stool connects the pump head and motor. The pump head has a combined 1/2" priming plug and vent screw.</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.

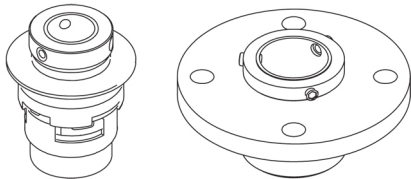
Primary seal:

- 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: 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 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.

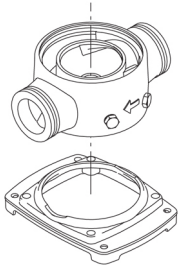
The pump has a stainless-steel base mounted on a separate base plate.

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 tapings.

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 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 <sup>3</sup> |

### Technical:

|                           |                 |
|---------------------------|-----------------|
| Rated pump speed:         | 3467 rpm        |
| Rated flow:               | 238 US gpm      |
| Rated head:               | 92.2 ft         |
| Actual impeller diameter: | 5.34 in         |
| Pump orientation:         | Vertical        |
| Shaft seal arrangement:   | Single          |
| Code for shaft seal:      | HQQV            |
| Approvals:                | CURUS           |
| Curve tolerance:          | ISO9906:2012 3B |

### Materials:

|           |  |
|-----------|--|
| Base:     | Stainless steel<br>EN 1.4408<br>AISI 316 |
| Impeller: | Stainless steel<br>EN 1.4401<br>AISI 316 |



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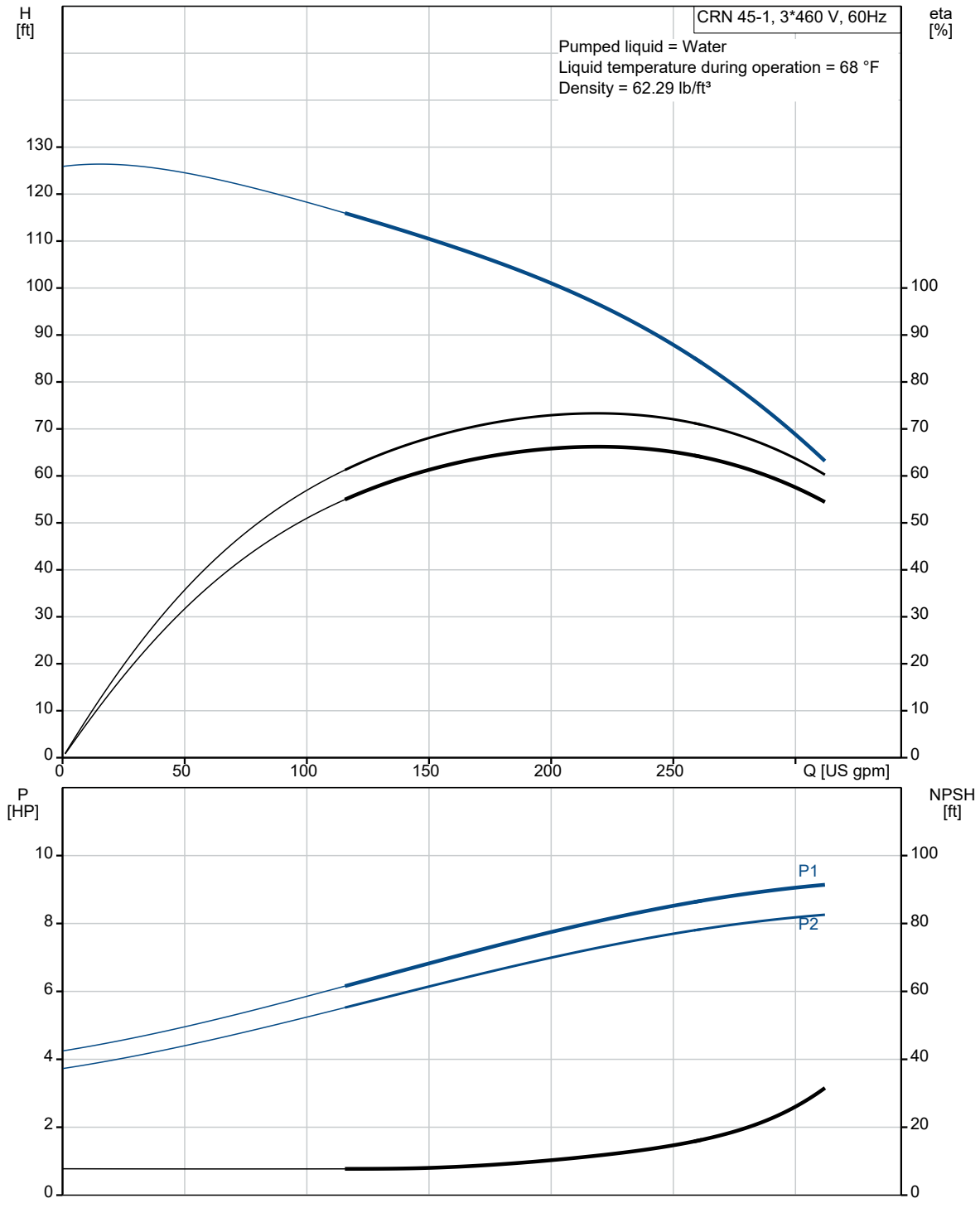
| Count | Description  |
|-------|--|
|       | Bearing: SIC   |
|       | Support bearing: Graflon                             |
|       | Installation:  |
|       | t max amb: 104 °F                                    |
|       | Maximum operating pressure: 232.06 psi               |
|       | Max pressure at stated temperature: 232 psi / 194 °F |
|       | 232 psi / -4 °F                                      |
|       | Type of connection: ANSI                             |
|       | Size of suction port: 3 inch                         |
|       | Size of outlet port: 3 inch                          |
|       | Pressure rating for connection: PN 16                |
|       | Flange rating inlet: 150 lb                          |
|       | Flange size for motor: 213TC                         |
|       | Electrical data:                                     |
|       | Motor standard: NEMA                                 |
|       | Motor type: WEG                                      |
|       | IE Efficiency class: IE3 / NEMA Premium              |
|       | Rated power - P2: 10 HP                              |
|       | Power (P2) required by pump: 10 HP                   |
|       | Main frequency: 60 Hz                                |
|       | Rated voltage: 3 x 208-230/460 V                     |
|       | Service factor: 1.15                                 |
|       | Rated current: 25,4-23,0/11,5 A                      |
|       | Starting current: 750-750 %                          |
|       | Cos phi - power factor: 0.91                         |
|       | Rated speed: 3530 rpm                                |
|       | IE efficiency: IE3 90,2%                             |
|       | Motor efficiency at full load: 90.2 %                |
|       | Motor efficiency at 3/4 load: 90.2 %                 |
|       | Motor efficiency at 1/2 load: 89.5 %                 |
|       | Number of poles: 2                                   |
|       | Enclosure class (IEC 34-5): IP55                     |
|       | Insulation class (IEC 85): F                         |
|       | Motor Number: 99883246                               |
|       | Controls:  |
|       | Frequency converter: NONE                            |
|       | Others:  |
|       | DOE Pump Energy Index CL: 0.89                       |
|       | Net weight: 298 lb                                   |
|       | Gross weight: 316 lb                                 |
|       | Shipping volume: 10.9 ft³                            |
|       | Country of origin: US                                |
|       | Custom tariff no.: 8413.70.2040                      |



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### 99918223 CRN 45-1 A-G-A-V-HQQV 60 Hz

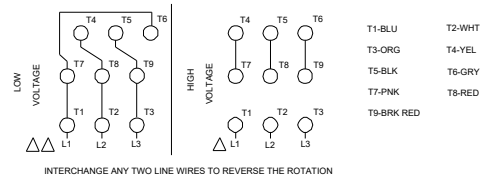
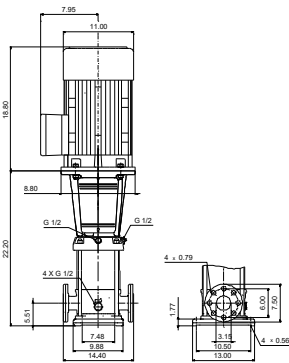
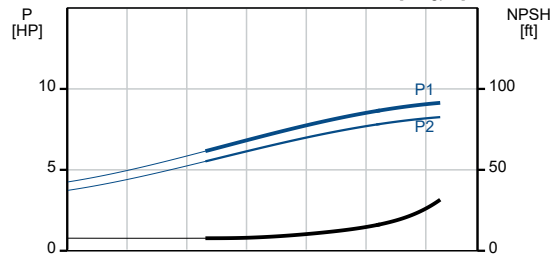
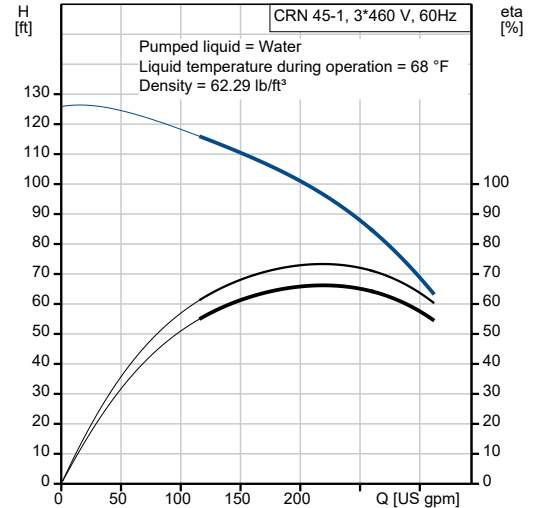




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Date: 1/18/2022

| Description                           | Value                    |
|---------------------------------------|--------------------------|
| <b>General information:</b>           |                          |
| Product name:                         | CRN 45-1<br>A-G-A-V-HQQV |
| Product No.:                          | 99918223                 |
| EAN:                                  | 5715114130851            |
| <b>Technical:</b>                     |                          |
| Rated pump speed:                     | 3467 rpm                 |
| Rated flow:                           | 238 US gpm               |
| Rated head:                           | 92.2 ft                  |
| Maximum head:                         | 126.6 ft                 |
| Actual impeller diameter:             | 5.34 in                  |
| Stages:                               | 1                        |
| 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:                                | B                        |
| Cooling:                              | IC 411                   |
| <b>Materials:</b>                     |                          |
| 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                      |
| Support bearing:                      | Graflon                  |
| <b>Installation:</b>                  |                          |
| t max amb:                            | 104 °F                   |
| Maximum operating pressure:           | 232.06 psi               |
| Max pressure at stated temperature:   | 232 psi / 194 °F         |
| Max pressure at stated temperature:   | 232 psi / -4 °F          |
| Type of connection:                   | ANSI                     |
| Size of suction port:                 | 3 inch                   |
| Size of outlet port:                  | 3 inch                   |
| Pressure rating for connection:       | PN 16                    |
| Flange rating inlet:                  | 150 lb                   |
| Flange size for motor:                | 213TC                    |
| Connect code:                         | G                        |







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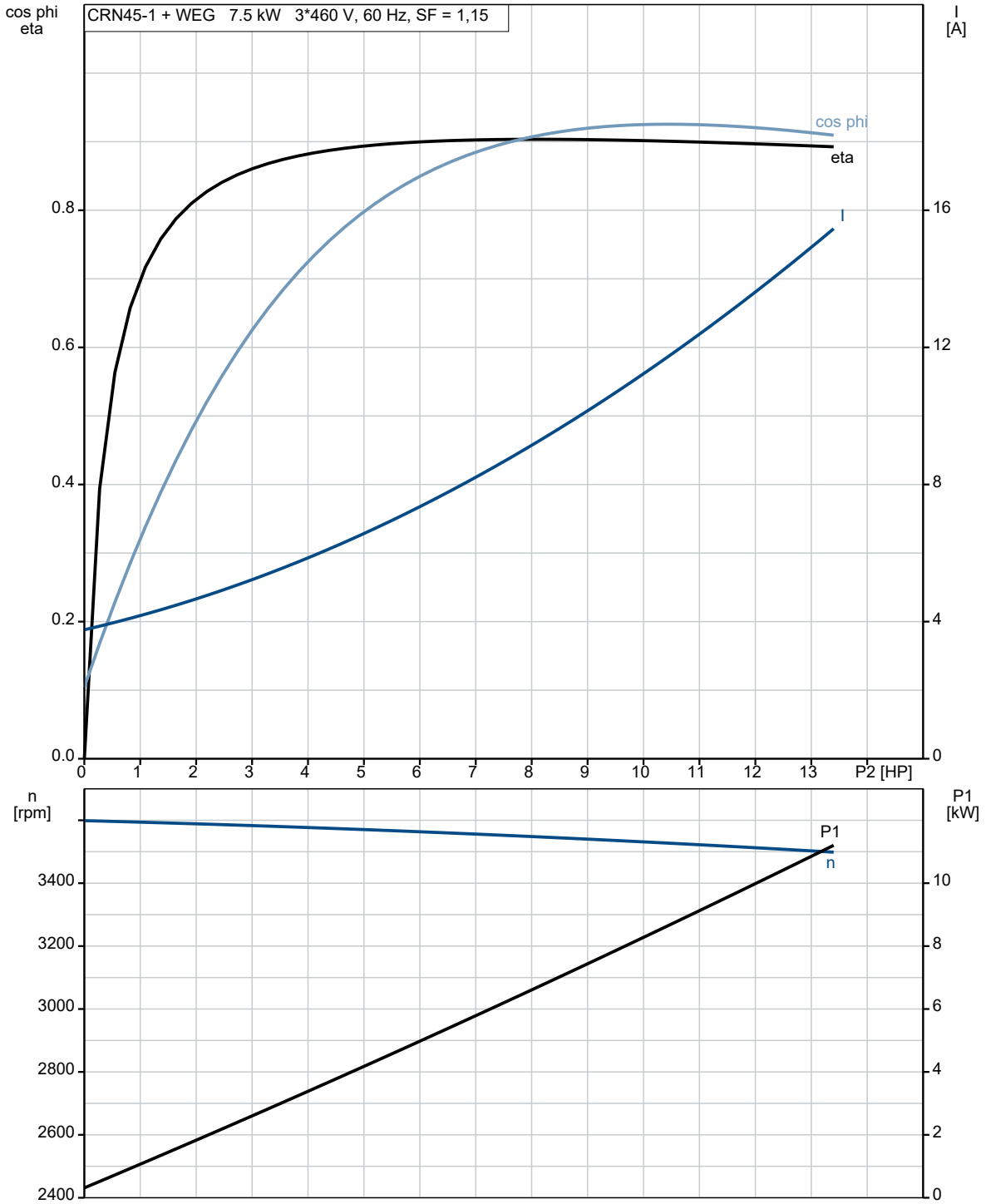
| Description                    | Value                    |
|--------------------------------|--------------------------|
| <b>Liquid:</b>                 |                          |
| Pumped liquid:                 | Water                    |
| Liquid temperature range:      | -4 .. 194 °F             |
| Selected liquid temperature:   | 68 °F                    |
| Density:                       | 62.29 lb/ft <sup>3</sup> |
| <b>Electrical data:</b>        |                          |
| Motor standard:                | NEMA                     |
| Motor type:                    | WEG                      |
| IE Efficiency class:           | IE3 / NEMA Premium       |
| Rated power - P2:              | 10 HP                    |
| Power (P2) required by pump:   | 10 HP                    |
| Main frequency:                | 60 Hz                    |
| Rated voltage:                 | 3 x 208-230/460 V        |
| Service factor:                | 1.15                     |
| Rated current:                 | 25,4-23,0/11,5 A         |
| Starting current:              | 750-750 %                |
| Full load SF current:          | 26.5/13.2 A              |
| Cos phi - power factor:        | 0.91                     |
| Rated speed:                   | 3530 rpm                 |
| IE efficiency:                 | IE3 90,2%                |
| Motor efficiency at full load: | 90.2 %                   |
| Motor efficiency at 3/4 load:  | 90.2 %                   |
| Motor efficiency at 1/2 load:  | 89.5 %                   |
| Number of poles:               | 2                        |
| Enclosure class (IEC 34-5):    | IP55                     |
| Insulation class (IEC 85):     | F                        |
| Built-in motor protection:     | NONE                     |
| Motor Number:                  | 99883246                 |
| <b>Controls:</b>               |                          |
| Frequency converter:           | NONE                     |
| <b>Others:</b>                 |                          |
| DOE Pump Energy Index CL:      | 0.89                     |
| Net weight:                    | 298 lb                   |
| Gross weight:                  | 316 lb                   |
| Shipping volume:               | 10.9 ft <sup>3</sup>     |
| Country of origin:             | US                       |
| Custom tariff no.:             | 8413.70.2040             |



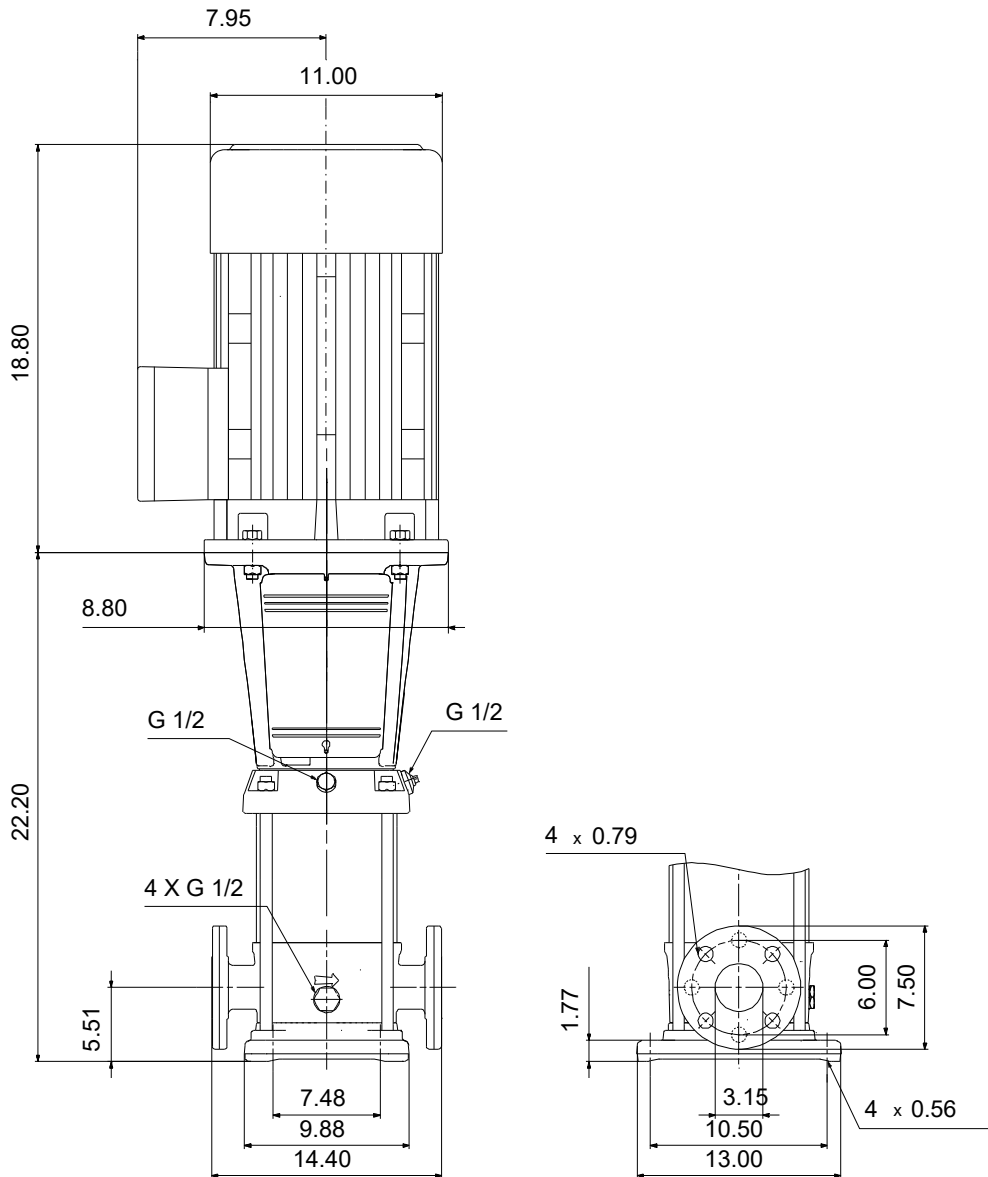
Company name:  
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Phone:

Date: 1/18/2022

### 99918223 CRN 45-1 A-G-A-V-HQQV 60 Hz



**99918223 CRN 45-1 A-G-A-V-HQQV 60 Hz**



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



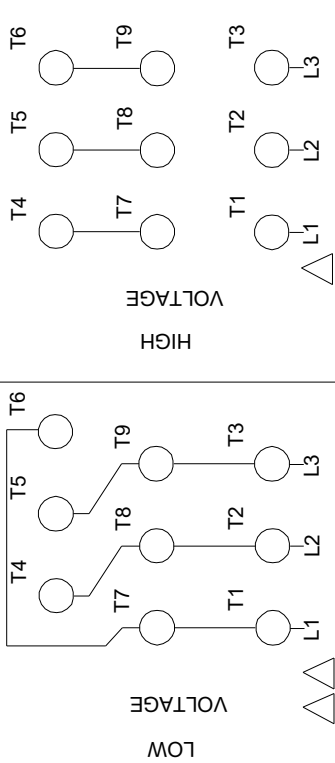
Company name:  
Created by:  
Phone:

Date: 1/18/2022

# 99918223 CRN 45-1 A-G-A-V-HQQV 60 Hz

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

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



INTERCHANGE ANY TWO LINE WIRES TO REVERSE THE ROTATION

All units are [in] unless otherwise presented.