

CRE, CRIE, CRNE

North America

Vertical, multistage centrifugal E-pumps



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1. Introduction



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CRE, CRIE and CRNE pumps

The CRE, CRIE and CRNE pumps are based on the CR, CRI and CRN pumps.

The CRE, CRIE and CRNE pumps belong to the so-called E-pump family and are referred to as E-pumps.

The difference between the CR and CRE pump ranges is the motor.

E-pumps are fitted with an E-motor, that is, a motor with an integrated variable frequency drive.

The E-pump motor is a Grundfos MLE motor.

The integrated variable frequency drive enables continuous variable speed control of the motor.

This means that the pump can be set to operation at any duty point. The purpose of continuous variable speed control of the motor is to adjust the performance to a given requirement.

E-pumps are available with an integrated pressure sensor connected to the variable frequency drive, and it functions as a feedback sensor for constant pressure control.

In new installations, the E-pumps provide a number of advantages. The integrated variable frequency drive has a built-in motor protection function that protects both the motor and the electronics against overload.

This means that E-pump installations do not require a motor-protective circuit breaker, only a normal short-circuit protection for the cable. The pump materials are identical to those of the CR, CRI and CRN pump ranges.

Examples of E-pump applications

E-pumps are the ideal choice for a number of applications characterized by a demand for variable flow at constant pressure. The pumps are suited for water supply systems and pressure boosting, as well as for industrial applications. Depending on the application, the pumps offer energy savings, increased comfort and improved processing.

E-pumps in the industry market

The industry market uses a large number of pumps in many different applications. Demands on pumps in terms of pump performance and mode of operation make speed control essential in many applications.

Some of the applications in which E-pumps are often used are listed below.

Constant pressure

- Water supply
- washing and cleaning systems
- distribution from waterworks
- humidifying systems
- water treatment systems
- process boosting systems.

Example: Within industrial water supply, E-pumps with an integrated pressure sensor are used for ensuring a constant pressure in the pipe system. From the feedback sensor, the E-pump receives inputs about changes of pressure as a result of changes in the consumption. The E-pump responds to the input by adjusting the speed until the pressure is equalized. The constant pressure is stabilized once more on the basis of a preset setpoint.

Constant temperature

- Air-conditioning systems at industrial plants
- industrial cooling systems
- industrial freezing systems
- casting and moulding tools.

Example: In industrial freezing systems, E-pumps with a temperature sensor increase the comfort and lower the operating costs compared to pumps without a feedback temperature sensor.

An E-pump continuously adapts its performance to the changing demands reflected in the differences in temperature of the liquid circulating in the freezing system. Thus, the lower the demand is for cooling, the smaller the quantity of liquid circulated in the system, and vice versa.

Constant level

- Boiler feed systems
- condensate systems
- sprinkler irrigation systems
- chemical industry.

Example: In a steam boiler, it is important to monitor and control the pump operation to maintain a constant level of water in the boiler.

By using an E-pump with a level sensor in the boiler, it is possible to maintain a constant water level.

A constant water level ensures an optimum and cost-efficient operation as a result of a stable steam production.

Dosing applications

- Chemical industry (control of pH values)
- petrochemical industry
- paint industry
- degreasing systems
- bleaching systems.

Example: In the petrochemical industry, E-pumps with a pressure sensor are used as dosing pumps.

The E-pumps help ensure that the correct mixture ratio is achieved when more liquids are combined.

E-pumps functioning as dosing pumps improve processing and offer energy savings.

E-pumps in commercial building market

The commercial building market use E-pumps to maintain a constant pressure or a constant temperature based on a variable flow.

Constant pressure

- Water supply in high-rise buildings, such as office buildings and hotels.

E-pumps with a pressure sensor are used for water supply in high-rise buildings to ensure a constant pressure even at the highest draw-off point. As the consumption pattern and thus the pressure changes during the day, the E-pump continuously adapts its performance until the pressure is equalized.

Constant temperature

- Air-conditioning systems in hotels and schools
- building cooling systems.

Example: E-pumps are an excellent choice for buildings where a constant temperature is essential. E-pumps keep the temperature constant in air-conditioned, high-rise glass buildings, irrespective of the seasonal fluctuations of the outdoor temperature and various heat impacts inside the building.

When to select an E-pump

Select an E-pump if the following is required:

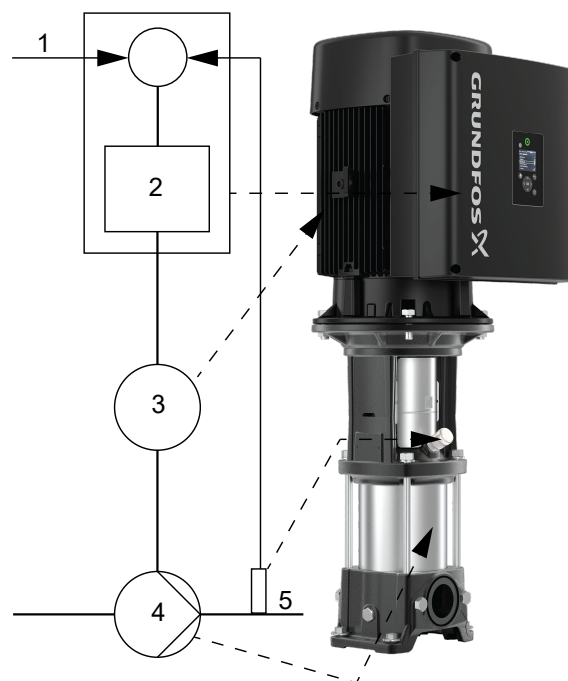
- controlled operation, that is, the consumption fluctuates
- communication with the pump.

Adaptation of performance through frequency-controlled speed control offers obvious benefits, such as the following:

- energy savings
- increased comfort
- control and monitoring of the pump performance.

Components of a Grundfos E-pump

An E-pump is not just a pump, but a system that is able to solve application problems or save energy in a variety of pump installations. Only the power supply connection and the fitting of the E-pump in the pipe system are required, and the pump is ready for operation. The pump is tested and pre-configured in the factory. The operator only has to specify the desired setpoint (pressure) and the system is operational.



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Components of a Grundfos E-pump

Pos.	Description
1	Setpoint
2	Variable frequency drive/PI controller
3	Motor
4	Pump
5	Sensor

E-pumps with and without a sensor

The CRE, CRIE and CRNE pumps are available with a pressure sensor enabling the control of the pressure on the pump outlet side. The E-pump is also available without a sensor.

Supplying the CRE, CRIE and CRNE pumps with a pressure sensor makes the installation and startup simple and quick.

Generally, E-pumps without a sensor are used when uncontrolled (open loop) operation is required or when a sensor needs to be fit at a later stage to enable the following:

- pressure control
- flow control

- level control of liquid in a tank
- temperature control
- differential pressure control
- differential temperature control.

E-pumps without a sensor are also used when a remote analog signal is connected to the setpoint input terminal. For further information, see the section on control modes.

Related information

[Control modes](#)

Related information

[CRE 10 dimensional data](#)

[CRE 15 dimensional data](#)

[CRE 20 dimensional data](#)

[CRE 32 dimensional data](#)

[CRE 45 dimensional data](#)

[CRE 64 dimensional data](#)

[CRE 95 dimensional data](#)

[CRE 125 dimensional data](#)

[CRE 155 dimensional data](#)

Pump Energy Index

The Pump Energy Index (PEI) was established by the U.S. Department of Energy (DOE) and adopted by Canada as the standard metric used for evaluating pump efficiency. The value is the ratio of the pump efficiency rating (PER) divided by the calculated minimally compliant PER (PER_{STD}) for the pump type. This provides a representation of the actual performance of the pump compared to the minimal standard performance required by regulation. The lower the PEI value, the more efficient a pump is at the tested operating points.

The PER is determined by defined testing parameters required by the DOE. This includes testing a particular pump model at its best efficiency point (BEP).

For the PEI values, there are two different versions:

- PEI_{CL} (constant load): applies to bare-shaft pumps and pumps sold with a motor
- PEI_{VL} (variable load): applies to pumps sold with a motor and controller (such as VFD, VSD).

The DOE has set the maximum PEI value as 1.00. Any pump, pump and motor, or pump, motor and controller that exceeds a PEI value of 1.00 can no longer be manufactured after January 26, 2020.

PEI is a generalized efficiency value. PEI cannot be used to determine the efficiency of a pump in a specific application.

Product type	PEI_{VL}
CRE, CRNE, CRIE 10	See the section on the CRE 10 dimensional data.
CRE, CRNE, CRIE 15	See the section on the CRE 15 dimensional data.
CRE, CRNE, CRIE 20	See the section on the CRE 20 dimensional data.
CRE, CRNE 32	See the section on the CRE 32 dimensional data.
CRE, CRNE 45	See the section on the CRE 45 dimensional data.
CRE, CRNE 64	See the section on the CRE 64 dimensional data.
CRE, CRNE 95	See the section on the CRE 95 dimensional data.
CRE, CRN 125	See the section on the CRE 125 dimensional data.
CRE, CRN 155	See the section on the CRE 155 dimensional data.

Note that the CRE pumps operate at 2-pole speeds.

2. Applications

Water supply

	CRE	CRIE, CRNE
Filtration and transfer at waterworks	•	○
Distribution from waterworks	•	○
Pressure boosting in mains	•	○
Pressure boosting in high-rise buildings, hotels	•	○
Pressure boosting for industrial water supply	•	○

Industry

	CRE	CRIE, CRNE
Pressure boosting		
Process-water systems	•	•
Washing and cleaning systems	•	•
Vehicle-washing tunnels	•	○
Firefighting systems	•	-
Liquid transfer		
Cooling and air-conditioning systems (refrigerants)	•	○
Boiler feed and condensate systems	•	○
Machine tools (cooling lubricants)	•	•
Aquafarming	•	○
Special transfer duties		
Oils and alcohols	•	•
Acids and alkalis	-	•
Glycol and coolants	•	•

Water treatment

	CRE	CRIE, CRNE
Ultra-filtration systems	-	•
Reverse osmosis systems	-	•
Softening, ionising, demineralising systems	-	•
Distillation systems	-	•
Separators	•	•
Swimming baths	-	•

Irrigation

	CRE	CRIE, CRNE
Field irrigation (flooding)	•	○
Sprinkler irrigation	•	○
Drip-feed irrigation	•	○

- Recommended version
- Alternative version

Application examples

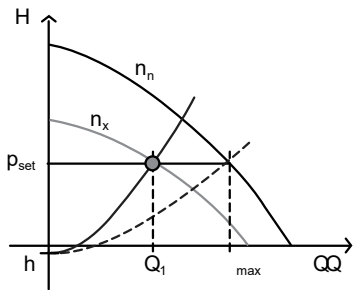
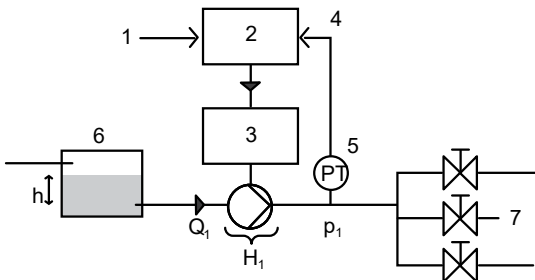
Speed control of pumps is an efficient way of adjusting pump performance to the system.

In this section, we discuss the possibilities of combining speed-controlled pumps with PI controllers and sensors measuring system parameters, such as pressure, differential pressure and temperature. In the following, the different options are presented through examples.

Constant-pressure control

A pump supplies tap water from a break tank to various taps in a building.

The demand for tap water varies, and so does the system characteristic, according to the required flow rate. To achieve comfort and energy savings, we recommend a constant supply pressure.



TM030410

Constant-pressure control

Pos.	Description
1	Setpoint p_{set}
2	PI controller
3	Speed controller
4	Actual value p_1
5	Pressure transmitter
6	Break tank
7	Taps

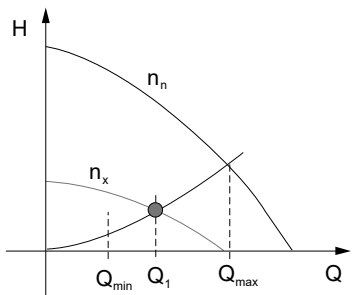
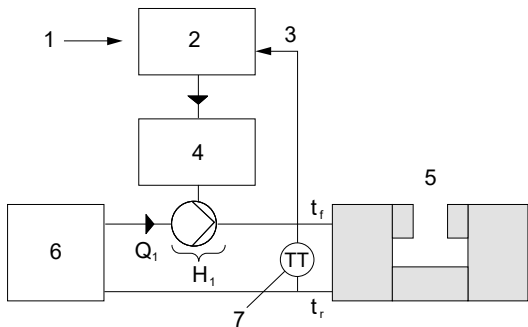
As shown in the figure above, the solution is a speed-controlled pump with a PI controller. The PI controller compares the required pressure, p_{set} , with the actual supply pressure, p_1 , measured by a pressure transmitter, PT.

If the actual pressure is higher than the setpoint, the PI controller reduces the speed, consequently, the performance of the pump until p_1 is equal to p_{set} . The figure above shows what happens when the flow rate is reduced from Q_{max} to Q_1 .

The controller reduces the speed of the pump from n_n to n_x to ensure that the required outlet pressure is identical for p_1 and p_{set} . The pump ensures that the supply pressure is constant in the flow range of 0 to Q_{max} . The supply pressure is independent of the level (h) in the break tank. If h changes, the PI controller adjusts the speed of the pump so that p_1 always corresponds to the setpoint.

Constant-temperature control

Performance adjustment by speed control is suitable for a number of industrial applications. The figure below shows a system with an injection-molding machine that must be water-cooled to ensure high-quality production.



TM030412

Constant-temperature control

Pos.	Description
1	Setpoint t_{set}
2	PI controller
3	Actual value t_r
4	Speed controller
5	Injection-molding machine
6	Cooling plant
7	Temperature transmitter

The pump operates at a fixed system characteristic. The controller ensures that the actual flow rate, Q_1 , is sufficient to ensure that t_r is equal to t_{set} .

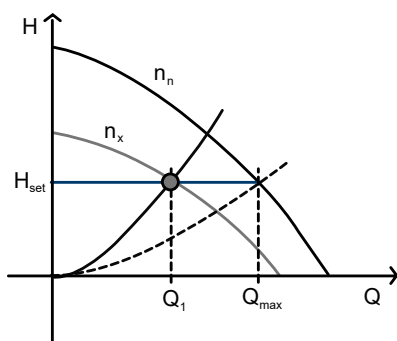
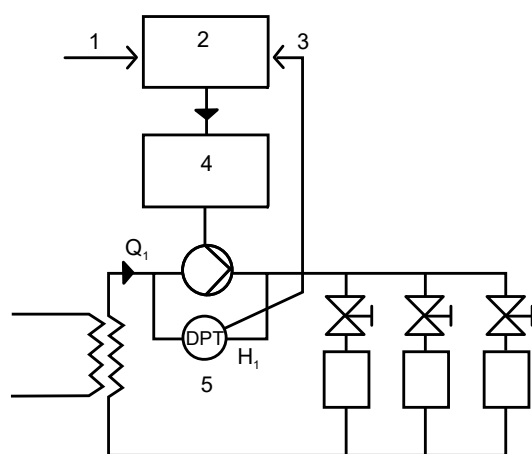
The machine is cooled with water at 59 °F (15 °C) from a cooling plant. To ensure that the molding machine runs properly and is cooled sufficiently, the return-pipe temperature has to be kept at a constant level, t_r equals 68 °F (20 °C). The solution is a speed-controlled pump, controlled by a PI controller. The PI controller compares

the required temperature, t_{set} , with the actual return-pipe temperature, t_r , measured by a temperature transmitter, TT. This system has a fixed system characteristic, and therefore the duty point of the pump is located on the curve between Q_{min} and Q_{max} . The higher the heat loss is in the machine, the higher the flow of cooling water needed to ensure that the return-pipe temperature is kept at a constant level of 68 °F (20 °C).

Application examples of differential pressure in a circulation system

Circulation systems (closed systems) are well-suited for speed-controlled pump solutions.

It is an advantage that circulation systems with variable system characteristic are fitted with a differential-pressure-controlled circulator pump.



Constant differential-pressure control

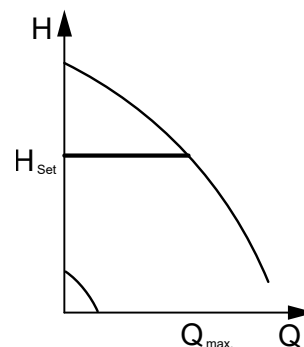
Pos.	Description
1	Setpoint H_{set}
2	PI controller
3	Actual value H_1
4	Speed controller
5	Differential-pressure transmitter

The figure above shows a heating system consisting of a heat exchanger where the circulated water is heated and delivered to three radiators by a speed-controlled pump. A control valve is connected in series at each radiator to control the flow rate according to the heat requirement.

The pump is controlled according to a constant differential pressure measured across the pump. This means that the pump system offers a constant differential pressure in the Q range of 0 to Q_{max} , represented by the horizontal line in the figure above.

Constant differential pressure

The differential pressure of the pump is kept constant, independently of the flow rate.

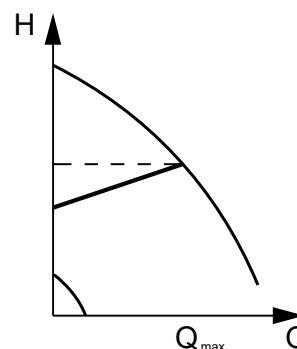


Constant differential pressure, pump

The pump is controlled according to a constant differential pressure measured across the pump. This means that the pump system offers a constant differential pressure in the Q -range of 0 to Q_{max} , represented by the horizontal line in the QH diagram.

Proportional differential pressure

The differential pressure of the pump is reduced at falling flow rate and increased at rising flow rate.



Proportional differential pressure

The pump is controlled according to a differential pressure measured across the pump. This means that the pump system offers a proportional differential pressure in the Q -range of 0 to Q_{max} , represented by the sloping line in the QH diagram.

Proportional differential pressure, parabolic curve

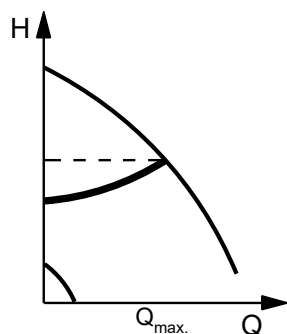
Available on CRE-DP (differential pressure) only

It is set via the GO Link.

The proportional differential pressure can be selected with one of the following flow dependencies:

- linear
- parabolic.

When the flow dependency is selected as parabolic, the differential pressure of the pump is reduced with a parabolic curve at falling flow rate and increased at rising flow rate.



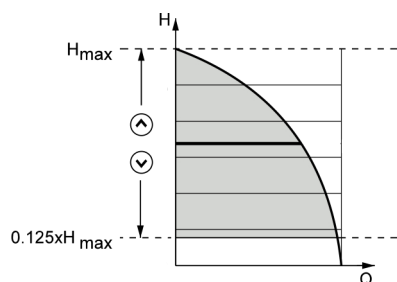
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Proportional differential pressure, parabolic curve

The pump is controlled according to a differential pressure measured across the pump. This means that the pump system offers a flow-compensated differential pressure in the Q-range of 0 to Q_{max} , represented by the parabolic curve in the QH diagram.

Constant differential-pressure setpoint range

The setpoint range is between 12.5 % and 100 % of the maximum head.

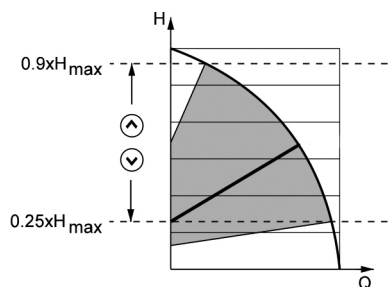


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Constant differential pressure

Proportional differential-pressure setpoint range

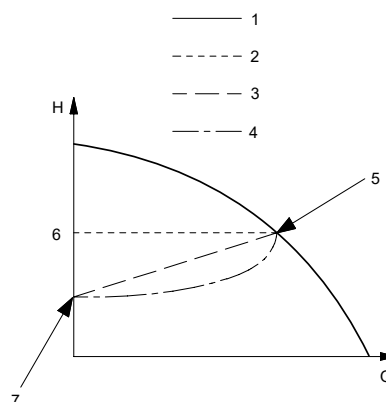
The setpoint range is between 25 % and 90 % of the maximum head.



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Proportional differential pressure

To compensate for this excessive system pressure, the proportional-pressure function automatically adapts the setpoint to the actual flow rate.

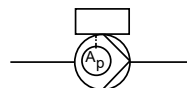


TM038524

Proportional-pressure control

Pos.	Description
1	Pump curve
2	Setpoint
3	Resultant setpoint, linear
4	Resultant setpoint, square
5	Q_{pmax}
6	H_{set}
7	Starting point of proportional-pressure control (influence at 0 flow = 50 % of H_{set})

The factory-fitted differential-pressure sensor is a variant. Contact Grundfos for additional details.



TM062478

Proportional pressure

3. Features and benefits

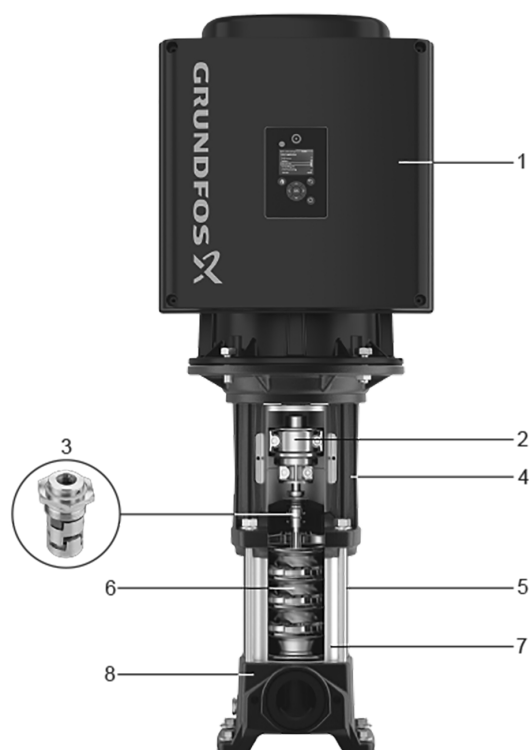
Pump

The CR and CRE pumps are non-self-priming, vertical multistage centrifugal pumps.

The pumps are available with a Grundfos frequency-controlled motor.

They consist of a pump head and a base.

The chamber stack and the sleeve are secured between the pump head and the base with staybolts. The base has inlet and outlet ports on the same level (in line). All pumps are fitted with a maintenance-free mechanical shaft seal of the cartridge type.



TM085700

CRE pump

Pos.	Description
1	Motor
2	Coupling
3	Shaft seal (cartridge type)
4	Pump head
5	Staybolts
6	Impellers
7	Sleeve
8	Base

A CRE pump with ANSI/NSF 61 listing is available. See UL file MH26400 or contact Grundfos.

Motor

MLE motors

MLE motors incorporate thermal protection against slow overload and blocking.

The CRE, CRIE and CRNE pumps require no external motor protection.

Frequency-controlled MLE motors

The CRE, CRIE and CRNE pumps are fitted with a totally enclosed, fan-cooled, frequency-controlled MLE motor.

Permanent-magnet motors

Power [hp]	Phase	Voltage [V]
0.5 - 2	1	200-240
1.5 - 15	3	200-240
1- 30	3	440-480

See the Grundfos Product Center at www.grundfos.com.

Electrical data

MLE motor CRE, CRIE, CRNE		
Mounting designation	NEMA	
Insulation class	F	
Efficiency	See the section on motor data.	
Enclosure class	Motor:	TEFC (Totally Enclosed Fan-Cooled)
	Variable frequency drive:	
	0.5 to 2 hp, 1 x 200-240 V:	NEMA 2
	1.5 to 7.5 hp, 3 x 200-240 V:	NEMA 2
	10 to 15 hp, 3 x 200-240 V:	NEMA 12
	1 to 15 hp, 3 x 440-480 V:	NEMA 2
Supply voltage	0.5 to 2 hp:	1 x 200-240 V
	1 to 30 hp:	3 x 440-480 V
	1.5 to 15 hp:	3 x 200-240 V

Related information

[2-pole E-motors \(Grundfos MLE\)](#)

Advanced use of MLE motors

The Grundfos three-phase MLE motors have advanced features, such as bearing monitoring, standstill heating, stop function, signal relays, analog sensors and limit-exceeded function. These features give a unique opportunity to customize the E-pumps.

The Grundfos GO Link gives access to most of the settings available in the products, as well as the possibility of logging and viewing data.

Bearing monitoring

Bearing monitoring is a built-in function indicating the time to relubricate or replace the bearings of the MLE motor. The relubrication feature is only available for three-phase pumps of 15-30 hp.

Purpose and benefits

This function is for giving an indication to the user when it is time to relubricate or replace the motor bearings. This is important information for maintenance planning.

Bearing monitoring provides the following benefits:

- The bearing can be relubricated at the right time according to the recommendations of the manufacturer.
- Maximum life of the motor bearings is obtained.
- Maintenance intervals are based on the operating conditions of the bearings.
- No worn-down or damaged bearings, consequently, no costly down-time due to overseen maintenance.

Description

When the bearing monitoring function determines that it is time to relubricate the bearings, the user receives a warning via the Grundfos GO Link, a bus or a relay.

When the bearings have been relubricated a certain number of times, the warning function informs the user to replace the bearings.

The number of relubrications before bearing replacement is set by Grundfos.

Technical description

The bearing monitoring function is available on two levels for calculating the relubrication interval: basic and advanced.

Bearing monitoring function	
	Basic level
	Calculation of relubrication intervals based on motor revolutions The basic level is a standard feature of the 15-30 hp basic controller and no special functional module is required.
	Advanced level [only 15-30 hp]
	Calculation of relubrication intervals based on motor revolutions and bearing temperature Note that the advanced-level function requires the following: • The extended functional module must be fitted in the MLE motor. • Temperature sensors must be fitted at the drive end and at the non-drive end of the motor.

Environmental enclosure ratings

The enclosure of the MLE is suitable for indoor use only. For more information about ambient temperature during operation, see the sections on operating conditions and ambient temperature.

Related information

[Ambient temperature and installation altitude](#)

[Maximum ambient temperature and altitude for Grundfos MLE motors](#)

Stop function

The stop function ensures that the pump is stopped at low or no flow. The function is also called low-flow stop function.

Purpose and benefits

The purpose of the stop function is to stop the pump when a low flow rate is detected.

The stop function provides the following benefits:

- The energy consumption is optimized and the system efficiency is improved.
- Unnecessary heating of the pumped liquid, which damages pumps, is avoided.
- Wear of the shaft seals is reduced.
- Noise from operation is reduced.

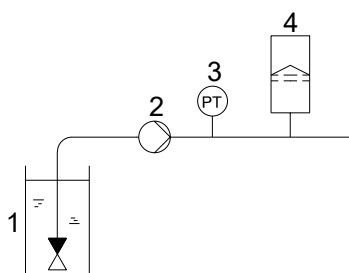
Applications

The stop function is used in systems with periodically low or no consumption thus preventing the pump from running against a closed valve.

Operating conditions for the stop function

A pressure sensor, a check valve, and a diaphragm tank are required for the stop function to operate properly.

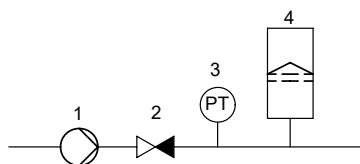
Note that the check valve must always be installed before the pressure sensor. See the following two figures.



TM0385621

Position of the check valve and pressure sensor in system with suction lift operation

Pos.	Description
1	Check valve
2	Pump
3	Pressure sensor
4	Diaphragm tank

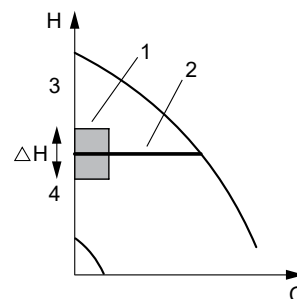


TM038563

Position of the check valve and pressure sensor in system with positive inlet pressure

Pos.	Description
1	Pump
2	Check valve
3	Pressure sensor
4	Diaphragm tank

When a low flow rate is detected, the pump is in start/stop operation. If there is flow, the pump continues operating according to the setpoint.



TM038477

Constant pressure with stop function, difference between start and stop pressures (ΔH)

Pos.	Description
1	Start/stop operation
2	Continuous operation
3	Stop pressure
4	Start pressure

Diaphragm tank

The stop function requires a diaphragm tank of a certain minimum size. The tank must be installed near the pump outlet, and the precharge air pressure must be 70 % of the setpoint.

Recommended diaphragm tank size:

CRE pump	Typical diaphragm tank size [gal (liter)]
1, 3, 5	2 (8)
10	4.4 (17)
15, 20	10.3 (39)
32	14 (53)
45	20 (76)
64	34 (129)
95	44 (167)
125	62 (235)
155	81 (307)

If a diaphragm tank of the above size is installed in the system, additional adjustment is unnecessary. If the tank installed is too small, the pump starts and stops often. The tank size influences at which flow rate the system goes into start/stop operation.

Description

The low-flow stop function can operate in two different ways:

- by an integrated low-flow detection function

- by an external flow switch connected to the digital input.

Low-flow detection function

- The low-flow detection function checks the flow rate regularly by reducing the speed for a short time. A small change in pressure or no change in pressure means that there is a low flow rate.

Low-flow detection with flow switch

- When a flow switch detects a low flow rate, the digital input is activated.

Contact Grundfos for further information.

Dry-running protection

This function protects the pump against dry running. When a lack of inlet pressure or water shortage is detected, the pump is stopped before being damaged.

A lack of inlet pressure or water shortage can be detected with a switch connected to a digital input configured to dry-running protection.

A digital input requires an accessory, such as one of the following:

- a Grundfos Liqtec® dry-running switch (for more information on LiqTec, see the section on counterflanges for CRE)
- a pressure switch installed on the inlet side of the pump
- a float switch installed on the inlet side of the pump.

The pump cannot restart as long as the digital input is activated.

Related information

[Counterflanges for CRE](#)

Temperature sensors 1 and 2

One or two Pt100 temperature sensors may be connected to the input terminals.

Purpose and benefits

The temperature sensor inputs 1 and 2 provide the following benefits:

- The temperature sensor inputs can be used as input to the limit-exceeded functions 1 and 2.
- In combination with the bearing monitoring function, the temperature sensors provide optimal monitoring of the motor bearings.
- A bearing warning or a bearing alarm can be indicated as the motor bearing temperature is measured.
- Status readings of the measured temperatures are available via the Grundfos GO, the Grundfos GO Link and a bus.
- The function has a built-in signal fault detection if the temperature sensors fail or a conductor is broken.

Applications

The temperature inputs can be used in all applications where temperatures in the system or in the motor need to be monitored.

Note that the temperature sensor inputs are available on all MLE motors.

Description

The temperature sensor inputs enable several functions.

- The temperature sensor inputs 1 and 2 can be used as input to the limit-exceeded functions 1 and 2. If a limit is exceeded, this is indicated via outputs (relay) or alarms/warnings set or defined in the limit-exceeded functions 1 and 2.
- The temperature sensor inputs 1 and 2 can be set to measure bearing temperature. The measured values of temperature sensor 1 and 2 are used in the calculation of relubrication intervals. Additionally, the measured value can activate the indication of a bearing warning or a bearing alarm. In case of high bearing temperature, a warning or an alarm can be logged and force the pump to stop.

Signal relays

Signal relays are used for output indication of the current operational status of the MLE. The signal relay is a potential-free contact (also called a dry contact). The output signals are typically transmitted to external control systems.

Purpose and benefits

The signal relays offer the following features:

- The signal relays can be remotely (via bus) or internally controlled.
- The signal relays can be set to indicate several types of operational status.
- A relay delay can be defined to avoid activating the relay in case of periodic failures.

Applications

Signal relays can be used in all applications where the operational status needs to be read out, for example, a control room or to a superior control system.

Description

The signal relays can be set with the following three parameters:

- relay control
- relay setup
- relay delay.

Relay control

The relay time is 0 second and the signal relay is internally controlled.

The advanced relay control can only be set via the Grundfos GO Link.

Relay control has the following two setting options:

- Internally controlled:
The relay is internally controlled by the variable frequency drive software according to the setup of the relay [Ready, Fault, Operation].
- Remotely controlled:
The relay is controlled via commands from the GENibus.

Analog sensor inputs 1 and 2

The analog sensor inputs 1 and 2 are standardized inputs for measuring all types of analog parameters.

The sensor input 1 is the only sensor input set for closed-loop operation. The input is used as the sensor feedback input.

The sensor input 2 is referred to as the secondary sensor.

Purpose and benefits

The analog sensor inputs 1 and 2 provide the following benefits:

- The sensor input 1 can be feedback input for the built-in PI controller.
- It is possible to monitor secondary parameters in the process, such as flow rate or liquid temperature.
- The secondary sensor can be set as a redundant sensor.
- The sensors can give input to the limit-exceeded functions 1 and 2.
- Status readings of the inputs are available via the Grundfos GO and the Grundfos GO Link.

Applications

The analog sensor inputs 1 and 2 can be used in applications where essential parameters need to be monitored.

Description

The analog sensors 1 and 2 enable several functions.

- When the secondary sensor is set as an input to the limit-exceeded functions 1 and 2, defined outputs or warnings or alarms can be given when system parameters are outside the defined system limits.
- When the sensor input 2 is set with a flow sensor, the measured value can be used as an input to the proportional-pressure function. The flow rate displayed in the Grundfos GO is the measured flow rate instead of the estimated flow rate. The flow rate measurement can also be used in the low-flow stop function to detect a low flow rate instead of estimating the flow rate by lowering the speed of the pump.
- When sensors are set, the user can get a status reading via the Grundfos GO and the Grundfos GO Link.

Analog output

The analog output (0-10 mA) can be set via the Grundfos GO Link to one of the following indications:

- feedback value
- speed
- frequency
- motor current
- external setpoint input
- limit exceeded.

By default, the analog output is set to not active.

Feedback value

The output signal is a function of the actual feedback sensor.

Speed

The output signal is a function of the actual pump speed.

Frequency

The output signal is a function of the actual frequency.

Motor current

The output signal is a function of the actual motor current.

External setpoint input

The output signal is a function of the external setpoint input.

Limit exceeded

The output signal indicates whether the limit is exceeded:

- Minimum output: the limit is not exceeded.
- Maximum output: the limit is exceeded.

Limit exceeded 1 and 2

The limit-exceeded function monitors one or two values or inputs. It enables different inputs to activate various outputs and alarms or warnings when the signal input passes pre-determined limits.

Purpose and benefits

This function is for monitoring parameters that are central for the application and enable the controller to react to abnormal operating conditions. It is possible to set two limit-exceeded functions and monitor two parameters or two limits of the same parameter simultaneously. This makes the E-pump an important and integrated part of a system, and the E-pump can replace other existing monitoring units.

The function monitors measured parameters, such as temperature, pressure, liquid level and flow, as well as internal values, such as speed, motor load or motor current.

By monitoring the liquid temperature, the E-pump ensures that the system temperature does not exceed a maximum permissible level.

By monitoring the minimum inlet pressure, the E-pump can prevent damage caused by cavitation or dry running.

Applications

The limit-exceeded function is typically used for monitoring secondary parameters in the systems.

Actions

When the signal input passes, above or below, the pre-determined limit, the limit-exceeded function is activated and the selected action is performed.

The following actions are available:

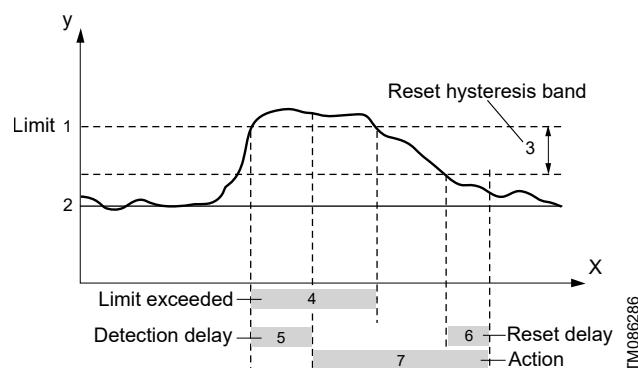
- **Not active:**
The pump remains in its current state. It can be used to activate a signal relay output when the limit is reached.
- **Stop:**
The pump stops.
- **Min.:**
The pump reduces the speed to minimum speed.
- **Max.:**

The pump increases the speed to maximum speed.

- **User-defined speed:**
The pump runs at a speed set by the user.
- **Alarm and Stop:**
An alarm is given, and the pump stops.
- **Alarm and Min:**
An alarm is given, and the pump decreases the speed to the minimum.
- **Alarm and Max:**
An alarm is given, and the pump increases the speed to the maximum.
- **Alarm and User-defined speed:**
An alarm is given, and the pump runs at the speed set by the user.

Example

The function is to monitor the pumped liquid temperature. If the temperature exceeds the set limit of 180 °F (82 °C) for more than 5 seconds, the action is set to give an alarm and stop the pump. The pump automatically restarts when the temperature drops below the reset hysteresis band at 160 °F (71 °C) for more than 6 seconds.

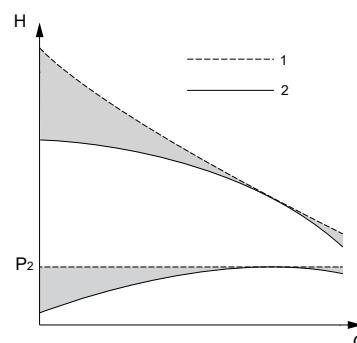


Limit exceeded above the limit

Pos.	Parameter	Setting
y	Measured (monitored)	Pumped liquid temperature
x	Time	Seconds
1	Limit	180 °F (82 °C)
2	Typical value	Typical pumped liquid temperature
3	Reset hysteresis band	20 °F (11 °C)
4	Limit exceeded	Above limit
5	Detection delay	5 seconds
6	Reset delay	6 seconds
7	Action	Alarm and Stop: The limit-exceeded function is active. An alarm is given and the pump stops.

Pump operating at power limit

When a pump is operating at the power limit, the MLE motor delivers an output corresponding to the maximum load stated on the nameplate. The maximum load is never exceeded.



Curves of a standard E-pump and a pump operating at power limit

Pos.	Description
1	Power limit
2	Standard

Purpose and benefits

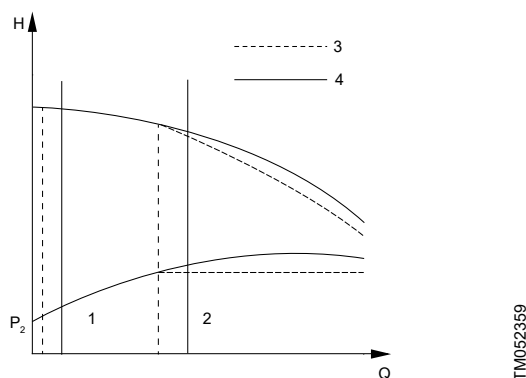
When using a standard pump at a low flow rate, the power consumption drops and the motor has excess power available.

By setting the pump to operate at a higher speed, the excess power can be used for providing a higher pressure. The power limit function makes sure that the motor load never exceeds its maximum by decreasing the speed until the motor is at its power limit.

In cases where an undersized motor is used with standard speed, the power limit function still reduces the speed and protects the motor against overload at a high flow rate. The solution offers the following benefits:

- reduced motor size
- reduced pump size.

The figure below shows that a pump operating at low flow rates and relatively high pressures (1) can be fitted with an undersize motor with a rated power that matches this operating range. At higher flow rates and relatively lower pressures (2), the motor reduces its speed when the power limit is exceeded and follows a steeper curve corresponding to the power available.

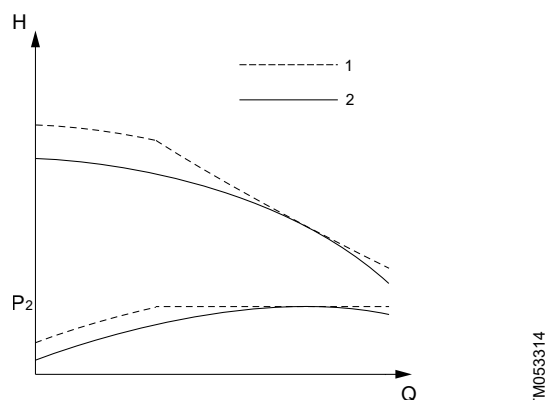


Standard performance curve compared to a curve for a pump fitted with an undersize MLE motor

Pos.	Description
3	Undersize motor
4	Standard motor

The MLE motor can be set to a higher speed than a standard motor, enabling the pump to deliver more pressure. The pump operates at this higher speed until the pump reaches the flow rate where the motor is loaded to its full rated power. If the flow rate is increased further, the motor reduces its speed so as not to exceed its rated power.

Using this function can, in some instances, enable the use of a smaller pump to reach the desired duty point compared to a pump running with standard maximum speed.



Standard performance curve (60 Hz) compared to a performance curve for a pump running at maximum speed

Pos.	Description
1	Maximum speed
2	Standard speed

Applications

The power limit function is primarily used in applications where the motor size is dimensioned to be as small as possible to reduce size or cost. It is also used in applications demanding a high maximum speed to achieve a high pressure at a low flow rate. In both cases, the motor is

protected by the power limit function at a higher flow rate where a lower speed is needed to prevent the motor from overloading.

Examples of applications:

- Washing and cleaning
- boiler feed.

Setup

The power limit is always active in pumps to protect the motor against overload. Pumps with an undersize motor and pumps with a higher maximum speed are available as factory-configured products.

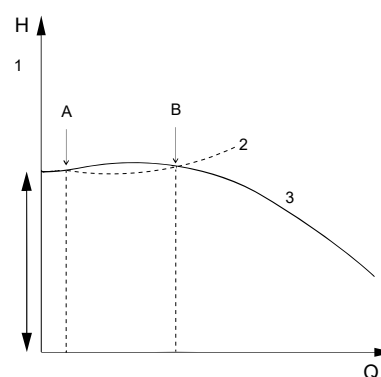
Note that running the pump at over-synchronous speed affects the NPSH value, thus requiring a sufficient inlet pressure to avoid cavitation.

The sound pressure level emitted from the pump and motor may increase at higher speeds.

Furthermore, the differential pressure over the chambers must be taken into consideration.

Stabilizing unstable pump curves

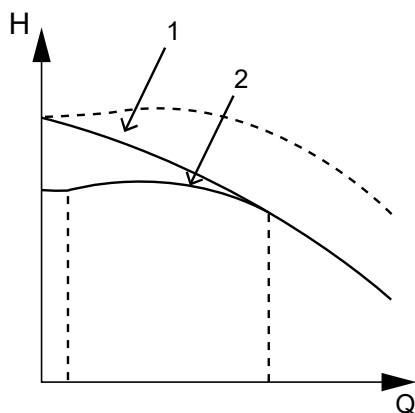
When the pump curve has a shape where it intersects the system curve at two points (A and B) with identical pressure but at different flow rates, the pump curve is defined as unstable. See the figure below. This is especially problematic in systems with a flat system characteristic as it prevents the pump from being controlled at a flow rate lower than the flow rate at point B.



Unstable pump curve

Pos.	Description
1	Counter pressure
2	Flat system characteristic
3	Unstable curve

The E-motor can stabilize an unstable pump curve in the low-flow area by changing to a higher speed. The figure below illustrates how the pump curve is straightened out in this area. As the flow rate increases, the E-motor gradually reduces the speed to normal, and the pump performance follows the standard pump curve.



TM069671

Pump curve with a stabilized operating range

Pos.	Description
1	Stabilized pump curve
2	Unstable standard pump curve

Purpose and benefits

Stabilizing an unstable pump enables normal control throughout the entire operating range. Thus fully stable operation is achieved, even in the low-flow range. This enables the use of modern high-efficiency pumps in applications where this would otherwise not be possible.

Applications

As mentioned, unstable operation may occur in applications with a high counterpressure and a flat system characteristic.

Examples of applications:

- Pumping of water to a water tower
- boiler feed.

Note that the sound pressure level emitted from the pump and motor may increase at higher speeds.

Setup

This function is available in factory-configured products.

MLE technical data

Grundfos MLE motors are equipped with NEMA-standard C-face flanges.

The Grundfos MLE motors are recognized under the Component Recognition Program of Underwriters Laboratories Inc. for the United States and Canada.

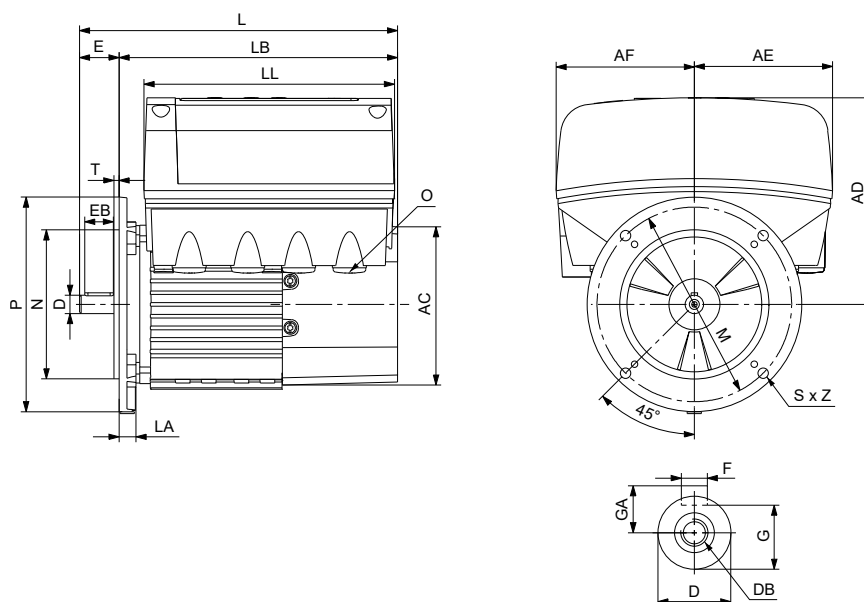
The MLE motors are equipped with a reinforced bearing system with locked bearings at the drive end, either a deep-groove ball bearing or an angular-contact bearing, depending on the motor model.

This ensures an even uptake of the load to maximize the lifetime of the bearings guaranteed for a minimum of 18,000 hours service life. At the non-drive end, the motors are fitted with bearings with axial clearance to meet production tolerances while allowing for thermal expansion during motor operation. This ensures trouble-free operation and long life.

MLE 0.5 to 2 hp permanent-magnet motors

A(2-pole) 1/60/200-240

Dimensional sketches



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Dimensional data

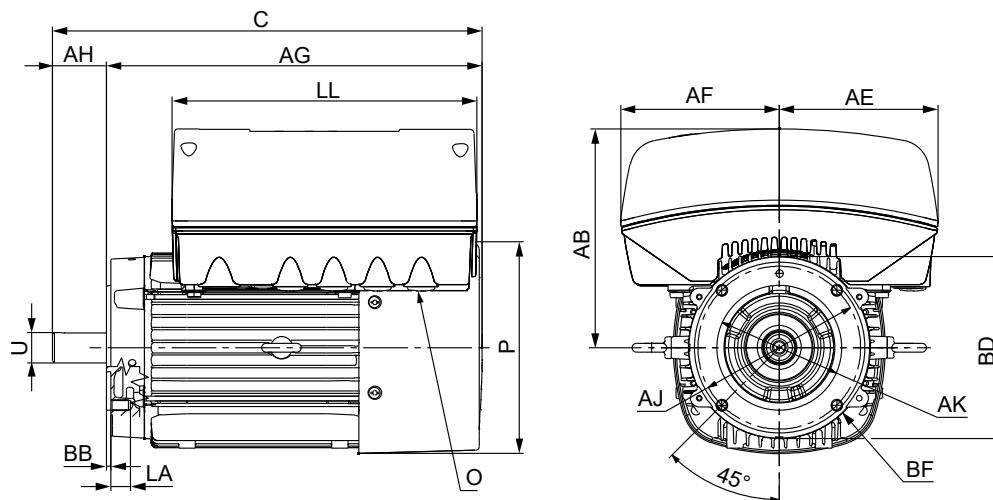
Power [hp]	Frame size	Stator housing [in (mm)]							Shaft end [in (mm)]
		AC	AD	AF	L	LB	LL	D	E
0.5	56C	4.80 (122)	6.22 (158)	4.17 (106)	10.55 (268)	8.46 (215)	7.56 (192)	0.63 (15.9)	2.06 (52.3)
0.75	56C	4.80 (122)	6.22 (158)	4.17 (106)	10.55 (268)	8.46 (215)	7.56 (192)	0.63 (15.9)	2.06 (52.3)
1	56C	4.80 (122)	6.22 (158)	4.17 (106)	10.55 (268)	8.46 (215)	7.56 (192)	0.63 (15.9)	2.06 (52.3)
1.5	56C	4.80 (122)	6.22 (158)	4.17 (106)	10.55 (268)	8.46 (215)	7.56 (192)	0.63 (15.9)	2.06 (52.3)
2	56C	4.80 (122)	6.22 (158)	4.17 (106)	11.34 (288)	9.25 (235)	7.56 (192)	0.63 (15.9)	2.06 (52.3)

Power [hp]	Frame size	Flange [in (mm)]						Cable entries [in (mm)]
		LA	M	N	P	S	T	O
0.5	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
0.75	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
1	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
1.5	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
2	56C	1.42 (36)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)

MLE 1 to 30 hp permanent-magnet motors

(2-pole) 3/60/440-480

Dimensional sketches



TM066518

Dimensional data

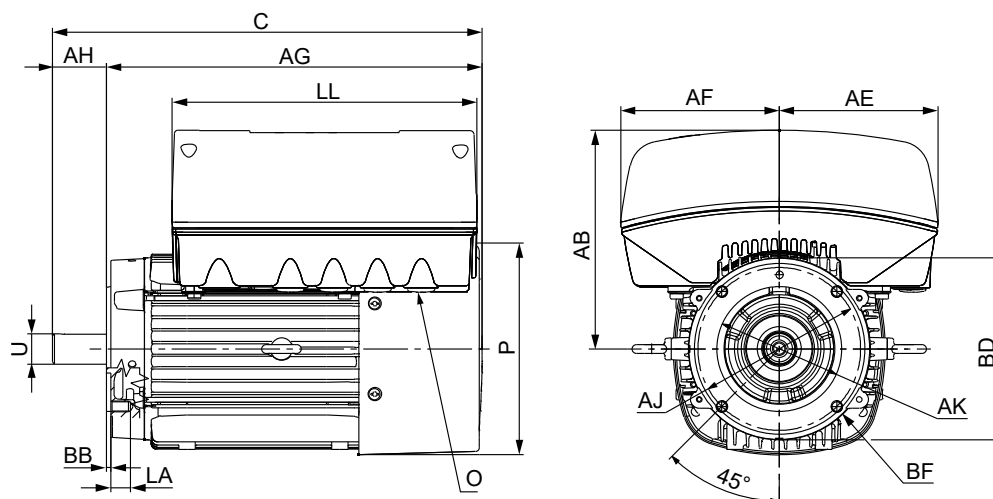
Power [hp]	Frame size	Stator housing [in (mm)]							Shaft end [in (mm)]	
		P	AB	AE	AF	C	AG	LL	U	AH
1	56C	4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	12.13 (308)	10.04 (255)	9.13 (232)	0.63 (15.9)	2.06 (52.3)
1.5	56C	4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	12.13 (308)	10.04 (255)	9.13 (232)	0.63 (15.9)	2.06 (52.3)
2	56C	4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	12.91 (328)	10.83 (275)	9.13 (232)	0.63 (15.9)	2.06 (52.3)
3	182TC	4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	13.46 (342)	10.83 (275)	9.13 (232)	1.13 (28.6)	2.62 (66.6)
5	182TC	7.53 (191.3)	7.91 (201)	5.73 (145.5)	5.73 (145.5)	15.89 (403.6)	13.15 (334)	11.02 (280)	1.13 (28.6)	2.74 (69.6)
7.5	213TC	7.53 (191.3)	7.91 (201)	5.73 (145.5)	5.73 (145.5)	17.75 (450.9)	14.37 (365)	11.02 (280)	1.37 (34.9)	3.38 (85.9)
10	213TC	10.04 (254.9)	9.33 (237)	6.81 (173)	6.81 (173)	18.70 (474.9)	15.31 (389)	12.48 (317)	1.37 (34.9)	3.38 (85.9)
15	254TC	10.04 (254.9)	9.33 (237)	6.81 (173)	6.81 (173)	19.74 (501.3)	15.98 (406)	12.48 (317)	1.63 (41.3)	3.75 (95.3)
20	256TC	12.52 (318)	11.93 (303)	8.27 (210)	8.27 (210)	22.99 (584)	19.21 (488)	16.30 (414)	1.63 (41.3)	3.75 (95.3)
25	284TSC	12.52 (318)	11.93 (303)	8.27 (210)	8.27 (210)	23.23 (590)	20.24 (514)	16.30 (414)	1.63 (41.3)	3 (76.2)
30	286TSC	12.52 (318)	11.93 (303)	8.27 (210)	8.27 (210)	23.23 (590)	20.24 (514)	16.30 (414)	1.63 (41.3)	3 (76.2)

Power [hp]	Frame size	Flange [in (mm)]						Cable entries [in (mm)]
		LA	AJ	AK	BD	BF	BB	O
1	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
1.5	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
2	56C	1.42 (36)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	0.38	0.16 (4)	1/2" NPT (4)
3	182TC	0.51 (13)	7.25 (184.2)	-	8.50 (215.9)	0.50	-	1/2" NPT (4)
5	182TC	0.75 (19)	7.25 (184.5)	8.50 (215.9)	8.50 (215.9)	0.50 - 13	0.25 (6.35)	1/2" NPT (5)
7.5	213TC	0.75 (19)	7.25 (184.15)	8.50 (215.9)	8.50 (215.9)	0.50 - 13	0.25 (6.35)	1/2" NPT (5)
10	213TC	0.79 (20)	7.25 (184.15)	8.50 (215.9)	8.68 (220.5)	0.50 - 13	0.25 (6.35)	3/4" NPT (1) & 1/2" NPT (5)
15	254TC	0.79 (20)	7.25 (184.15)	8.50 (215.9)	8.68 (220.5)	0.50 - 13	0.25 (6.35)	3/4" NPT (1) & 1/2" NPT (5)
20	256TC	0.94 (24)	7.25 (184.15)	8.50 (215.9)	9.88 (251)	0.50 - 13	0.28 (7)	1 x NPT 1" + 6 x NPT 1/2"
25	284TSC	0.94 (24)	9 (228.6)	10.50 (266.7)	10.75 (273)	0.50 - 13	0.31 (8)	1 x NPT 1" + 6 x NPT 1/2"
30	286TSC	0.94 (24)	9 (228.6)	10.50 (266.7)	10.75 (273)	0.50 - 13	0.31 (8)	1 x NPT 1" + 6 x NPT 1/2"

MLE 1.5 to 15 hp permanent-magnet motors

(2-pole) 3/60/200-240

Dimensional sketches



TM066518

Dimensional data

Power [HP]	NEMA frame	Stator housing [in (mm)]							Shaft end [in (mm)]	
		P	AB	AE	AF	C	AG	LL	U	AH
1.5	56C	4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	12.13 (308)	10.04 (255)	9.13 (232)	0.63 (15.9)	2.06 (52.3)
2		4.80 (122)	6.22 (158)	5.28 (134)	5.28 (134)	12.91 (328)	10.83 (275)	9.13 (232)	0.63 (15.9)	2.06 (52.3)
3	182TC	7.53 (191.3)	7.91 (201)	5.73 (145.5)	5.73 (145.5)	15.89 (403.6)	13.15 (334)	11.02 (280)	1.13 (28.6)	2.74 (69.6)
5		7.53 (191.3)	7.91 (201)	5.73 (145.5)	5.73 (145.5)	15.89 (403.6)	13.15 (334)	11.02 (280)	1.13 (28.6)	2.74 (69.6)
7.5	213TC	10.04 (254.9)	9.33 (237)	6.81 (173)	6.81 (173)	18.70 (474.9)	15.31 (389)	12.48 (317)	1.37 (34.9)	3.38 (85.9)
10	254TC	12.36 (314)	11.93 (303)	8.27 (210)	8.27 (210)	22.99 (584)	19.21 (488)	16.30 (414)	1.63 (41.28)	3.75 (95.25)
15	254TC	12.36 (314)	11.93 (303)	8.27 (210)	8.27 (210)	22.99 (584)	19.21 (488)	16.30 (414)	1.63 (41.28)	3.75 (95.25)

Power [HP]	NEMA frame	Flange [in (mm)]						Cable entries
		LA	AJ	AK	BD	BF	BB	O
1.5	56C	0.63 (16)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	3/8"	0.16 (4)	1/2" NPT (4)
2		1.42 (36)	5.87 (149.2)	4.50 (114.3)	6.50 (165)	3/8"	0.16 (4)	
3	182TC	0.75 (19)	7.25 (184.15)	8.50 (215.9)	8.50 (215.9)	1/2"-13	0.25 (6.35)	1/2" NPT (5)
5		0.75 (19)	7.25 (184.15)	8.50 (215.9)	8.50 (215.9)	1/2"-13	0.25 (6.35)	

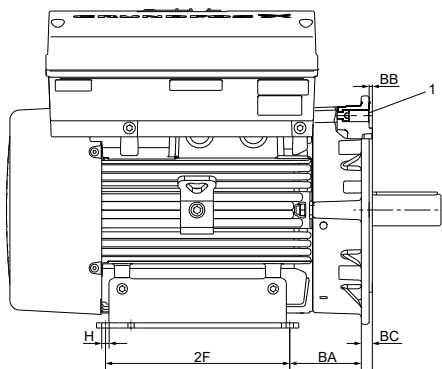
Power [HP]	NEMA frame	Flange [in (mm)]						Cable entries
		LA	AJ	AK	BD	BF	BB	O
7.5	213TC	0.79 (20)	7.25 (184.15)	8.50 (215.9)	8.68 (220.5)	1/2"-13	0.25 (6.35)	3/4" NPT (1) and 1/2" NPT (5)
10	254TC	0.94 (24)	7.25 (184)	8.50 (216)	9.88 (251)	1/2"-13	0.28 (7)	1" NPT (1) and 1/2" NPT (6)
15	254TC	0.94 (24)	7.25 (184)	8.50 (216)	9.88 (251)	1/2"-13	0.28 (7)	1" NPT (1) and 1/2" NPT (6)

MLE motors for CRE-H and CRNE-H
C-Face mounting with foot

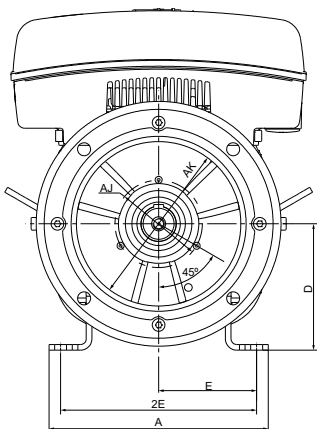


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Dimensional sketches

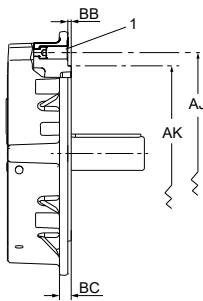


TM085548



TM085549

Dimensions for frames where AJ is greater than AK:



TM085577

Pos.	Description
1	Mounting surface

Dimensional data

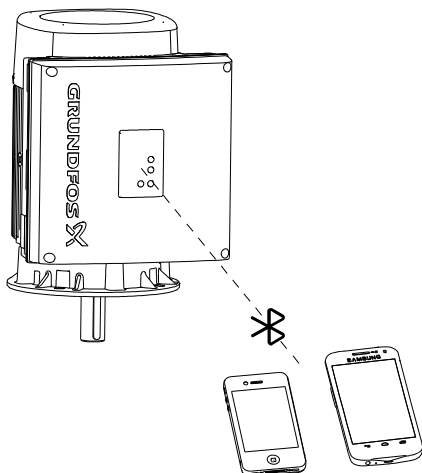
Power [hp]	PH	Frame size	Foot dimensions [in (mm)]						
			A	D	E	2E	2F	BA + BC	H
1-phase 2-pole MLE motor with foot									
0.5	1	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
0.75	1	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
1	1	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
1.5	1	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
2	1	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
3-phase 2-pole MLE motor with foot									
1	3	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
1.5	3	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
2	3	56C	6.00 (153)	3.50 (89)	2.44 (62)	4.88 (124)	3.00 (76)	2.56 (65)	0.34 (8.6)
3	3	182TC	8.90 (226)	4.50 (114)	3.75 (95)	7.50 (191)	4.50 (114)	2.87 (73)	0.41 (10)
5	3	184TC	8.90 (226)	4.50 (114)	3.75 (95)	7.50 (191)	5.50 (140)	2.87 (73)	0.41 (10)
7.5	3	215TC	9.96 (253)	5.25 (133)	4.25 (108)	8.50 (216)	7.00 (178)	3.75 (95)	0.41 (10)
10	3	215TC	9.60 (244)	5.25 (133)	4.25 (108)	8.50 (216)	7.00 (178)	3.75 (95)	0.41 (10)
15	3	254TC	11.30 (287)	6.25 (159)	5.00 (127)	10.00 (254)	8.25 (210)	4.50 (114)	0.53 (13)
20	3	256TC	11.30 (287)	6.25 (159)	5.00 (127)	10.00 (254)	10.00 (254)	4.50 (114)	0.53 (13)
25	3	284TSC	12.30 (312)	7.00 (178)	5.50 (140)	11.00 (279)	9.50 (241)	5.00 (127)	0.53 (13)
30	3	286TSC	12.30 (312)	7.00 (178)	5.50 (140)	11.00 (279)	11.00 (279)	5.00 (127)	0.53 (13)

Bluetooth

The product incorporates a Bluetooth (BLE) module for remote control for the following MLE motors:

- 3 hp to 15 hp 3/60/200-240
- 5 hp to 30 hp 3/60/440-480.

Via the built-in Bluetooth module, the product can communicate with the Grundfos GO. Bluetooth communication can take place at distances up to 32.8 ft.



TM082930

Bluetooth information

Frequency of operation	2400 - 2483.5 MHz
Modulation type	GFSK
Data rate	2 Mbps
Transmit power	5 dBm EIRP with internal antenna

GLoWpan information

Frequency of operation	2405-2480 MHz
Modulation type	GP O-QPSK
Data rate	1 Mbps
Transmit power	5 dBm EIRP with internal antenna

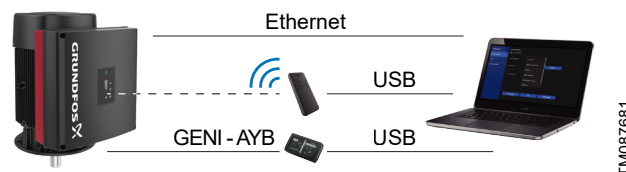
Grundfos GO Link

The product is designed for wired or wireless communication with the Grundfos GO Link.

The Grundfos GO Link enables you to set functions and gives you access to status overviews, configuration and current operating parameters.

Use the Grundfos GO Link together with the following interfaces:

- Ethernet cable (Only FM310 and FM311)
- Grundfos MI 301 - USB - Wired/wireless (Only HMI 100, HMI 200 and HMI 300)
- Grundfos MI 301 - USB - Wired/wireless (Only HMI 200 and HMI 300)
- Grundfos PC Tool Link - USB - Wired.



TM087681

Grundfos GO Link setup

Pos.	Description
1	Ethernet cable: Standard Ethernet cable CAT5/CAT6
2	Grundfos MI 301: Separate radio equipment enabling radio communication ¹⁾
3	Grundfos PC Tool Link: Separate module enabling wired connection to the pump ¹⁾

¹⁾ Use the module together with a USB cable to connect to a laptop.

Safe Torque Off (STO) function

The Safe Torque Off (STO) is a safety function to stop the motor from turning without actively braking it. It follows the definition by the EN61800-5-2.

The principle of operation is the following:

- The Safe Torque Off (STO) function is activated (the input circuits are opened, for example, by opening contractors).
- The Safe Torque Off (STO) inputs of the motor de-energize.
- The motor cuts off the control signal for the output transistors.
- The motor coasts to a stop if it is running. The drive cannot restart while the Safe Torque Off (STO) function is activated. After deactivating the Safe Torque Off (STO), the motor can restart immediately.
- Finally, the control software of the motor generates a Safe Torque Off (STO) alert and corresponding indications. The Safe Torque Off (STO) alert can be configured.

For instructions on how to activate and operate the Safe Torque Off (STO) function, read the following installation and operating instructions.



QR92916582

Safe Torque Off

Installation and operating instructions

<http://net.grundfos.com/qr/i/92916582>

MLE functional modules

Supply voltage

MLE 0.5 to 2 hp, 1/60/200-240

MLE 1.5 to 2 hp, 3/60/200-240

MLE 1 to 3 hp, 3/60/440-480

FM300

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

Inputs and outputs

The module has the following connections:

- three analog inputs
- one analog output
- two dedicated digital inputs
- two configurable digital inputs or open-collector outputs
- Grundfos Digital Sensor input and output
- two Pt100/1000 inputs
- two LiqTec sensor inputs
- two signal relay outputs
- GENIbus connection.

Connection terminals

All inputs and outputs are internally separated from the mains-conducting parts by reinforced insulation, and are galvanically separated from other circuits. All control terminals are supplied with protective extra-low voltage (PELV), thus ensuring protection against electric shock.

- Signal relay outputs
 - Signal relay 1:

LIVE:

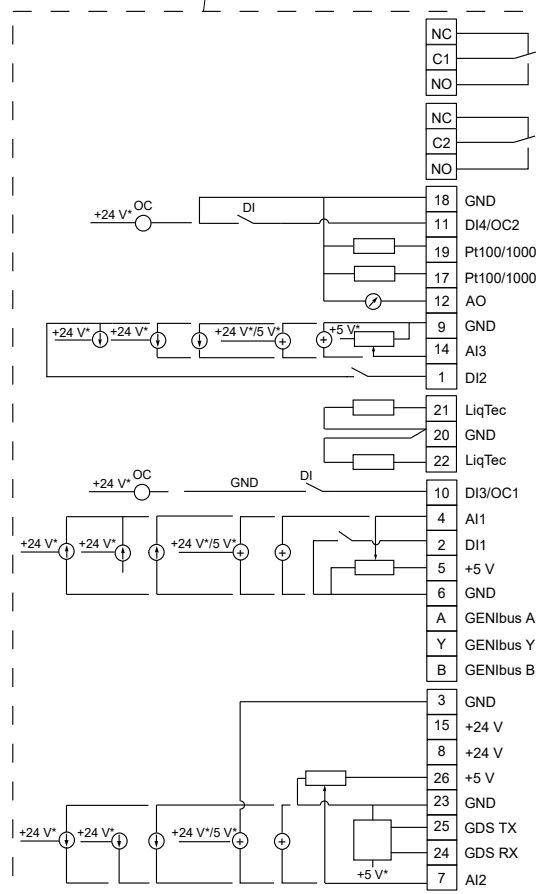
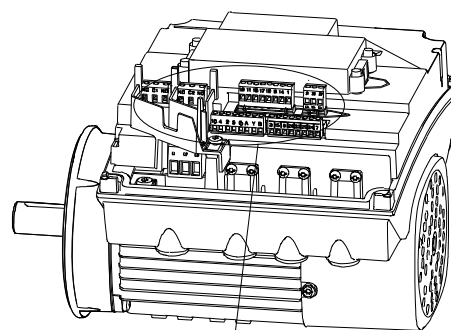
Power supply voltages up to 250 VAC can be connected to this output.

PELV:

The output is galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.
 - Signal relay 2:

PELV:

The output is galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.
- Power supply (terminals N, PE, L or L1, L2, L3, PE).



TM053509

Connection terminals, FM300 functional module

* If an external supply source is used, there must be a connection to the GND.

Terminal	Type	Function
NC	Normally closed contact	Signal relay 1: LIVE or PELV
C1	Common	
NO	Normally open contact	
NC	Normally closed contact	Signal relay 2: PELV only
C2	Common	

Terminal	Type	Function
NO	Normally open contact	
18	GND	Signal ground
110.5 - 3.5 V or 0-5 V or 0-10 V	DI4/OC2	Digital input/output, configurable Open collector: Maximum 24 V resistive or inductive
19	Pt100/1000 input 2	Pt100/1000 sensor input 2
17	Pt100/1000 input 1	Pt100/1000 sensor input 1
12	AO	Analog output: • 0-20 mA or 4-20 mA • 0-10 V
9	GND	Signal ground
14	AI3	Analog input: • 0-20 mA or 4-20 mA • 0-10 V
1	DI2	Digital input, configurable
21	LiqTec sensor input 1	LiqTec sensor input 1 White conductor
20	GND	Signal ground Brown and black conductors
22	LiqTec sensor input 2	LiqTec sensor input 2 Blue conductor
10	DI3/OC1	Digital input/output, configurable Open collector: Maximum 24 V resistive or inductive
4	AI1	Analog input: • 0-20 mA or 4-20 mA • 0.5 - 3.5 V, 0-5 V or 0-10 V
2	DI1	Digital input, configurable
5	+5 V	Power supply to a potentiometer and sensor
6	GND	Signal ground
A	GENIbus, A	GENIbus, A (+)
Y	GENIbus, Y	GENIbus, GND
B	GENIbus, B	GENIbus, B (-)
3	GND	Signal ground
15	+24 V	Power supply
8	+24 V	Power supply
26	+5 V	Supply to potentiometer and sensor
23	GND	Signal ground
25	GDS TX	Grundfos Digital Sensor output
24	GDS RX	Grundfos Digital Sensor input
7	AI2	Analog input: • 0-20 mA or 4-20 mA • 0.5 - 3.5 V, 0-5 V or 0-10 V

Supply voltage

MLE 3 to 15 hp, 3/60/200-240

MLE 5 to 30 hp, 3/60/440-480

FM310 and FM311

Inputs and outputs

Note that the FM311 functional module does not include Bluetooth connection.

The module has the following connections:

- three analog inputs
- one analog output
- two dedicated digital inputs
- two configurable digital inputs or open-collector outputs
- Grundfos Digital Sensor input and output
- two Pt100/1000 inputs
- two LiqTec sensor inputs
- two signal relay outputs
- GENIbus/Modbus connection
- two Safe Torque Off (STO) inputs²⁾
- Ethernet connection
- Bluetooth (BLE) connection.³⁾

²⁾ The Safe Torque Off (STO) is a safety function to stop the motor from turning without actively braking it. It follows the definition by the EN 61800-5-2.

³⁾ The FM311 is without Bluetooth.

Connection terminals

All control terminals are supplied with safety extra-low voltage (SELV), ensuring protection against electric shock.

The inputs and outputs are internally separated from the mains-conducting parts by reinforced insulation and galvanically separated from other circuits.

Cables for the relays and the Ethernet cable must be rated at least 250 V / 2 A.

The relays are approved for the overvoltage category II, whether power is supplied from a transformer or the power supply.

Signal relay outputs

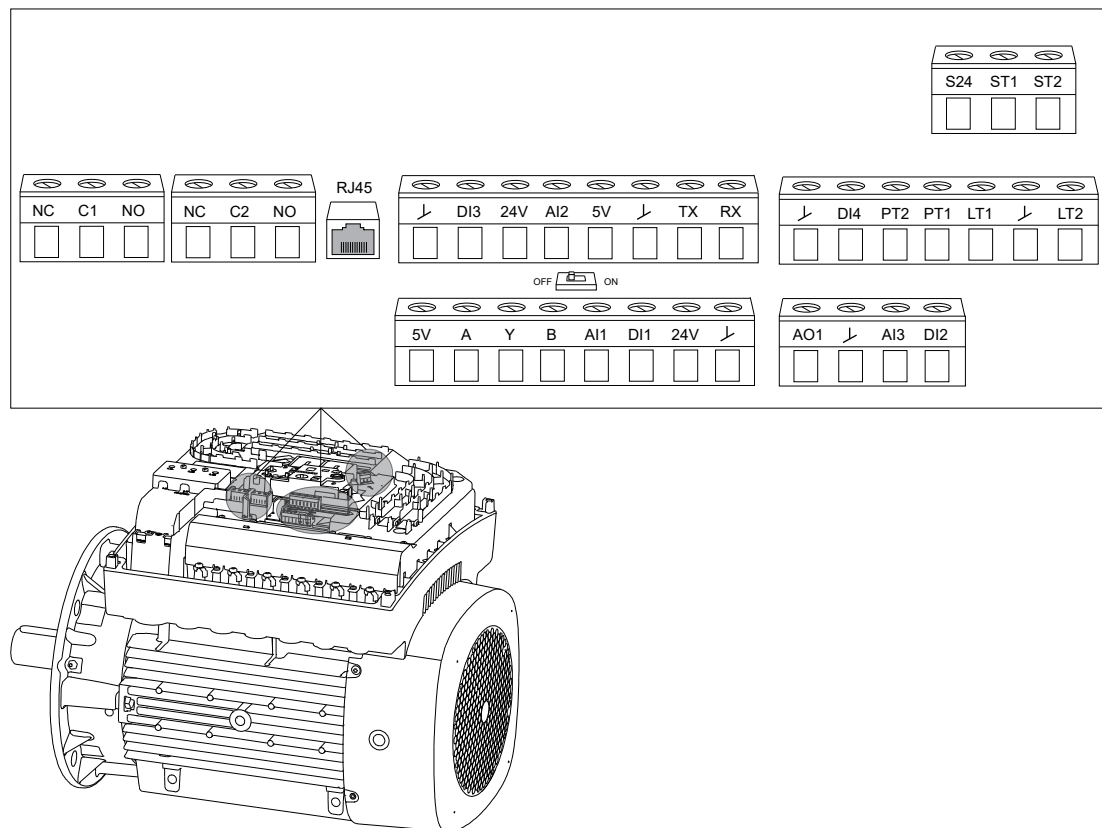
Signal relay 1

LIVE: You can connect supply voltages up to 250 VAC to the output.

SELV: The output is galvanically separated from other circuits. Therefore, you can connect the supply voltage or safety extra-low voltage to the output as desired.

Signal relay 2

SELV: The output is galvanically separated from other circuits. Therefore, you can connect the supply voltage or safety extra-low voltage to the output as desired.



TM082862

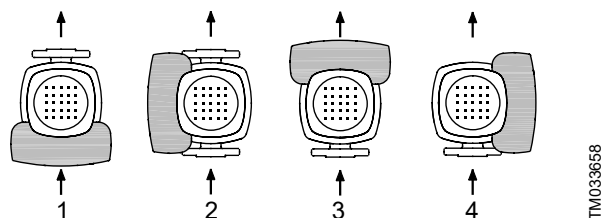
Terminal	Type	Function
NC	Normally closed contact	Signal relay 1: LIVE or SELV
C1	Common	
NO	Normally open contact	
NC	Normally closed contact	Signal relay 2: SELV only
C2	Common	
NO	Normally open contact	
RJ45	Ethernet	Ethernet communication
GND	GND	Signal ground
DI3	DI3/OC1	Digital input/output, configurable Open collector: Maximum 24 V resistive or inductive
24V	+24 V	Power supply
AI2	AI2	Analog input: • 0-20 mA or 4-20 mA • 0.5 - 3.5 V, 0-5 V or 0-10 V
5V	+5 V	Power supply to a potentiometer or sensor
GND	GND	Signal ground
TX	GDS TX	Grundfos Digital Sensor output
RX	GDS RX	Grundfos Digital Sensor input
GND	GND	Signal ground
DI4	DI4/OC2	Digital input/output, configurable Open collector: Maximum 24 V resistive or inductive
PT2	Pt100/1000 input 2	Pt100/1000 sensor input 2
PT1	Pt100/1000 input 1	Pt100/1000 sensor input 1
LT1	LiqTec sensor input 1	LiqTec sensor input 1 White conductor

Terminal	Type	Function
GND	GND	Signal ground Brown and black conductors
LT2	LiqTec sensor input 2	LiqTec sensor input 2 Blue conductor
5V	+5 V	Power supply to a potentiometer or sensor
A	GENIbus, A	GENIbus, A (+) / Modbus, D1 (+)
Y	GENIbus, Y	GENIbus, GND / Modbus, GND
B	GENIbus, B	GENIbus, B (-) / Modbus, D0 (-)
AI1	AI1	Analog input: • 0-20 mA or 4-20 mA • 0.5 - 3.5 V, 0-5 V or 0-10 V
DI1	DI1	Digital input ⁴⁾ , configurable
24V	+24 V	Power supply
GND	GND	Signal ground
AO1	AO	Analog output: • 0-20 mA or 4-20 mA • 0-10 V
GND	GND	Signal ground
AI3	AI3	Analog input: • 0-20 mA or 4-20 mA • 0.5 - 3.5 V, 0-5 V or 0-10 V
DI2	DI2	Digital input, configurable
S24	+24 V (STO)	Power supply to the Safe Torque Off inputs
ST1	STO1	Safe Torque Off - Input 1
ST2	STO2	Safe Torque Off - Input 2

⁴⁾ The digital input 1 is factory-set to be start or stop input where an open circuit results in stop. A jumper is factory-fitted between the terminals DI1 and GND. Remove the jumper if the digital input 1 is to be used as external start or stop or any other external function.

Terminal box positions

As standard, the terminal box is fitted on the inlet side of the pump.



Terminal box positions

Pos.	Description
1	6 o'clock position (standard)
2	9 o'clock position
3	12 o'clock position
4	3 o'clock position

Ambient temperature and installation altitude

The ambient temperature and the installation altitude are important factors for the motor life as they affect the bearings and the insulation system. The installation altitude is the height of the installation site above sea level.

Motors installed within the maximum ambient temperature and altitude can be loaded 100 %.

If the ambient temperature or the installation altitude exceeds the recommended maximum values, the motor must not be fully loaded due to risk of overheating. Overheating may result from excessive ambient temperatures or high altitudes with low density and low cooling effect of the air.

In such cases, it may be necessary to select an oversized motor with a higher rated output. To determine the motor load, it is necessary to calculate the derated motor power.

Maximum ambient temperature and altitude for Grundfos MLE motors

The table shows the maximum permissible ambient temperature at full load and the maximum permissible installation altitude above sea level at full load.

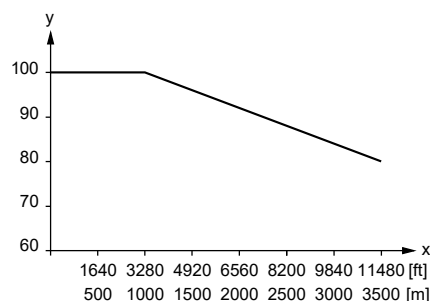
Motor efficiency class: Ultra Premium Efficiency.

Motor power [hp]	Motor make	Voltage [V]	Max. ambient temperature [°F (°C)]	Max. altitude above sea level [ft (m)]
0.5 to 2	MLE	1 × 200-240	122 (50)	3280 (1000)
1.5 to 15	MLE	3 × 200-240	104 (40)	
1 to 30	MLE	3 × 440-480	122 (50)	

Motor load for Grundfos MLE motors

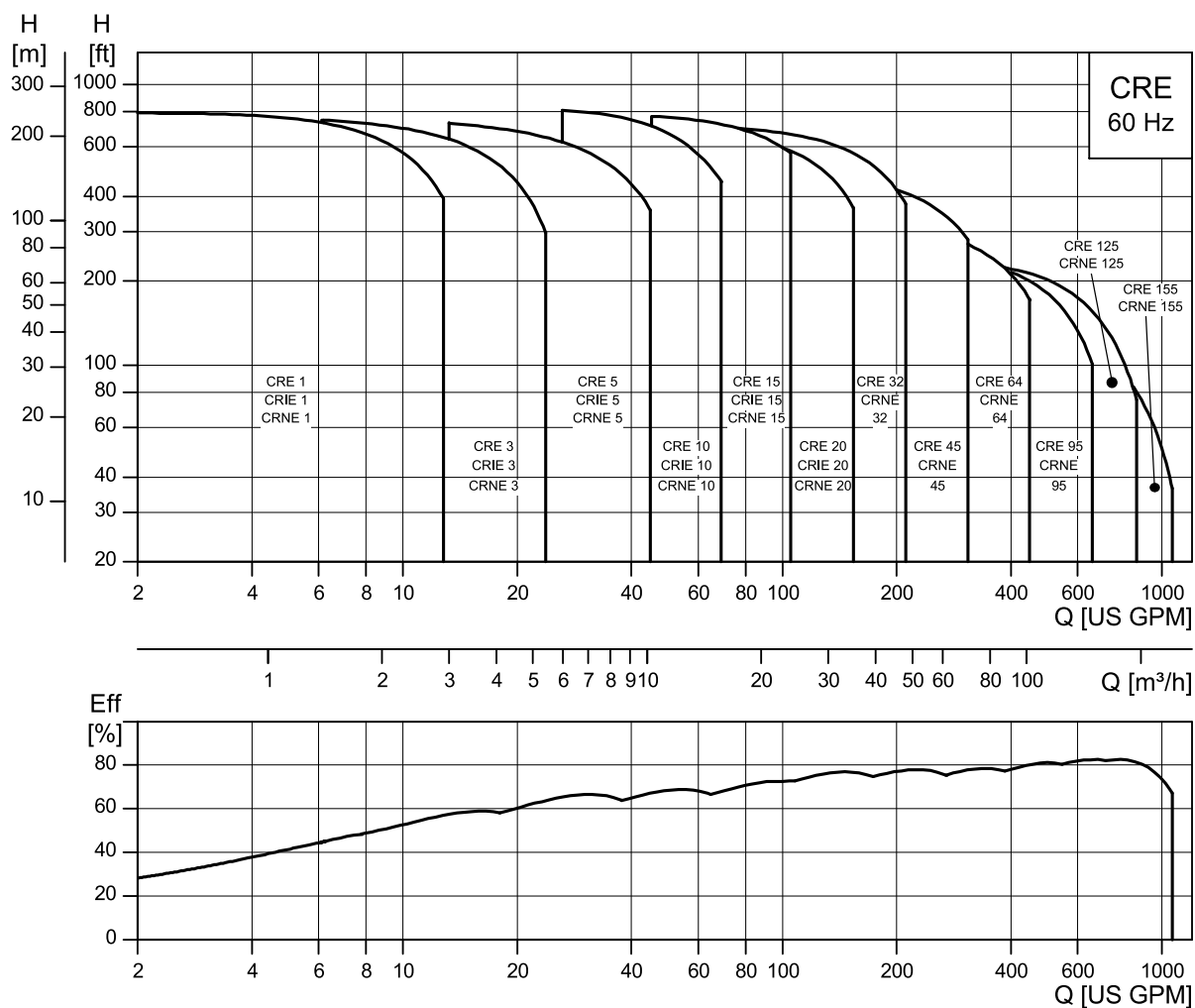
The MLE motors can be installed up to 11 480 ft (3500 m) above sea level.

Motors installed above the maximum installation altitude of 3280 ft (1000 m) above sea level must not be fully loaded. Use the below curve to calculate the derated motor power. If the required motor output exceeds the derated motor power, select an oversized motor.



Derating of the motor output power P_2 % (y-axis) in relation to the installation altitude above sea level in feet (x-axis)

4. Performance range



TM051598

5. Product range

CRE, CRIE, CRNE pump size	1	3	5	10	15	20
Rated flow rate [US gpm (m ³ /h)]	11 (2.5)	18 (4.1)	34.3 (7.8)	59 (13.4)	104 (23.7)	114 (26.1)
Flow range [US gpm (m ³ /h)]	1.1 - 14.3 (0.25 - 3.2)	1.8 - 26 (0.41 - 5.9)	3.4 - 44.7 (0.78 - 10.1)	5.9 - 73.3 (1.3 - 16.6)	10-140 (2.3 - 31.8)	11-158 (2.6 - 35.8)
Minimum liquid temperature [°F (°C)]	-4 (-20)	-4 (-20)	-4 (-20)	-4 (-20)	-4 (-20)	-4 (-20)
Maximum liquid temperature [°F (°C)]	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)
Minimum liquid temperature [°F (°C)], on request	-40 (-40)	-40 (-40)	-40 (-40)	-40 (-40)	-40 (-40)	-40 (-40)
Maximum liquid temperature [°F (°C)], on request	+356 (+180)	+356 (+180)	+356 (+180)	+356 (+180)	+356 (+180)	+356 (+180)
Maximum pump efficiency [%]	48	56	61	68	73	71
Maximum working pressure [psi (bar)]	362 (25)	362 (25)	362 (25)	362 (25)	362 (25)	362 (25)
Maximum pump pressure (H [ft (m)])	789 (240)	839 (255)	828 (252)	814 (248)	838 (255)	791 (241)
Motor power [hp]	0.5 - 5	0.5 - 5	0.75 - 7.5	1 - 15	2 - 25	3 - 25
Standard versions						
CRE:						
Cast iron and stainless steel	•	•	•	•	•	•
AISI 304						
CRIE:						
Stainless steel	•	•	•	•	•	•
AISI 304						
CRNE:						
Stainless steel	•	•	•	•	•	•
AISI 316						
CRE pipe connection						
Oval flange (NPT)	1"	1"	1.25"	2"	2"	2"
ANSI flange size	1.25"	1.25"	1.25"	2"	2"	2"
ANSI flange class	250 lb.	250 lb.	250 lb.	250 lb.	250 lb.	250 lb.
CRIE pipe connection						
Oval flange (NPT)	1"	1"	1.25"	2"	2"	2"
ANSI flange size	1.25"	1.25"	1.25"	2"	2"	2"
ANSI flange class	300 lb.	300 lb.	300 lb.	300 lb.	300 lb.	300 lb.
CRNE pipe connection						
PJE (Victaulic)	-	-	-	2"	2"	2"
ANSI flange size	1.25"	1.25"	1.25"	2"	2"	2"
ANSI flange class	300 lb.	300 lb.	300 lb.	300 lb.	300 lb.	300 lb.

• Standard.

CRE, CRNE pump size	32	45	64	95	125	155
Rated flow rate [US gpm (m ³ /h)]	158 (36)	236 (54)	339 (77)	500 (114)	660 (150)	821 (186)
Flow range [US gpm (m ³ /h)]	16-204 (3.6 - 46)	23-299 (5.4 - 68)	33-447 (7.7 - 102)	50-664 (11 - 151)	66-869 (15 - 197)	82-1080 (18 - 245)
Minimum liquid temperature [°F (°C)] ⁵⁾	-22 (-30)	-22 (-30)	-22 (-30)	-22 (-30)	-22 (-30)	-22 (-30)
Maximum liquid temperature [°F (°C)] ⁷⁾	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)	+250 (+121)
Minimum liquid temperature [°F (°C)], on request	-40 (-40)	-40 (-40)	-40 (-40)	-	-	-
Maximum liquid temperature [°F (°C)], on request	+356 (+180)	+356 (+180)	+356 (+180)	-	-	-
Maximum pump efficiency [%]	76	76	78	79	78	75
Maximum working pressure [psi (bar)]	435 (30)	435 (30)	435 (30)	232 (16)	232 (16)	232 (16)
Maximum pump pressure (H [ft (m)])	739 (225)	508 (155)	340 (104)	267 (81)	243 (74)	153 (47)
Motor power [hp]	5-30	7.5 - 30	10-30	15-30	20-30	25
Standard versions						
CRE:						
Cast iron and stainless steel	•	•	•	•	•	•
AISI 304						
CRNE:						
Stainless steel	•	•	•	•	•	•
AISI 316						
CRE pipe connection						
ANSI flange size	2.5"	3"	4"	4"	6"	6"
ANSI flange class	125/ 250 lb.	125/ 250 lb.	125/ 250 lb.	150/ 300 lb.	150/ 300 lb.	150/ 300 lb.
CRNE pipe connection						
ANSI flange size	2.5"	3"	4"	4"	6"	6"
ANSI flange class	150/ 300 lb.	150/ 300 lb.	150/ 300 lb.	150/ 300 lb.	150/ 300 lb.	150/ 300 lb.

⁵⁾ The minimum liquid temperature for the CRNE 32 to CRNE 64 pumps with the HQQE shaft seal is -4 °F (-20 °C).

⁶⁾ The minimum liquid temperature for the CRNE 95 to 155 pumps with the HQQE shaft seal is -40 °F (-40 °C).

⁷⁾ The maximum liquid temperature for the CRNE 95 to 155 pumps with the HQQE shaft seal is +248 °F (+120 °C).

- Standard

6. Identification

Type key

Example

CRE 32-4-2 A-G-A-E-HQQE-N-C-B

Code	Explanation
CR	Type range: CR, CRI, CRN
E	Pump with integrated frequency converter
32	Flow rate [gpm (m ³ /h)]
4	Number of impellers
2	Number of reduced-diameter impellers
A	Code for pump version
G	Code for pipe connection
A	Code for materials
E	Code for rubber parts
	Code for shaft seal:
H	• Shaft seal type designation
Q	• Seal face material (rotating seal face)
Q	• Seal face material (stationary seal face)
E	• Secondary seal material (rubber parts)
N	Code for motor: P2 [hp (kW)]
C	Code for motor: phase and voltage [V]
B	Code for motor: speed variant [rpm]

Key to codes

Code	Description
Pump version	
A	Basic version
B	Oversize motor
C	CR compact
D	Pump with pressure intensifier
E	Pump with certificate
F	Pump for high temperatures (with air-cooled top)
G	E-pump without operating panel
H	Horizontal version
I	Different pressure rating
J	E-pump with a different maximum speed
K	Pump with low NPSH
L	Pump including Grundfos CUE and certificate
M	Magnetic drive
N	With sensor
O	Cleaned and dried
P	Undersize motor
Q	High-pressure pump with high-speed MLE motor
R	Belt-driven pump
S	High-pressure pump
T	Thrust handling device
U	ATEX-approved pump
V	Cascade function

Code	Description
W	Deep-well pump with ejector
X	Special version
6	Special version with NSF 61/372 approval
Y	Electropolished
Z	Pumps with bearing flange

Pipe connection	
A	Oval flange
B	NPT thread
CA	FlexiClamp
CX	TriClamp
F	DIN flange
FC	DIN 11853-2 flange (collar flange)
FE	EN 1092-1, type E
G	ANSI flange
J	JIS flange
N	Changed diameter of ports
P	PJE coupling (Victaulic type)
X	Special version

Materials	
A	Basic version
C	Carbon-free pump
D	Carbon-graphite-filled PTFE (bearings)/tungsten carbide
E	Pickled and passivated (Only Japan)
H	Flanges and base plate EN 1.4408
K	Bronze (bearings)/tungsten carbide
L	Motor stool, base plate and flanges EN 1.4408
M	Motor stool, base plate, coupling and flanges EN 1.4408 and coupling guards in cobber. Bolts, nuts and spacing pipes EN 1.4401 or higher grade
N	Flanges EN 1.4408
P	PEEK neck ring
Q	Silicon carbide/silicon carbide bearing in pump and silicon carbide/silicon carbide seal faces in thrust handling device
R	Silicon carbide/silicon carbide bearing
S	PTFE neck rings
T	Base plate EN 1.4408
U	Silicon carbide/silicon carbide bearing in pump and silicon carbide/tungsten carbide seal faces in thrust handling device
W	Tungsten carbide/tungsten carbide
X	Special version

Rubber parts in pump	
E	EPDM
F	FXM (Fluoraz®)
K	FFKM (Kalrez®)
N	CR (Neoprene)
V	FKM (Viton®)

Shaft seal type designation	
A	O-ring seal with fixed driver
H	Balanced cartridge seal with O-ring

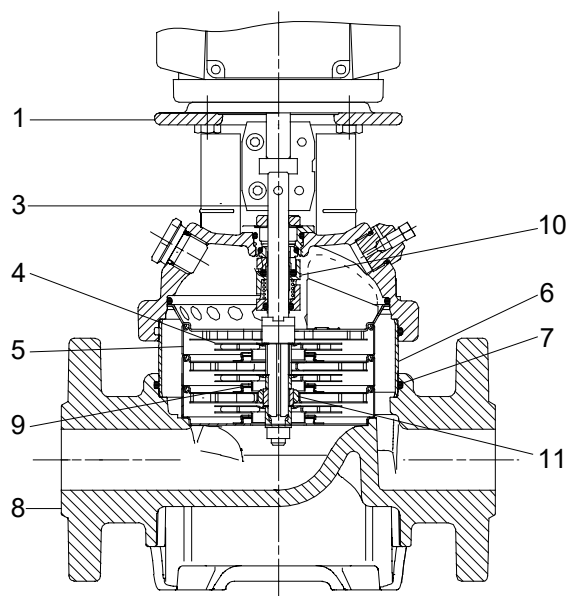
Code	Description
O	Double seal, back-to-back
P	Double seal, tandem
X	Special version
Seal face material (rotating and stationary seal face)	
B	Carbon, synthetic resin-impregnated
U	Cemented tungsten carbide
Q	Silicon carbide
X	Other ceramics
Secondary seal material (rubber parts)	
E	EPDM
F	FXM (Fluoraz®)
K	FFKM (Kalrez®)
V	FKM (Viton®)

Codes for motor

Code	Description
P2 [hp (kW)]	
C	0.33 (0.25)
D	0.5 (0.37)
E	0.75 (0.55)
F	1 (0.75)
G	1.5 (1.1)
H	2 (1.5)
I	3 (2.2)
K	5 (4)
L	7.5 (5.5)
M	10 (7.5)
N	15 (11)
O	20 (15)
P	25 (18.5)
Q	30 (22)
Phase and voltage (V)	
A	1 × 200-240 V
B	3 × 200-240 V
C	3 × 440-480 V
D	3 × 380-500 V
X	Not defined
Speed variant (rpm)	
A	1450-2000
B	2900-4000
C	4000-5900
2	2-pole
4	4-pole

7. Construction

CRE 1, 3, 5, 10, 15, 20



TM021194

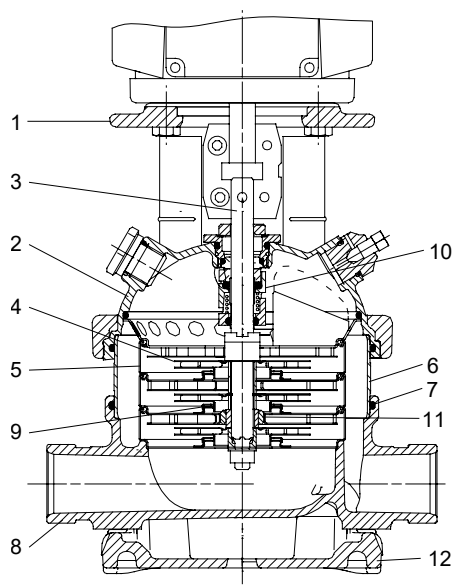
Materials, CRE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Pump head	Grey cast iron	EN 1561 EN-GJL-200	ASTM 25B
3	Shaft	Stainless steel	EN 10088 1.4401 ⁸⁾ EN 10088 1.4057 ⁹⁾	AISI 316 ⁸⁾ AISI 431 ⁹⁾
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Grey cast iron	EN 1561 EN-GJL-250	ASTM 25B
9	Neck ring	PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
	Staybolts	Bright steel	EN 10277 C35R	-

⁸⁾ CRE 1, 3, 5

⁹⁾ CRE 10, 15, 20

CRIE 1, 3, 5, 10, 15, 20



TM021195

Materials, CRIE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Grey cast iron ¹⁰⁾	EN 1563 EN-GJS-450-10	ASTM A536 65-45-12
2	Pump head	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
3	Shaft	Stainless steel	EN 10088 1.4401 ¹¹⁾ EN 10088 1.4057 ¹²⁾	AISI 316 ¹¹⁾ AISI 431 ¹²⁾
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
9	Neck ring	PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Base plate	Grey cast iron ¹⁰⁾	EN 1561 EN-GJL-200 ^{12)+ 13)} EN 1563 EN-GJS-500-7 ¹⁴⁾	ASTM 25B ^{12)+ 13)} ASTM A536 65-45-12 ¹⁴⁾
	Staybolts	Bright steel	EN 10277 C35R	-

¹⁰⁾ Stainless steel available on request.

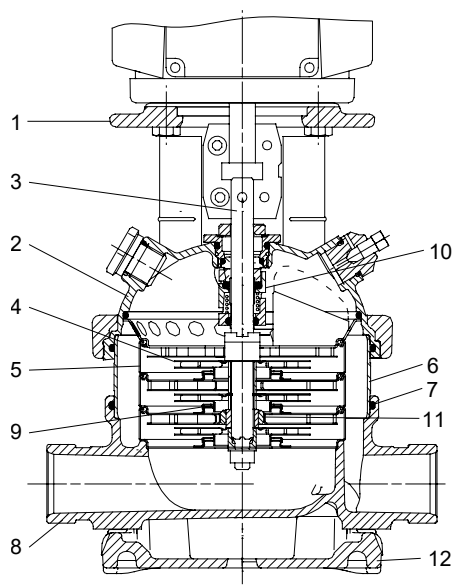
¹¹⁾ CRIE 1, 3, 5.

¹²⁾ CRIE 10, 15, 20.

¹³⁾ CRIE 1, 3, 5 with FGJ flange connection

¹⁴⁾ CRIE 1, 3, 5 with clamp connections, such as PJE, CA

CRNE 1, 3, 5, 10, 15, 20



TM021195

Materials, CRNE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Grey cast iron ¹⁵⁾	EN 1563 EN-GJS-450-10	ASTM A536 65-45-12
2	Pump head	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
3	Shaft	Stainless steel	EN 10088 1.4401 ¹⁶⁾ EN 10088 1.4460 ¹⁷⁾	AISI 316 ¹⁶⁾ AISI 329 ¹⁷⁾
4	Impeller	Stainless steel	EN 10088 1.4401	AISI 316
5	Chamber	Stainless steel	EN 10088 1.4401	AISI 316
6	Sleeve	Stainless steel	EN 10088 1.4401	AISI 316
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
9	Neck ring	PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Base plate	Grey cast iron ¹⁵⁾	EN 1561 EN-GJL-200 ^{17)+ 18)} EN 1563 EN-GJS-500-7 ¹⁹⁾	ASTM 25B ^{17)+ 18)} ASTM A536 65-45-12 ¹⁹⁾
	Staybolts	Stainless steel	EN 10088 1.4401 ¹⁶⁾ EN 10088 1.4057 ¹⁷⁾	AISI 316 ¹⁶⁾ AISI 431 ¹⁷⁾

¹⁵⁾ Stainless steel available on request.

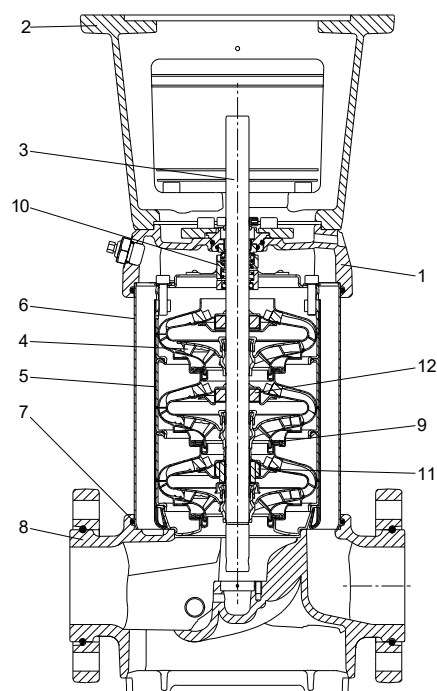
¹⁶⁾ CRNE 1, 3, 5

¹⁷⁾ CRNE 10, 15, 20

¹⁸⁾ CRNE 1, 3, 5 with FGJ flange connection

¹⁹⁾ CRNE 1, 3, 5 with clamp connections, such as PJE, CA

CRE 32, 45, 64

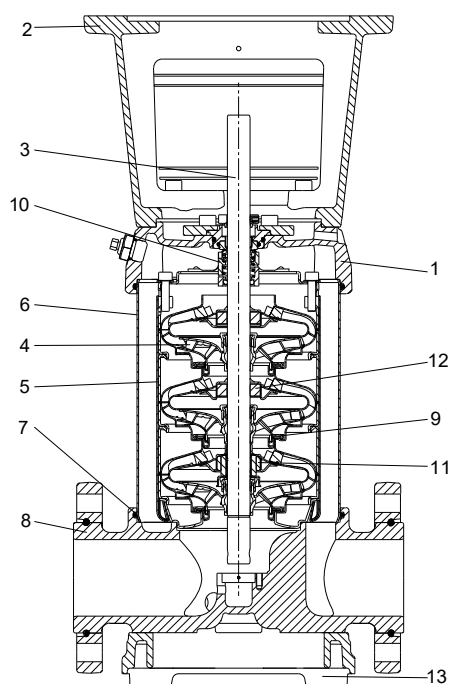


TM060711

Materials, CRE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Pump head	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
2	Motor stool	Grey cast iron	EN 1561 EN-GJL-200	ASTM 25B
3	Shaft	Stainless steel	EN 10088 1.4057	AISI 431
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
9	Neck ring	Carbon-graphite-filled PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Support bushing	Carbon-graphite-filled PTFE	-	-
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
	Staybolts	Bright steel	EN 10277 ETG 35	-

CRNE 32, 45, 64



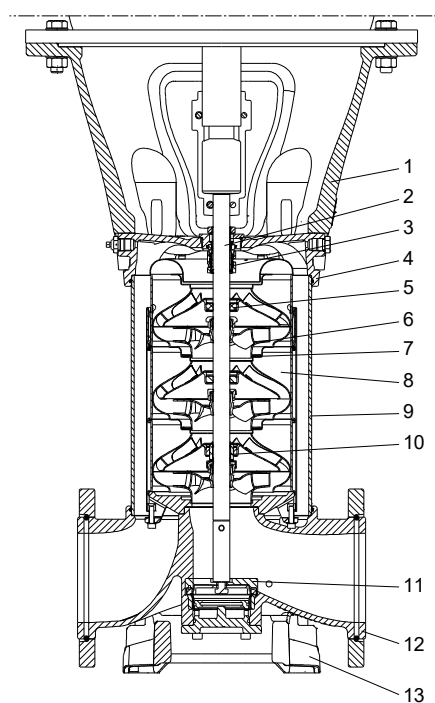
TM060712

Materials, CRNE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Pump head	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
2	Motor stool	Grey cast iron ²⁰⁾	EN 1561 EN-GJL-200	ASTM 25B
3	Shaft	Stainless steel	EN 10088 1.4462	-
4	Impeller	Stainless steel	EN 10088 1.4401	AISI 316
5	Chamber	Stainless steel	EN 10088 1.4401	AISI 316
6	Sleeve	Stainless steel	EN 10088 1.4401	AISI 316
7	O-ring for sleeve	EPDM or FKM		-
8	Base	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
9	Neck ring	Carbon-graphite-filled PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Support bushing	Carbon-graphite-filled PTFE	-	-
13	Base plate	Ductile cast iron ²⁰⁾	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
	Staybolts	Stainless steel	EN 10088 1.4057	AISI 431

²⁰⁾ Stainless steel is available on request.

CRE 95, 125, 155



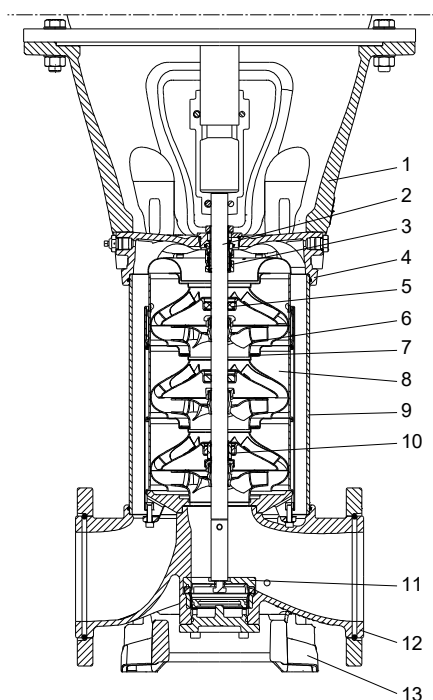
TM065161

Materials, CRE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
2	Shaft	Stainless steel	EN 10088 1.4057 ²¹⁾ EN 10088 1.4462 ²²⁾	AISI 431 ²¹⁾ AISI 318 LN ²²⁾
3	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
4	Pump head	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
5	Support bearing (bush)	Carbon-graphite-filled PTFE		
6	Impeller	Stainless steel	EN 10088 1.4301 EN 10088 1.4401	AISI 304 AISI 316
7	Neck ring	PEEK	-	-
8	Chamber	Stainless steel	EN 10088 1.4301 EN 10088 1.4401	AISI 304 AISI 316
9	Sleeve	Stainless steel	EN 10088 1.4301 ²¹⁾ EN 10088 1.4404 ²²⁾	AISI 304 ²¹⁾ AISI 316 L ²²⁾
10	Bearing ring	Tungsten carbide/tungsten carbide	-	-
11	Thrust handling device ²³⁾	Stainless steel	EN 10088 1.4401 EN 10283 1.4408	AISI 316 CF 8M equal to AISI 316
		Silicon carbide/tungsten carbide	-	-
12	Base	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
	Staybolts	Stainless steel	EN 10088 1.4057	AISI 431

²¹⁾ CRE 95²²⁾ CRE 125, 155²³⁾ Only fitted on pumps with 100 hp motors or larger.

CRNE 95, 125, 155



TM065161

Materials, CRNE

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
2	Shaft	Stainless steel	EN 10088 1.4462	318 LN
3	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
4	Pump head	Stainless steel	EN 10283 1.4408	CF 8M
5	Support bearing (bush)	Carbon-graphite-filled PTFE	-	-
6	Impeller	Stainless steel	EN 10088 1.4401	AISI 316
7	Neck ring	PEEK	-	-
8	Chamber	Stainless steel	EN 10088 1.4401	AISI 316
9	Sleeve	Stainless steel	EN 10088 1.4404	AISI 316 L
10	Bearing ring	Tungsten carbide/tungsten carbide	-	-
11	Thrust handling device ²⁴⁾	Stainless steel	EN 10088 1.4401 EN 10283 1.4408	AISI 316 CF 8M equal to AISI 316
		Silicon carbide/tungsten carbide	-	-
12	Base	Stainless steel	EN 10283 1.4408	CF 8M
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
	Staybolts	Stainless steel	EN 10088 1.4057	AISI 431

²⁴⁾ It is only fitted on pumps with 100 hp motors or larger.

8. Operating conditions

Pumped liquids

The pumps are designed to pump non-explosive liquids that do not chemically attack the pump materials.

When pumping liquids with a density or viscosity higher than that of water, oversized motors may be required.

Whether a pump is suitable for a particular liquid depends on several factors of which the most important are the chloride content, pH-value, temperature and content of chemicals and oils.

Note that aggressive liquids may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

CRE and CRIE

These pumps are suitable for non-corrosive liquids.

Use them for liquid transfer, circulation and pressure boosting of cold or hot clean water.

CRNE

This pump is suitable for industrial liquids.

Use it in systems where all parts in contact with the liquid must be made of high-grade stainless steel.

Viscosity

Pumping liquids with densities or kinematic viscosities higher than those of water causes a considerable pressure drop, a drop in the hydraulic performance and a rise in power consumption.

In such situations, the pump must be fitted with a larger motor. If in doubt, contact Grundfos.

List of pumped liquids

A number of typical liquids are listed below.

Other pump versions may be applicable, but those stated in the list are considered the best choices.

The table is intended as a general guide only, and cannot replace actual testing of the pumped liquids and pump materials under specific working conditions.

Therefore, use the list with caution. Factors such as those mentioned below may affect the chemical resistance of a specific pump version:

- concentration of the pumped liquid
- liquid temperature
- pressure.

Take safety precautions when pumping dangerous liquids.

Notes

D	Often with additives
E	The density or viscosity differ from that of water. Take this factor into account when calculating the motor output and pump performance.
F	Pump selection depends on many factors. Contact Grundfos.
H	Risk of crystallization or precipitation in the shaft seal
1	Highly flammable liquid
2	Combustible liquid
3	Insoluble in water
4	Low self-ignition point

Pumped liquid	Chemical formula	Note	Liquid concentration, liquid temperature	CRE	CRNE
Acetic acid	CH ₃ COOH	-	5 %, 68 °F (20 °C)	-	HQQE
Acetone	CH ₃ COCH ₃	1, F	100 %, 68 °F (20 °C)	-	HQQE
Alkaline degreasing agent		D, F	-	HQQE	-
Ammonium bicarbonate	NH ₄ HCO ₃	E	20 %, 86 °F (30 °C)	-	HQQE
Ammonium hydroxide	NH ₄ OH	-	20 %, 104 °F (40 °C)	HQQE	-
Aviation fuel		1, 3, 4, F	100 %, 68 °F (20 °C)	HQBV	-
Benzoic acid	C ₆ H ₅ COOH	H	0.5 %, 68 °F (20 °C)	-	HQQV
Boiler water		-	< 248 °F (120 °C)	HQQE	-
		F	248-356 °F (120-180 °C)	-	-
Calcareous water		-	< 194 °F (90 °C)	HQQE	-
Calcium acetate (as coolant with inhibitor)	Ca(CH ₃ COO) ₂	D, E	30 %, 122 °F (50 °C)	HQQE	-
Calcium hydroxide	Ca (OH) ₂	E	Saturated solution, 122 °F (50 °C)	HQQE	-
Chloride-containing water		F	< 86 °F (30 °C), maximum 500 ppm	-	HQQE
Chromic acid	H ₂ CrO ₄	H	1 %, 68 °F (20 °C)	-	HQQV
Citric acid	HOC(CH ₂ CO ₂ H) ₂ COOH	H	5 %, 104 °F (40 °C)	-	HQQE
Completely desalinated water (demineralised water)		-	248 °F (120 °C)	-	HQQE
Condensate		-	248 °F (120 °C)	HQQE	-
Copper sulphate	CuSO ₄	E	10 %, 122 °F (50 °C)	-	HQQE
Corn oil		D, E, 3	100 %, 176 °F (80 °C)	HQQV	-
Diesel oil		2, 3, 4, F	100 %, 68 °F (20 °C)	HQBV	-
Domestic hot water (potable water)		-	< 248 °F (120 °C)	HQQE	-
Ethanol (ethyl alcohol)	C ₂ H ₅ OH	1, F	100 %, 68 °F (20 °C)	HQQE	-
Ethylene glycol	HOCH ₂ CH ₂ OH	D, E	50 %, 122 °F (50 °C)	HQQE	-
Formic acid	HCOOH	-	5 %, 68 °F (20 °C)	-	HQQE
Glycerine (glycerol)	OHCH ₂ CH(OH)CH ₂ OH	D, E	50 %, 122 °F (50 °C)	HQQE	-
Hydraulic oil (mineral)		E, 2, 3	100 %, 212 °F (100 °C)	HQQV	-
Hydraulic oil (synthetic)		E, 2, 3	100 %, 212 °F (100 °C)	HQQV	-
Isopropyl alcohol	CH ₃ CHOHCH ₃	1, F	100 %, 68 °F (20 °C)	HQQE	-
Lactic acid	CH ₃ CH(OH)COOH	E, H	10 %, 68 °F (20 °C)	-	HQQV
Linoleic acid	C ₁₇ H ₃₁ COOH	E, 3	100 %, 68 °F (20 °C)	HQQV	-
Methanol (methyl alcohol)	CH ₃ OH	1, F	100 %, 68 °F (20 °C)	HQQE	-
Motor oil		E, 2, 3	100 %, 176 °F (80 °C)	HQQV	-
Naphthalene	C ₁₀ H ₈	E, H	100 %, 176 °F (80 °C)	HQQV	-
Nitric acid	HNO ₃	F	1 %, 68 °F (20 °C)	-	HQQE
Oil-containing water		-	< 212 °F (100 °C)	HQQV	-
Olive oil		D, E, 3	100 %, 176 °F (80 °C)	HQQV	-
Oxalic acid	(COOH) ₂	H	1 %, 68 °F (20 °C)	-	HQQE
Ozone-containing water	(O ₃)	-	< 212 °F (100 °C)	-	HQQE
Peanut oil		D, E, 3	100 %, 176 °F (80 °C)	HQQV	-
Petrol		1, 3, 4, F	100 %, 68 °F (20 °C)	HQBV	-
Phosphoric acid	H ₃ PO ₄	E	20 %, 68 °F (20 °C)	-	HQQE
Propanol	C ₃ H ₇ OH	1, F	100 %, 68 °F (20 °C)	HQQE	-
Propylene glycol	CH ₃ CH(OH)CH ₂ OH	D, E	50 %, < 194 °F (90 °C)	HQQE	-
Potassium carbonate	K ₂ CO ₃	E	20 %, 122 °F (50 °C)	HQQE	-
Potassium formate (as coolant with inhibitor)	KOOCH	D, E	30 %, 122 °F (50 °C)	HQQE	-
Potassium hydroxide	KOH	E	20 %, 122 °F (50 °C)	-	HQQE

Pumped liquid	Chemical formula	Note	Liquid concentration, liquid temperature	CRE	CRNE
Potassium permanganate	KMnO ₄	-	5 %, 68 °F (20 °C)	-	HQQE
Rape seed oil		D, E, 3	100 %, 176 °F (80 °C)	HQQV	-
Salicylic acid	C ₆ H ₄ (OH)COOH	H	0.1 %, 68 °F (20 °C)	-	HQQE
Silicone oil		E, 3	100 %	HQQV	-
Sodium bicarbonate	NaHCO ₃	E	10 %, 140 °F (60 °C)	-	HQQE
Sodium chloride (as coolant)	NaCl	D, E	30 %, < 41 °F (5 °C), pH > 8	HQQE	-
Sodium hydroxide	NaOH	E	20 %, 122 °F (50 °C)	-	HQQE
Sodium hypochlorite	NaOCl	F	0.1 %, 68 °F (20 °C)	-	HQQV
Sodium nitrate	NaNO ₃	E	10 %, 140 °F (60 °C)	-	HQQE
Sodium phosphate	Na ₃ PO ₄	E, H	10 %, 140 °F (60 °C)	-	HQQE
Sodium sulphate	Na ₂ SO ₄	E, H	10 %, 140 °F (60 °C)	-	HQQE
Softened water		-	< 248 °F (120 °C)	-	HQQE
Soya oil		D, E, 3	100 %, 176 °F (80 °C)	HQQV	-
Sulphuric acid	H ₂ SO ₄	F	1 %, 68 °F (20 °C)	-	HQQV
Sulphurous acid	H ₂ SO ₃	-	1 %, 68 °F (20 °C)	-	HQQE
Unsalted swimming-pool water		-	Approx. 2 ppm free chlorine (Cl ₂)	HQQE	-

Operating and inlet pressure

Maximum operating pressure and liquid temperature

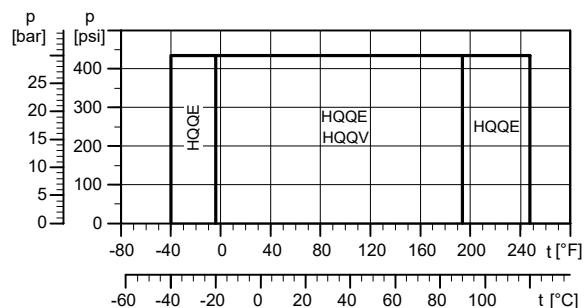
Pump type	Oval flange		PJE, clamp, ANSI	
	Maximum permissible operating pressure [psi]	Liquid temperature [°F]	Maximum permissible operating pressure [psi]	Liquid temperature [°F]
CRE, CRIE, CRNE 1	232	-4 to +248	362	-4 to +248
CRE, CRIE, CRNE 3	232		362	
CRE, CRIE, CRNE 5	232		362	
CRE, CRIE 10-1 → 10-8	232		232	
CRE, CRIE 10-9 → 10-13	-	-	362	-4 to +248
CRNE 10	232	-4 to +248	362	
CRE, CRIE 15-1 → 15-4	145	-	-	
CRE, CRIE 15-1 → 15-6	-	-	232	
CRE, CRIE 15-7 → 15-10	-	-	362	-4 to +248
CRNE 15	145	-4 to +248	362	
CRE, CRIE 20-1 → 20-4	145	-	-	
CRE, CRIE 20-1 → 20-6	-	-	232	
CRE, CRIE 20-7 → 20-9	-	-	362	-4 to +248
CRNE 20	145	-4 to +248	362	
CRE, CRNE 32-1-1 → 32-5	-	-	232	-22 to +248
CRE, CRNE 32-6-2 → 32-10-2	-	-	435	
CRE, CRNE 45-1-1 → 45-4	-	-	232	
CRE, CRNE 45-5-2 → 45-7	-	-	435	
CRE, CRNE 64-1-1 → 64-3	-	-	232	
CRE, CRNE 95-1-1 → 95-2-1	-	-	232	
CRE, CRNE 125-1-1 → 125-1	-	-	232	
CRE, CRNE 155-1-1	-	-	232	

Note that for pump sizes 32, 45, 64, the maximum pressure for PJE version is 50 bar and only available in the CRNE version.

Operating range of the shaft seal

The operating range of the shaft seal depends on the operating pressure, pump type, type of shaft seal and liquid temperature. The following curves apply to clean water and water with anti-freeze liquids. For selecting the right shaft seal, see the section on pumped liquids.

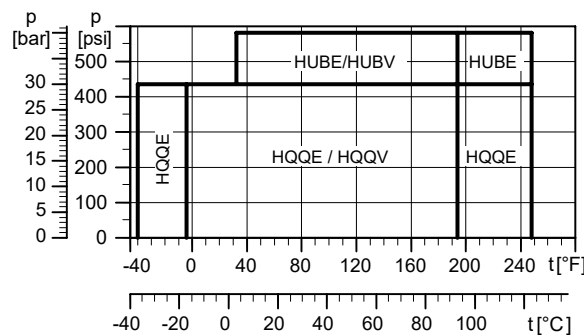
CRE, CRIE, CRNE 1 - CRE, CRIE, CRNE 20



TM059659

Operating range of standard shaft seals for CRE 1s - CRE 20

CRE, CRNE 32 - CRE, CRNE 64 [5 to 30 hp]



TM060999

Operating range of standard shaft seals for CRE 32 - CRE 64 [3 to 30 hp]

Shaft seal	Description	Max. temp. range [°F (°C)]
HQQE	O-ring (cartridge) (balanced seal), SiC/ SiC, EPDM	-40 to +248 (-40 to +120)
HQQV	O-ring (cartridge) (balanced seal), SiC/ SiC, FKM	-4 to +194 (-20 to +90)
HUBE	O-ring (cartridge) (balanced seal), TC/ carbon, EPDM ²⁵⁾	+32 to +248 (0 to +120)
HUBV	O-ring (cartridge) (balanced seal), TC/ carbon, FKM	+32 to +194 (0 to +90)

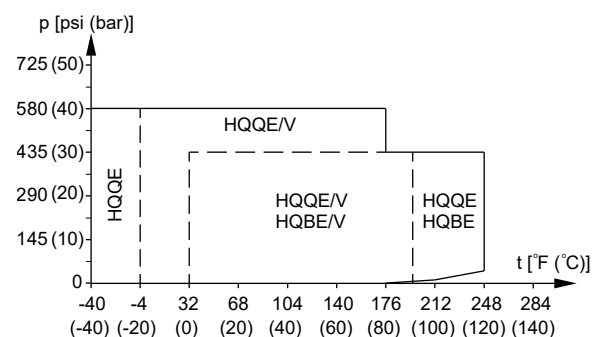
²⁵⁾ TC stands for tungsten carbide.

See the section on lists of variants on request, in case of extreme temperatures:

- low temperatures down to -40 °F (-40 °C) or
- high temperatures up to +356 °F (+180 °C).

CRE, CRNE 95-155

Shaft seals for Ø22 mm shafts [15 to 30 hp]



TM070324

Operating range of standard shaft seals for CRE, CRNE 95-155

Standard shaft seal	Description	Liquid temperature [°F (°C)]
HQQE	O-ring (cartridge) (balanced seal), Silicon carbide/Silicon carbide, EPDM	-40 - +248 (-40 - +120)
HQQV	O-ring (cartridge) (balanced seal), Silicon carbide/Silicon carbide, FKM	-4 - +194 (-20 - +90)
HQBE	O-ring (cartridge) (balanced seal), Silicon carbide/carbon, EPDM	32 - +248 (0 - +120)
HQBV	O-ring (cartridge) (balanced seal), Silicon carbide/carbon, FKM	32 - +194 (0 - +90)

Related information

[Pumped liquids](#)

[Lists of variants on request](#)

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure plus the pressure against a closed valve must always be lower than the maximum permissible operating pressure.

If the maximum permissible operating pressure is exceeded, the conical bearing in the motor may be damaged and the life of the shaft seal reduced.

Pump type	Motor size [hp]	Max. inlet pressure	
		[psi]	[bar]
CRE, CRIE, CRNE 1			
1-3 → 1-17	0.5 - 2.0	145	10
1-17 → 1-21	3.0 - 5.0	218	15
CRE, CRIE, CRNE 3			
3-2 → 3-12	0.5 - 2.0	145	10
3-12 → 3-21	3.0 - 5.0	218	15
CRE, CRIE, CRNE 5			
5-2 → 5-9	0.75 - 3.0	145	10
5-11 → 5-20	5.0 - 7.5	218	15
CRE, CRIE, CRNE 10			
10-1 → 10-4	1.0 - 3.0	116	8
10-5 → 10-13	5.0 - 15.0	145	10
CRE, CRIE, CRNE 15			
15-1 → 15-2	2.0 - 5.0	116	8
15-3 → 15-10	7.5 - 25.0	145	10
CRE, CRIE, CRNE 20			
20-1	3.0	116	8
20-2 → 20-9	5.0 - 25.0	145	10
CRE, CRNE 32			
32-1 → 32-3-2	5.0 - 10.0	58	4
32-4-2 → 32-6	15.0 - 25.0	145	10
32-7 → 32-8-2	30.0	218	15
CRE, CRNE 45			
45-1-1 → 45-1	7.5 - 10.0	58	4
45-2-2 → 45-3	15.0 - 25.0	145	10
45-4-2 → 45-4	30.0	218	15
CRE, CRNE 64			
64-1-1	10.0	58	4
64-1 → 64-2-1	15.0 - 20.0	145	10
64-2 → 64-3-2	25.0 - 30.0	218	15
CRE, CRNE 95			
95-1-1 → 95-2-1	15.0 - 30.0	145	10
CRE, CRNE 125			
125-1-1 → 125-2-2	20.0 - 30.0	145	10
CRE, CRNE 155			
155-1-1	25.0	145	10

Examples of operating and inlet pressures

The values for the operating pressures and inlet pressures must not be considered individually. The outlet pressure must be equal to or lower than the maximum operating pressure.

Example:

Pump	CRE 3-9 A-B-A
Maximum operating pressure	232 psi (16 bar)
Maximum inlet pressure	145 psi (10 bar)
Outlet pressure against a closed valve	121.6 psi (8.4 bar)

In this example, the pump outlet pressure against a closed valve is 121.6 psi.

The inlet pressure added to the outlet pressure against a closed valve must not exceed the maximum operating pressure of the pump. The maximum operating pressure of the CRE 3-9 A-B-A is 232 psi.

The first-stage pump is not allowed to operate at the maximum inlet pressure of 145 psi, since the maximum inlet pressure (145 psi) added to the outlet pressure against a closed valve (121.6 psi) is greater than the maximum operating pressure of the pump (232 psi).

The maximum allowed inlet pressure of the pump is 110.4 psi, that is the difference between the maximum operating pressure of the pump (232 psi) and the outlet pressure against a closed valve (121.6 psi).

Related information

[CRE, CRIE, CRNE 3](#)

[Lists of variants on request](#)

Control of E-pumps

Control options

It is possible to communicate with E-pumps via the following platforms:

- operating panel on the pump
- Grundfos GO
- Grundfos GO Link
- central management system.

The purpose of controlling an E-pump is to monitor and control the pressure, temperature, flow rate and liquid level of the system.

Operating panels

The operating panel on the E-pump terminal box makes it possible to change the setpoint settings manually. All settings are saved if the power supply is switched off.

The operating panel available as standard is the HMI 300.

The operating panel available on booster pumps is the HMI 200.

Note that these panels include an integrated radio module.

The following operating panels without an integrated radio module are available on request:

- HMI 201
- HMI 301.

For further information, see the sections on variants.

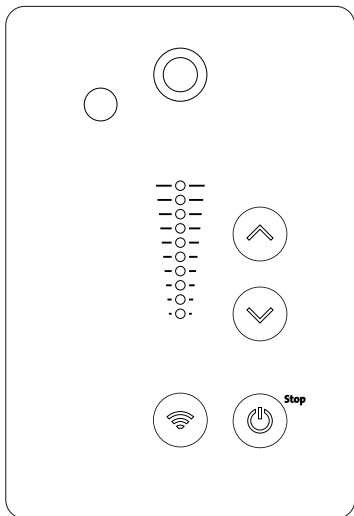
Related information

[HMI 200](#)

[HMI 300](#)

HMI 200

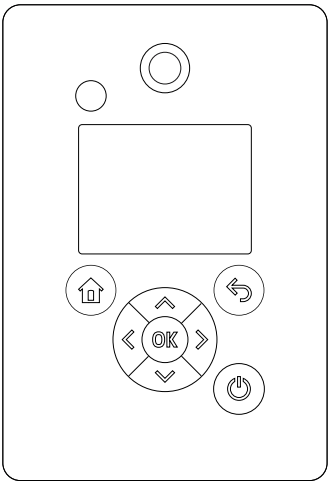
This operating panel is available on booster pumps.



TM084861

HMI 300

This operating panel is available as standard.



TM084862

Grundfos GO

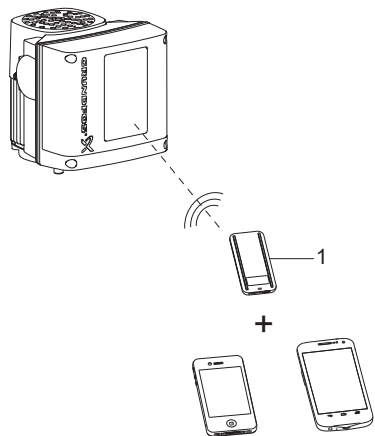
The Grundfos GO enables you to set functions and gives you access to status overviews, technical product information and current operating parameters.

MLE motors:

- MLE 0.5 to 2 hp 1/60/200-240
- MLE 1.5 to 2 hp 3/60/200-240
- MLE 1 to 3 hp 3/60/440-480.

These motors are designed for wireless radio or infrared communication with the Grundfos GO.

Use the Grundfos GO together with the Grundfos MI 301 mobile interface.



TM066256

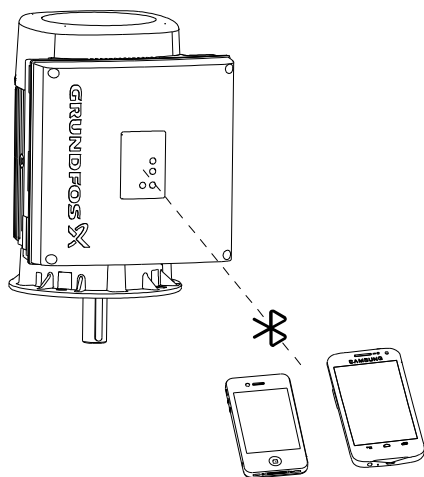
Pos.	Description
1	Grundfos MI 301: It is a separate module enabling radio or infrared communication. Use the module together with an Android or iOS-based smart device via a Bluetooth connection.

MLE motors:

- MLE 3 hp to 15 hp 3/60/200-240
- MLE 5 hp to 30 hp 3/60/440-480.

These motors are designed for wireless communication with the Grundfos GO using Bluetooth (BLE).

Via the built-in Bluetooth module, the product can communicate with the Grundfos GO.

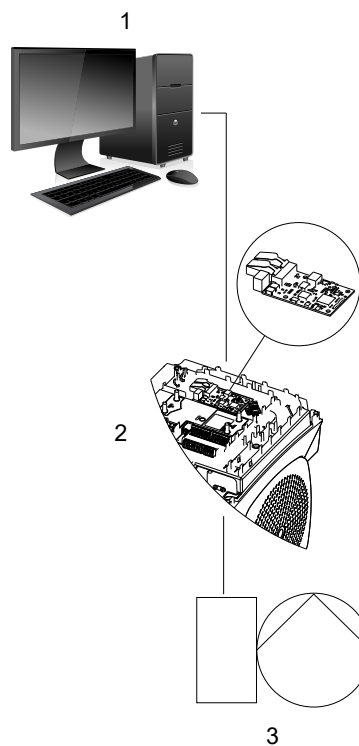


TM082930

Central management system

Communication with the E-pump is possible even if the operator is not present near the E-pump. Communication is enabled by connecting the E-pump to a central building management system. This allows the operator to monitor the pump and change control modes and setpoint settings.

Communication between E-pumps and a central building management system is enabled via a Grundfos Communication Interface Module (CIM).



TM084691

Structure of a central management system

Pos.	Description
1	Central management system
2	CIM ²⁶⁾
3	E-pump

²⁶⁾ See the section on Communication Interface Modules.

Related information

[Communication Interface Module \(CIM\)](#)

Control modes

E-pumps are available in two variants:

- with integrated pressure sensor
- without sensor.

E-pumps with an integrated pressure sensor

Use an E-pump with an integrated pressure sensor in applications where you want to control the pressure of the pump, irrespective of the flow rate. For further information, see the section on examples of E-pump applications.

Signals of pressure changes in the pipe system are transmitted continuously from the sensor to the pump. The pump responds to the signals by adjusting its performance up and down to compensate for the pressure difference between the actual and the desired pressure. As this adjustment is a continuous process, a constant pressure is maintained in the pipe system.



TM070573

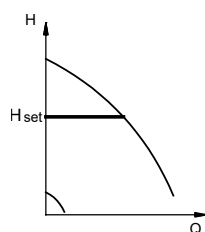
CRE, CRIE and CRNE pumps

An E-pump with an integrated pressure sensor facilitates installation and startup.

The control mode can be set to either of the following:

- constant pressure (factory setting)
- constant curve.

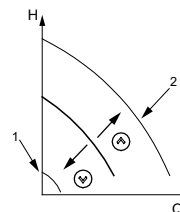
In constant-pressure mode, the pump maintains a preset pressure irrespective of the flow rate. See the figure below.



TM009322

Constant-pressure mode

In constant-curve mode, the pump is not controlled. It can be set to pump according to a preset pump characteristic curve within the range from the minimum curve to the maximum curve. See the figure below.



TM009323

Constant-curve mode

Pos.	Description
1	Minimum
2	Maximum

Related information

[Examples of E-pump applications](#)

E-pumps without a sensor

E-pumps without a sensor are suitable in the following situations:

- Uncontrolled operation is required.
- The sensor is retrofitted to control the flow rate, temperature, differential temperature, liquid level and pH value at some arbitrary point in the system.

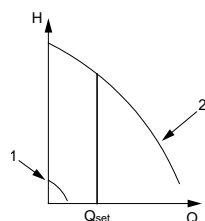
E-pumps without a sensor can be set to any of the following control modes:

- constant pressure
- constant differential pressure
- constant temperature
- constant differential temperature
- constant flow rate
- constant level
- constant curve
- constant other value.

E-pumps without a sensor can be set to either of the following control modes:

- controlled operation
- uncontrolled operation (factory setting).

In controlled-operation mode, the pump adjusts its performance to the desired setpoint. See the figure below.

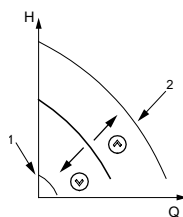


TM027264

Constant-flow mode

Pos.	Description
1	Minimum
2	Maximum

In uncontrolled-operation mode, the pump operates according to the constant curve set. See the figure below.



TM009323

Constant-curve mode

Pos.	Description
1	Minimum

9. Selection

Selection of pumps

Base the selection of pumps on the following parameters:

- duty point of the pump
- sizing data, such as pressure loss as a result of height differences, friction loss in the pipes, pump efficiency
- pump materials
- pump connections
- shaft seal.

Related information

[Duty point of the pump](#)

[Sizing data](#)

[Pump material](#)

[Pump connections](#)

[Shaft seal](#)

Duty point of the pump

From a duty point, you can select a pump on the basis of the curve charts in the section on performance curves and technical data.

Ideally, the duty point should match the best efficiency on the pump curve.

Related information

[Pump efficiency](#)

[CRE, CRIE, CRNE 1](#)

Grundfos Product Center

We recommend that you size your pump at the Grundfos Product Center which is a selection program offered by Grundfos.

The Grundfos Product Center features an easy-to-use virtual guide that leads you through the selection of the pump for the application in question.

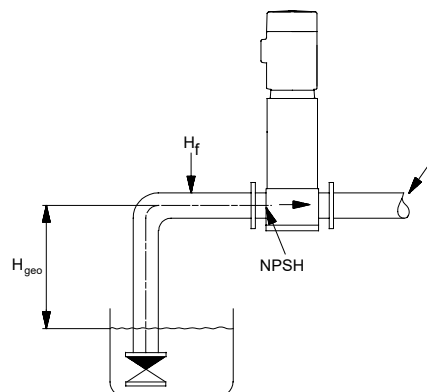
Related information

[14. Grundfos Product Center](#)

Sizing data

When sizing a pump, take the following parameters into account:

- required flow rate and pressure at the draw-off point
 - pressure loss as a result of height differences (H_{geo})
 - friction loss in the pipes (H_f)
- It may be necessary to account for pressure loss in connection with long pipes, bends, valves or similar.
- best efficiency at the estimated duty point
 - NPSH value.



TM026711

Sizing data

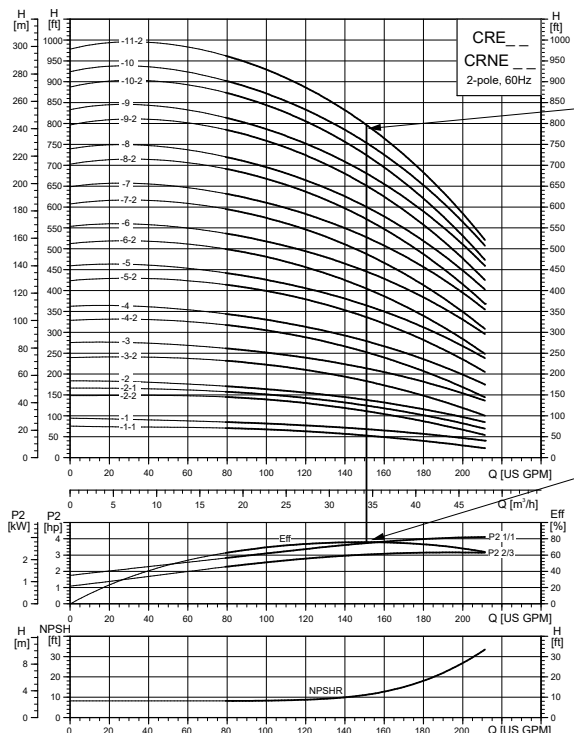
Pos.	Description
1	Required flow rate, required pressure

Related information

[Minimum inlet pressure - NPSHA](#)

Pump efficiency

Before determining the best efficiency point, identify the operating pattern of the pump. If you expect the pump to always operate at the same duty point, then select a pump that operates at a duty point corresponding to the best efficiency of the pump.

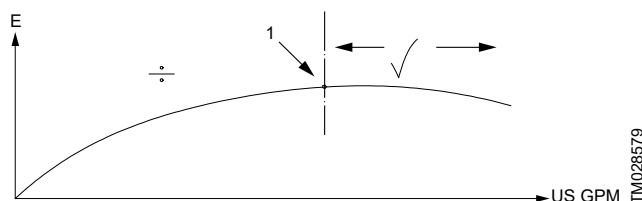


TM085157

Example of the duty point of a CRE pump

Pos.	Description
1	Duty point
2	Best efficiency

As the pump is sized on the basis of the highest possible flow rate, it is important to always have the duty point to the right of the best efficiency point on the efficiency curve (Eff). This must be considered to keep the efficiency high when the flow rate drops.



Best efficiency

Pos.	Description
1	Best efficiency point

Affinity equations

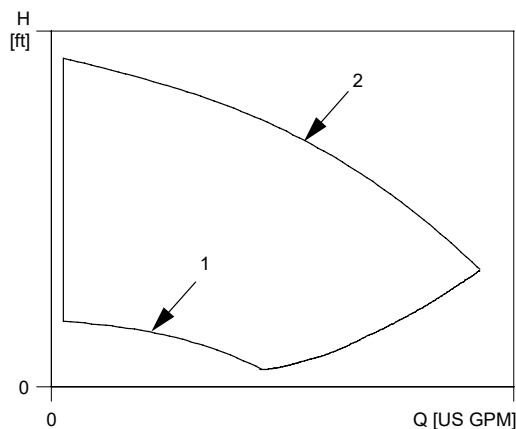
Normally, speed-regulated pumps are used in applications characterized by a variable flow rate. Consequently, you cannot select a pump that is constantly operating at its optimum efficiency.

To achieve optimum operating economy, select the pump based on the following criteria:

- The maximum duty point must be as close to the QH curve of the pump as possible.
- The required duty point must be positioned so that P2 is close to the maximum point of the QH curve.

The flow rate of the required duty point must be close to the optimum efficiency (eta) for most operating hours.

Between the minimum and maximum performance curves, speed-regulated pumps have an infinite number of performance curves, each representing a specific speed. You may therefore not be able to select a duty point close to the maximum curve.



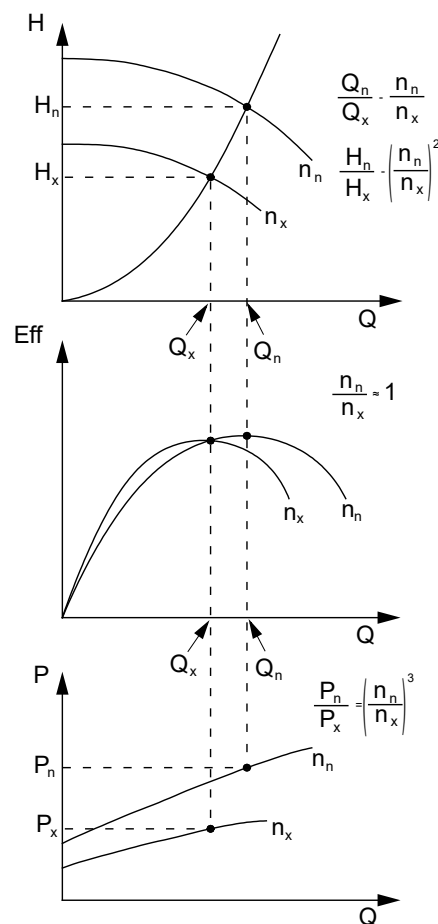
Maximum (1) and minimum (2) performance curves

In situations where you cannot select a duty point close to the maximum curve, use the affinity equations below. The head (H), the flow rate (Q) and the input power (P) are the appropriate variables for calculating the motor speed (n).

Note that the approximated formulas apply on condition that the system characteristic remains unchanged for n_n and n_x , and that it is based on the formula $H = k \times Q^2$ where k is a constant.

The power equation implies that the pump efficiency is unchanged at the two speeds. In practice, this is not quite correct.

To obtain a precise calculation of the power savings resulting from a reduction of pump speed, take into account the efficiencies of the frequency converter and the motor.



Affinity equations

Legend

H_n	Rated head [feet]
H_x	Current head [feet]
Q_n	Rated flow rate [gpm]
Q_x	Current flow rate [gpm]
n_n	Rated motor speed [rpm]
n_x	Current motor speed [rpm]
η_n	Rated efficiency [%]

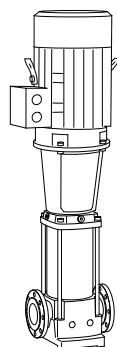
η_x	Current efficiency [%]
P_n	Rated power [hp]
P_x	Current power [hp]

Pump material

Select the material variant on the basis of the liquid to be pumped.

The product range covers the following basic types:

- CRE, CRIE: Use the CRE, CRIE pumps for clean, non-aggressive liquids, such as potable water and oils.
- CRNE: Use the CRNE pumps for industrial liquids and acids. See the section on pumped liquids, or contact Grundfos.



CR pump

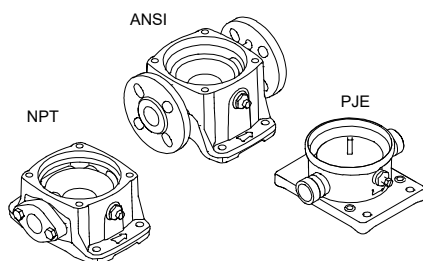
Related information

Pumped liquids

Pump connections

Selection of a pump connection depends on the rated pressure and pipes. To meet any requirement, the pumps offer a wide range of flexible connections, such as the following:

- oval flange (NPT)
- ANSI flange
- PJE coupling
- clamp coupling
- other connections on request.



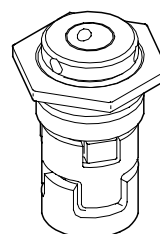
Pump connections

Shaft seal

As standard, the product range is fitted with a Grundfos shaft seal (cartridge type) suitable for the most common applications.

The following key parameters must be taken into account when selecting the shaft seal:

- type of pumped liquid
- liquid temperature
- maximum pressure.



TM020538

Shaft seal (cartridge type)

We offer a wide range of shaft seal variants to meet specific demands according to the pumped liquid.

Operating pressure and inlet pressure

Do not exceed the limit values for the following pressures:

- maximum operating pressure
- maximum inlet pressure.

TM012100

TM085158

Minimum inlet pressure - NPSHA

We recommend that you calculate the inlet pressure (H) in the following situations:

- The liquid temperature is high.
- The flow rate is significantly higher than the rated flow rate.
- Water is drawn from depths.
- Water is drawn through long pipes.
- Inlet conditions are poor.

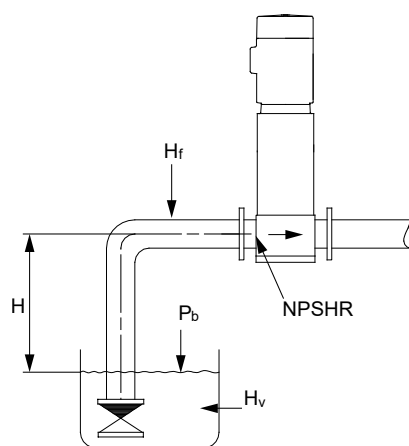
To avoid cavitation, make sure there is a minimum pressure on the inlet side of the pump.

Calculate the maximum suction lift (H) in feet of head as follows:

H	=	$p_b \times 2.31 - \text{NPSHR} - H_f - H_v$
P_b	=	Barometric pressure in psi P_b can be set to 14.7 psi at sea level. In closed systems, p_b indicates the system pressure in feet.
NPSHR	=	Net Positive Suction Head Required in feet of head It is to be read from the NPSHR curve at the highest flow rate the pump would be delivering.
H_f	=	Friction loss in the inlet pipe in feet of head It is to be read at the highest flow rate the pump would be delivering.
H_v	=	Vapor pressure in feet of head It is to be read from the vapor pressure scale. H_v depends on the liquid temperature T_m .

If the H calculated is positive, the pump can operate at a suction lift of maximum H feet.

If the H calculated is negative, an inlet pressure of minimum H feet is required.



tm (°F)	Hv (Ft)
370	413
360	328
340	259
320	203
300	148
280	115
270	98
250	82
230	66
212	49
194	39
176	33
158	26
140	20
122	16
104	13
86	10
68	6.6
50	4.9
32	3.3
	2.6
	2.0
	1.3
	0.9
	0.7
	0.3

TM027729

Minimum inlet pressure - NPSHR

Note that to avoid cavitation, never select a pump with a duty point too far to the right on the NPSHR curve.

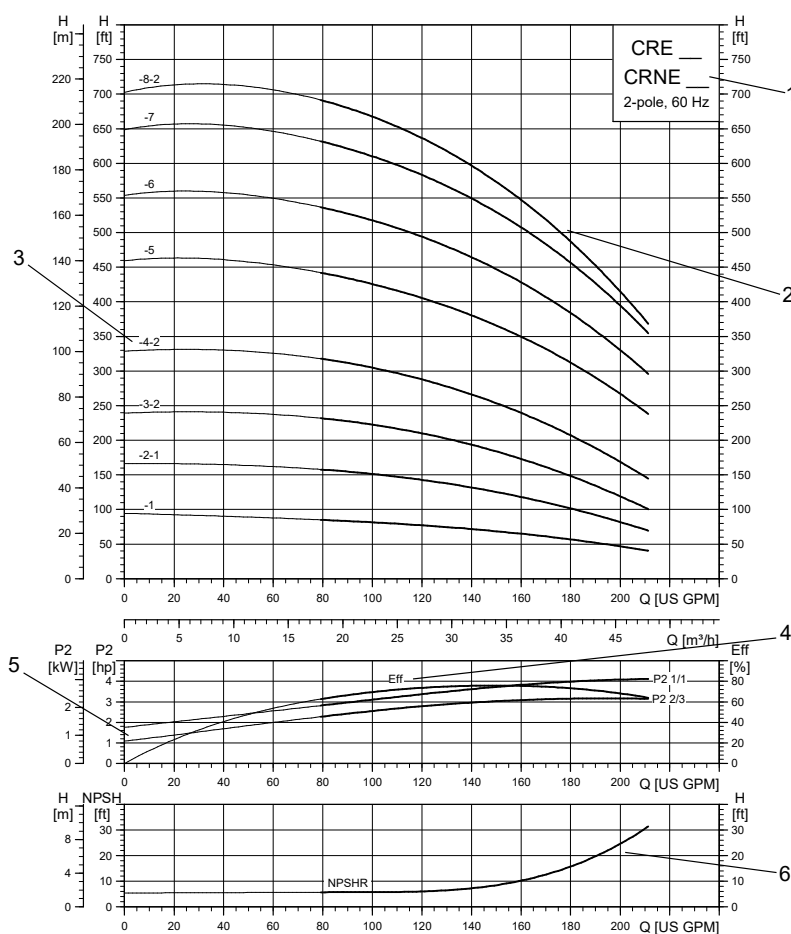
Always check the NPSHR value of the pump at the highest possible flow rate.

In case a lower NPSHR value is required, see the section on lists of variants on request.

Related information

[Lists of variants on request](#)

How to read the curve charts



How to read the curve charts

Pos.	Description
1	Pump type, number of poles and frequency
2	QH curve for the individual pump (the bold curves indicate the recommended duty range for best efficiency)
3	Number of stages: first figure: number of stages second figure: number of reduced-diameter impellers
4	Eff curve: the efficiency of the pump with an average number of stages The efficiency of pumps with reduced-diameter impellers is approximately 2 % lower than the eff curve shown in the chart.
5	Power curves: the pump input power per stage Curves are shown for complete (1/1) and for reduced-diameter (2/3) impellers.
6	NPSHR curve: a maximum curve for all the variants shown

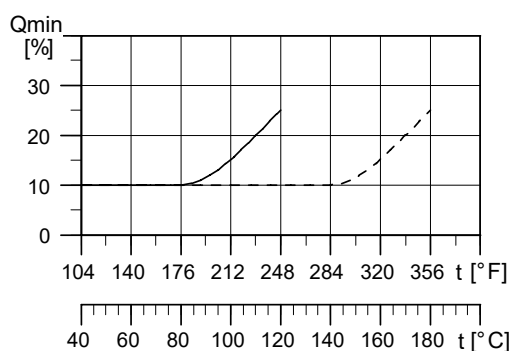
TM1040208

Guidelines to performance curves

The guidelines below apply to the performance curves:

- Tolerances refer to the ANSI or ISO standards, such as ISO 9906:2012, Grade 3B, if indicated on the curve chart.
- The motors used for the measurements are standard Grundfos-specified motors.
- Measurements are made with airless water at a temperature of 68 °F (20 °C).
- The curves apply to the following kinematic viscosity:
 $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).
- Due to risk of overheating, the pumps must not be used at a flow rate below the minimum flow rate.
- The QH curves apply to a rated motor speed of a three-phase mains-operated motor. For realistic curves, go to the Grundfos Product Center at <http://product-selection.grundfos.com>, and insert data.

The curve below shows the minimum flow rate as a percentage of the rated flow rate in relation to the liquid temperature. The dotted line shows a CRN pump fitted with an air-cooled top assembly.

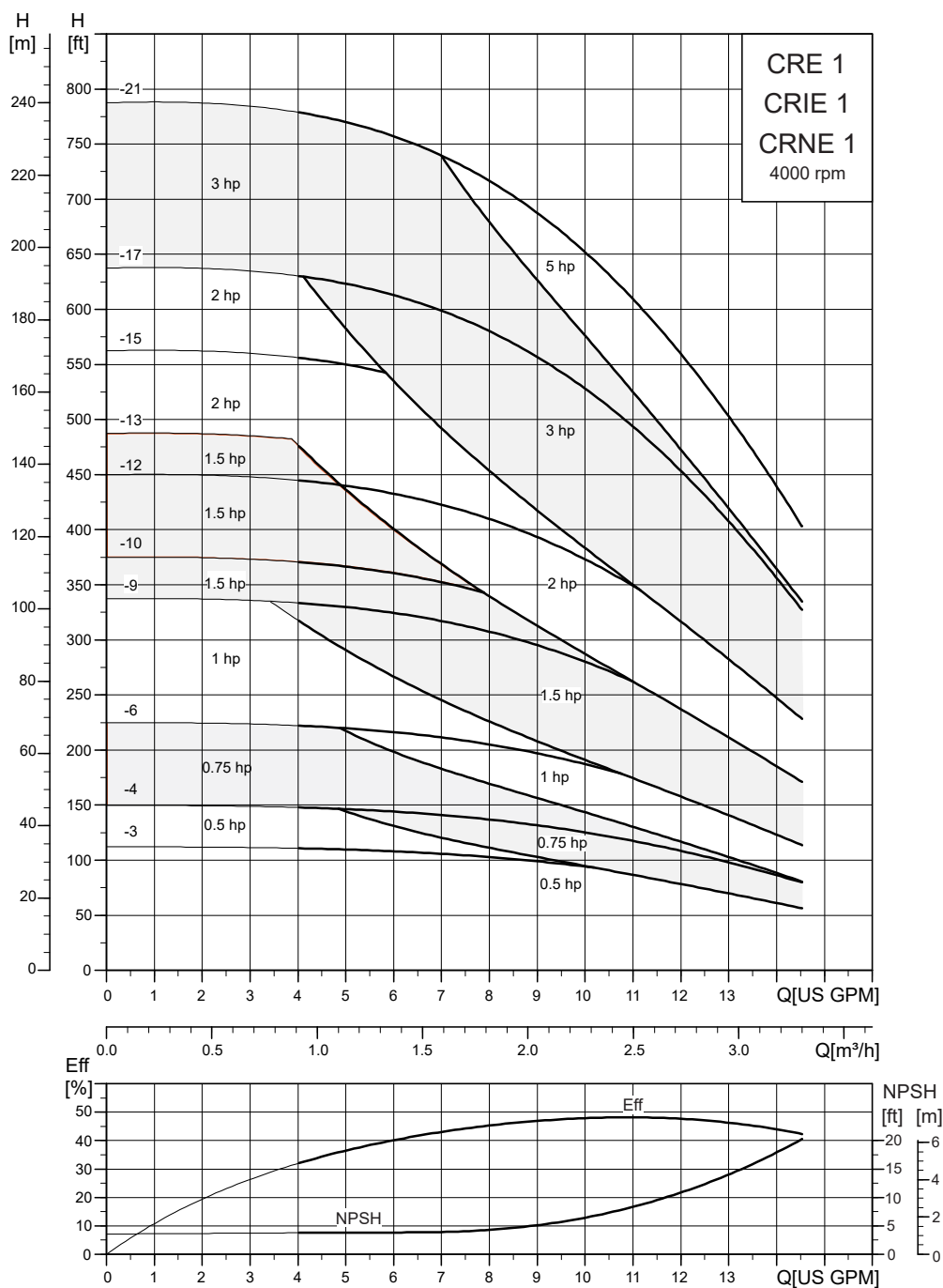


TM027538

Minimum flow rate

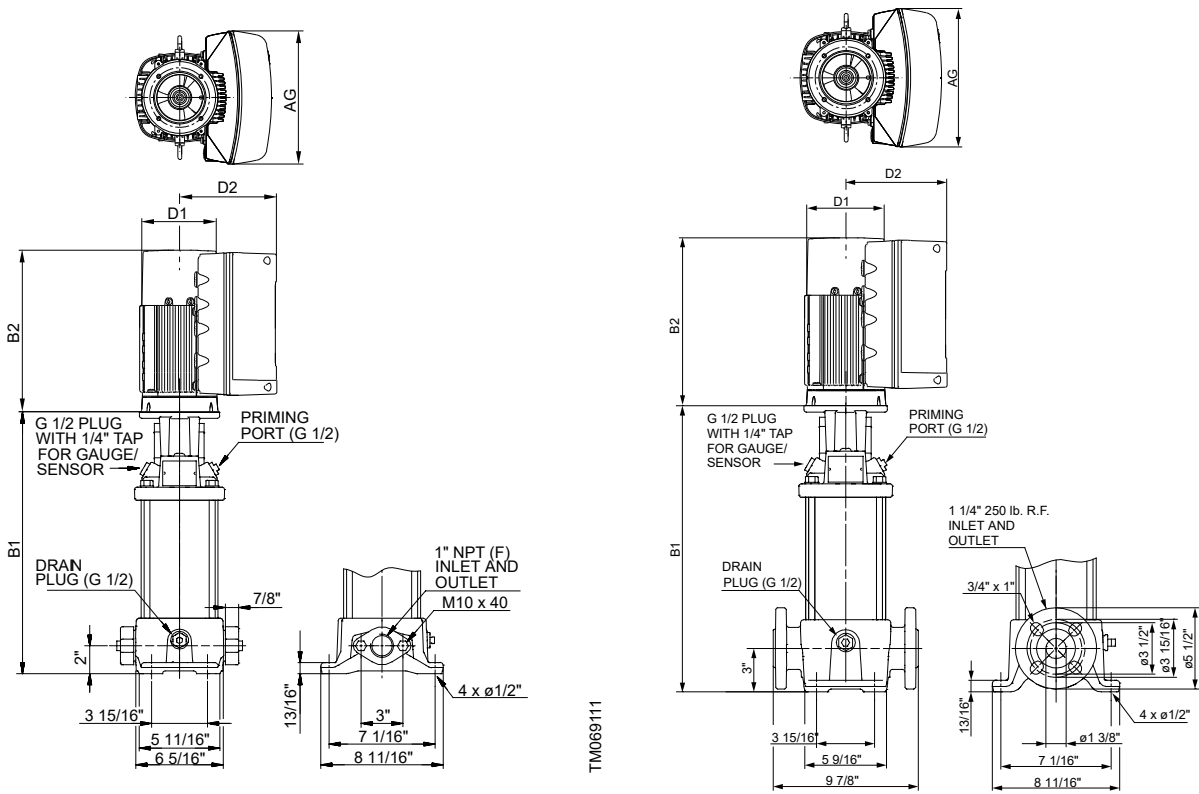
10. Performance curves and technical data

CRE, CRIE, CRNE 1



TM088192

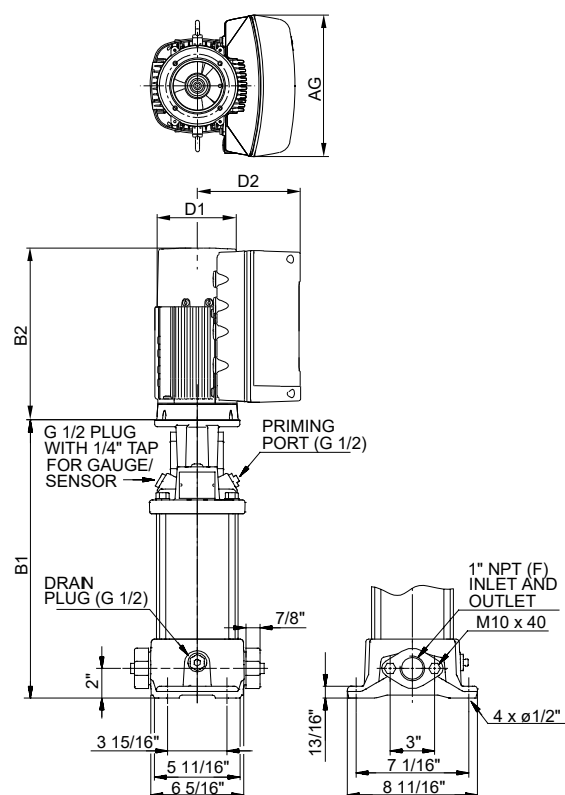
CRE 1 dimensional data



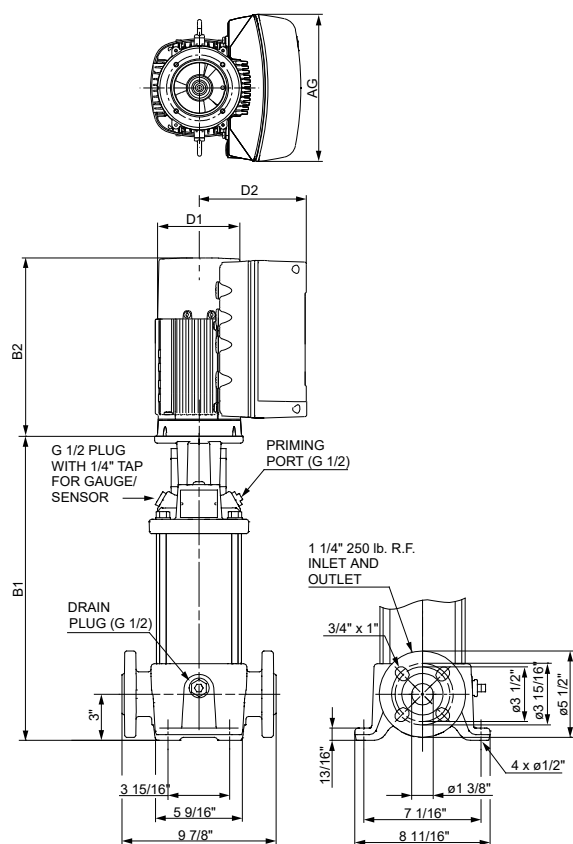
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁷⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 1-3	0.5	1	200-240	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	8.46 (215)	20.43 (519)	73 (33)
CRE 1-4	0.5	1	200-240	56C	*	12.68 (322)	4.80 (122)	6.22 (158)	8.46 (215)	21.14 (537)	74 (34)
	0.75	1	200-240	56C	*	12.68 (322)	4.80 (122)	6.22 (158)	8.46 (215)	21.14 (537)	74 (34)
CRE 1-6	0.75	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	76 (34.5)
	1	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	76 (34.5)
	1	3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	80 (36)
	1	1	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	8.46 (215)	24.69 (627)	80 (36)
CRE 1-9	1	3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	83 (37.5)
	1.5	1	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	8.46 (215)	24.69 (627)	81 (37)
	1.5	3	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)
	1.5	3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)
CRE 1-10	1.5	3	200-240	56C	*	16.93 (430)	4.80 (122)	6.22 (158)	10.04 (255)	26.97 (685)	85 (39)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁷⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 1-12	2	1	200-240	56C	*	18.35 (466)	4.80 (122)	6.22 (158)	9.25 (235)	27.60 (701)	87 (39.5)
	2	3	200-240	56C	*	18.35 (466)	4.80 (122)	6.22 (158)	10.83 (275)	29.17 (741)	94 (43)
	2	3	440-480	56C	*	18.35 (466)	4.80 (122)	6.22 (158)	10.83 (275)	29.17 (741)	94 (43)
CRE 1-13	1.5	1	200-240	56C	*	19.06 (484)	4.80 (122)	6.22 (158)	8.46 (215)	27.52 (699)	84 (38)
	1.5	3	200-240	56C	*	19.06 (484)	4.80 (122)	6.22 (158)	10.04 (255)	29.09 (739)	91 (41.5)
	1.5	3	440-480	56C	*	19.06 (484)	4.80 (122)	6.22 (158)	10.04 (255)	29.09 (739)	91 (41.5)
CRE 1-15	2	3	200-240	56C	-	20.47 (520)	4.80 (122)	6.22 (158)	10.83 (275)	31.30 (795)	97 (44)
	2	3	440-480	56C	-	20.47 (520)	4.80 (122)	6.22 (158)	10.83 (275)	31.30 (795)	97 (44)
CRE 1-17	2	1	200-240	56C	-	21.89 (556)	4.80 (122)	6.22 (158)	9.25 (235)	31.14 (791)	95 (43)
	2	3	200-240	56C	-	21.89 (556)	4.80 (122)	6.22 (158)	10.83 (275)	32.72 (831)	99 (45)
	2	3	440-480	56C	-	21.89 (556)	4.80 (122)	6.22 (158)	10.83 (275)	32.72 (831)	99 (45)
	3	3	200-240	182TC	-	22.99 (584)	7.53 (191)	7.91 (201)	13.27 (337)	36.26 (921)	119 (54)
	3	3	440-480	182TC	-	22.99 (584)	4.80 (122)	6.22 (158)	10.83 (275)	33.82 (859)	111 (50)
	3	3	200-240	182TC	-	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	126 (57)
CRE 1-21	3	3	440-480	182TC	-	25.83 (656)	4.80 (122)	6.22 (158)	13.27 (337)	36.65 (931)	114 (52)
	5	3	200-240	182TC	-	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	132 (60)
	5	3	440-480	182TC	-	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	135 (61.5)

CRIE 1 dimensional data



TM069111

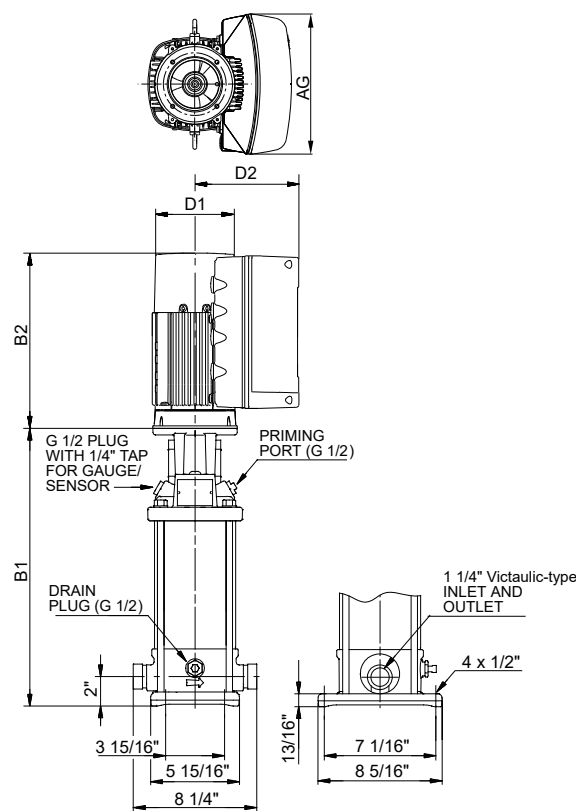


IM069137

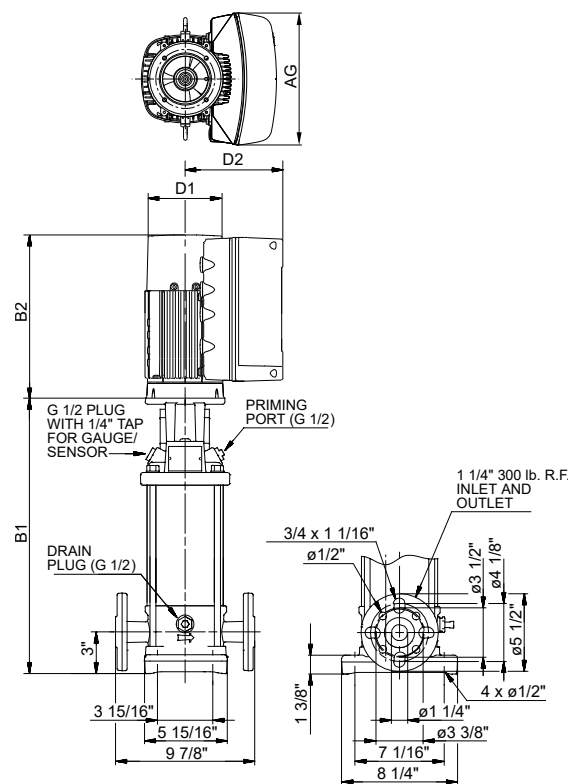
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 1-3	0.5	1	200-240	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	8.46 (215)	19.57 (497)	59 (26)
CRIE 1-4	0.5	1	200-240	56C	*	11.81 (300)	4.80 (122)	6.22 (158)	8.46 (215)	20.28 (515)	60 (27)
	0.75	1	200-240	56C	*	11.81 (300)	4.80 (122)	6.22 (158)	8.46 (215)	20.28 (515)	60 (27)
CRIE 1-6	0.75	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	76 (34)
	1	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	76 (34)
	1	3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	80 (36)
CRIE 1-9	1	1	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	8.46 (215)	24.69 (627)	79 (36)
	1	3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	81 (37)
	1.5	1	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	8.46 (215)	24.69 (627)	83 (37.5)
	1.5	3	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)
	1.5	3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 1-10	1.5	3	200-240	56C	*	16.06 (408)	4.80 (122)	6.22 (158)	10.04 (255)	26.01 (663)	71 (32)
	2	1	200-240	56C	*	17.48 (444)	4.80 (122)	6.22 (158)	9.25 (235)	26.73 (679)	73 (33)
CRIE 1-12	2	3	200-240	56C	*	17.48 (444)	4.80 (122)	6.22 (158)	10.83 (275)	28.31 (719)	76 (35)
	2	3	440-480	56C	*	17.48 (444)	4.80 (122)	6.22 (158)	10.83 (275)	28.31 (719)	76 (35)
		1	200-240	56C	*	18.19 (462)	4.80 (122)	6.22 (158)	8.46 (215)	26.65 (677)	70 (32)
CRIE 1-13	1.5	3	200-240	56C	*	18.19 (462)	4.80 (122)	6.22 (158)	10.04 (255)	28.23 (717)	73 (33)
		3	440-480	56C	*	18.19 (462)	4.80 (122)	6.22 (158)	10.04 (255)	28.23 (717)	73 (33)

CRNE 1 dimensional data



TM069138

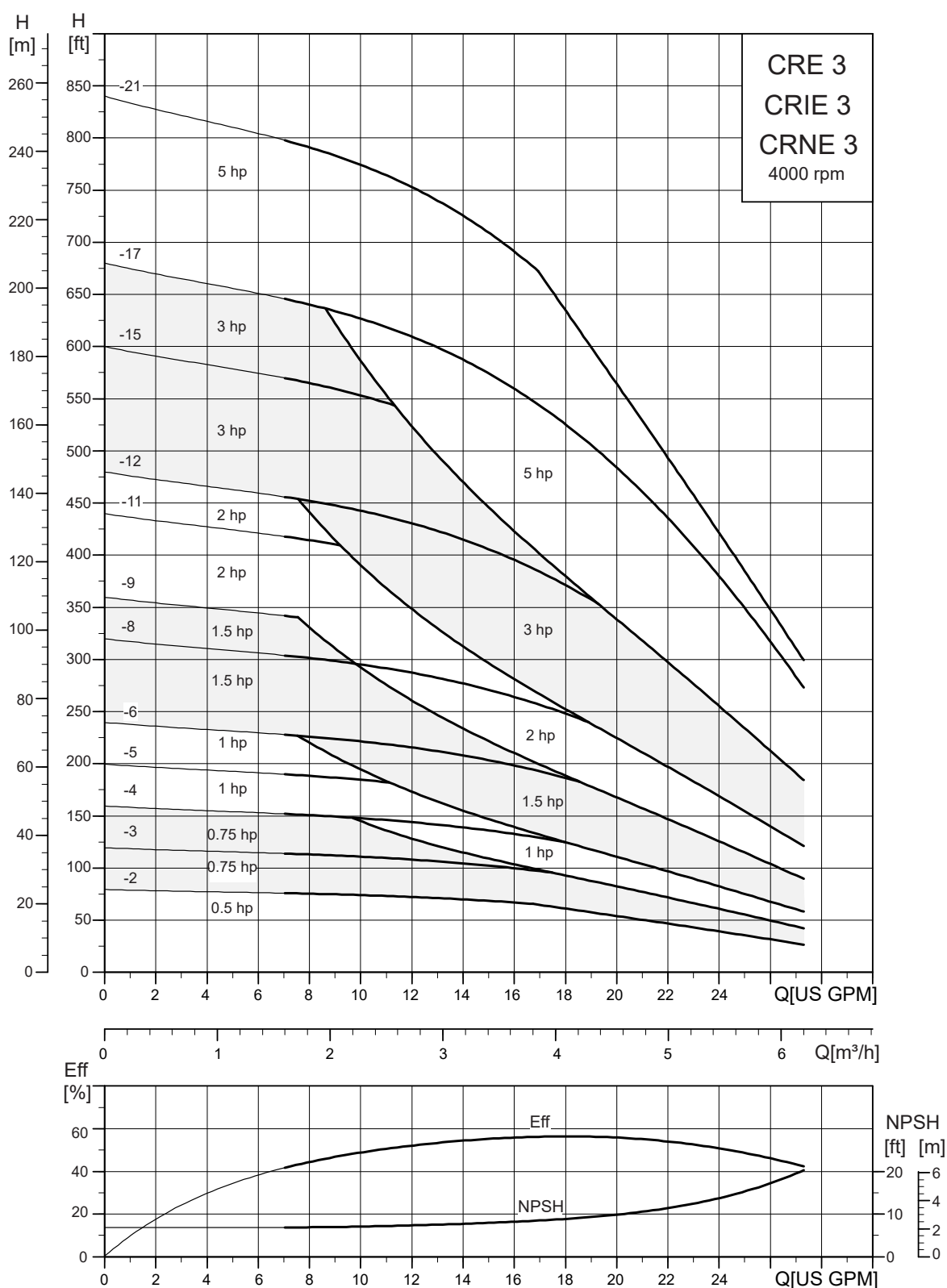


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 1-3	0.5	1	200-240	56C	12.09 (307)	4.80 (122)	6.22 (158)	8.46 (215)	20.55 (522)	68 (30)
CRNE 1-4	0.5	1	200-240	56C	12.80 (325)	4.80 (122)	6.22 (158)	8.46 (215)	21.26 (540)	69 (31)
	0.75	1	200-240	56C	12.80 (325)	4.80 (122)	6.22 (158)	8.46 (215)	21.26 (540)	69 (31)
	0.75	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	8.46 (215)	22.68 (576)	71 (32)
CRNE 1-6	1	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	8.46 (215)	22.68 (576)	71 (32)
	1	3	440-480	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.04 (255)	24.25 (616)	74 (34)
	1	1	200-240	56C	16.34 (415)	4.80 (122)	6.22 (158)	8.46 (215)	24.80 (630)	73 (33)
	1	3	440-480	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.04 (255)	26.38 (670)	77 (35)
CRNE 1-9	1.5	1	200-240	56C	16.34 (415)	4.80 (122)	6.22 (158)	8.46 (215)	24.80 (630)	75 (34)
	1.5	3	200-240	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.04 (255)	26.38 (670)	79 (36)
	1.5	3	440-480	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.04 (255)	26.38 (670)	79 (36)
CRNE 1-10	1.5	3	200-240	56C	17.05 (433)	4.80 (122)	6.22 (158)	10.04 (255)	27.09 (688)	80 (36)

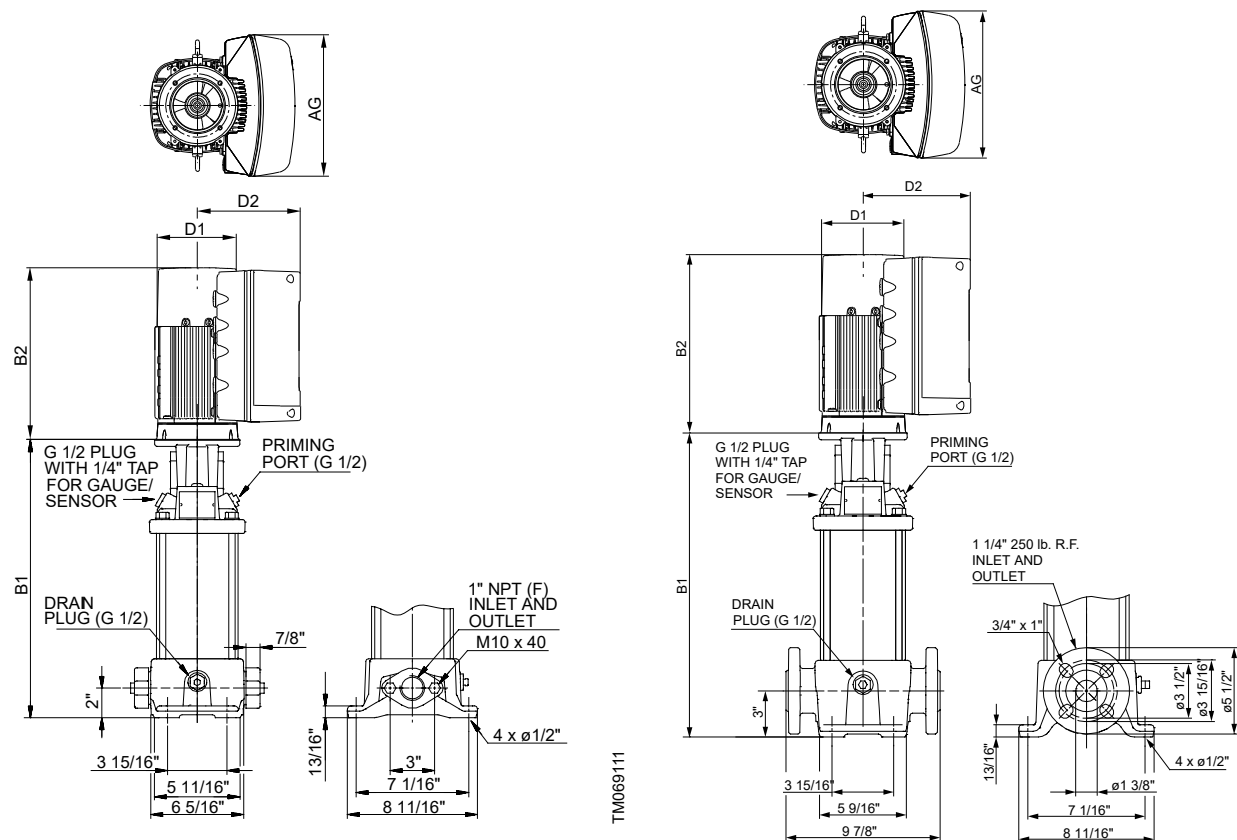
Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 1-12	2	1	200-240	56C	18.46 (469)	4.80 (122)	6.22 (158)	9.25 (235)	27.72 (704)	82 (37)
	2	3	200-240	56C	18.46 (469)	4.80 (122)	6.22 (158)	10.83 (275)	29.29 (744)	89 (40)
	2	3	440-480	56C	18.46 (469)	4.80 (122)	6.22 (158)	10.83 (275)	29.29 (744)	89 (40)
CRNE 1-13	1.5	1	200-240	56C	19.06 (484)	4.80 (122)	6.22 (158)	8.46 (215)	27.52 (699)	84 (38)
	1.5	3	200-240	56C	19.06 (484)	4.80 (122)	6.22 (158)	10.04 (255)	29.09 (738.89)	91 (41.5)
	1.5	3	440-480	56C	19.06 (484)	4.80 (122)	6.22 (158)	10.04 (255)	29.09 (738.89)	91 (41.5)
CRNE 1-15	2	3	200-240	56C	20.47 (520)	4.80 (122)	6.22 (158)	10.83 (275)	31.30 (795.02)	97 (44)
	2	3	440-480	56C	20.47 (520)	4.80 (122)	6.22 (158)	10.83 (275)	31.30 (795.02)	97 (44)
CRNE 1-17	2	1	200-240	56C	21.89 (556)	4.80 (122)	6.22 (158)	9.25 (235)	31.14 (790.96)	95 (43)
	2	3	200-240	56C	21.89 (556)	4.80 (122)	6.22 (158)	10.83 (275)	32.72 (831.09)	99 (45)
	2	3	440-480	56C	21.89 (556)	4.80 (122)	6.22 (158)	10.83 (275)	32.72 (831.09)	99 (45)
	3	3	200-240	182TC	22.99 (584)	7.53 (191)	7.91 (201)	13.27 (337)	36.26 (921)	119 (54)
	3	3	440-480	182TC	22.99 (584)	4.80 (122)	6.22 (158)	10.83 (275)	33.82 (859)	111 (50)
	3	3	200-240	182TC	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	126 (57)
CRNE 1-21	3	3	440-480	182TC	25.83 (656)	4.80 (122)	6.22 (158)	13.27 (337)	36.65 (931)	114 (52)
	5	3	200-240	182TC	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	132 (60)
	5	3	440-480	182TC	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.09 (993)	135 (61.5)

CRE, CRIE, CRNE 3



TM088193

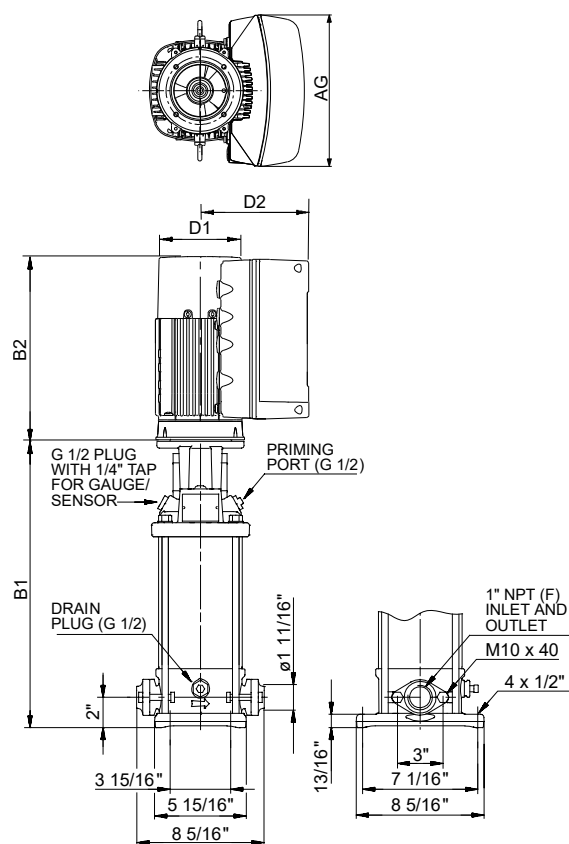
CRE 3 dimensional data



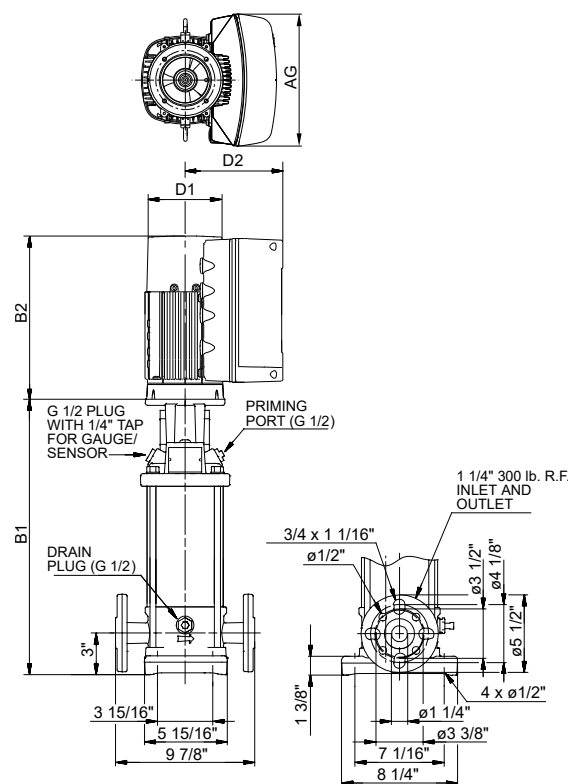
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁸⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	Ship wt. [lb (kg)]
CRE 3-2	0.5	1	200-240	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	8.46 (215)	20.43 (519)	73 (33)
CRE 3-3	0.75	1	200-240	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	8.46 (215)	20.43 (519)	73 (33)
CRE 3-4	0.75	1	200-240	56C	*	12.68 (322)	4.80 (122)	6.22 (158)	8.46 (215)	21.14 (537)	74 (34)
	1	1	200-240	56C	*	12.68 (322)	4.80 (122)	6.22 (158)	8.46 (215)	21.14 (537)	74 (34)
		3	440-480	56C	*	12.68 (322)	4.80 (122)	6.22 (158)	10.04 (255)	22.72 (578)	78 (35)
CRE 3-5	1	1	200-240	56C	*	13.39 (340)	4.80 (122)	6.22 (158)	8.46 (215)	21.85 (555)	75 (34)
CRE 3-6	1.5	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	78 (35)
	1.5	3	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	82 (37)
	1.5	3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	82 (37)
	1	3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	80 (36)
						14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	80 (36)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁸⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	Ship wt. [lb (kg)]
CRE 3-8	1.5	1	200-240	56C	*	15.51 (394)	4.80 (122)	6.22 (158)	8.46 (215)	23.98 (609)	80 (36)
	2	1	200-240	56C	*	15.51 (394)	4.80 (122)	6.22 (158)	9.25 (235)	24.76 (629)	84 (38)
	2	3	200-240	56C	*	15.51 (394)	4.80 (122)	6.22 (158)	10.83 (275)	24.13 (613)	87 (39.5)
	2	3	440-480	56C	*	15.51 (394)	4.80 (122)	6.22 (158)	10.83 (275)	26.34 (669)	87 (39.5)
CRE 3-9	1.5	3	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)
		3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.04 (255)	26.26 (667)	84 (38)
CRE 3-11	2	1	200-240	56C	*	17.64 (449)	4.80 (122)	6.22 (158)	9.25 (235)	26.89 (683)	86 (39.5)
CRE 3-12	2	3	200-240	56C	*	18.35 (466)	4.80 (122)	6.22 (158)	10.83 (275)	29.17 (741)	94 (42)
		3	440-480	56C	*	18.35 (466)	4.80 (122)	6.22 (158)	10.83 (275)	29.17 (741)	94 (42)
	3	3	200-240	182TC	*	19.45 (494)	7.53 (191)	7.91 (201)	13.27 (337)	32.72 (831)	114 (52)
	3	3	440-480	182TC	*	19.45 (494)	4.80 (122)	6.22 (158)	10.83 (275)	30.28 (769)	106 (48)
CRE 3-15	3	3	200-240	182TC	-	21.57 (548)	7.53 (191)	7.91 (201)	13.27 (337)	34.84 (885)	117 (53)
		3	440-480	182TC	-	21.57 (548)	4.80 (122)	6.22 (158)	10.83 (275)	32.4 (823)	109 (49.5)
CRE 3-17	3	3	200-240	182TC	-	22.99 (584)	7.53 (191)	7.91 (201)	13.27 (337)	36.26 (921)	119 (54)
		3	440-480	182TC	-	22.99 (584)	4.80 (122)	6.22 (158)	10.83 (275)	33.82 (859)	111 (50)
	5	3	200-240	182TC	-	22.99 (584)	7.53 (191)	7.91 (201)	13.27 (337)	36.26 (921)	125 (57)
	5	3	440-480	182TC	-	22.99 (584)	7.53 (191)	7.91 (201)	13.27 (337)	36.26 (921)	128 (58)
CRE 3-21	5	3	200-240	182TC	-	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.9 (993)	132 (60)
		3	440-480	182TC	-	25.83 (656)	7.53 (191)	7.91 (201)	13.27 (337)	39.9 (993)	135 (61.5)

CRIE 3 dimensional data



TM069140

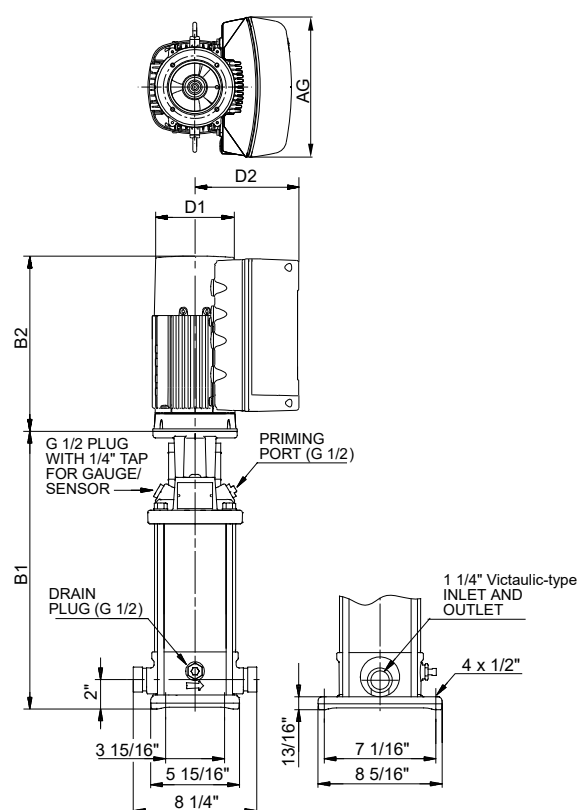


TM069139

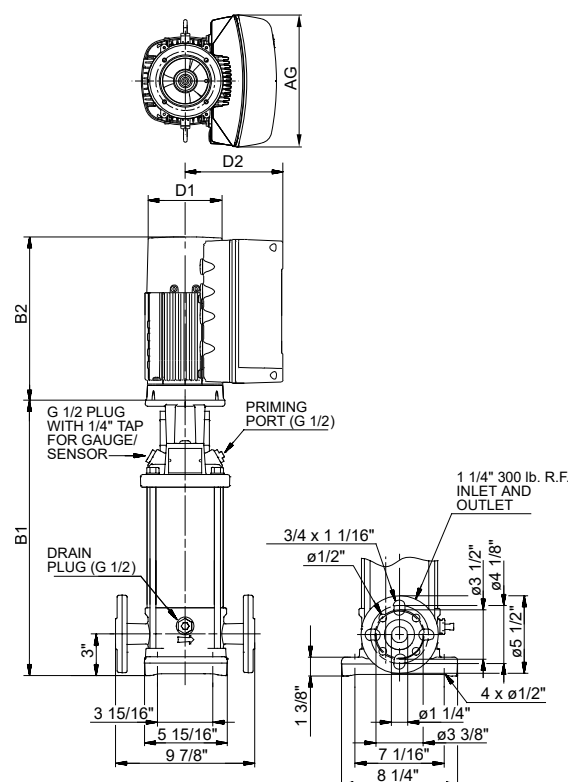
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 3-2	0.5	1	200-240	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	8.46 (215)	19.57 (497)	58 (26.5)
CRIE 3-3	0.75	1	200-240	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	8.46 (215)	19.57 (497)	59 (27)
CRIE 3-4	0.75	1	200-240	56C	*	11.81 (300)	4.80 (122)	6.22 (158)	8.34 (212)	20.28 (515)	60 (27)
	1	1	200-240	56C	*	11.81 (300)	4.80 (122)	6.22 (158)	8.46 (215)	20.28 (515)	60 (27)
		3	440-480	56C	*	11.81 (300)	4.80 (122)	6.22 (158)	10.04 (255)	21.85 (555)	63 (29)
CRIE 3-5	1	1	200-240	56C	*	12.52 (318)	4.80 (122)	6.22 (158)	8.46 (215)	20.98 (533)	61 (27.5)
CRIE 3-6	1	3	440-480	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.04 (255)	23.27 (591)	65 (30)
	1.5	1	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	8.46 (215)	23.27 (591)	63 (29)
		3	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.04 (255)	23.27 (591)	67 (30.5)
		3	440-480	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.04 (255)	23.27 (591)	67 (30.5)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 3-8	1.5	1	200-240	56C	*	14.65 (372)	4.80 (122)	6.22 (158)	8.46 (215)	23.11 (587)	65 (30)
	2	1	200-240	56C	*	14.65 (372)	4.80 (122)	6.22 (158)	9.25 (235)	23.09 (607)	69 (31.5)
	2	3	200-240	56C	*	14.65 (372)	4.80 (122)	6.22 (158)	10.83 (275)	25.47 (647)	73 (33)
	2	3	440-480	56C	*	14.65 (372)	4.80 (122)	6.22 (158)	10.83 (275)	25.47 (647)	73 (33.13)
CRIE 3-9	1.5	3	200-240	56C	*	15.35 (390)	4.80 (122)	6.22 (158)	10.04 (255)	25.39 (645)	70 (32)
		3	440-480	56C	*	15.35 (390)	4.80 (122)	6.22 (158)	10.04 (255)	25.39 (645)	70 (32)
CRIE 3-11	2	1	200-240	56C	*	16.77 (426)	4.80 (122)	6.22 (158)	9.25 (235)	26.02 (661)	72 (32.5)
CRIE 3-12	2	3	200-240	56C	*	17.48 (444)	4.80 (122)	6.22 (158)	10.83 (275)	28.31 (719)	76 (34.5)
		3	440-480	56C	*	17.48 (444)	4.80 (122)	6.22 (158)	10.83 (275)	28.31 (719)	76 (35)
	3	3	200-240	182TC	*	18.58 (472)	7.53 (191)	7.91 (201)	13.27 (337)	31.85 (809)	98 (44.5)
		3	440-480	182TC	*	18.58 (472)	4.80 (122)	6.22 (158)	10.83 (275)	29.41 (747)	90 (41)

CRNE 3 dimensional data



TM069138

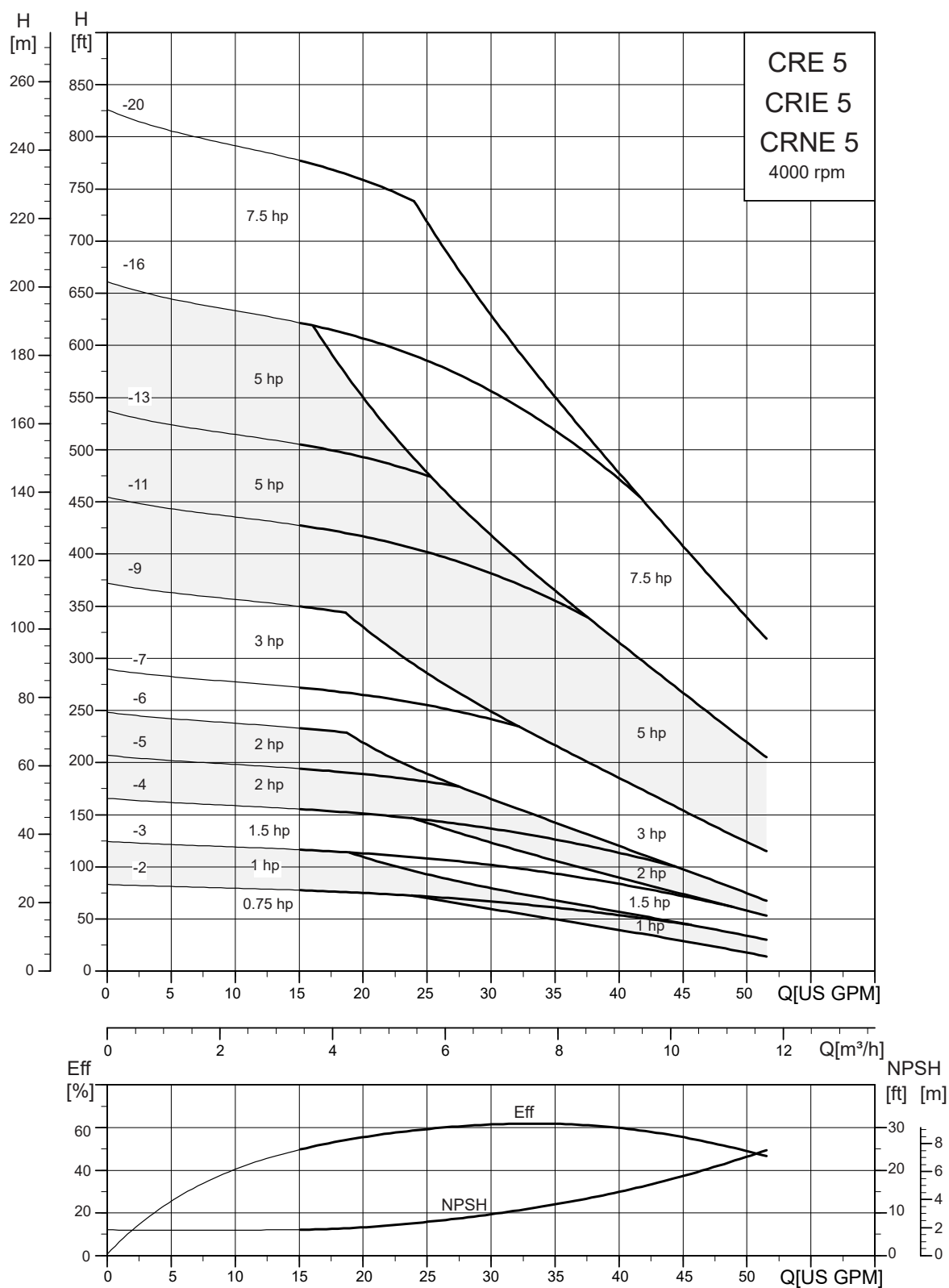


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 3-2	0.5	1	200-240	56C	12.09 (308)	4.80 (122)	6.22 (158)	8.46 (215)	20.55 (522)	67 (30.5)
CRNE 3-3	0.75	1	200-240	56C	12.09 (308)	4.80 (122)	6.22 (158)	8.46 (215)	20.55 (522)	68 (31)
CRNE 3-4	0.75	1	200-240	56C	12.8 (325)	4.80 (122)	6.22 (158)	8.46 (215)	21.26 (540)	69 (31)
	1	1	200-240	56C	12.8 (325)	4.80 (122)	6.22 (158)	8.46 (215)	21.26 (540)	69 (31)
		3	440-480	56C	12.8 (325)	4.80 (122)	6.22 (158)	10.04 (255)	22.83 (580)	73 (33)
		1	200-240	56C	13.50 (343)	4.80 (122)	6.22 (158)	8.46 (215)	21.97 (558)	70 (31.5)
CRNE 3-5	1	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.04 (255)	24.25 (616)	75 (34)
CRNE 3-6	1.5	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	8.46 (215)	22.68 (576)	73 (33)
	1.5	3	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.04 (255)	24.25 (616)	76 (34.5)
	1.5	3	440-480	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.04 (255)	24.25 (616)	76 (34.5)
		1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	8.46 (215)	22.68 (576)	73 (33)

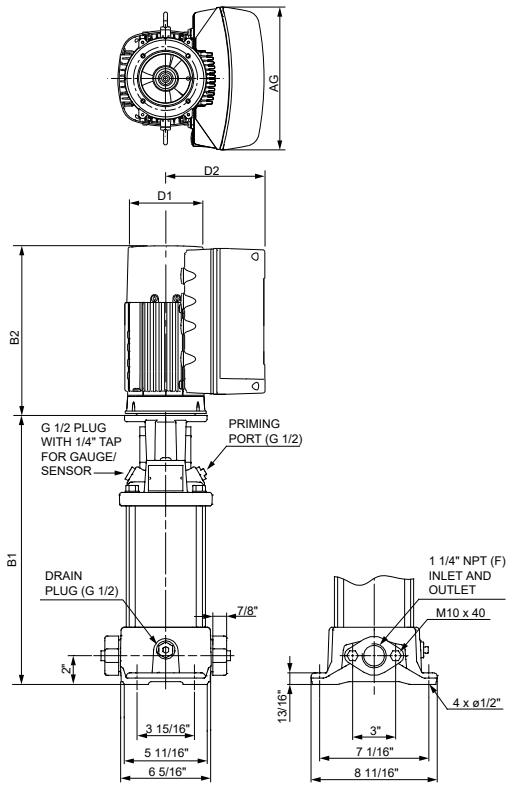
Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 3-8	1.5	1	200-240	56C	15.63 (397)	4.80 (122)	6.22 (158)	8.46 (215)	24.09 (612)	74 (34)
	2	1	200-240	56C	15.63 (397)	4.80 (122)	6.22 (158)	9.25 (235)	24.88 (632)	78 (35.5)
	2	3	200-240	56C	15.63 (397)	4.80 (122)	6.22 (158)	10.83 (275)	26.46 (672)	82 (37)
	2	3	440-480	56C	15.63 (397)	4.80 (122)	6.22 (158)	10.83 (275)	26.46 (672)	82 (37)
CRNE 3-9	1.5	3	200-240	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.04 (255)	26.38 (670)	79 (36)
		3	440-480	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.04 (255)	26.38 (670)	79 (36)
CRNE 3-11	2	1	200-240	56C	17.76 (451)	4.80 (122)	6.22 (158)	9.25 (235)	27.01 (686)	81 (36.5)
CRNE 3-12	2	3	200-240	56C	18.46 (469)	4.80 (122)	6.22 (158)	10.83 (275)	29.29 (744)	89 (40)
		3	440-480	56C	18.46 (469)	4.80 (122)	6.22 (158)	10.83 (275)	29.29 (744)	89 (40)
	3	3	200-240	182TC	19.57 (497)	7.53 (191)	7.91 (201)	13.27 (337)	32.83 (834)	107 (48.5)
	3	3	440-480	182TC	19.57 (497)	4.80 (122)	6.22 (158)	10.83 (275)	30.39 (772)	99 (45)
CRNE 3-15	3	3	200-240	182TC	21.69 (551)	7.53 (191)	7.91 (201)	13.27 (337)	34.96 (888)	110 (50)
		3	440-480	182TC	21.69 (551)	4.80 (122)	6.22 (158)	10.83 (275)	32.52 (826)	102 (46)
CRNE 3-17	3	3	200-240	182TC	23.11 (587)	7.53 (191)	7.91 (201)	13.27 (337)	36.38 (924)	111 (51)
		3	440-480	182TC	23.11 (587)	4.80 (122)	6.22 (158)	10.83 (275)	33.94 (862)	103 (47)
	5	3	200-240	182TC	23.11 (587)	7.53 (191)	7.91 (201)	13.27 (337)	36.38 (924)	118 (53.5)
	5	3	440-480	182TC	23.11 (587)	7.53 (191)	7.91 (201)	13.27 (337)	36.38 (924)	121 (55)
CRNE 3-21	5	3	200-240	182TC	25.94 (659)	7.53 (191)	7.91 (201)	13.27 (337)	39.21 (996)	125 (57)
		3	440-480	182TC	25.94 (659)	7.53 (191)	7.91 (201)	13.27 (337)	39.21 (996)	128 (58)

CRE, CRIE, CRNE 5

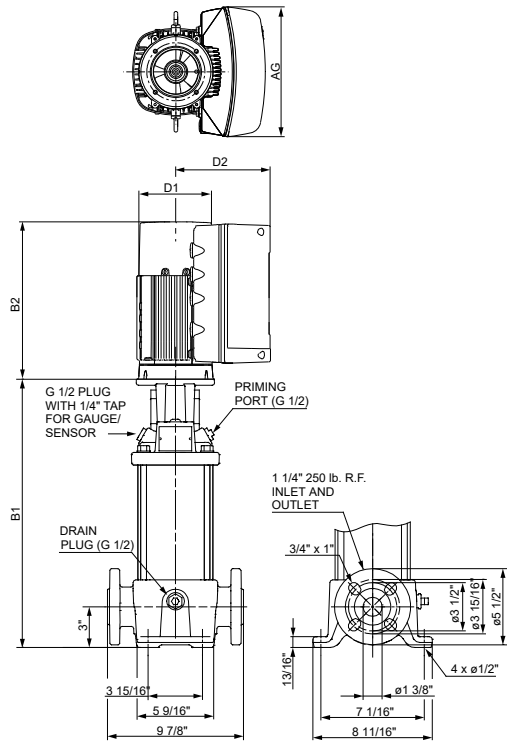


TM088194

CRE 5 dimensional data



TM069143

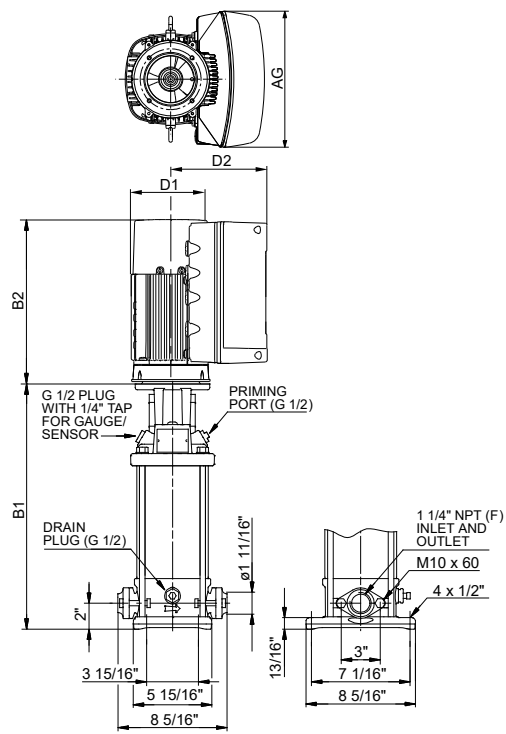


TM069137

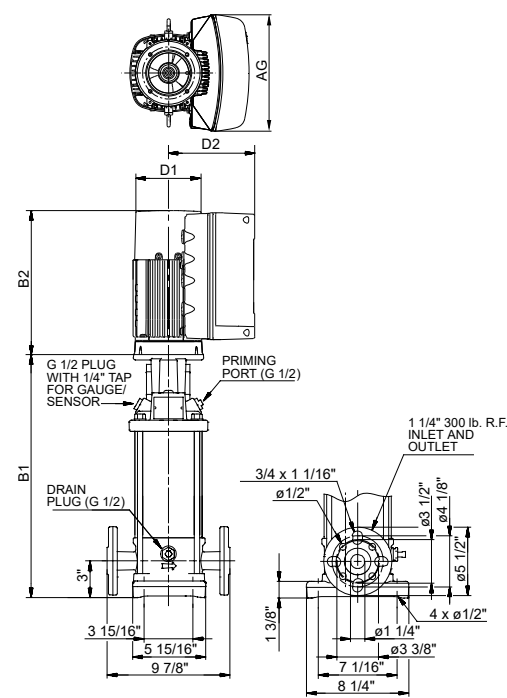
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 5-2	0.75	1	200-240	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	8.46 (215)	20.43 (519)	73 (33)
	1	1	200-240	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	8.46 (215)	20.43 (519)	73 (33)
		3	440-480	56C	*	11.97 (304)	4.80 (122)	6.22 (158)	10.04 (255)	22.01 (559)	77 (35)
CRE 5-3	1	3	440-480	56C	*	13.03 (331)	4.80 (122)	6.22 (158)	10.04 (255)	23.07 (586)	78 (35.5)
	1.5	1	200-240	56C	*	13.03 (331)	4.80 (122)	6.22 (158)	8.46 (215)	21.5 (546)	76 (34.5)
		3	200-240	56C	*	13.03 (331)	4.80 (122)	6.22 (158)	10.04 (255)	23.07 (586)	80 (36.5)
		3	440-480	56C	*	13.03 (331)	4.80 (122)	6.22 (158)	10.04 (255)	23.07 (586)	80 (36.5)
CRE 5-4	1.5	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	8.46 (215)	22.56 (573)	78 (35)
		3	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	81 (37)
		3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.04 (255)	24.13 (613)	81 (37)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ²⁹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
	2	1	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	9.25 (235)	23.35 (593)	82 (37)
		3	200-240	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.83 (275)	24.92 (633)	85 (38.5)
		3	440-480	56C	*	14.09 (358)	4.80 (122)	6.22 (158)	10.83 (275)	24.92 (633)	85 (38.5)
CRE 5-5	2	1	200-240	56C	*	15.16 (385)	4.80 (122)	6.22 (158)	9.25 (235)	24.41 (620)	83 (38)
CRE 5-6	2	3	200-240	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.56 (268)	27.05 (687)	88 (41)
		3	440-480	56C	*	16.22 (412)	4.80 (122)	6.22 (158)	10.56 (268)	27.05 (687)	88 (41)
CRE 5-7	3	3	200-240	182TC	*	18.39 (467)	7.53 (191)	7.91 (201)	13.27 (337)	31.65 (804)	112 (51)
		3	440-480	182TC	*	18.39 (467)	4.80 (122)	6.22 (158)	10.83 (275)	29.21 (742)	104 (47.5)
CRE 5-9	3	3	200-240	182TC	*	20.51 (521)	7.53 (191)	7.91 (201)	11.46 (291)	33.78 (858)	115 (52)
		3	440-480	182TC	*	20.51 (521)	4.80 (122)	6.22 (158)	10.56 (268)	31.34 (796)	107 (48.5)
CRE 5-11	5	3	200-240	182TC	*	22.64 (575)	7.53 (191)	7.91 (201)	13.27 (337)	35.91 (912)	124 (56)
		3	440-480	182TC	*	22.64 (575)	7.53 (191)	7.91 (201)	13.27 (337)	35.91 (912)	127 (57.5)
CRE 5-13	5	3	200-240	182TC	*	24.76 (629)	7.53 (191)	7.91 (201)	13.27 (337)	38.03 (966)	127 (57.5)
		3	440-480	182TC	*	24.76 (629)	7.53 (191)	7.91 (201)	13.27 (337)	38.03 (966)	130 (59)
CRE 5-16	5	3	200-240	182TC	-	27.95 (710)	7.53 (191)	7.91 (201)	13.27 (337)	41.22 (1047)	134 (61)
		3	440-480	182TC	-	27.95 (710)	7.53 (191)	7.91 (201)	13.27 (337)	41.22 (1047)	137 (62)
	7.5	3	200-240	213TC	-	28.46 (723)	10.04 (255)	9.33 (237)	15.55 (395)	44.02 (1118)	234 (106)
		3	440-480	213TC	-	28.46 (723)	7.53 (191)	7.91 (201)	14.65 (372)	43.11 (1095)	154 (70)
CRE 5-20	7.5	3	200-240	213TC	-	32.72 (831)	10.04 (255)	9.33 (237)	15.55 (395)	48.27 (1226)	268 (121.5)
		3	440-480	213TC	-	32.72 (831)	7.53 (191)	7.91 (201)	14.65 (372)	47.36 (1203)	159 (72)

CRIE 5 dimensional data



TM069148

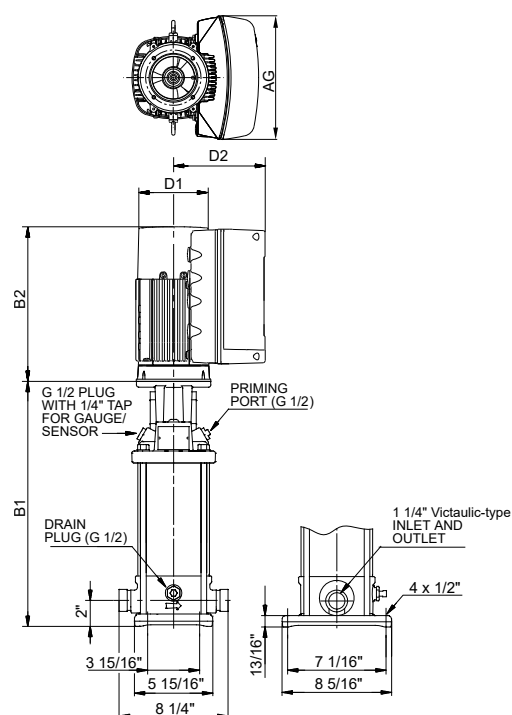


TM069139

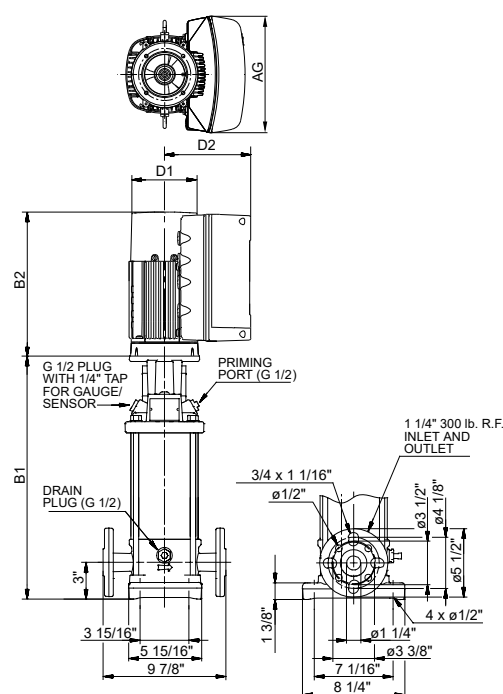
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 5-2	0.75	1	200-240	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	8.46 (215)	19.57 (497)	59 (26.5)
	1	1	200-240	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	8.46 (215)	19.57 (497)	59 (26.5)
		3	440-480	56C	*	11.1 (282)	4.80 (122)	6.22 (158)	10.04 (255)	21.14 (534)	62 (28)
CRIE 5-3	1	3	440-480	56C	*	12.07 (309)	4.80 (122)	6.22 (158)	10.04 (255)	22.2 (564)	64 (29)
	1.5	1	200-240	56C	*	12.17 (309)	4.80 (122)	6.22 (158)	8.46 (215)	20.63 (524)	62 (28)
		3	200-240	56C	*	12.17 (309)	4.80 (122)	6.22 (158)	10.04 (255)	22.2 (564)	66 (30)
		3	440-480	56C	*	12.17 (309)	4.80 (122)	6.22 (158)	10.04 (255)	22.2 (564)	66 (30)
CRIE 5-4	1.5	1	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	8.46 (215)	21.69 (551)	63 (29)
		3	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.04 (255)	23.27 (591)	67 (30.5)
		3	440-480	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.04 (255)	23.27 (591)	67 (30.5)
	2	1	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	9.25 (235)	22.48 (571)	67 (30.5)
		3	200-240	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.83 (275)	24.06 (611)	71 (32)
		3	440-480	56C	*	13.23 (336)	4.80 (122)	6.22 (158)	10.83 (275)	24.06 (611)	71 (32)
CRIE 5-5	2	1	200-240	56C	*	14.29 (363)	4.80 (122)	6.22 (158)	9.25 (235)	23.54 (598)	68 (31)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 5-6	2	3	200-240	56C	*	15.35 (390)	4.80 (122)	6.22 (158)	10.83 (275)	26.18 (665)	73 (33.5)
		3	440-480	56C	*	15.35 (390)	4.80 (122)	6.22 (158)	10.83 (275)	26.18 (665)	73 (33.5)
CRIE 5-7	3	3	200-240	182TC	*	17.52 (445)	7.53 (191)	7.91 (201)	13.27 (337)	30.79 (782)	96 (43.5)
		3	440-480	182TC	*	17.52 (445)	4.80 (122)	6.22 (158)	10.83 (275)	28.35 (720)	85 (38.5)
CRIE 5-9	3	3	200-240	182TC	*	19.65 (499)	7.53 (191)	7.91 (201)	11.46 (291)	32.91 (836)	99 (45)
		3	440-480	182TC	*	19.65 (499)	4.80 (122)	6.22 (158)	10.56 (268)	30.47 (774)	91 (41)
CRIE 5-11	5	3	200-240	182TC	*	21.77 (553)	7.53 (191)	7.91 (201)	13.27 (337)	35.04 (890)	108 (49)
		3	440-480	182TC	*	21.77 (553)	7.53 (191)	7.91 (201)	13.27 (337)	35.04 (890)	111 (50.5)
CRIE 5-13	5	3	200-240	182TC	*	23.9 (607)	7.53 (191)	7.91 (201)	13.27 (337)	37.17 (944)	111 (50)
		3	440-480	182TC	*	23.9 (607)	7.53 (191)	7.91 (201)	13.27 (337)	37.17 (944)	114 (51.5)

CRNE 5 dimensional data



TM069138

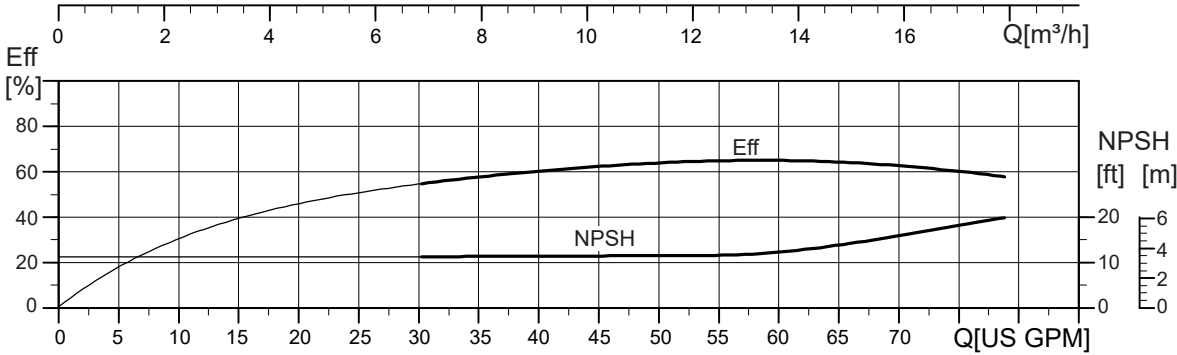
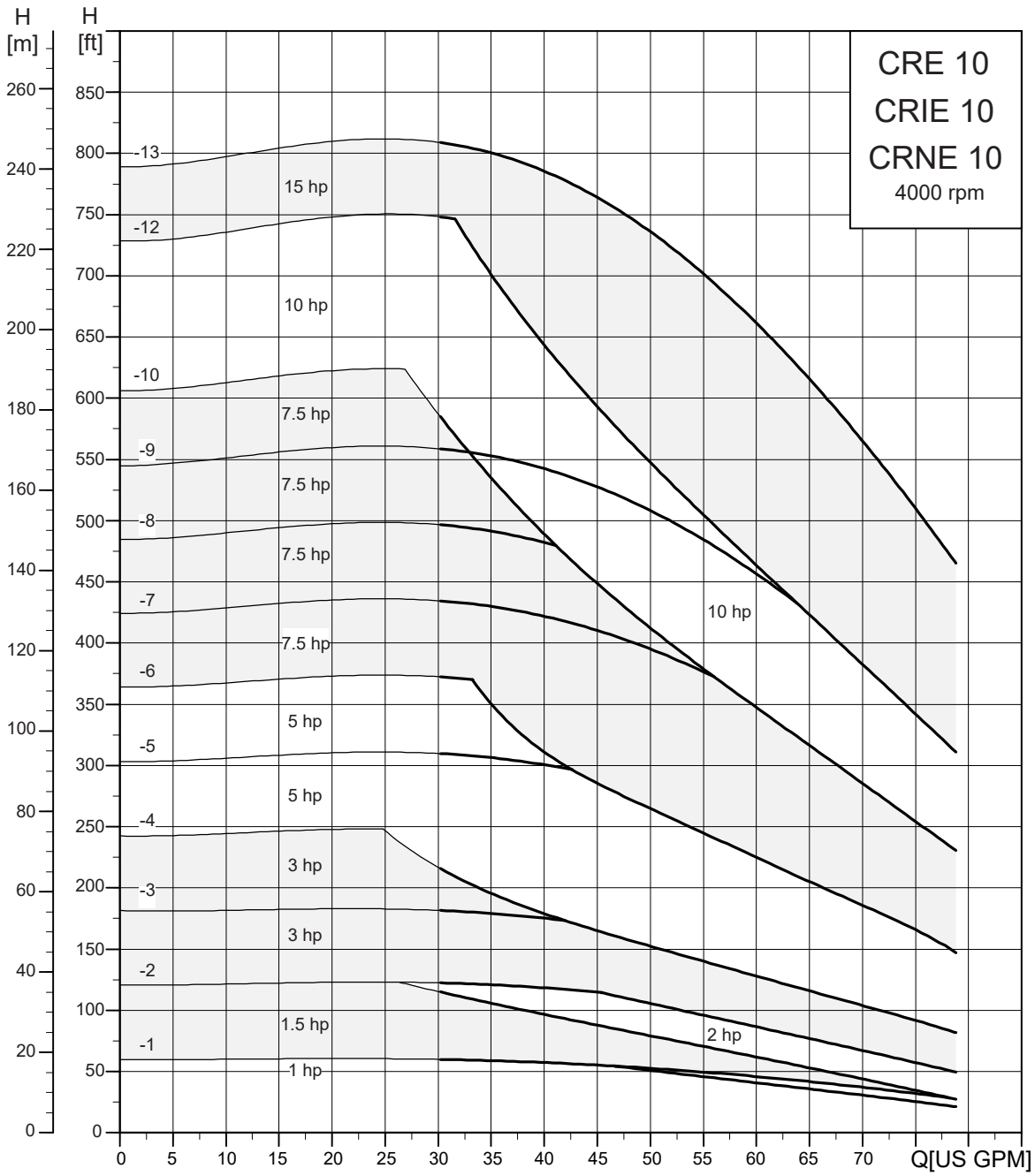


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 5-2	0.75	1	200-240	56C	12.09 (307)	4.80 (122)	6.22 (158)	8.46 (215)	20.55 (522)	68 (31)
		1	200-240	56C	12.09 (307)	4.80 (122)	6.22 (158)	8.46 (215)	20.55 (522)	68 (31)
		3	440-480	56C	12.09 (307)	4.80 (122)	6.22 (158)	10.04 (255)	22.13 (562)	71 (32.5)
CRNE 5-3	1	3	440-480	56C	13.15 (334)	4.80 (122)	6.22 (158)	10.04 (255)	23.19 (589)	73 (33)
		1	200-240	56C	13.15 (334)	4.80 (122)	6.22 (158)	8.46 (215)	21.61 (549)	71 (32)
	1.5	3	200-240	56C	13.15 (334)	4.80 (122)	6.22 (158)	10.04 (255)	23.19 (589)	75 (34)
		3	440-480	56C	13.15 (334)	4.80 (122)	6.22 (158)	10.04 (255)	23.19 (589)	75 (34)
CRNE 5-4	1.5	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	8.34 (212)	22.68 (576)	72 (33)
		3	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.56 (268)	24.25 (616)	76 (34.5)
		3	440-480	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.56 (268)	24.25 (616)	76 (34.5)
	2	1	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	9.25 (235)	23.46 (596)	76 (34.5)
		3	200-240	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.83 (275)	25.04 (636)	80 (36)
		3	440-480	56C	14.21 (361)	4.80 (122)	6.22 (158)	10.83 (275)	25.04 (636)	80 (36)
		1	200-240	56C	15.28 (388)	4.80 (122)	6.22 (158)	9.25 (235)	24.53 (623)	77 (35)

Pump type	[hp]	PH	Voltage [V]	Frame size	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 5-6	2	3	200-240	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.83 (275)	27.17 (690)	82 (37)
		3	440-480	56C	16.34 (415)	4.80 (122)	6.22 (158)	10.83 (275)	27.17 (690)	82 (37)
CRNE 5-7	3	3	200-240	182TC	18.5 (470)	7.53 (191)	7.91 (201)	13.27 (337)	31.77 (807)	105 (47.5)
		3	440-480	182TC	18.5 (470)	4.80 (122)	6.22 (158)	10.83 (275)	29.33 (745)	97 (44)
CRNE 5-9	3	3	200-240	182TC	20.63 (524)	7.53 (191)	7.91 (201)	13.27 (337)	33.9 (861)	107 (49)
		3	440-480	182TC	20.63 (524)	4.80 (122)	6.22 (158)	10.83 (275)	31.46 (799)	100 (45)
CRNE 5-11	5	3	200-240	182TC	22.76 (578)	7.53 (191)	7.91 (201)	13.27 (337)	36.02 (915)	117 (53)
		3	440-480	182TC	22.76 (578)	7.53 (191)	7.91 (201)	13.27 (337)	36.02 (915)	120 (54)
CRNE 5-13	5	3	200-240	182TC	24.88 (632)	7.53 (191)	7.91 (201)	13.27 (337)	38.15 (969)	120 (54)
		3	440-480	182TC	24.88 (632)	7.53 (191)	7.91 (201)	13.27 (337)	38.15 (969)	122 (55.5)
CRNE 5-16	5	3	200-240	182TC	28.07 (713)	7.53 (191)	7.91 (201)	13.27 (337)	41.34 (1050)	126 (57)
		3	440-480	182TC	28.07 (713)	7.53 (191)	7.91 (201)	13.27 (337)	41.34 (1050)	129 (59)
	7.5	3	200-240	213TC	28.58 (726)	10.04 (255)	9.33 (237)	15.55 (395)	44.13 (1121)	227 (103)
		3	440-480	213TC	28.58 (726)	7.53 (191)	7.91 (201)	14.65 (372)	43.23 (1098)	146 (66.5)
	7.5	3	200-240	213TC	32.83 (834)	10.04 (255)	9.33 (237)	15.55 (395)	48.39 (1229)	260 (118)
		3	440-480	213TC	32.83 (834)	7.53 (191)	7.91 (201)	14.65 (372)	47.48 (1206)	152 (69)

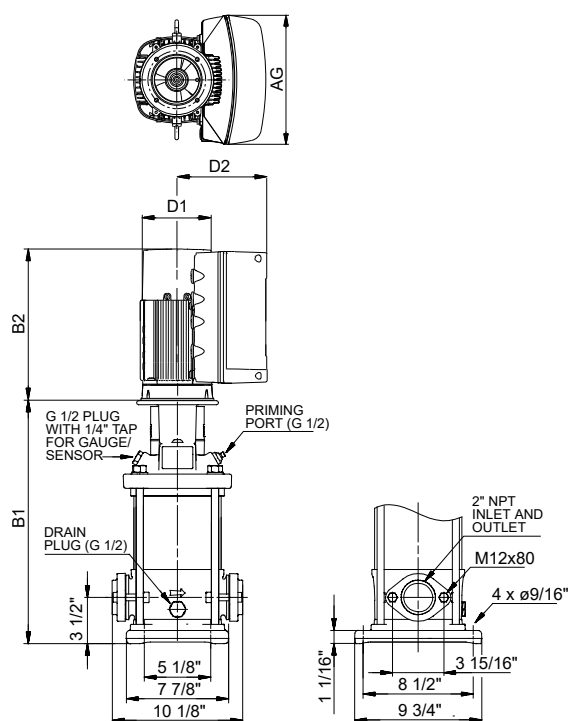
CRE, CRIE, CRNE 10



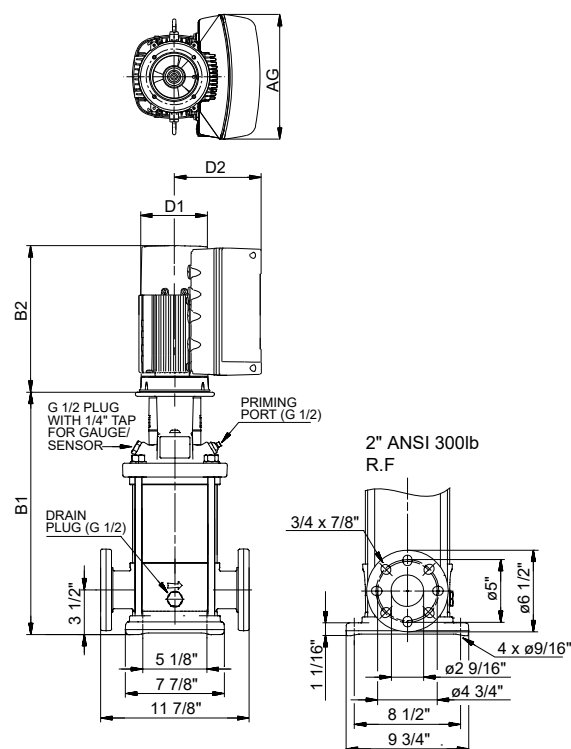
TM088195

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{vL}	Impeller diameter [in (mm)]	Oval ³⁰⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 10-4	3	3	200-240	182TC	0.38	3.66 (93)	*	18.39 (467)	7.53 (191)	7.91 (201)	13.27 (337)	31.65 (804)	152 (69)
		3	440-480	182TC	0.39	3.66 (93)	*	18.39 (467)	4.80 (122)	6.22 (158)	10.83 (275)	29.21 (742)	145 (66)
CRE 10-5	5	3	200-240	182TC	0.38	3.66 (93)	*	19.57 (497)	7.53 (191)	7.91 (201)	13.27 (337)	32.83 (834)	161 (73)
		3	440-480	182TC	0.39	3.66 (93)	*	19.57 (497)	7.53 (191)	7.91 (201)	13.27 (337)	32.83 (834)	165 (75)
CRE 10-6	5	3	200-240	182TC	0.38	3.66 (93)	*	20.75 (527)	7.53 (192)	7.91 (201)	13.27 (337)	34.02 (864)	163 (74)
		3	440-480	182TC	0.39	3.66 (93)	*	20.75 (527)	7.53 (192)	7.91 (201)	13.27 (337)	34.02 (864)	168 (76)
CRE 10-7	7.5	3	200-240	213TC	0.38	3.66 (93)	*	22.24 (565)	10.04 (255)	9.33 (237)	15.55 (395)	37.8 (960)	269 (122)
		3	440-480	213TC	0.39	3.66 (93)	*	22.24 (565)	7.53 (191)	7.91 (201)	14.65 (372)	36.89 (937)	185 (84)
CRE 10-8	7.5	3	200-240	213TC	0.38	3.66 (93)	*	23.43 (595)	10.04 (255)	9.33 (237)	15.55 (395)	38.98 (990)	271 (123)
		3	440-480	213TC	0.39	3.66 (93)	*	23.43 (595)	7.53 (191)	7.91 (201)	14.65 (372)	38.07 (966)	190 (86)
CRE 10-9	10	3	200-240	254TC	0.38	3.66 (93)	-	27.17 (690)	12.36 (314)	11.93 (303)	19.21 (488)	46.38 (1178)	403 (183)
		3	440-480	213TC	0.39	3.66 (93)	-	24.61 (625)	10.04 (255)	9.33 (237)	15.55 (395)	40.16 (1020)	282 (128)
CRE 10-10	7.5	3	200-240	213TC	0.38	3.66 (93)	-	25.79 (655)	10.04 (255)	9.33 (237)	15.55 (395)	41.34 (1050)	276 (125)
		3	440-480	213TC	0.39	3.66 (93)	-	25.79 (655)	7.53 (191)	7.91 (201)	14.65 (372)	40.43 (1027)	196 (89)
CRE 10-12	10	3	440-480	213TC	0.39	3.66 (93)	-	28.15 (715)	10.04 (255)	9.33 (237)	15.55 (395)	43.7 (1110)	289 (131)
		3	200-240	254TC	0.38	3.66 (93)	-	30.71 (780)	12.36 (314)	11.93 (303)	19.21 (488)	49.92 (1268)	410 (186)
CRE 10-13	15	3	200-240	254TC	0.38	3.66 (93)	-	31.89 (810)	12.36 (314)	11.93 (303)	19.21 (488)	51.1 (1298)	412 (187)
		3	440-480	254TC	0.39	3.66 (93)	-	31.89 (810)	10.04 (255)	9.33 (237)	15.59 (396)	47.48 (1206)	348 (158)

CRIE 10 dimensional data



TM069218

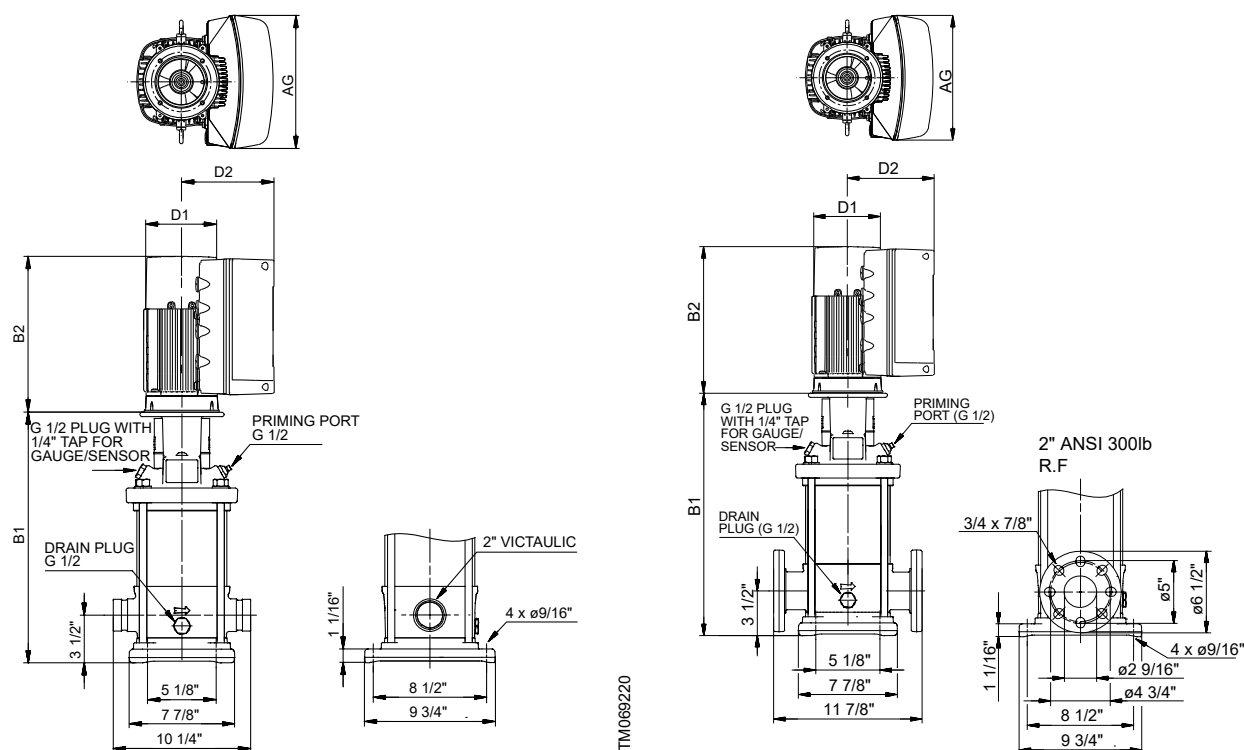


TM069219

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 10-1	1	1	200-240	56C	0.41	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	8.46 (215)	23.66 (601)	97 (44)
		3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	99 (45)
	1.5	3	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	101 (46)
CRIE 10-2	2	1	200-240	56C	0.41	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	9.25 (235)	24.45 (621)	101 (46)
		3	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.83 (275)	26.02 (661)	106 (48)
	3	3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.83 (275)	26.02 (661)	106 (48)
		1.5	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	101 (46)
	1.5	3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	101 (46)
CRIE 10-3	3	3	200-240	182TC	0.39	3.66 (93)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	137 (62)
		3	440-480	182TC	0.38	3.66 (93)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (710)	128 (58)
CRIE 10-4	3	3	200-240	182TC	0.38	3.66 (93)	*	18.31 (465)	7.53 (191)	7.91 (201)	13.27 (337)	31.57 (802)	139 (63)
		3	440-480	182TC	0.39	3.66 (93)	*	18.31 (465)	4.80 (122)	6.22 (158)	10.83 (275)	29.13 (740)	130 (59)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 10-5	5	3	200-240	182TC	0.38	3.66 (93)	*	19.49 (495)	7.53 (191)	7.91 (201)	13.27 (337)	32.76 (832)	148 (67)
		3	440-480	182TC	0.39	3.66 (93)	*	19.49 (495)	7.53 (191)	7.91 (201)	13.27 (337)	32.76 (832)	150 (68)
CRIE 10-6	5	3	200-240	182TC	0.38	3.66 (93)	*	20.67 (525)	7.53 (191)	7.91 (201)	13.27 (337)	33.94 (862)	150 (68)
		3	440-480	182TC	0.39	3.66 (93)	*	20.67 (525)	7.53 (191)	7.91 (201)	13.27 (337)	33.94 (862)	152 (69)
CRIE 10-7	7.5	3	200-240	213TC	0.38	3.66 (93)	*	22.17 (563)	10.04 (255)	9.33 (237)	15.55 (395)	37.72 (958)	185 (84)
		3	440-480	213TC	0.39	3.66 (93)	*	22.17 (563)	7.53 (191)	7.91 (201)	14.65 (372)	36.81 (935)	170 (77)
CRIE 10-8	7.5	3	200-240	213TC	0.38	3.66 (93)	*	23.35 (593)	10.04 (255)	9.33 (237)	15.55 (395)	38.9 (988)	190 (86)
		3	440-480	213TC	0.39	3.66 (93)	*	23.35 (593)	7.53 (191)	7.91 (201)	14.65 (372)	37.99 (965)	174 (79)
CRIE 10-9	10	3	200-240	254TC	0.38	3.66 (93)	-	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	397 (180)
CRIE 10-12	10	3	200-240	254TC	0.38	3.66 (93)	-	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	401 (182)
CRIE 10-13	10	3	200-240	254TC	0.38	3.66 (93)	-	31.77 (807)	12.36 (314)	11.93 (303)	19.21 (488)	50.98 (1295)	406 (184)

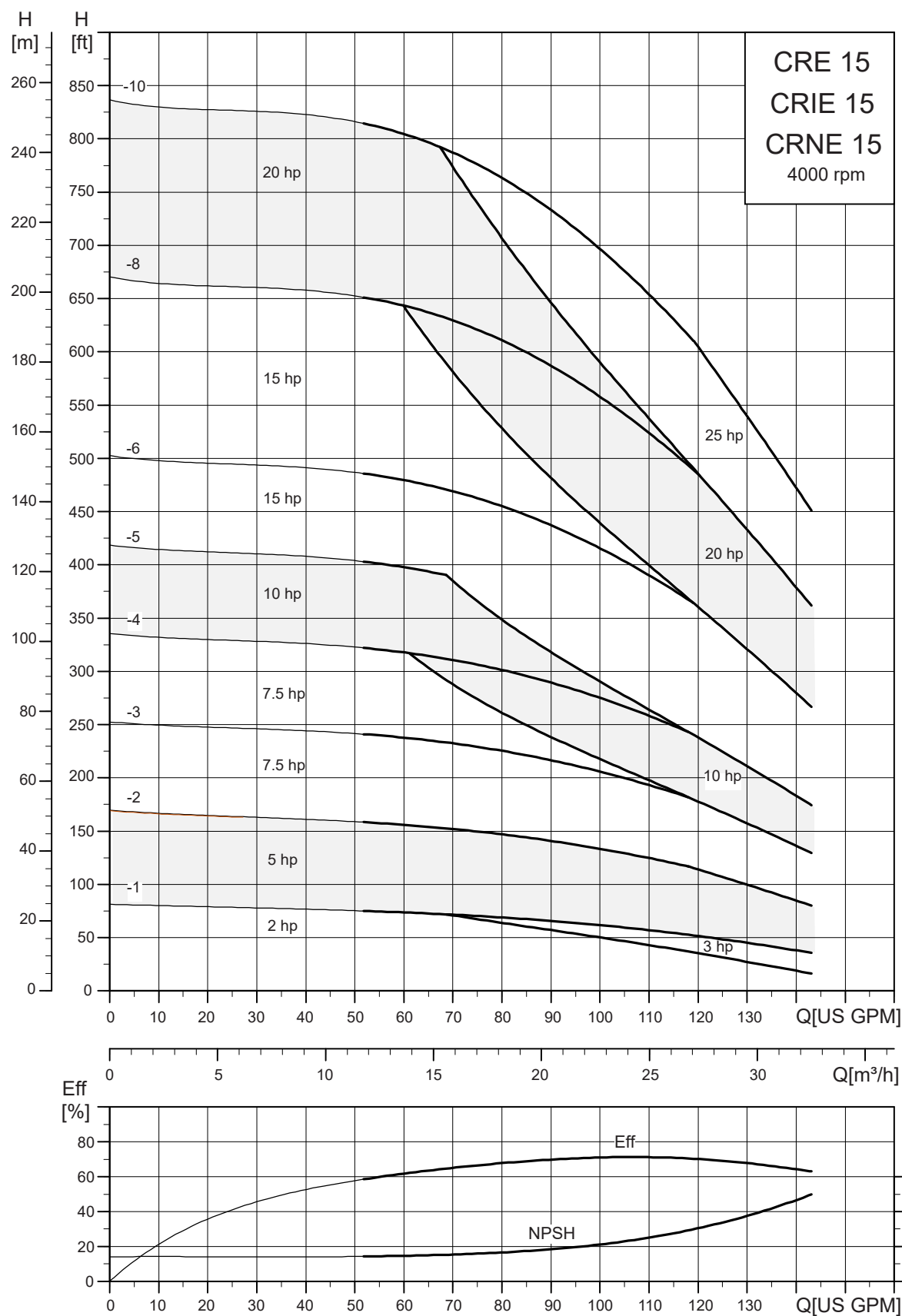
CRNE 10 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 10-1	1	1	200-240	56C	0.41	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	8.46 (215)	23.66 (601)	104 (47)
		3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	106 (48)
	1.5	3	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	108 (49)
		3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.04 (255)	25.24 (641)	108 (49)
CRNE 10-2	1	1	200-240	56C	0.41	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	9.25 (235)	24.45 (621)	110 (50)
		3	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.83 (275)	26.02 (661)	112 (51)
	2	3	200-240	56C	0.38	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.83 (275)	26.02 (661)	112 (51)
		3	440-480	56C	0.39	3.66 (93)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.83 (275)	26.02 (661)	112 (51)
CRNE 10-3	3	3	200-240	182TC	0.38	3.66 (93)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	143 (65)
		3	440-480	182TC	0.39	3.66 (93)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (710)	137 (62)
CRNE 10-4	3	3	200-240	182TC	0.38	3.66 (93)	*	18.31 (465)	7.53 (191)	7.91 (201)	13.27 (337)	31.57 (802)	145 (66)
		3	440-480	182TC	0.39	3.66 (93)	*	18.31 (465)	4.80 (122)	6.22 (158)	10.83 (275)	29.13 (739)	137 (62)

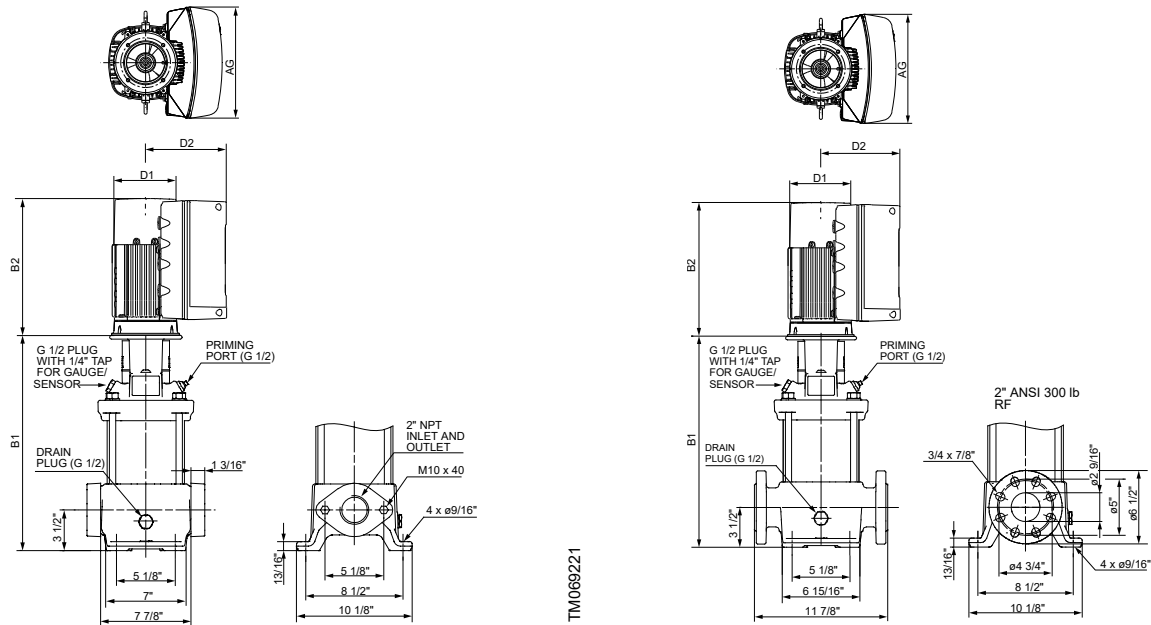
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 10-5	5	3	200-240	182TC	0.38	3.66 (93)	*	19.49 (495)	7.53 (191)	7.91 (201)	13.27 (337)	32.76 (832)	154 (70)
		3	440-480	182TC	0.39	3.66 (93)	*	19.49 (495)	7.53 (191)	7.91 (201)	13.27 (337)	32.76 (832)	159 (72)
CRNE 10-6	5	3	200-240	182TC	0.38	3.66 (93)	*	20.67 (525)	7.53 (191)	7.91 (201)	13.27 (337)	33.94 (862)	156 (71)
		3	440-480	182TC	0.39	3.66 (93)	*	20.67 (525)	7.53 (191)	7.91 (201)	13.27 (337)	33.94 (862)	161 (73)
CRNE 10-7	7.5	3	200-240	213TC	0.38	3.66 (93)	*	22.17 (563)	10.04 (255)	9.33 (237)	15.55 (395)	37.72 (958)	262 (119)
		3	440-480	213TC	0.39	3.66 (93)	*	22.17 (563)	7.53 (191)	7.91 (201)	14.65 (372)	36.81 (935)	179 (81)
CRNE 10-8	7.5	3	200-240	213TC	0.38	3.66 (93)	*	23.35 (593)	10.04 (255)	9.33 (237)	15.55 (395)	38.9 (988)	265 (120)
		3	440-480	213TC	0.39	3.66 (93)	*	23.35 (593)	7.53 (191)	7.91 (201)	14.65 (372)	37.99 (965)	181 (82)
CRNE 10-9	10	3	200-240	254TC	0.38	3.66 (93)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	397 (180)
		3	440-480	213TC	0.39	3.66 (93)	*	24.53 (623)	10.04 (255)	9.33 (237)	15.55 (395)	40.08 (1018)	276 (125)
CRNE 10-10	7.5	3	200-240	213TC	0.38	3.66 (93)	*	25.71 (653)	10.04 (255)	9.33 (237)	15.55 (395)	41.26 (1048)	269 (122)
		3	440-480	213TC	0.39	3.66 (93)	*	25.71 (653)	7.53 (191)	7.91 (201)	14.65 (372)	40.35 (1024)	190 (86)
CRNE 10-12	10	3	200-240	254TC	0.38	3.66 (93)	*	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	401 (182)
		3	440-480	213TC	0.39	3.66 (93)	*	28.07 (713)	10.04 (255)	9.33 (237)	15.55 (395)	43.62 (1107)	282 (128)
CRNE 10-13	15	3	200-240	254TC	0.38	3.66 (93)	*	31.77 (807)	12.36 (314)	11.93 (303)	19.21 (488)	50.98 (1295)	406 (184)
		3	440-480	254TC	0.39	3.66 (93)	*	31.77 (807)	10.04 (255)	9.33 (237)	15.59 (396)	47.36 (1202)	342 (155)

CRE, CRIE, CRNE 15



TM08196

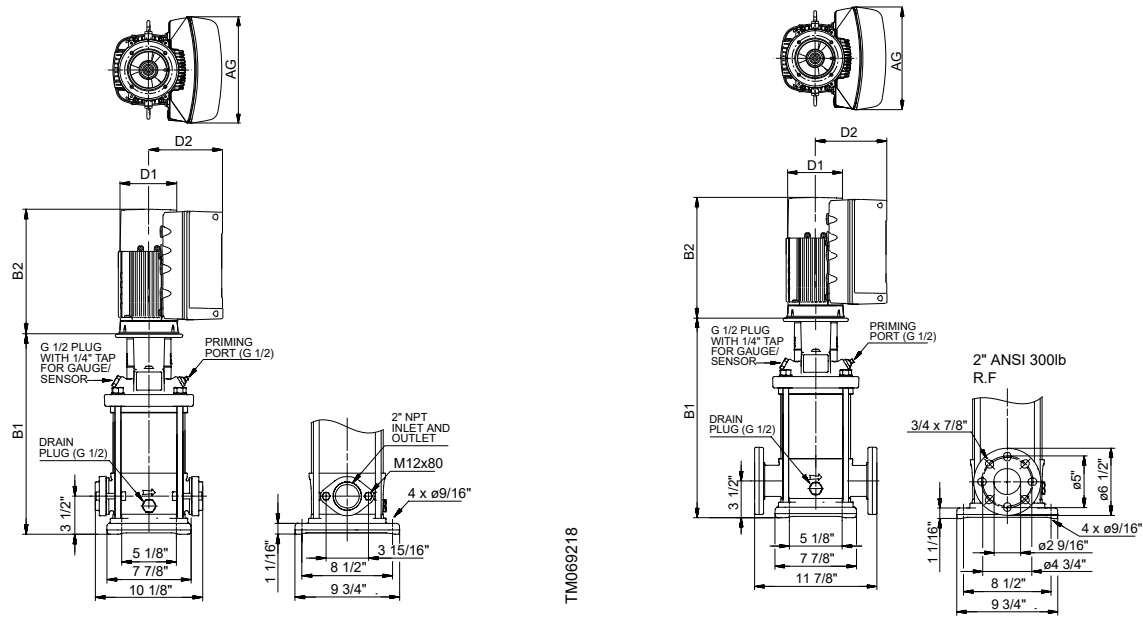
CRE 15 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ³²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 15-1	1	3	200-240	56C	0.45	4.13 (105)	*	16.46 (418)	4.80 (122)	6.22 (158)	9.25 (235)	25.71 (653)	117 (53)
		3	200-240	56C	0.41	4.13 (105)	*	16.46 (418)	4.80 (122)	6.22 (158)	10.83 (275)	27.28 (693)	121 (55)
		3	440-480	56C	0.40	4.13 (105)	*	16.46 (418)	4.80 (122)	6.22 (158)	10.83 (275)	27.28 (693)	121 (55)
	3	3	200-240	182TC	0.41	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (774)	150 (68)
		3	440-480	182TC	0.40	4.13 (105)	*	17.2 (437)	4.80 (122)	6.22 (158)	10.83 (275)	28.03 (712)	141 (64)
		3	200-240	182TC	0.41	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (774)	157 (71)
CRE 15-2	5	3	440-480	182TC	0.40	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (774)	159 (72)
		3	200-240	213TC	0.41	4.13 (105)	*	19.29 (490)	10.04 (255)	9.33 (237)	15.55 (395)	34.84 (885)	262 (119)
CRE 15-3	7.5	3	440-480	213TC	0.40	4.13 (105)	*	19.29 (490)	7.53 (191)	7.91 (201)	14.65 (372)	33.94 (862)	179 (81)
		3	200-240	213TC	0.41	4.13 (105)	*	21.06 (535)	10.04 (255)	9.33 (237)	15.55 (395)	36.61 (930)	265 (120)
CRE 15-4	7.5	3	440-480	213TC	0.40	4.13 (105)	*	21.06 (535)	7.53 (191)	7.91 (201)	14.65 (372)	35.71 (907)	181 (82)
		3	200-240	254TC	0.41	4.13 (105)	*	23.62 (600)	12.36 (314)	11.93 (303)	19.21 (488)	42.83 (1088)	395 (179)
	10	3	440-480	213TC	0.40	4.13 (105)	*	21.06 (535)	10.04 (255)	9.33 (237)	15.55 (395)	36.61 (930)	273 (124)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ³²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 15-5	10	3	200-240	254TC	0.41	4.13 (105)	*	25.39 (645)	12.36 (314)	11.93 (303)	19.21 (488)	44.61 (1133)	399 (181)
		3	440-480	213TC	0.40	4.13 (105)	*	22.83 (580)	10.04 (255)	9.33 (237)	15.55 (395)	38.39 (975)	278 (126)
CRE 15-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.17 (690)	12.36 (314)	11.93 (303)	19.21 (488)	46.38 (1178)	401 (182)
		3	440-480	254TC	0.40	4.13 (105)	*	27.17 (690)	10.04 (255)	9.33 (237)	15.59 (396)	42.76 (1086)	309 (140)
CRE 15-8	15	3	200-240	254TC	0.41	4.13 (105)	-	30.71 (780)	12.36 (314)	11.93 (303)	19.21 (488)	49.92 (1267)	410 (186)
		3	440-480	254TC	0.40	4.13 (105)	-	30.71 (780)	10.04 (255)	9.33 (237)	15.59 (396)	46.3 (1176)	346 (157)
	20	3	440-480	254TC	0.40	4.13 (105)	-	30.71 (780)	12.36 (314)	11.93 (303)	19.21 (488)	49.92 (1267)	410 (186)
		3	440-480	254TC	0.40	4.13 (105)	-	34.25 (870)	12.36 (314)	11.93 (303)	19.21 (488)	53.46 (1358)	419 (190)
CRE 15-10	25	3	440-480	284TC	0.40	4.13 (105)	-	33.62 (854)	12.36 (314)	11.93 (303)	20.24 (514)	53.86 (1368)	450 (204)

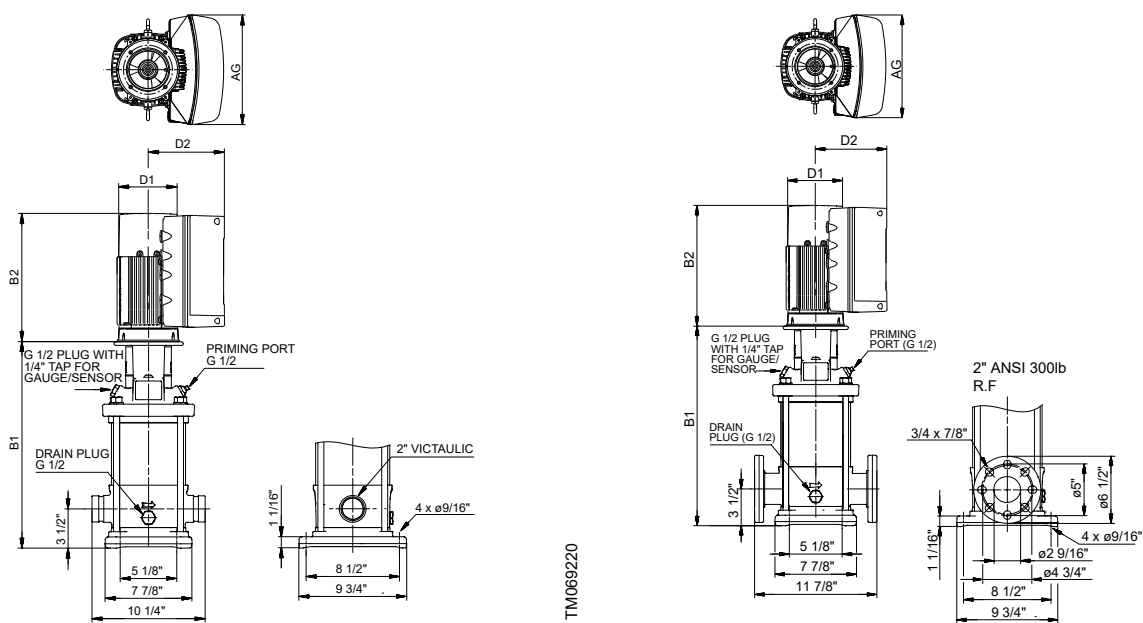
CRIE 15 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 15-1	2	1	200-240	56C	0.45	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	9.25 (235)	25.63 (651)	104 (47)
		3	200-240	56C	0.41	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.83 (275)	27.2 (691)	106 (48)
		3	440-480	56C	0.40	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.83 (275)	27.2 (691)	106 (48)
	3	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	134 (61)
		3	440-480	182TC	0.40	4.13 (105)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (710)	128 (58)
		3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	143 (65)
CRIE 15-2	5	3	440-480	182TC	0.40	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	145 (66)
		3	200-240	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	179 (81)
CRIE 15-3	7.5	3	440-480	213TC	0.40	4.13 (105)	*	19.21 (488)	7.53 (191)	7.91 (201)	14.65 (372)	33.86 (860)	165 (75)
		3	200-240	213TC	0.41	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	181 (82)
CRIE 15-4	7.5	3	440-480	213TC	0.40	4.13 (105)	*	20.98 (533)	7.53 (191)	7.91 (201)	14.65 (372)	35.63 (905)	168 (76)
		3	200-240	254TC	0.41	4.13 (105)	*	23.5 (597)	12.36 (314)	11.93 (303)	19.21 (488)	42.72 (1085)	388 (176)
		3	440-480	213TC	0.40	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	190 (86)
	10	3	440-480	213TC	0.40	4.13 (105)	*	22.76 (578)	10.04 (255)	9.33 (237)	15.55 (395)	38.31 (973)	196 (89)
CRIE 15-5	10	3	200-240	254TC	0.41	4.13 (105)	*	25.28 (642)	12.36 (314)	11.93 (303)	19.21 (488)	44.49 (1130)	390 (177)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 15-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	395 (179)
		3	440-480	254TC	0.40	4.13 (105)	*	27.05 (687)	10.04 (255)	9.33 (237)	15.59 (396)	42.64 (1083)	229 (104)
CRIE 15-8	15	3	200-240	254TC	0.41	4.13 (105)	-	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	403 (183)
CRIE 15-10	20	3	440-480	254TC	0.40	4.13 (105)	-	34.13 (867)	12.36 (314)	11.93 (303)	19.21 (488)	53.35 (1355)	412 (187)
	25	3	440-480	284TC	0.40	4.13 (105)	-	33.50 (851)	12.36 (314)	11.93 (303)	20.24 (514)	53.74 (1365)	441 (200)

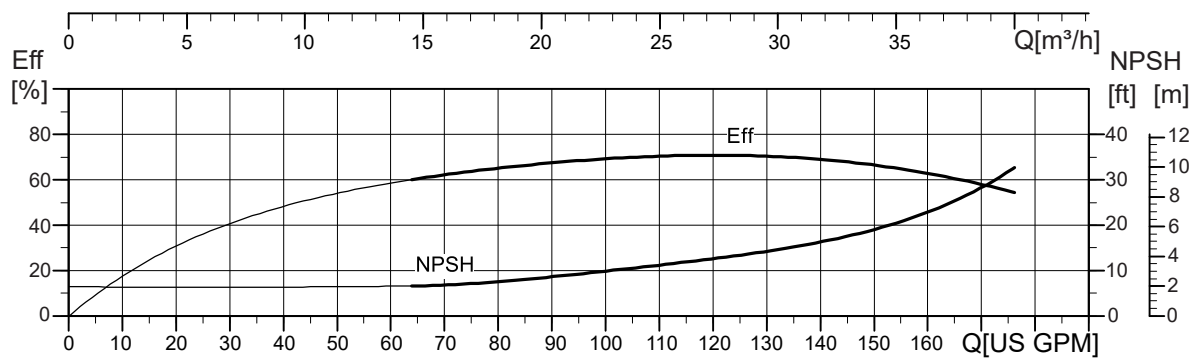
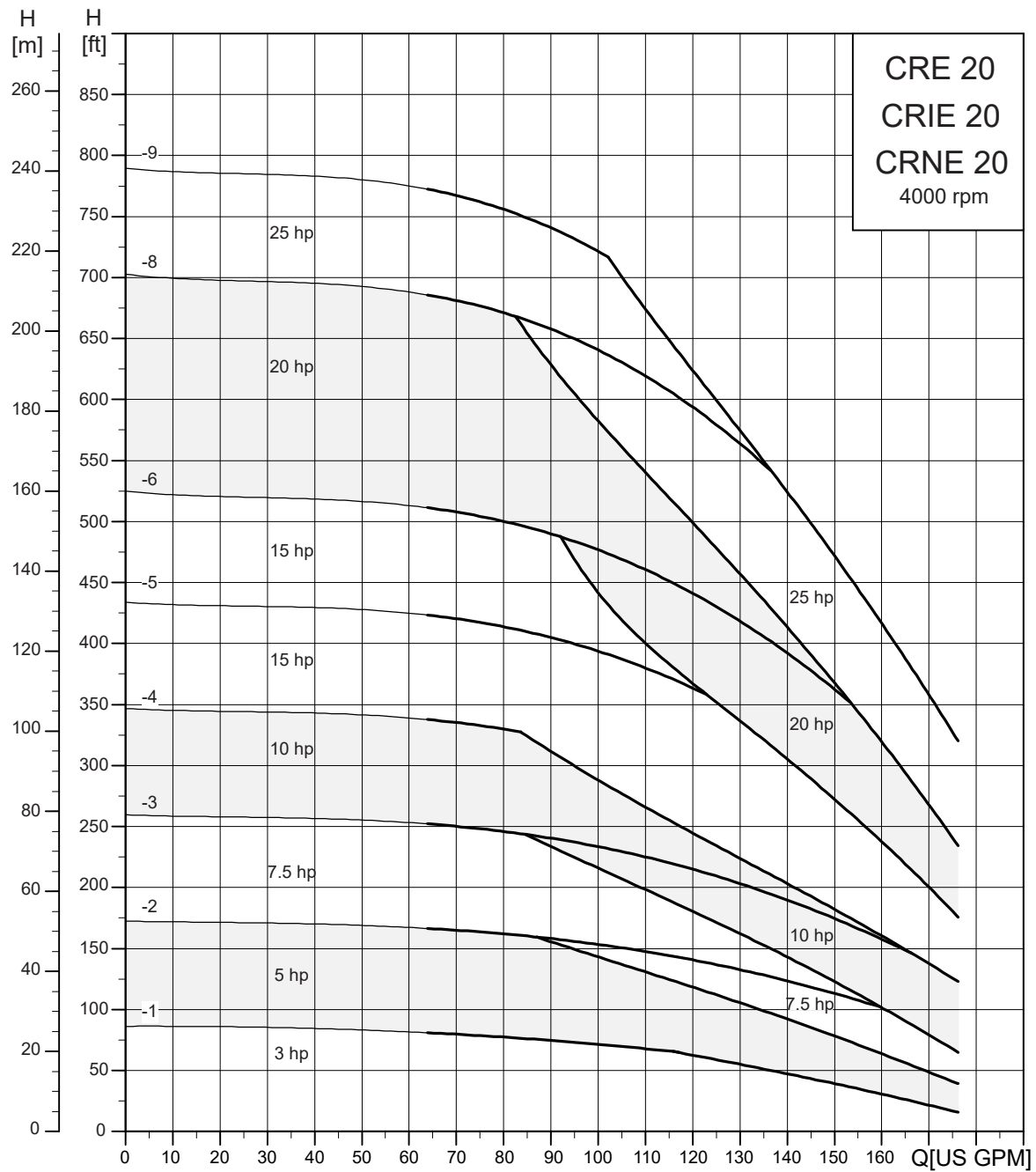
CRNE 15 dimensional data



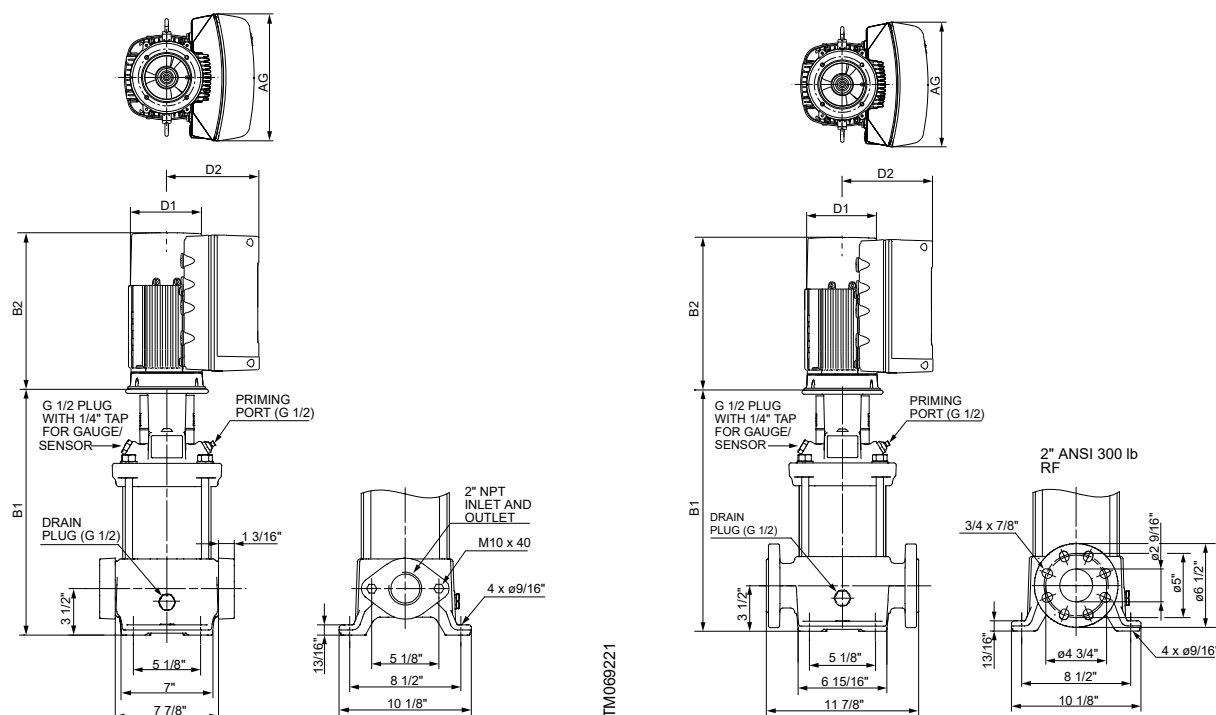
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 15-1	2	1	200-240	56C	0.45	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	9.25 (235)	25.63 (651)	110 (50)
		3	200-240	56C	0.41	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.83 (275)	27.2 (691)	115 (52)
	3	3	440-480	56C	0.40	4.13 (105)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.83 (275)	27.2 (691)	115 (52)
		3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	141 (64)
		3	440-480	182TC	0.40	4.13 (105)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (710)	134 (61)
CRNE 15-2	5	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	150 (68)
		3	440-480	182TC	0.40	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	152 (69)
CRNE 15-3	7.5	3	200-240	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	256 (116)
		3	440-480	213TC	0.40	4.13 (105)	*	19.21 (488)	7.53 (191)	7.91 (201)	14.65 (372)	33.86 (860)	172 (78)
CRNE 15-4	7.5	3	200-240	213TC	0.41	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	258 (117)
		3	440-480	213TC	0.40	4.13 (105)	*	20.98 (533)	7.53 (191)	7.91 (201)	14.65 (372)	35.63 (905)	176 (80)
	10	3	200-240	254TC	0.41	4.13 (105)	*	23.5 (597)	12.36 (314)	11.93 (303)	19.21 (488)	42.72 (1085)	388 (176)
		3	440-480	213TC	0.40	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	267 (121)
CRNE 15-5	10	3	200-240	254TC	0.41	4.13 (105)	*	25.28 (642)	12.36 (314)	11.93 (303)	19.21 (488)	44.49 (1130)	392 (178)
		3	440-480	213TC	0.40	4.13 (105)	*	22.76 (578)	10.04 (255)	9.33 (237)	15.55 (395)	38.31 (973)	271 (123)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 15-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	395 (179)
		3	440-480	254TC	0.40	4.13 (105)	*	27.05 (687)	10.04 (255)	9.33 (237)	15.59 (396)	42.64 (1083)	304 (138)
CRNE 15-8	15	3	200-240	254TC	0.41	4.13 (105)	*	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	403 (183)
		3	440-480	254TC	0.40	4.13 (105)	*	30.59 (777)	10.04 (255)	9.33 (237)	15.59 (396)	46.18 (1172)	340 (154)
	20	3	440-480	254TC	0.40	4.13 (105)	*	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	403 (183)
		3	440-480	254TC	0.40	4.13 (105)	*	34.13 (867)	12.36 (314)	11.93 (303)	19.21 (488)	53.35 (1355)	412 (187)
CRNE 15-10	20	3	440-480	254TC	0.40	4.13 (105)	*	34.13 (867)	12.36 (314)	11.93 (303)	19.21 (488)	53.35 (1355)	412 (187)
	25	3	440-480	284TC	0.40	4.13 (105)	*	33.5 (851)	12.36 (314)	11.93 (303)	20.24 (514)	53.74 (1365)	441 (200)

CRE, CRIE, CRNE 20



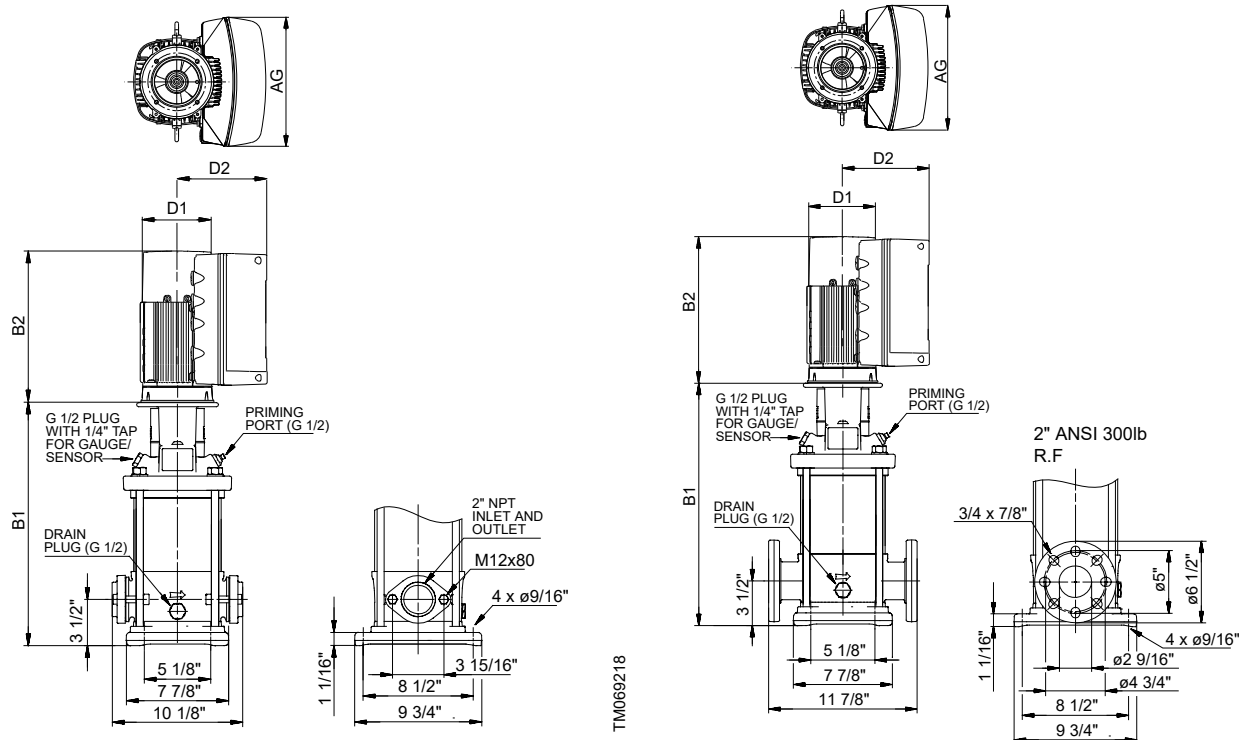
CRE 20 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ³⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 20-1	3	3	200-240	182TC	0.41	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (774)	150 (68)
		3	440-480	182TC	0.41	4.13 (105)	*	17.2 (437)	4.80 (122)	6.22 (158)	10.83 (275)	28.03 (712)	141 (64)
CRE 20-2	5	3	200-240	182TC	0.41	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (771)	157 (71)
		3	440-480	182TC	0.41	4.13 (105)	*	17.2 (437)	7.53 (191)	7.91 (201)	13.27 (337)	30.47 (771)	159 (72)
CRE 20-3	7.5	3	200-240	213TC	0.41	4.13 (105)	*	17.52 (445)	10.04 (255)	9.33 (237)	15.55 (395)	33.07 (840)	260 (118)
			440-480	213TC	0.41	4.13 (105)	*	17.52 (445)	7.53 (191)	7.91 (201)	14.65 (372)	32.17 (817)	176 (80)
CRE 20-4	10	3	200-240	254TC	0.41	4.13 (105)	*	21.85 (555)	12.36 (314)	11.93 (303)	19.21 (488)	41.06 (1043)	392 (178)
		3	440-480	213TC	0.41	4.13 (105)	*	19.29 (480)	10.04 (255)	9.33 (237)	15.55 (395)	34.84 (885)	271 (123)
CRE 20-5	10	3	200-240	254TC	0.41	4.13 (105)	*	23.62 (600)	12.36 (314)	11.93 (303)	19.21 (488)	42.83 (1088)	395 (179)
		3	440-480	213TC	0.41	4.13 (105)	*	21.06 (535)	10.04 (255)	9.33 (237)	15.55 (395)	36.61 (930)	273 (124)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ³⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 20-5	15	3	200-240	254TC	0.41	4.13 (105)	*	25.39 (645)	12.36 (314)	11.93 (303)	19.21 (488)	44.61 (1133)	399 (181)
		3	440-480	254TC	0.41	4.13 (105)	*	25.39 (645)	10.04 (255)	9.33 (237)	15.59 (396)	40.98 (1041)	309 (140)
CRE 20-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.17 (690)	12.36 (314)	11.93 (303)	19.21 (488)	46.38 (1178)	401 (182)
		3	440-480	254TC	0.41	4.13 (105)	*	27.17 (690)	10.04 (255)	9.33 (237)	15.59 (396)	42.76 (1086)	343 (156)
	20	3	440-480	254TC	0.41	4.13 (105)	*	27.17 (690)	12.36 (314)	11.93 (303)	19.21 (488)	46.38 (1178)	401 (182)
CRE 20-8	20	3	440-480	254TC	0.41	4.13 (105)	-	30.71 (780)	12.36 (314)	11.93 (303)	19.21 (488)	49.92 (1268)	410 (186)
	25	3	440-480	284TC	0.41	4.13 (105)	-	30.08 (764)	12.36 (314)	11.93 (303)	20.24 (514)	50.31 (1278)	441 (200)
CRE 20-9	25	3	440-480	284TC	0.41	4.13 (105)	-	31.85 (809)	12.36 (314)	11.93 (303)	20.24 (514)	52.09 (1323)	443 (201)

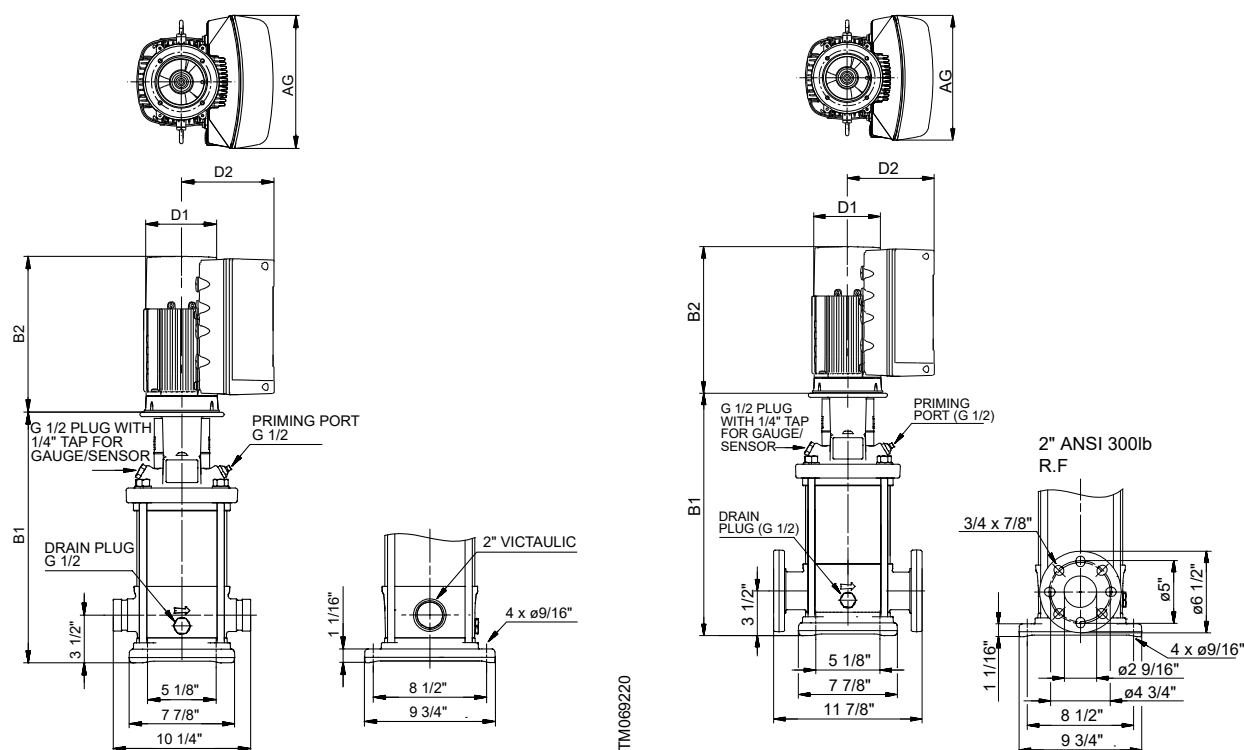
CRIE 20 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 20-1	3	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	134 (61)
		3	440-480	182TC	0.41	4.13 (105)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (709)	128 (58)
CRIE 20-2	5	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	143 (65)
		3	440-480	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (191)	7.91 (201)	13.27 (337)	30.39 (772)	145 (66)
	7.5	3	200-240	213TC	0.41	4.13 (105)	*	17.44 (443)	10.04 (255)	9.33 (237)	15.55 (395)	32.99 (838)	176 (80)
		3	440-480	213TC	0.41	4.13 (105)	*	17.44 (443)	7.53 (191)	7.91 (201)	14.65 (372)	32.09 (815)	161 (73)
CRIE 20-3	7.5	3	200-240	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	179 (81)
		3	440-480	213TC	0.41	4.13 (105)	*	19.21 (488)	7.53 (191)	7.91 (201)	14.65 (372)	33.86 (860)	165 (75)
	10	3	200-240	254TC	0.41	4.13 (105)	*	21.73 (552)	12.36 (314)	11.93 (303)	19.21 (488)	40.94 (1039)	384 (174)
		3	440-480	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	188 (85)
CRIE 20-4	10	3	200-240	254TC	0.41	4.13 (105)	*	23.5 (597)	12.36 (314)	11.93 (303)	19.21 (488)	42.72 (1085)	388 (176)
		3	440-480	213TC	0.41	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	190 (86)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 20-5	15	3	200-240	254TC	0.41	4.13 (105)	*	25.28 (642)	12.36 (314)	11.93 (303)	19.21 (488)	44.49 (1130)	390 (177)
		3	440-480	254TC	0.41	4.13 (105)	*	25.28 (642)	10.04 (255)	9.33 (237)	15.59 (396)	40.87 (1038)	225 (102)
CRIE 20-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	395 (179)
		3	440-480	254TC	0.41	4.13 (105)	*	27.05 (687)	10.04 (255)	9.33 (237)	15.59 (396)	42.64 (1083)	229 (104)
	20	3	440-480	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	388 (176)
CRIE 20-8	20	3	440-480	254TC	0.41	4.13 (105)	-	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.80 (1265)	401 (182)
	25	3	440-480	284TC	0.41	4.13 (105)	-	29.96 (761)	12.36 (314)	11.93 (303)	20.24 (514)	50.20 (1275)	432 (196)
CRIE 20-9	25	3	440-480	284TC	0.41	4.13 (105)	-	31.73 (806)	12.36 (314)	11.93 (303)	20.24 (514)	51.97 (1320)	437 (198)

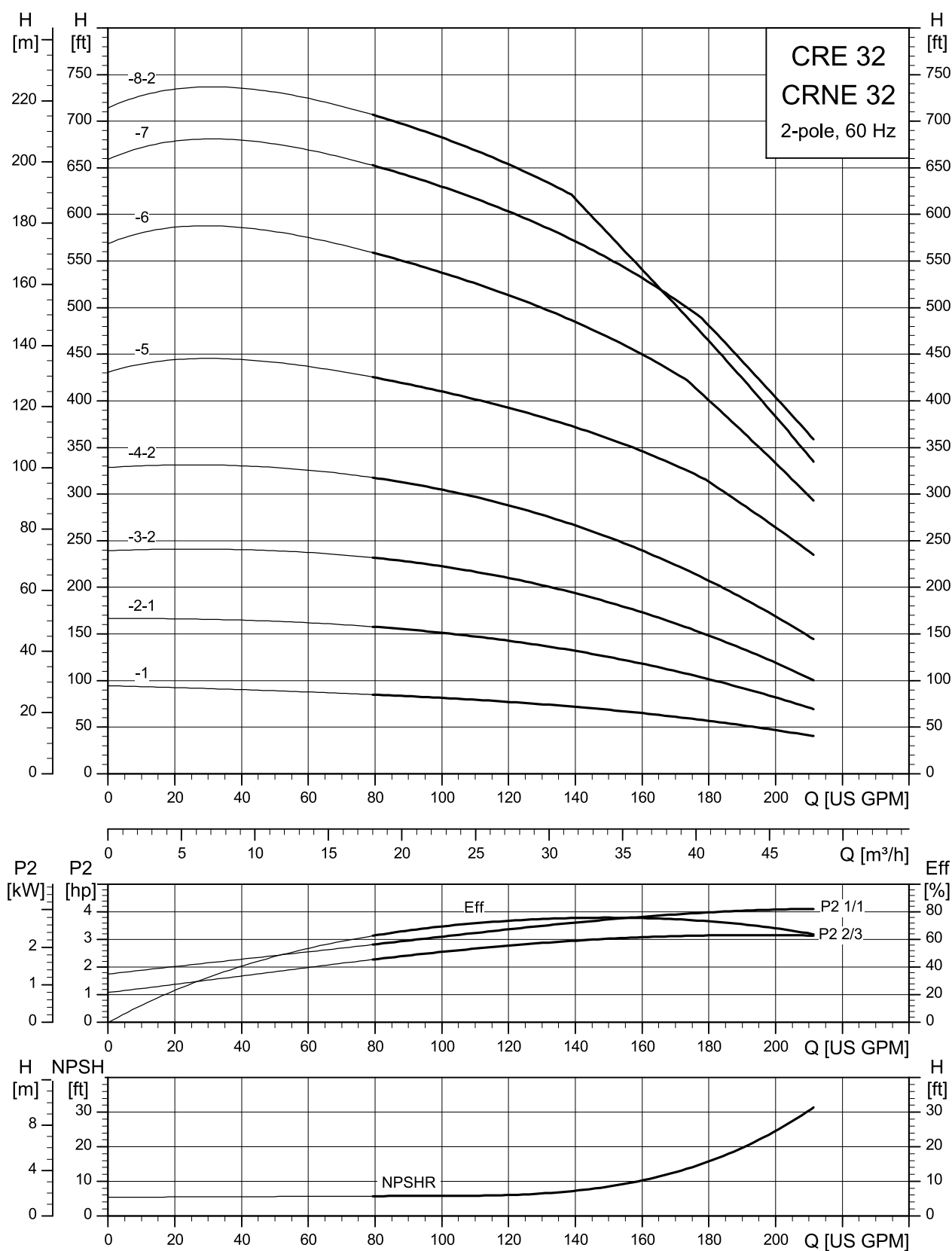
CRNE 20 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³⁵⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 20-1	3	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (192)	7.91 (201)	13.27 (337)	30.39 (772)	141 (64)
		3	440-480	182TC	0.41	4.13 (105)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.83 (275)	27.95 (710)	134 (61)
CRNE 20-2	5	3	200-240	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (192)	7.91 (201)	13.27 (337)	30.39 (772)	150 (68)
		3	440-480	182TC	0.41	4.13 (105)	*	17.13 (435)	7.53 (192)	7.91 (201)	13.27 (337)	30.39 (772)	152 (69)
	7.5	3	200-240	213TC	0.41	4.13 (105)	*	17.44 (443)	10.04 (255)	9.33 (237)	15.55 (395)	32.99 (838)	251 (114)
		3	440-480	213TC	0.41	4.13 (105)	*	17.44 (443)	7.53 (192)	7.91 (201)	14.65 (372)	32.09 (815)	170 (77)
CRNE 20-3	7.5	3	200-240	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	256 (116)
		3	440-480	213TC	0.41	4.13 (105)	*	19.21 (488)	7.53 (192)	7.91 (201)	14.65 (372)	33.86 (860)	172 (78)
	10	3	200-240	254TC	0.41	4.13 (105)	*	21.73 (552)	12.36 (314)	11.93 (303)	19.21 (488)	40.94 (1040)	386 (175)
		3	440-480	213TC	0.41	4.13 (105)	*	19.21 (488)	10.04 (255)	9.33 (237)	15.55 (395)	34.76 (883)	265 (120)
CRNE 20-4	10	3	200-240	254TC	0.41	4.13 (105)	*	23.5 (597)	12.36 (314)	11.93 (303)	19.21 (488)	42.72 (1085)	388 (176)
		3	440-480	213TC	0.41	4.13 (105)	*	20.98 (533)	10.04 (255)	9.33 (237)	15.55 (395)	36.54 (928)	267 (121)

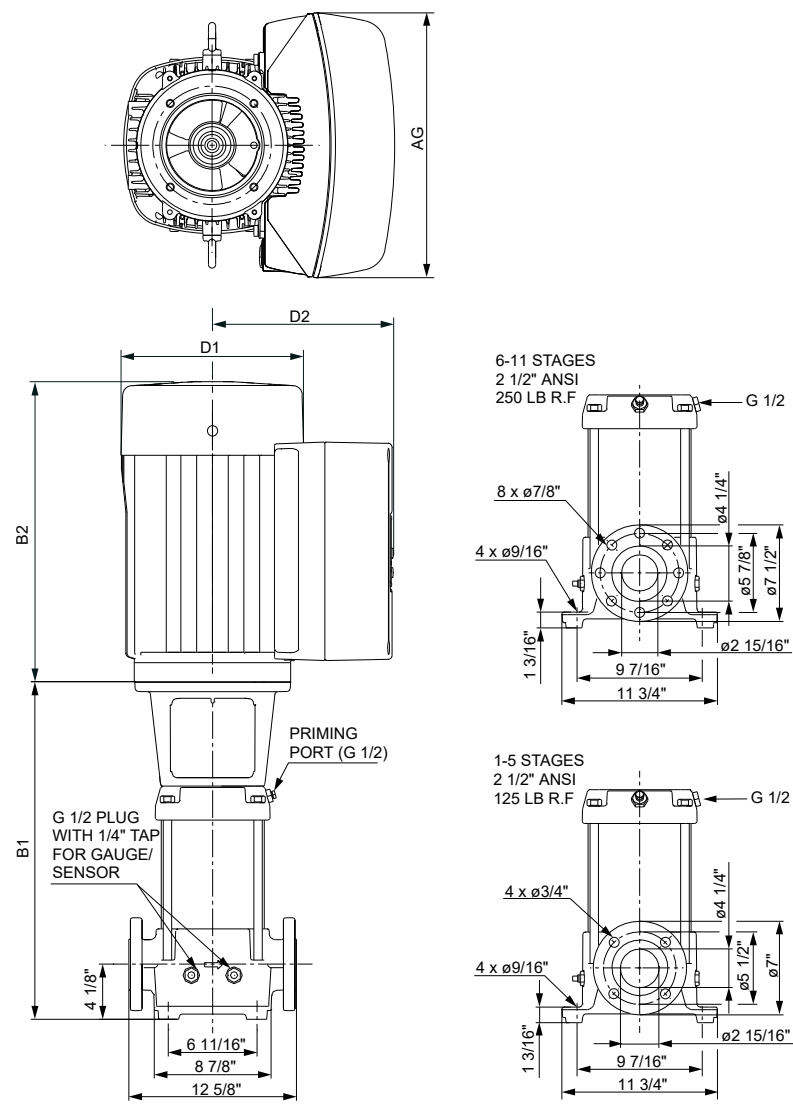
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ³⁵⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 20-5	15	3	200-240	254TC	0.41	4.13 (105)	*	25.28 (642)	12.36 (314)	11.93 (303)	19.21 (488)	44.49 (1130)	392 (178)
		3	440-480	254TC	0.41	4.13 (105)	*	25.28 (642)	10.04 (255)	9.33 (237)	15.59 (396)	40.87 (1038)	300 (136)
CRNE 20-6	15	3	200-240	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	395 (179)
		3	440-480	254TC	0.41	4.13 (105)	*	27.05 (687)	10.04 (255)	9.33 (237)	15.59 (396)	42.64 (1083)	304 (138)
	20	3	440-480	254TC	0.41	4.13 (105)	*	27.05 (687)	12.36 (314)	11.93 (303)	19.21 (488)	46.26 (1175)	397 (180)
CRNE 20-8	20	3	440-480	254TC	0.41	4.13 (105)	*	30.59 (777)	12.36 (314)	11.93 (303)	19.21 (488)	49.8 (1265)	401 (182)
	25	3	440-480	284TC	0.41	4.13 (105)	*	29.96 (761)	12.36 (314)	11.93 (303)	20.24 (514)	50.2 (1275)	432 (196)
CRNE 20-9	25	3	440-480	284TC	0.41	4.13 (105)	*	31.73 (806)	12.36 (314)	11.93 (303)	20.24 (514)	51.97 (1320)	437 (198)

CRE, CRNE 32



TM059418

CRE 32 dimensional data

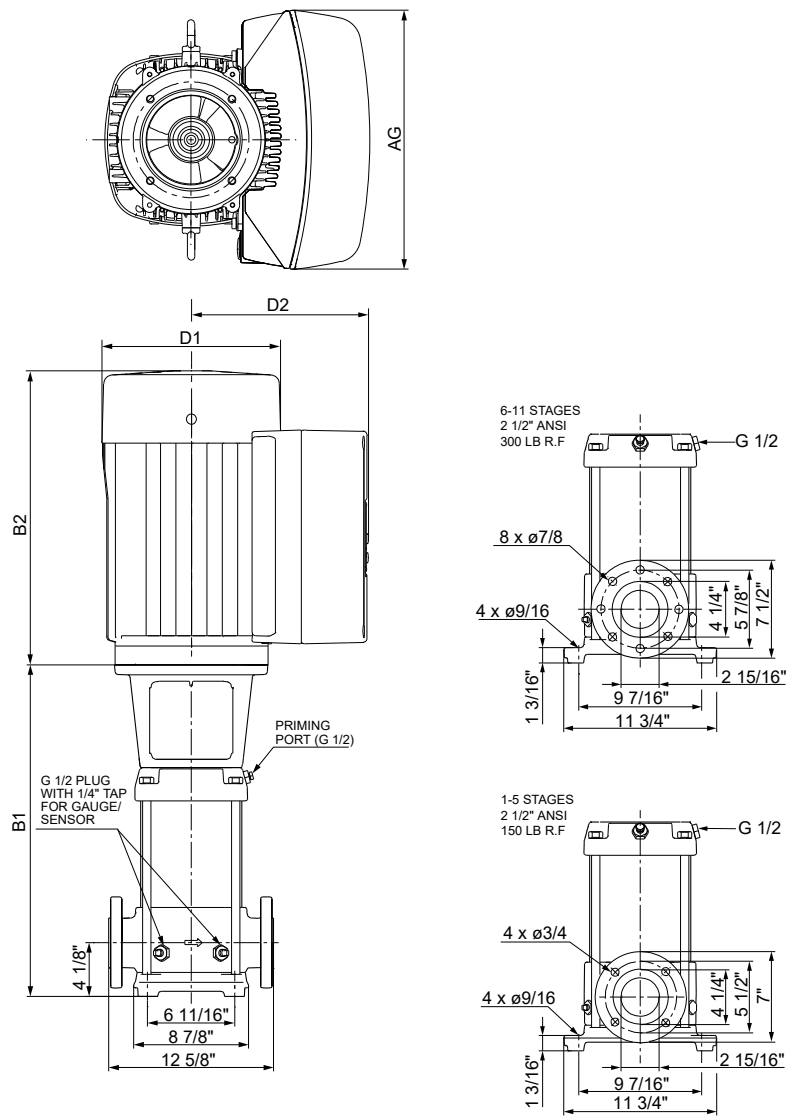


TM069224

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{vL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 32-1	5	3	200-240	182TC	0.39	4.66 (118)	19.88 (505)	7.53 (191)	7.91 (201)	13.27 (337)	33.15 (842)	174 (79)
		3	440-480	182TC	0.39	4.66 (118)	19.88 (505)	7.53 (191)	7.91 (201)	13.27 (291)	33.15 (842)	187 (85)
CRE 32-2-1	7.5	3	200-240	213TC	0.39	4.66 (118)	22.64 (575)	10.04 (255)	9.33 (237)	15.55 (395)	38.19 (970)	222 (101)
		3	440-480	213TC	0.39	4.66 (118)	22.64 (575)	7.53 (191)	7.91 (201)	14.65 (372)	37.28 (947)	208 (94)
CRE 32-3-2	10	3	200-240	254TC	0.39	4.66 (118)	29.72 (755)	12.36 (314)	11.93 (303)	19.21 (488)	48.94 (1243)	336 (152)
			440-480	213TC		4.66 (118)	25.39 (645)	10.04 (255)	9.33 (237)	15.55 (395)	40.94 (1040)	238 (108)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{vL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 32-4-2	15	3	200-240	254TC	0.39	4.66 (118)	32.48 (825)	12.36 (314)	11.93 (303)	19.21 (488)	51.69 (1312)	342 (155)
			440-480			4.66 (118)	32.48 (825)	10.04 (255)	9.33 (237)	15.59 (396)	48.07 (1221)	288 (131)
CRE 32-5	20	3	440-480	254TC	0.39	4.66 (118)	35.24 (895)	12.36 (314)	11.93 (303)	19.21 (488)	54.45 (1383)	350 (159)
CRE 32-6	25	3	440-480	284TC	0.39	4.66 (118)	37.99 (965)	12.36 (314)	11.93 (303)	20.24 (514)	58.23 (1479)	390 (177)
CRE 32-7	30	3	440-480	284TC	0.39	4.66 (118)	40.75 (1035)	12.36 (314)	11.93 (303)	20.24 (514)	60.98 (1549)	406 (184)
CRE 32-8-2	30	3	440-480	284TC	0.39	4.66 (118)	43.5 (1141)	12.36 (314)	11.93 (303)	20.24 (514)	63.74 (1619)	419 (190)

CRNE 32 dimensional data

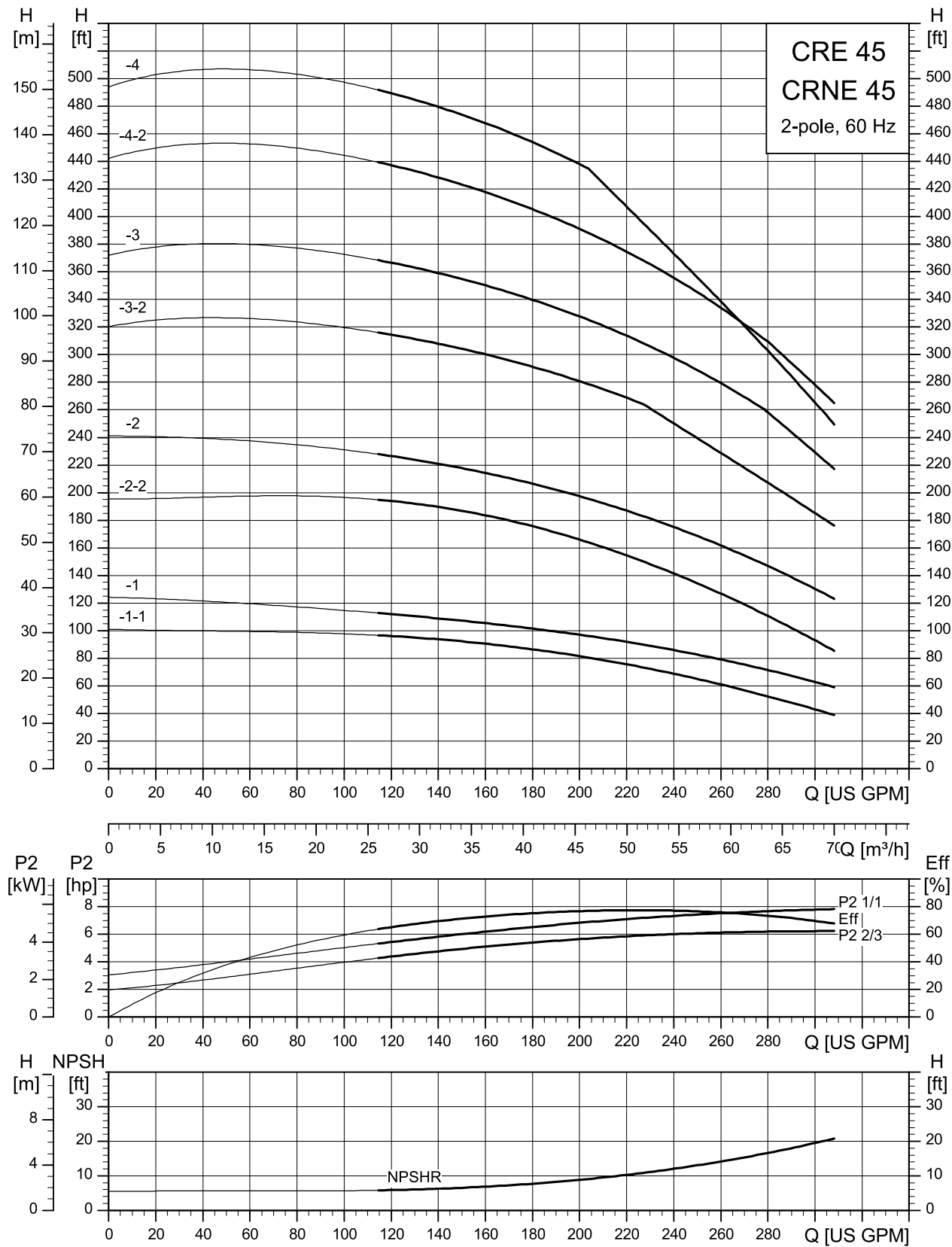


TM069604

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 32-1	5	3	200-240	182TC	0.39	4.66 (118)	19.88 (505)	7.53 (191)	7.91 (201)	13.27 (337)	33.15 (842)	179 (81)
		3	440-480	182TC	0.39	4.66 (118)	19.88 (505)	7.53 (191)	7.91 (201)	13.27 (337)	33.15 (842)	192 (87)
CRNE 32-2-1	7.5	3	200-240	213TC	0.39	4.66 (118)	22.64 (575)	10.04 (255)	9.33 (237)	15.55 (395)	38.19 (970)	227 (103)
		3	440-480	213TC	0.39	4.66 (118)	22.64 (575)	7.53 (191)	7.91 (201)	14.56 (372)	37.28 (947)	213 (97)
CRNE 32-3-2	10	3	200-240	254TC	0.39	4.66 (118)	29.72 (755)	12.36 (314)	11.93 (303)	19.21 (488)	48.94 (1243)	341 (155)
			440-480	213TC	0.39	4.66 (118)	25.39 (645)	10.04 (255)	9.33 (237)	15.55 (395)	40.94 (1040)	238 (108)

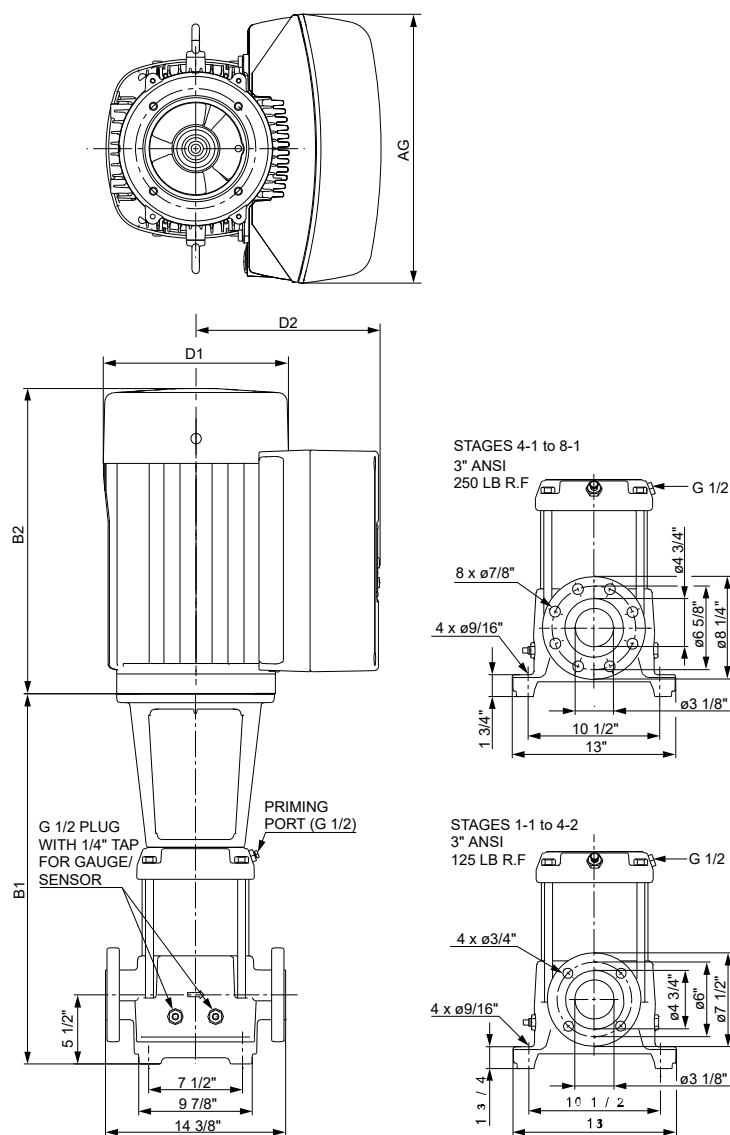
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 32-4-2	15	3	200-240	254TC	0.39	4.66 (118)	32.48 (825)	12.36 (314)	11.93 (303)	19.21 (488)	51.69 (1313)	347 (157)
			440-480	254TC	0.39	4.66 (118)	32.48 (825)	10.04 (255)	9.33 (237)	15.59 (396)	48.07 (1221)	293 (133)
CRNE 32-5	20	3	440-480	254TC	0.39	4.66 (118)	35.24 (395)	12.36 (314)	11.93 (303)	19.21 (488)	54.45 (1383)	355 (161)
CRNE 32-6	25	3	440-480	284TC	0.39	4.66 (118)	37.99 (965)	12.36 (314)	11.93 (303)	20.24 (514)	58.23 (1479)	394 (179)
CRNE 32-7	30	3	440-480	284TC	0.39	4.66 (118)	40.75 (1035)	12.36 (314)	11.93 (303)	20.24 (514)	60.98 (1549)	410 (186)
CRNE 32-8-2	30	3	440-480	284TC	0.39	4.66 (118)	43.5 (1105)	12.36 (314)	11.93 (303)	20.24 (514)	63.74 (1619)	423 (192)

CRE, CRNE 45



TM059423

CRE 45 dimensional data

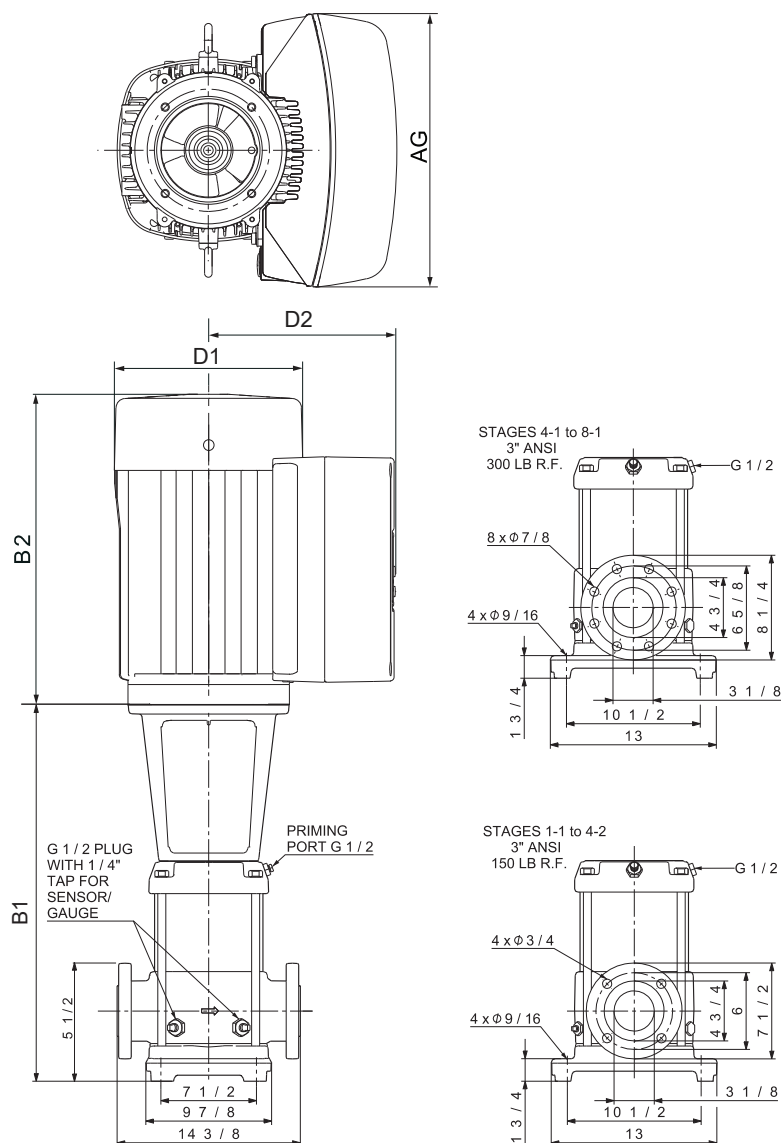


TM069240

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 45-1-1	7.5	3	200-240	213TC	0.41	5.34 (136)	22.01 (559)	10.04 (255)	9.33 (237)	15.55 (395)	37.56 (954)	236 (107)
		3	440-480	213TC	0.40	5.34 (136)	22.01 (559)	7.53 (191)	7.91 (201)	14.65 (372)	36.65 (931)	222 (101)
CRE 45-1	10	3	200-240	254TC	0.41	5.34 (136)	26.34 (669)	12.36 (314)	11.93 (303)	19.21 (488)	45.55 (1157)	343 (156)
			440-480	213TC	0.40	5.34 (136)	22.01 (559)	10.04 (255)	9.33 (237)	15.55 (395)	37.56 (954)	245 (111)
CRE 45-2-2	15	3	200-240	254TC	0.41	5.34 (136)	29.49 (749)	12.36 (314)	11.93 (303)	19.21 (488)	48.7 (1237)	351 (159)
			440-480	254TC	0.40	5.34 (136)	29.49 (749)	10.04 (255)	9.33 (237)	15.59 (396)	45.08 (1145)	297 (135)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 45-2	15	3	200-240	254TC	0.41	5.34 (136)	29.49 (749)	12.36 (314)	11.93 (303)	19.21 (488)	48.7 (1237)	351 (159)
			440-480	254TC	0.40	5.34 (136)	29.49 (749)	10.04 (255)	9.33 (237)	15.59 (396)	45.08 (1145)	297 (135)
CRE 45-3-2	20	3	440-480	254TC	0.40	5.34 (136)	32.64 (829)	12.36 (314)	11.93 (303)	19.21 (488)	51.85 (1317)	360 (163)
CRE 45-3	25	3	440-480	284TC	0.40	5.34 (136)	32.64 (829)	12.36 (314)	11.93 (303)	20.24 (514)	52.87 (1343)	392 (178)
CRE 45-4-2	30	3	440-480	284TC	0.40	5.34 (136)	35.79 (909)	12.36 (314)	11.93 (303)	20.24 (514)	56.02 (1423)	409 (186)
CRE 45-4	30	3	440-480	284TC	0.40	5.34 (136)	35.79 (909)	12.36 (314)	11.93 (303)	20.24 (514)	56.02 (1423)	415 (188)

CRNE 45 dimensional data

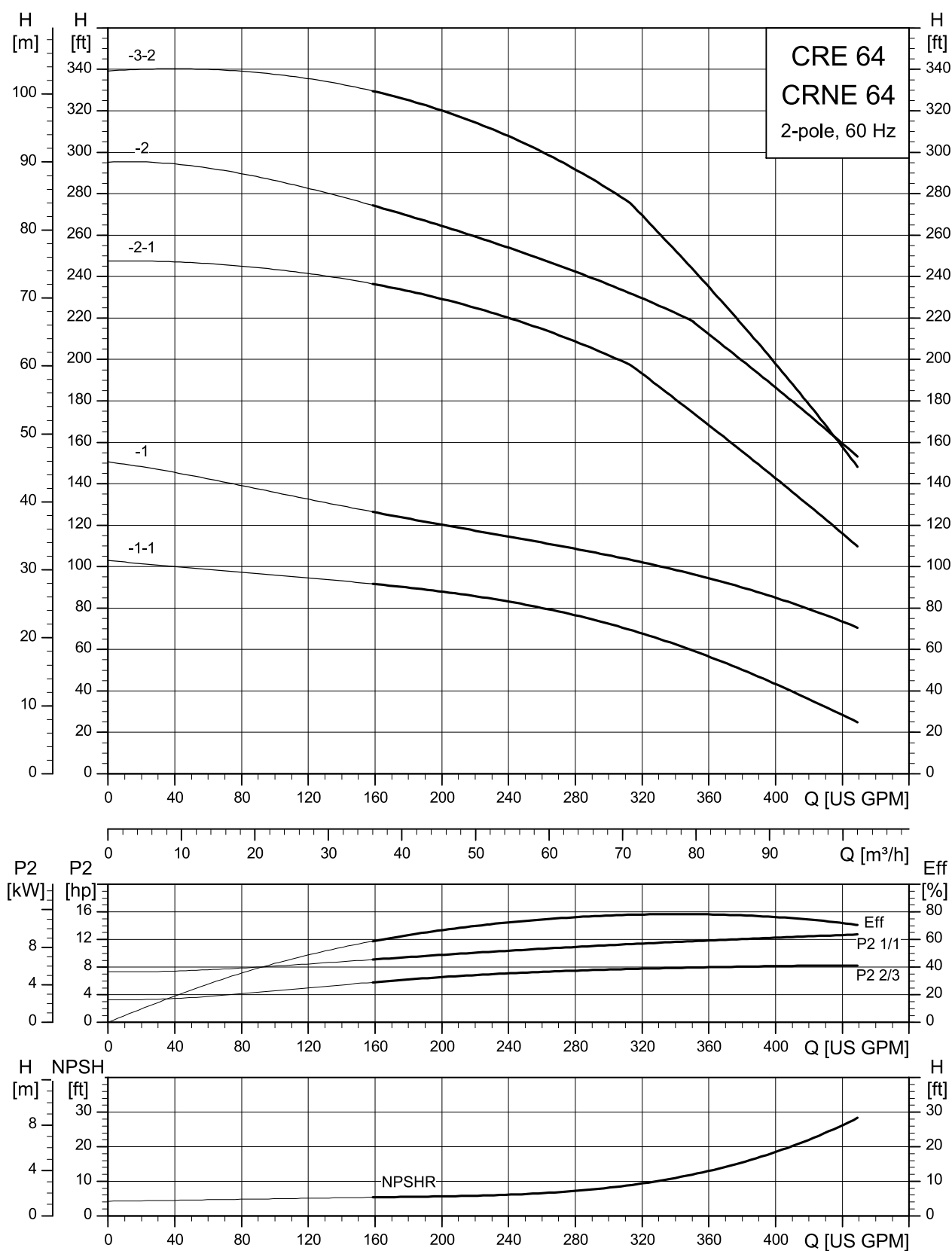


TM069239

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 45-1-1	7.5	3	200-240	213TC	0.41	5.34 (136)	22.01 (559)	10.04 (255)	9.33 (237)	15.55 (395)	37.56 (954)	236 (107)
		3	440-480	213TC	0.40	5.34 (136)	22.01 (559)	7.53 (191)	7.91 (201)	14.65 (372)	36.65 (931)	222 (101)
CRNE 45-1	10	3	200-240	254TC	0.41	5.34 (136)	26.34 (669)	12.36 (314)	11.93 (303)	19.21 (488)	45.55 (1157)	343 (156)
		3	440-480	213TC	0.40	5.34 (136)	22.01 (559)	10.04 (255)	9.33 (237)	15.55 (395)	37.56 (954)	245 (111)
CRNE 45-2-2	15	3	200-240	254TC	0.41	5.34 (136)	29.49 (749)	12.36 (314)	11.93 (303)	19.21 (488)	48.7 (1237)	351 (159)
			440-480	254TC	0.40	5.34 (136)	29.49 (749)	10.04 (255)	9.33 (237)	15.59 (396)	45.08 (1145)	297 (135)

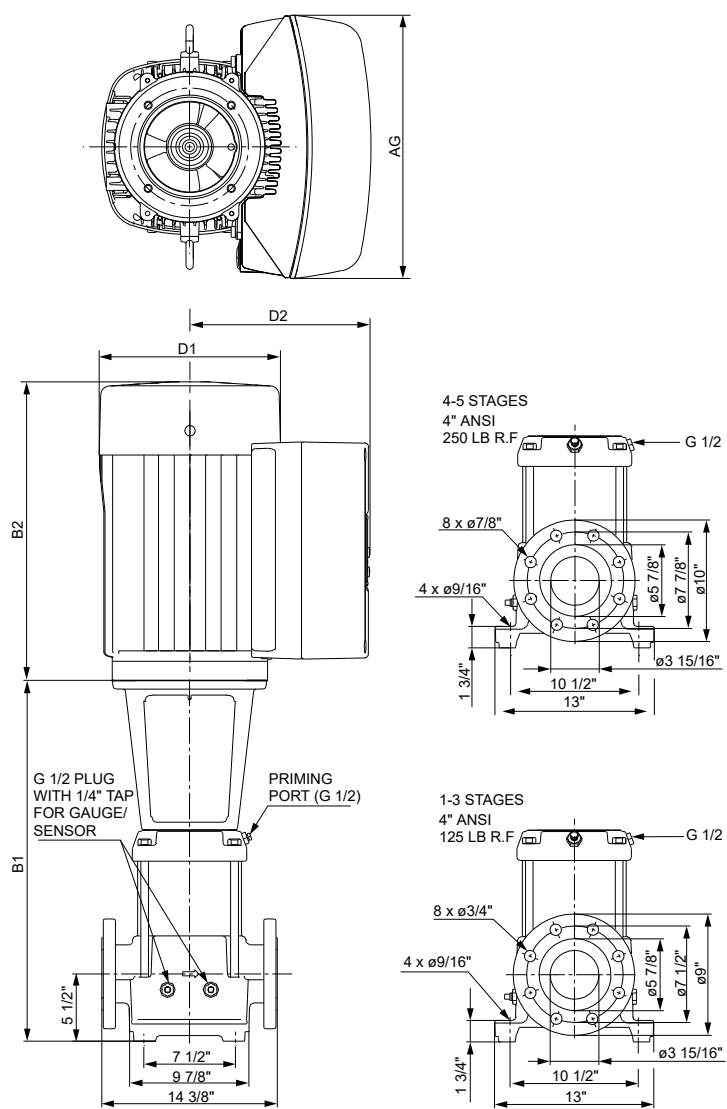
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{vL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 45-2	15	3	200-240	254TC	0.41	5.34 (136)	29.49 (749)	12.36 (314)	11.93 (303)	19.21 (488)	48.7 (1237)	351 (159)
			440-480	254TC	0.40	5.34 (136)	29.49 (749)	10.04 (255)	9.33 (237)	15.59 (396)	45.08 (1145)	297 (135)
CRNE 45-3-2	20	3	440-480	254TC	0.40	5.34 (136)	32.64 (829)	12.36 (314)	11.93 (303)	19.21 (488)	51.85 (1317)	360 (164)
CRNE 45-3	25	3	440-480	284TC	0.40	5.34 (136)	32.64 (829)	12.36 (314)	11.93 (303)	20.24 (514)	52.87 (1343)	392 (178)
CRNE 45-4-2	30	3	440-480	284TC	0.40	5.34 (136)	35.79 (909)	12.36 (314)	11.93 (303)	20.24 (514)	56.02 (1423)	410 (186)
CRNE 45-4	30	3	440-480	284TC	0.40	5.34 (136)	35.79 (909)	12.36 (314)	11.93 (303)	20.24 (514)	56.02 (1423)	413 (188)

CRE, CRNE 64



TM059419

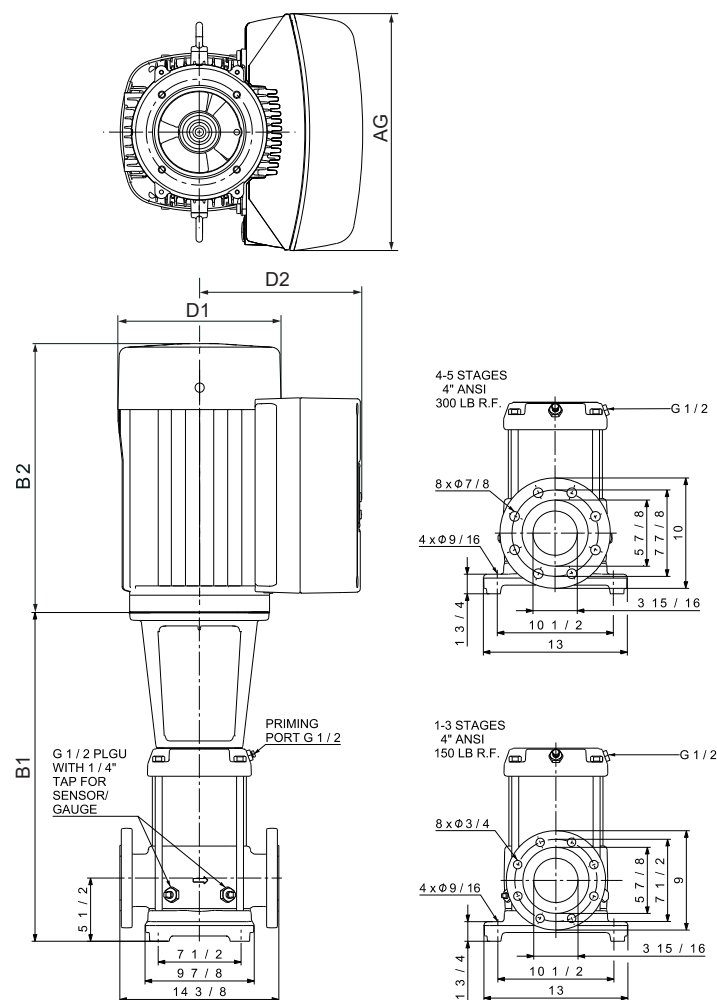
CRE 64 dimensional data



TM069241

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	Ship wt. [lb (kg)]
CRE 64-1-1	10	3	200-240	254TC	0.43	5.59 (143)	26.42 (671)	12.36 (314)	11.93 (303)	19.21 (488)	45.63 (1159)	352 (160)
			440-480	213TC	0.42	5.59 (143)	22.09 (561)	10.04 (255)	9.33 (237)	15.55 (395)	37.64 (956)	254 (115)
CRE 64-1	15	3	200-240	254TC	0.43	5.59 (143)	26.42 (671)	12.36 (314)	11.93 (303)	19.21 (488)	45.63 (1159)	352 (160)
			440-480	254TC	0.42	5.59 (143)	26.42 (671)	10.04 (255)	9.33 (237)	15.59 (396)	42.01 (1067)	298 (135)
CRE 64-2-1	20	3	440-480	254TC	0.42	5.59 (143)	29.69 (754)	12.36 (314)	11.93 (303)	19.21 (488)	48.9 (1242)	362 (164)
CRE 64-2	25	3	440-480	284TC	0.42	5.59 (143)	29.69 (754)	12.36 (314)	11.93 (303)	20.24 (514)	49.92 (1268)	394 (179)
CRE 64-3-2	30	3	440-480	284TC	0.42	5.59 (143)	32.91 (836)	12.36 (314)	11.93 (303)	20.24 (514)	53.15 (1350)	413 (188)

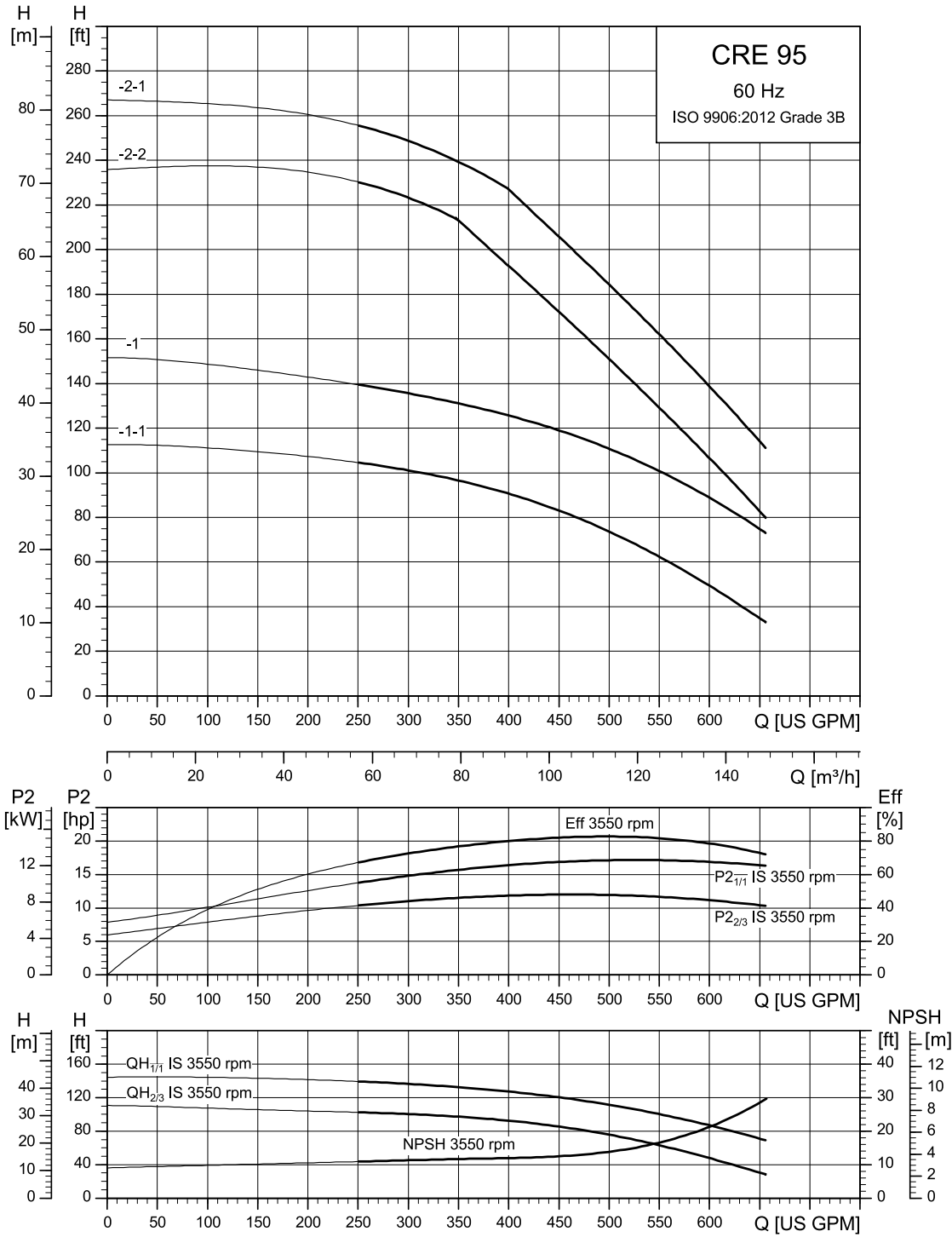
CRNE 64 dimensional data



TM069243

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 64-1-1	10	3	200-240	254TC	0.43	5.59 (143)	26.42 (671)	12.36 (314)	11.93 (303)	19.21 (488)	45.63 (1159)	353 (160)
			440-480	213TC	0.42	5.59 (143)	22.09 (561)	10.04 (255)	9.33 (237)	15.55 (395)	37.64 (956)	255 (116)
CRNE 64-1	15	3	200-240	254TC	0.43	5.59 (143)	26.42 (671)	12.36 (314)	11.93 (303)	19.21 (488)	45.63 (1159)	353 (160)
			440-480	254TC	0.42	5.59 (143)	26.42 (671)	10.04 (255)	9.33 (237)	15.59 (396)	42.01 (1067)	299 (136)
CRNE 64-2-1	20	3	440-480	254TC	0.42	5.59 (143)	29.69 (754)	12.36 (314)	11.93 (303)	19.21 (488)	48.9 (1242)	364 (165)
CRNE 64-2	25	3	440-480	284TC	0.42	5.59 (143)	29.69 (754)	12.36 (314)	11.93 (303)	20.24 (514)	49.92 (1268)	396 (180)
CRNE 64-3-2	30	3	440-480	284TC	0.42	5.59 (143)	32.91 (836)	12.36 (314)	11.93 (303)	20.24 (514)	53.15 (1350)	415 (188)

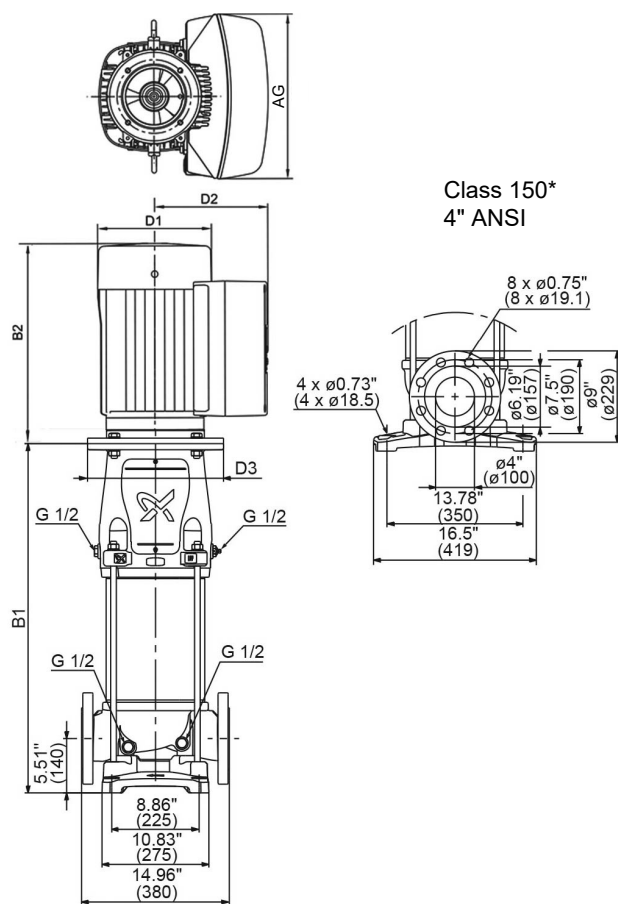
CRE 95



TM074479

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRE 95 dimensional data



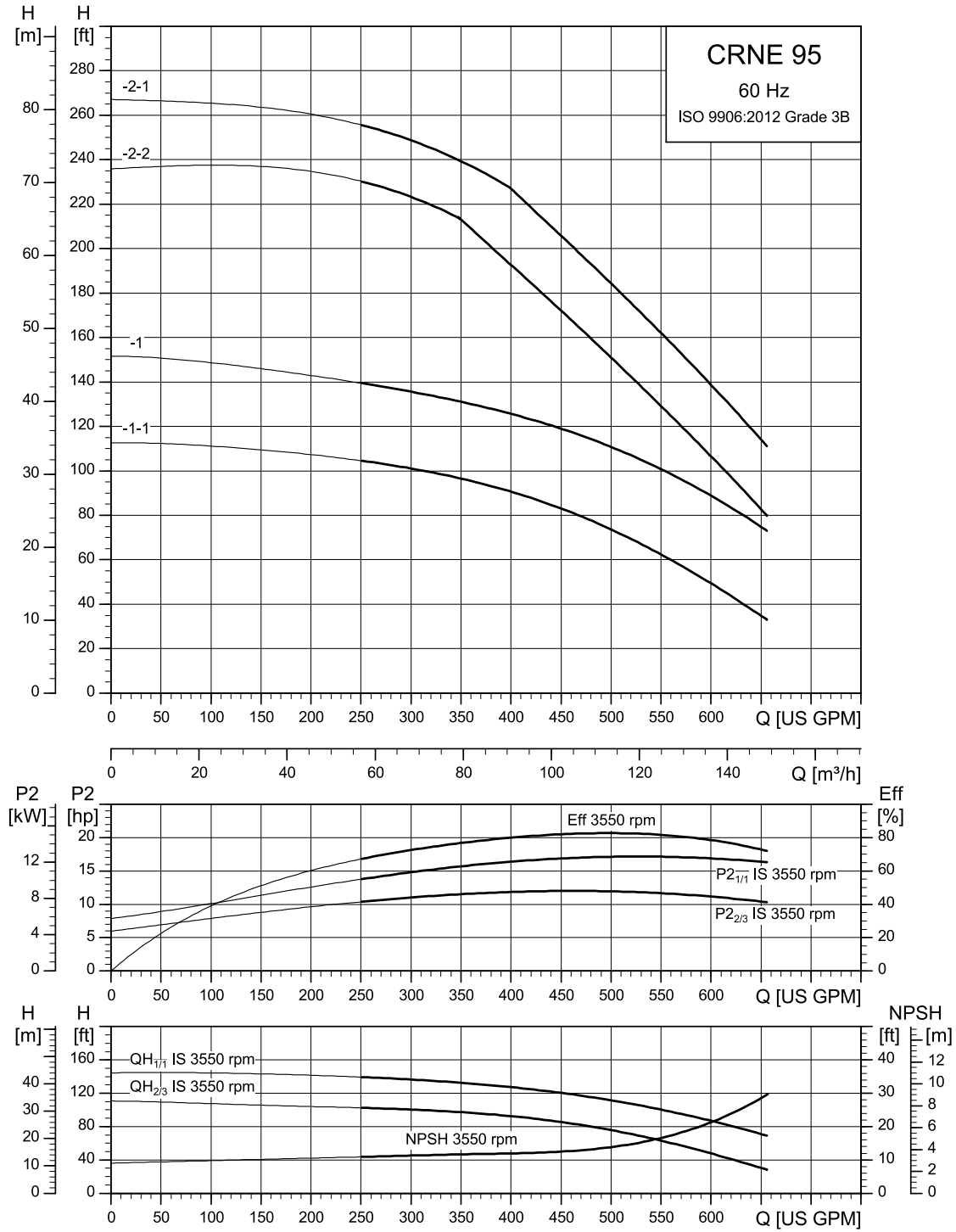
Class 150*
4" ANSI

TM074464

* The CRE, CRNE 95 pumps with one to two stages (with one reduced-diameter impeller) are fitted with 150 lb (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 95-1-1	15	3	200-240	254TC	0.42	6.07 (154)	27.40 (696)	12.36 (314)	11.93 (303)	19.21 (488)	46.61 (1184)	667 (303)
			440-480	254TC	0.42	6.07 (154)	27.40 (696)	10.04 (255)	9.33 (237)	15.59 (396)	42.99 (1092)	604 (274)
CRE 95-1	20	3	440-480	256TC	0.42	6.07 (154)	27.40 (696)	12.36 (314)	11.93 (303)	19.21 (488)	46.61 (1184)	668 (303)
CRE 95-2-2	25	3	440-480	284TSC	0.42	6.07 (154)	31.50 (800)	12.36 (314)	11.93 (303)	20.24 (514)	51.73 (1314)	712 (323)
CRE 95-2-1	30	3	440-480	286TSC	0.42	6.07 (154)	31.50 (800)	12.36 (314)	11.93 (303)	20.24 (514)	51.73 (1314)	721 (327)

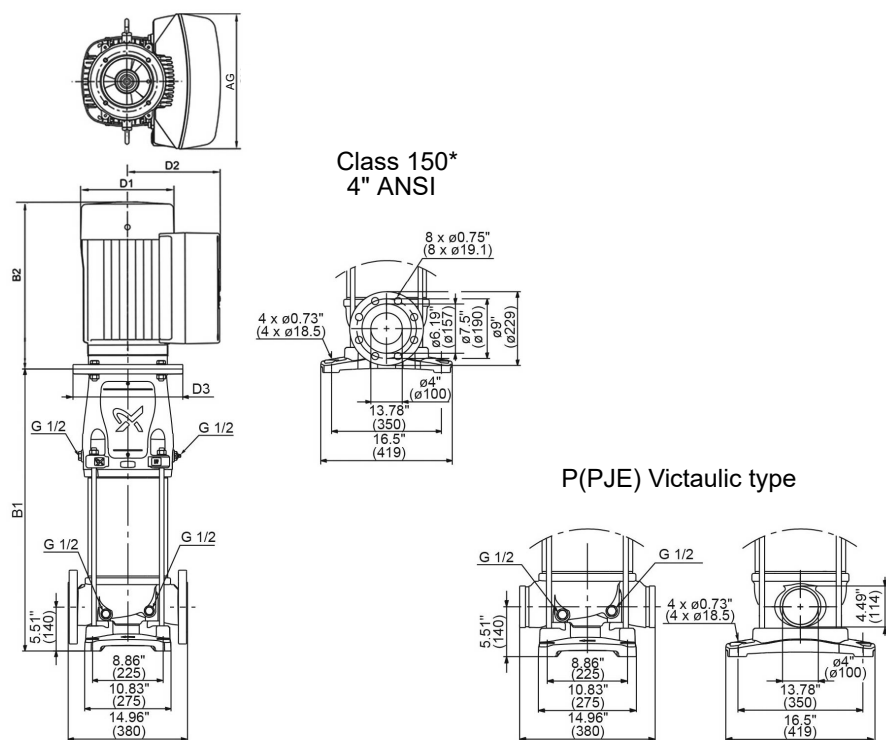
CRNE 95



TM074478

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRNE 95 dimensional data

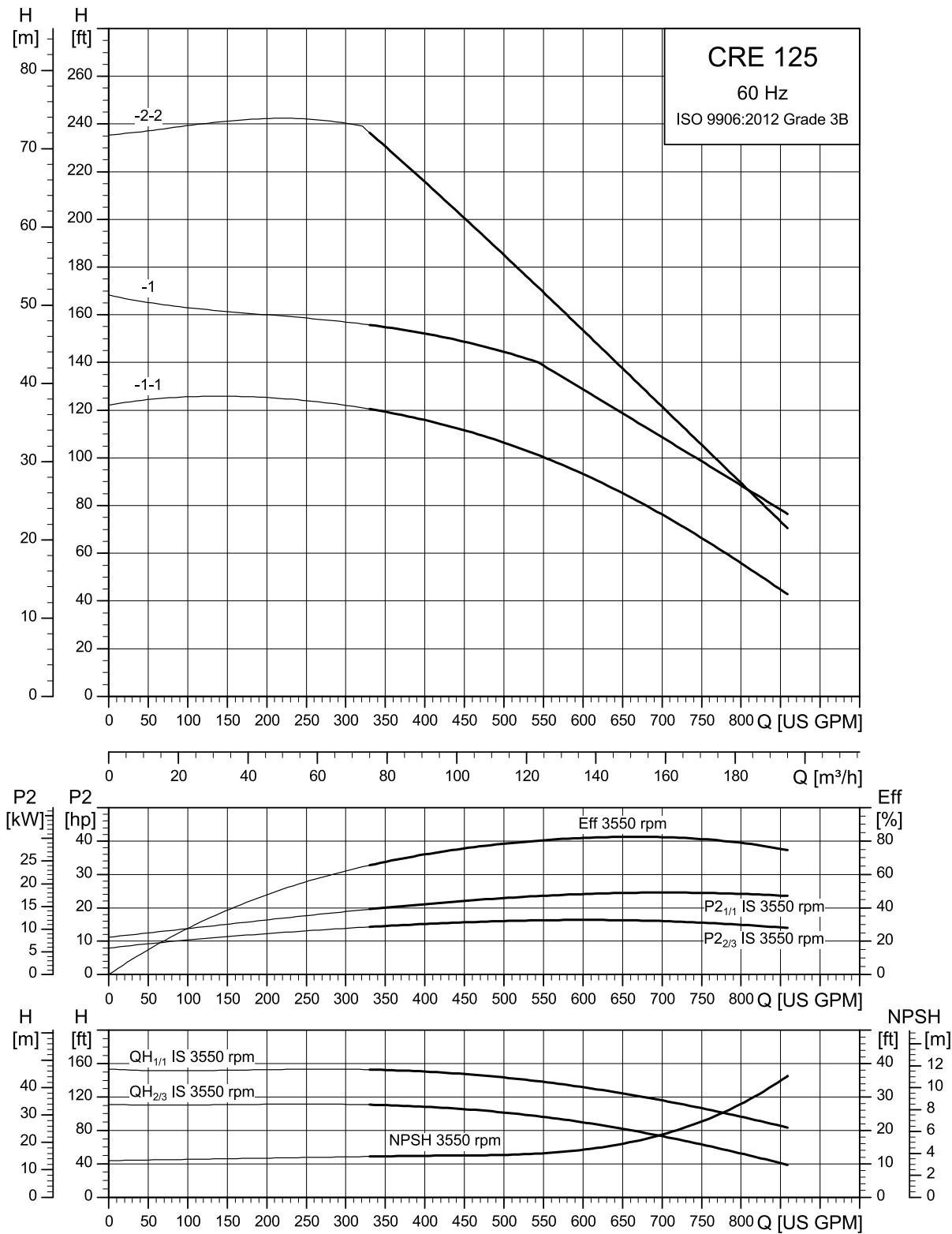


TM074466

* The CRE, CRNE 95 pumps with one to two stages (with one reduced-diameter impeller) are fitted with 150 lb (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _V L	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 95-1-1	15	3	200-240	254TC	0.42	6.07 (154)	27.40 (696)	12.36 (314)	11.93 (303)	19.21 (488)	46.61 (1184)	677 (307)
			440-480	254TC	0.42	6.07 (154)	27.40 (696)	10.04 (255)	9.33 (237)	15.59 (396)	42.99 (1092)	614 (278.5)
CRNE 95-1	20	3	440-480	256TC	0.42	6.07 (154)	27.40 (696)	12.36 (314)	11.93 (303)	19.21 (488)	46.61 (1184)	678 (307.5)
CRNE 95-2-2	25	3	440-480	284TSC	0.42	6.07 (154)	31.50 (800)	12.36 (314)	11.93 (303)	20.24 (514)	51.73 (1314)	721 (327)
CRNE 95-2-1	30	3	440-480	286TSC	0.42	6.07 (154)	31.50 (800)	12.36 (314)	11.93 (303)	20.24 (514)	51.73 (1314)	731 (332)

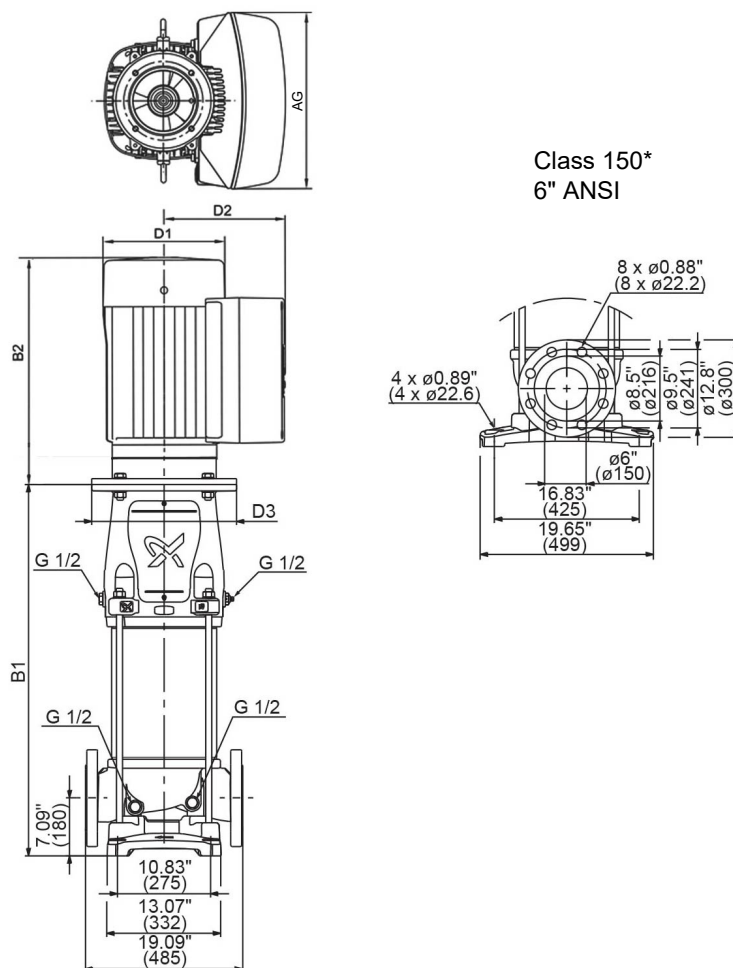
CRE 125



TM074480

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRE 125 dimensional data



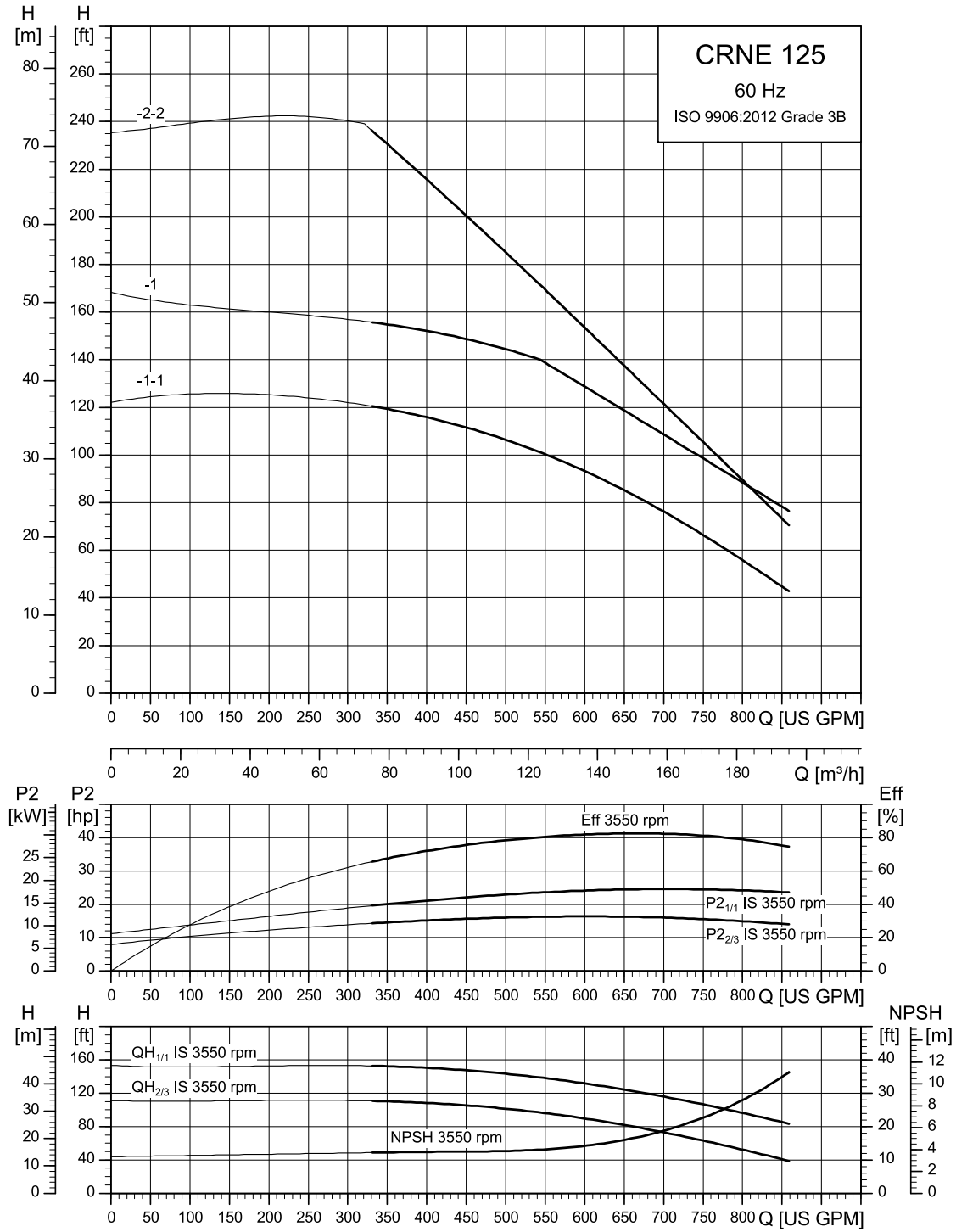
Class 150*
6" ANSI

TM074467

* The CRE, CRNE 125 pumps with one to two stages are fitted with 150 lb (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 125-1-1	20	3	440-480	256TC	0.42	6.38 (162)	30.83 (783)	12.36 (314)	11.93 (303)	19.21 (488)	50.04 (1271)	754 (342)
CRE 125-1	25	3	440-480	284TSC	0.42	6.38 (162)	30.91 (785)	12.36 (314)	11.93 (303)	20.24 (514)	51.14 (1299)	798 (362)
CRE 125-2-2	30	3	440-480	286TSC	0.42	6.38 (162)	35.71 (907)	12.36 (314)	11.93 (303)	20.24 (514)	55.94 (1421)	831 (377)

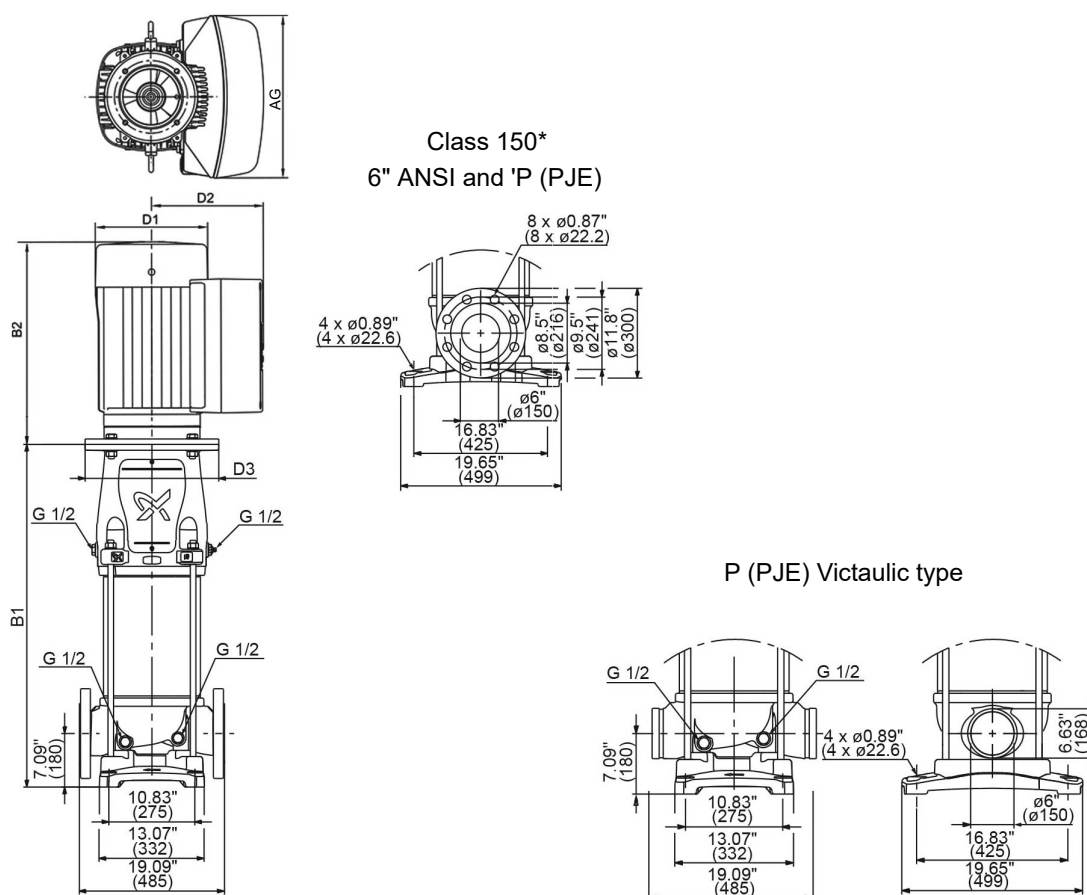
CRNE 125



TM074481

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRNE 125 dimensional data

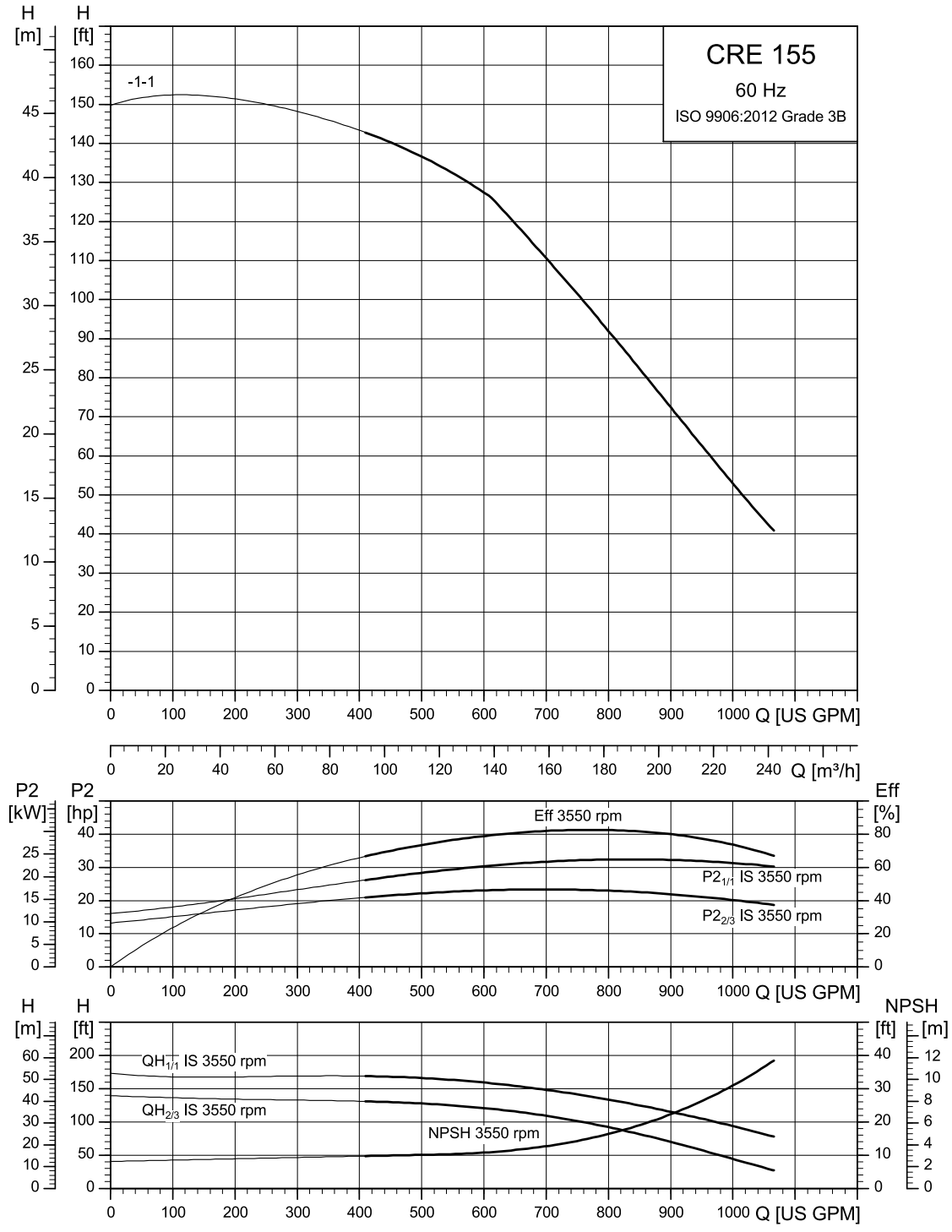


TM074468

* The CRE, CRNE 125 pumps with one to three stages are fitted with 150 lb (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 125-1-1	20	3	440-480	256TC	0.42	6.38 (162)	30.83 (783)	12.36 (314)	11.93 (303)	19.21 (488)	50.04 (1271)	775 (351.5)
CRNE 125-1	25	3	440-480	284TSC	0.42	6.38 (162)	30.91 (785)	12.5236 (314)	11.93 (303)	20.24 (514)	51.14 (1299)	818 (372)
CRNE 125-2-2	30	3	440-480	286TSC	0.42	6.38 (162)	35.71 (907)	12.5236 (314)	11.93 (303)	20.24 (514)	55.94 (1421)	852 (386.5)

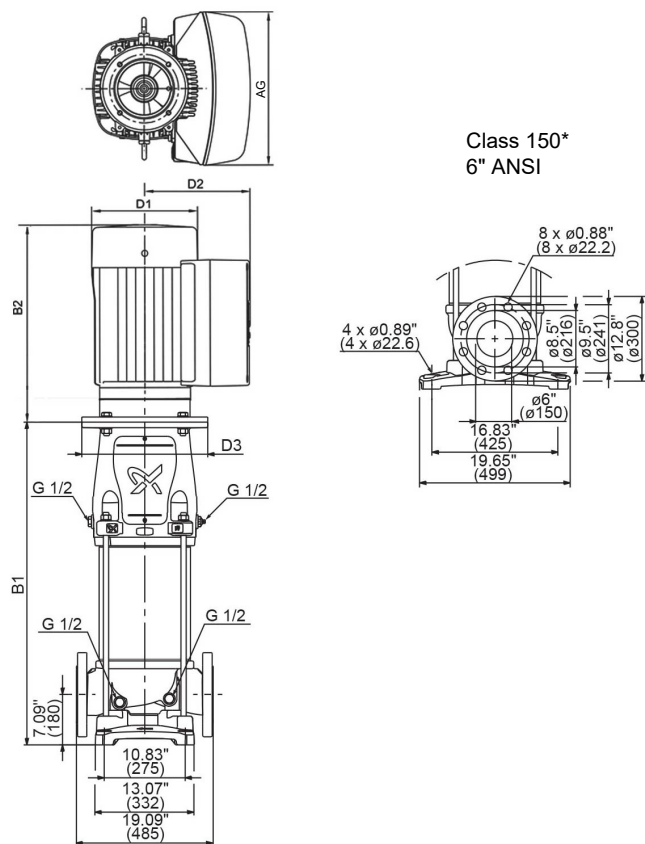
CRE 155



TM074482

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRE 155 dimensional data

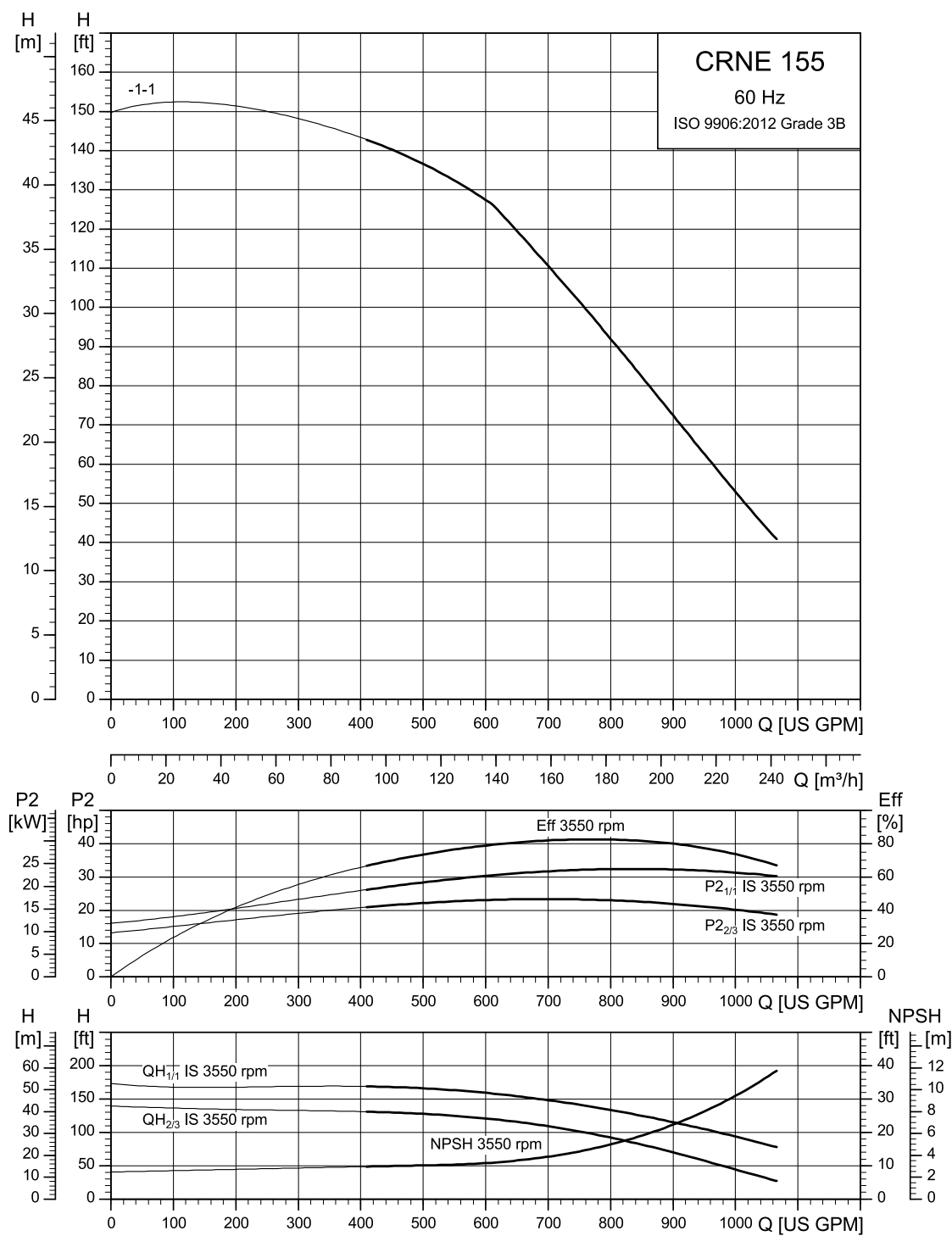


TM074467

* The CRE, CRNE 155 pumps with stages (with 1 reduced-diameter impeller) are fitted with 150 lb. (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 155-1-1	25	3	440-480	284TSC	0.43	6.64 (169)	30.91 (785)	12.36 (314)	11.93 (303)	20.24 (514)	51.14 (1299)	798 (362)

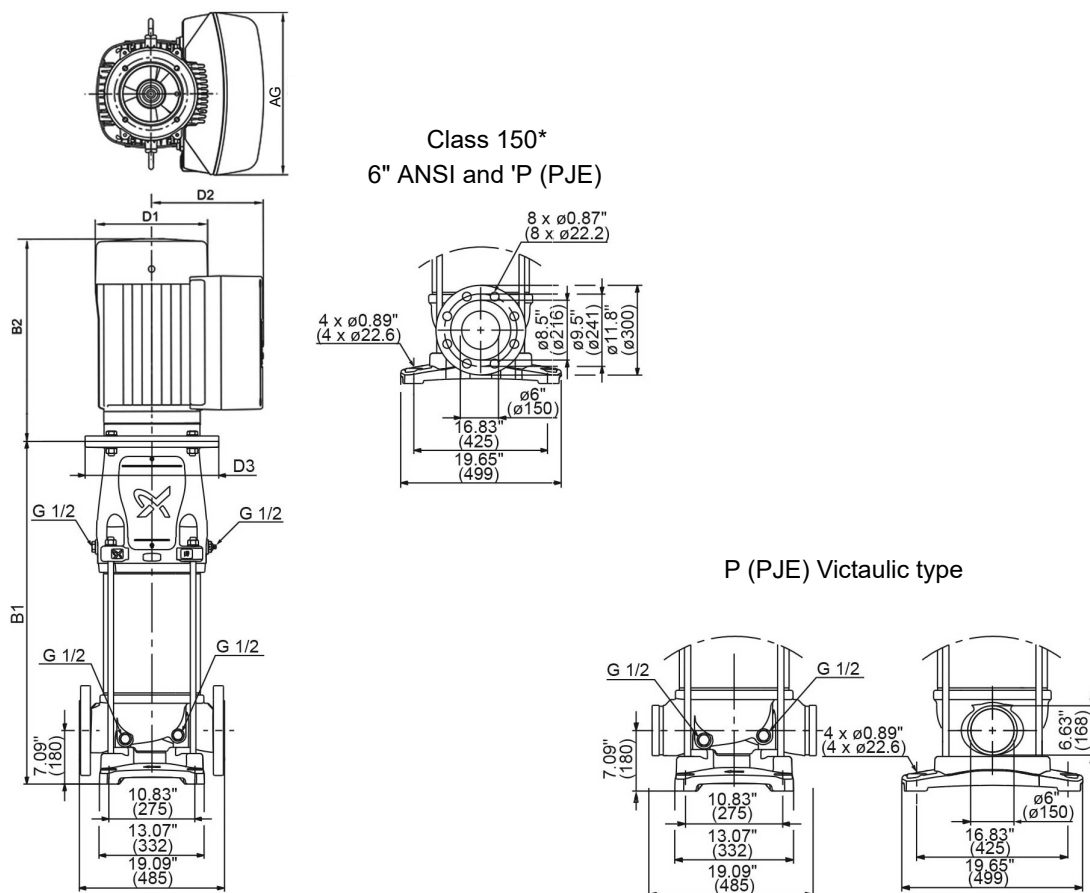
CRNE 155



TM074483

The maximum pump efficiency (Eff) is based on a three-stage pump.

CRNE 155 dimensional data



TM074468

* The CRE, CRNE 155 pumps with stages (with one reduced-diameter impeller) are fitted with 150 lb (68 kg) flanges as standard.

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 155-1-1	25	3	440-480	284TSC	0.43	6.64 (169)	30.91 (785)	12.36 (314)	11.93 (303)	20.24 (514)	51.14 (1299)	818 (371)

11. Motor data

2-pole E-motors (Grundfos MLE)

Permanent-magnet motors with integrated variable frequency drive (VFD)

Totally Enclosed Fan Cooled, constant speed



TM085712

Motor voltage [V]	Shaft power P ₂ [hp] 36)	Frame size	Service factor	Motor full-load efficiency [%] 37)	Full-load current amps [A]	Service factor current amps [A]	Power factor	Sound pressure level [dB(A)]	
								3600 rpm	4000 rpm
1 x 200-240	0.5	56C	1.00	84	2.4-2.1	-	0.96	54.5	59.5
	0.75		1.00	85.3	3.45-2.9	-	0.98	54.5	59.5
	1		1.00	85.2	4.7-3.9	-	0.99	54.5	59.5
	1.5		1.00	86.9	6.7-5.6	-	0.99	54.5	59.5
	2		1.00	87.4	9.1-7.6	-	0.99	61	64
3 x 200 -240	1.5	56C	1.15	88.5	4-3.4	4.60-3.90	0.91	54.5	57.5
	2		1.00	88.5	5.4-4.6	-	0.92	54.5	57.5
	3	182TC	1.15	88.5	7.90-6.60	9.10-7.60	0.94	61.5	64
	5		1.15	90.2	13.2-10.9	14.9-12.4	0.94	-	-
	7.5	213TC	1.15	89.5	20.0-16.6	23.0-19.3	0.94	69.5	72.5
	10	254TC	1.15	90.2	25.6-21.4	29.0-24.2	0.94	73.8	76
	15		1.10	91.7	37.8-31.9	41.0-34.5	0.94	73.8	76
3 x 440-480	1	56C	1.25	86.4	1.65	2.1	0.73	54.5	59.5
	1.5		1.15	89.6	2.05	2.4	0.84	54.5	59.5
	2		1.15	89.4	2.65	3	0.87	61	64
	3	182TC	1.15	90.7	3.8	4.3	0.89	61	64
	5		1.15	92.5	6.20-5.80	7.00-6.60	0.88	-	-
	7.5	213TC	1.15	92.4	9.10-8.50	10.4-9.70	0.89	65.5	68.5
	10		1.15	92.5	12.4-11.5	14.2-13.0	0.90	71	72.5
	15	254TC	1.15	93.2	17.9-16.6	20.5-19.0	0.91	71	72.5
	20	256TC	1.15	93.0	23.1-21.8	27.3-24.8	0.91	73.8	76
	25	284TSC	1.15	93.0	28.5-26.4	32.9-30.2	0.93	71.8	74
	30	286TSC	1.15	94.1	34.3-31.6	39.4-36.2	0.94	71.9	74.5

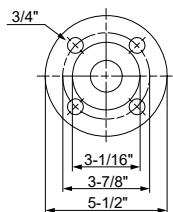
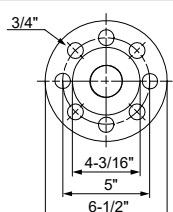
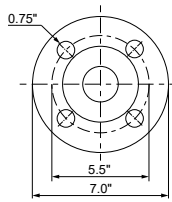
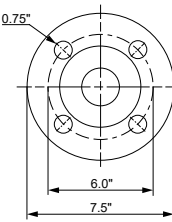
36) Permanent-magnet motor

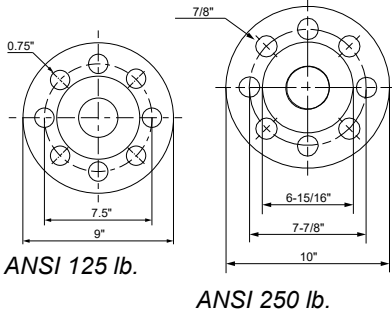
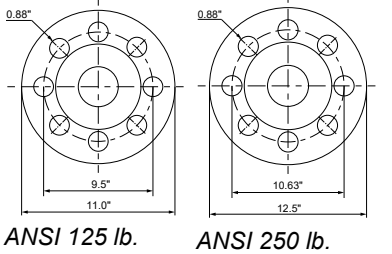
37) Efficiency of motor and VFD

12. Accessories

Counterflanges for CRE

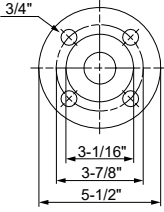
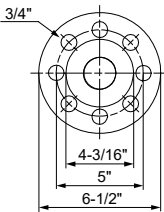
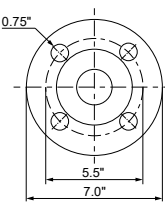
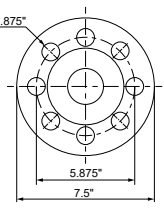
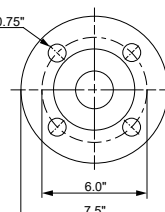
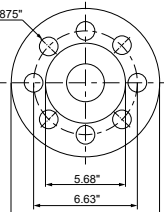
A set consists of two counterflanges, two gaskets, bolts and nuts.

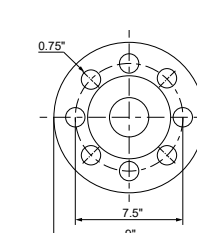
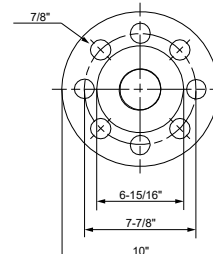
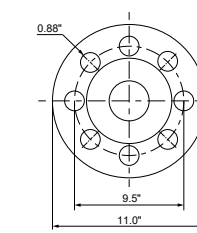
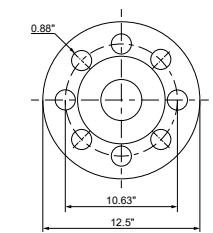
Pump type	Description	Pressure class	Pipe connection	Product number	Counterflange
CRE 1, 3, 5	Threaded	ANSI 250 lb.	1 1/4" NPT	91122260	
CRE 10, 15, 20	Threaded	ANSI 250 lb.	2" NPT	335021	
CRE 32	Threaded	ANSI 125 lb.	2 1/2" NPT	559601	 ANSI 125 lb.
	Threaded	ANSI 250 lb.	2 1/2" NPT	345050	
CRE 45	Threaded	ANSI 125 lb.	3" NPT	569601	 ANSI 125 lb.
	Threaded	ANSI 250 lb.	3" NPT	91121952	

Pump type	Description	Pressure class	Pipe connection	Product number	Counterflange
CRE 64, 95	Threaded	ANSI 125 lb.	4" NPT	579801	
	Threaded	ANSI 250 lb.	4" NPT	3600028	
CRE 125, 155	Threaded	ANSI 125 lb.	6" NPT		
	Threaded	ANSI 250 lb.	6" NPT		

Counterflanges for CRNE

Counterflanges for the CRNE pumps are made of stainless steel according to AISI 316.
A set consists of two counterflanges, two gaskets, bolts and nuts.

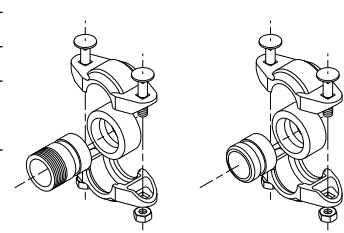
Pump type	Description	Pressure class	Pipe connection	Product number	Counterflange
CRIE, CRNE 1, 3, 5	Threaded	ANSI 300 lb.	1 1/4" NPT	91129013	
CRIE, CRNE 10, 15, 20	Threaded	ANSI 300 lb.	2" NPT	339919	
CRNE 32	Threaded	ANSI 150 lb.	2 1/2" NPT	91121951	
	Threaded	ANSI 250 lb.	2 1/2" NPT	01D00138	
CRNE 45	Threaded	ANSI 125 lb.	3" NPT	91121953	
	Threaded	ANSI 300 lb.	3" NPT	91121954	

Pump type	Description	Pressure class	Pipe connection	Product number	Counterflange	
CRNE 64, 95	Threaded	ANSI 150 lb.	4" NPT	0ID00148		
	Threaded	ANSI 300 lb.	4" NPT	91121955	ANSI 150 lb.	ANSI 300 lb.
CRNE 125, 155	Threaded	ANSI 125 lb.	6" NPT			
	Threaded	ANSI 250 lb.	6" NPT		ANSI 125 lb.	ANSI 250 lb.

PJE couplings for CRNE

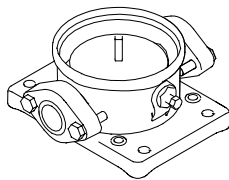
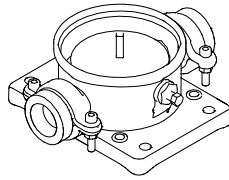
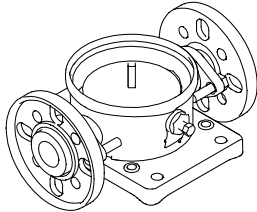
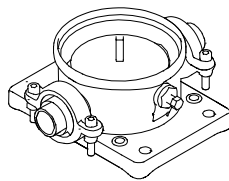
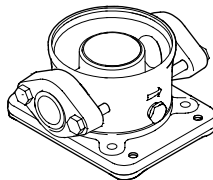
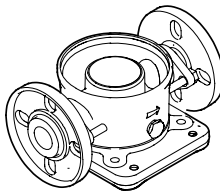
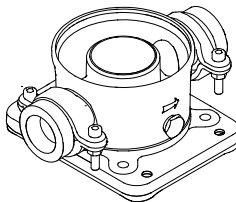
Couplings for the CRNE pumps are made of stainless steel according to the AISI 316.

A set consists of two couplings, two gaskets, two pipe stub and bolts and nuts.

Pump type	Pipe stub	Rated pressure	Pipe connection	Rubber parts	Number of coupling sets needed	Product number	Couplings
CRIE, CRNE 1, 3, 5	Threaded	1160 psi	1 1/4" NPT	EPDM	1	4013010	
				FKM	1	0ID00118	
CRIE, CRNE 10, 15, 20	Threaded	1015 psi	2" NPT	EPDM	1	331301	
				FKM	1	0ID00128	
CRN 32	Threaded	-	3" NPT	EPDM	-	-	
				FKM	-	-	
CRN 45 CRN 64 CRN 95	Threaded	-	4" NPT	EPDM	-	-	
				FKM	-	-	
CRN 125 CRN 155	Threaded	-	6" NPT	EPDM	-	-	
				FKM	-	-	

FlexiClamp base connections

All sets comprise the necessary number of bolts and nuts as well as a gasket or O-ring.

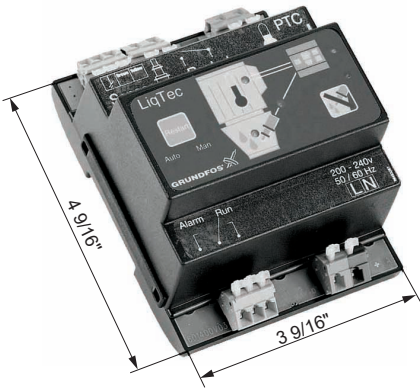
Pump type	Connection	Pipe connection	Rubber parts	Product number	Base connections
CRIE, CRNE 1, 3, 5	Oval (cast iron)	1" NPT	Klingsil	96468491	
		1 1/4" NPT	Klingsil	96470781	
	Oval (stainless steel)	1" NPT	Klingsil	96480850	
		1 1/4" NPT	Klingsil	96480851	
CRIE, CRNE 1, 3, 5	Union ext threaded	2" NPT	EPDM	96480852	
			FKM	96480853	
CRIE, CRNE 1, 3 and 5	ANSI (FGJ) (stainless steel)	1 1/4" NPT	EPDM	96480858	
			FKM	96480859	
CRIE, CRNE 1, 3, 5	Clamp, threaded pipe stub	1" NPT	EPDM	96480854	
			FKM	96480855	
		1 1/4" NPT	EPDM	96480856	
			FKM	96480857	
CRIE, CRNE 10, 15 and 20	Oval (cast iron)	2" NPT	Klingsil	96498838	
	Oval (stainless steel)	2" NPT	Klingsil	96498839	
CRIE, CRNE 10, 15, 20	ANSI (FGJ) (stainless steel)	2" NPT	EPDM	96511402	
			FKM	96511403	
CRIE, CRNE 10, 15, 20	Clamp, threaded pipe stub	1 1/2" NPT	EPDM	96500271	
			FKM	96500272	
		2" NPT	EPDM	96500273	
			FKM	96500274	
		2" NPT	EPDM	96508602	
			FKM	96508603	

LiqTec

The LiqTec dry-running protection unit protects the pump and process against dry running and temperatures exceeding 266 ± 9 °F (130 ± 5 °C). Connected to the motor PTC sensor, the LiqTec also monitors the motor temperature.

The product features a fail-safe design. If the sensor, sensor cable, electronic unit or power supply fails, the pump stops immediately.

Mount the LiqTec box in a cabinet.



TM028872

The maximum system pressure is 580 psi.

Sensor enclosure class: IP68.

Wetted parts: AISI 316L.

Voltage [V]	LiqTec	Sensor 1/2"	Cable 16.4 ft (5 m)	Extension cable 49.2 ft (15 m)	Product number
1/60/200-240	•	•	•	-	96556429
1/60/120	•	•	•	-	96556430
-	-	-	-	•	96443676
-	-	•	•	-	99337830

- Available
- Not available

Potentiometer for CRE, CRIE, CRNE

The potentiometer ensures the setpoint setting and start and stop of the CRE, CRIE, CRNE pump.

Product	Product number
External potentiometer with cabinet for wall mounting	625468

Pressure sensors

Grundfos ISP44 pressure sensor



Accessory	Supplier	Type	Pressure range [psi (bar)]	Product number
- Pressure sensors - Pressure transmitter with 8.2 ft (2.5 m) unscreened cable and M12 connector - Connection: 1/4" - 18 NPT - M12 connector for custom wiring	Grundfos	ISP44	0-87 (0-6)	99970220
			0-145 (0-10)	99970234
			0-232 (0-16)	99970236
			0-362 (0-25)	99970238

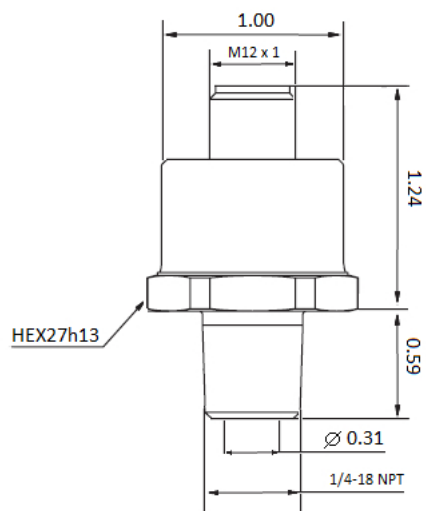
Technical data

Pressure sensor (Product number)	99970220	99970234	99970236	99970238
Pressure range [psi (bar)]	0-87 (0-6)	0-145 (0-10)	0-232 (0-16)	0-362 (0-25)
Maximum operating pressure [psi (bar)]	348 (24)	580 (40)	928 (64)	1450 (100)
Supply voltage [VDC]	8-28			
Output signal [mA]	4-20			
Accuracy, typical +/- FS [%]	0.5			
Response time, maximum [ms]	< 2			
Pumped liquid temperature range [°F (°C)]	-40 to +212 (-40 to +100)			
Ambient temperature range [°F (°C)]	-40 to +185 (-40 to +85)			
Wetted parts, material	AISI 316L			
Housing material	AISI 304L			
Enclosure rating	IP67			
Weight [lb (kg)]	0.3 (0.14)			
EMC - Emission	EN 61000-6-3			
EMC Immunity	EN 61000-6-2			
Pressure connection	NPT 1/4-18			
CE-marked	EMC-protected in accordance with EU EMC Directive			
UL file number	E527399 (QUYX2/8)			

Maximum pumped liquid temperature

Pumped liquid temperature [°F (°C)]	230 (110)	248 (120)	266 (130)
Ambient temperature [°F (°C)]	< 149 (65)	< 113 (45)	< 77 (25)

Dimensions



TM082270

ISP44 sensor with M12 connection

Grundfos differential-pressure sensor, DPI



Grundfos differential-pressure sensor, DPI

- 1 sensor incl. 3 ft (0.9 m) screened cable (7/16" connections)
- 1 original DPI bracket (for wall mounting)
- 1 Grundfos bracket (for mounting on motor)
- 2 M4 screws for mounting of sensor on bracket
- 1 M6 screw (self-cutting) for mounting on 3 hp and smaller
- 1 M8 screw (self-cutting) for mounting on 5-10 hp
- 1 M10 screw (self-cutting) for mounting on 15 - 25 hp
- 1 M12 screw (self-cutting) for mounting on 30 hp
- 3 capillary tubes (short/long)
- 2 fittings (1/4" - 7/16")
- 5 cable clips (black)
- Installation and operating instructions

Pressure range [psi (bar)]

0 - 8.7 (0 - 0.6)	96611522
0 - 14.5 (0 - 1.0)	96611523
0-23 (0 - 1.6)	96611524
0-36 (0 - 2.5)	96611525
0-58 (0 - 4.0)	96611526
0-87 (0 - 6.0)	96611527
0-145 (0-10)	96611550

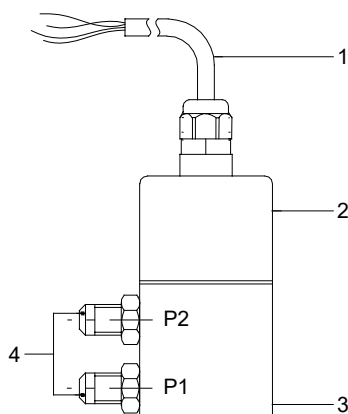
Product number

Select the differential-pressure sensor so that the maximum pressure of the sensor is higher than the maximum differential pressure of the pump.

The sensor housing (3) and parts in contact with the liquid are made of Inox DIN 1.4305 with composite PA top (2). The connections (4) are DIN 1.4305, 7/16" UNF connection and the gaskets are FKM. A black and screened cable (1) goes through a screwed connection PG with M12 x 1.5 connection.

The sensor is supplied with an angular bracket for mounting on the motor, or bracket for wall mounting.

A specially coated silicon chip is used for greater accuracy.

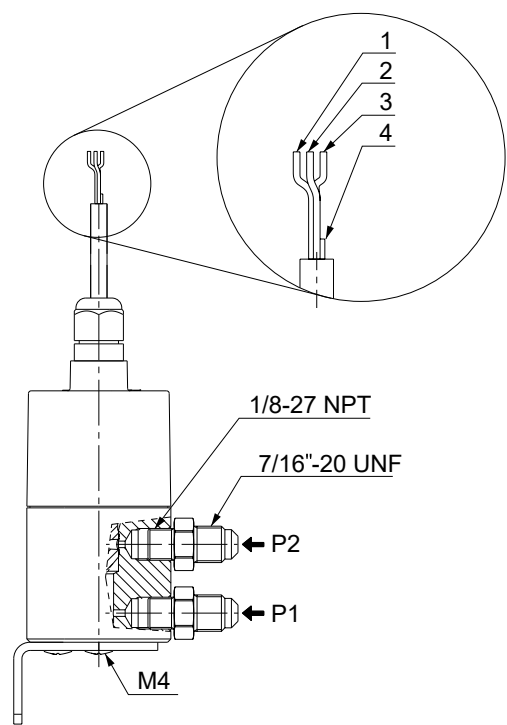


TM032057

DPI sensor

Technical data

Grundfos differential-pressure sensor, DPI (Product number)	96611522	96611523	96611524	96611525	96611526	96611527	96611550
Pressure ranges, differential pressure [psi (bar)]	0 - 8.7 (0 - 0.6)	0 - 14.5 (0 - 1.0)	0-23 (0 - 1.6)	0-36 (0 - 2.5)	0-58 (0 - 4.0)	0-87 (0 - 6.0)	0-145 (0-10)
Supply voltage	12-30 VDC						
Output signal	4-20 mA						
Load [Ω]	24 V: max. 500 [Ω], 16 V: max. 200 [Ω], 12 V: max. 100 [Ω]						
Maximum system pressure, P1 and P2 simultaneously [psi (bar)]	232 (16)						
Rupture pressure [psi]	1.5 x system pressure						
Measuring accuracy	2.5 % BFSL						
Response time	< 0.5 seconds						
Liquid temperature range	+14 °F to +158 °F (-10 °C to +70 °C)						
Storage temperature range	-40 °F to +176 °F (-40 °C to +80 °C)						
Electrical connection	26 GA, 3 ft (0.9 m) cable - M12 x 1.5 in (38 mm) sensor top						



TM032225

Wiring

Pos.	Description	Color
1	12-30 V supply voltage	Brown
2	GND (earth conductor)	Yellow
3	Signal conductor	Green
4	Test conductor (can be cut off during mounting) This conductor must not be connected to the power supply.	White

Grundfos differential-pressure sensor, DPI g.2 version



Grundfos differential-pressure sensor, DPI g.2 version

- 1 sensor
- 1 capillary tube, short version
- 1 fitting for capillary tube 6 ft (1.8 m) cable
- 1 installation and operation instructions

Pressure range
[psi (bar)]

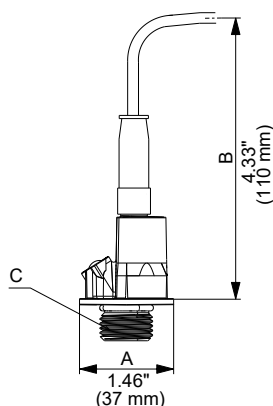
Product number

0 - 8.7 (0 - 0.6)	97747194
0 - 14.5 (0 - 1.0)	97747195
0-23 (0 - 1.6)	97747196
0-36 (0 - 2.5)	97747197
0-58 (0 - 4.0)	97747198
0-87 (0 - 6.0)	97747199
0-145 (0-10)	97747200

Select the differential-pressure sensor so that the maximum pressure of the sensor is higher than the maximum differential pressure of the pump.

All materials used for DPI 2 are AISI 316 L.

The fitting connection for the capillary tube is 7/16" UNF. The cable has M12 x 4 connectors. The sensor is supplied with fittings for capillary tubing. Measuring technology is based on a coated silicon chip.



TM049237

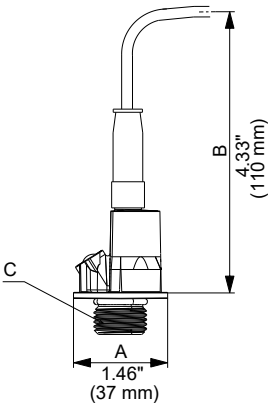
DPI sensor g.2 version

Technical data

Grundfos differential-pressure sensor, DPI g.2 version (Product number)	97747194	97747195	97747196	97747197	97747198	97747199	97747200
Pressure ranges, differential pressure [psi (bar)]	0 - 8.7 (0 - 0.6)	0 - 14.5 (0 - 1.0)	0-23 (0 - 1.6)	0-36 (0 - 2.5)	0-58 (0 - 4.0)	0-87 (0 - 6.0)	0-145 (0-10)
Supply voltage	12-30 VDC						
Output signal	4-20 mA						
Load [Ω]	30 V DC: max. 900 ohms [Ω], 1.3 V: max. 100 [Ω], 12.5 V: max. 60 [Ω]						
Maximum system pressure, P1 and P2 simultaneously [psi (bar)]	870 (60)						
Rupture pressure [psi]	1.5 x system pressure						
Measuring accuracy	2.0 % FS						
Response time	< 100 ms (typical 50 ms)						
Liquid temperature range	-22 to +212 °F (-30 to +100 °C)						
Storage temperature range	-67 to +158 °F (-55 to +70 °C)						
Electrical connection	27 GA 6 ft (1.8) cable M12 x 4						
Short-circuit-proof	Yes						
Protected against reverse polarity	Yes						
Over supply voltage	Yes						
Materials in contact with liquid	AISI 316 L						

Grundfos differential-pressure sensor, DPI g.2 version (Product number)	97747194	97747195	97747196	97747197	97747198	97747199	97747200
Enclosure class	IP67						
Weight [lb]	1.2						
EMC (electromagnetic compatibility)	According to EN 61326-1						
Connections	7/16"-UNF						
Sealing material	EPDM						

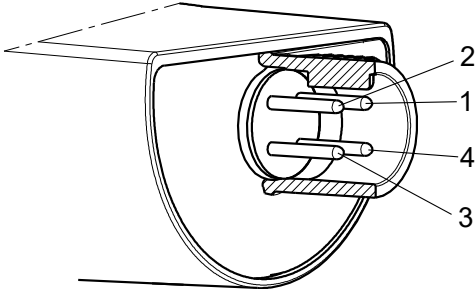
Dimensions



TM049237

DPI sensor g.2 version

Electrical connections



TM047156

Electrical connections

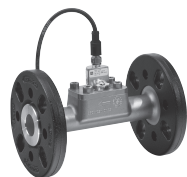
Pin	1	2	3	4
Wire color	Brown	Grey	Blue	Black
Output 4-20 mA	+	Not used	-	Not used
Output 2 x 0-10 V	+	Pressure signal	- ³⁸⁾	Temperature signal

Power supply (screened cable): SELV or PELV.

Flow transmitters

The flow tube of the AISI 316 is mounted with a transmitter with the following properties:

- The transmitter is of AISI 316 L.
- The output signal is 4-20 mA.
- There are two flanges.
- It comes with a 15 ft (4.5 m) cable with free ends.
- It comes with a quick guide.



Type	Flow range [gpm (m ³ /h)]	Connection	O-ring		Flange material		Product number
			EPDM	FKM	Cast iron	Stainless steel	
VFI 0.3-6	1.3 - 26 (0.3 - 7.0)	3/4"	•		•		97686127
	1.3 - 2.6 (0.35 - 0.7)	3/4"	•			•	97688293
VFI 0.6-12	2.6 - 53 (0.70 - 14.4)	1"	•		•		97686129
	2.6 - 53 (0.7 - 14.4)	1"	•			•	97688295
VFI 1.3-25	5.7 - 110 (1.5 - 30)	1 - 1/4"	•		•		97686141
	5.7 - 110 (1.5 - 30)	1 - 1/4"	•			•	97688297
VFI 2-40	8.8 - 176 (2.4 - 48)	1 - 3/4"	•		•		97686143
	8.8 - 176 (2.4 - 48)	1 - 3/4"	•			•	97688299
VFI 3.2-64	14-282 (3.8 - 76.9)	2"	•		•		97686145
	14-282 (3.8 - 76.9)	2"	•			•	97688301
VFI 5.2-104	23-458 (6.2 - 124.9)	2 - 1/2"	•		•		96788476
VFI 8-160	35-704 (9.5 - 192)	3"	•		•		97788478
VFI 8-160	53-1060 (14.4 - 289)	4"	•		•		97788492

For more information about the VFI sensor, see the Grundfos Direct Sensors™ data booklet, publication number 97790189, at the Grundfos Product Center at www.grundfos.com.

Gauges for CRE, CRIE, CRNE

Accessory	Measuring range	Product number
Liquid-filled pressure gauge • AISI 304/copper	30" Hg - 30 psi (2 bar)	91123566
	0-60 psi (0-4 bar)	00ID8562
	0-100 psi (0-7 bar)	00ID8563
	0-160 psi (0-11 bar)	00ID8564
	0-200 psi (0-14 bar)	00ID8565
	0-300 psi (0-21 bar)	00ID8566
	0-400 psi (0-27 bar)	00ID8567
	0-600 psi (0-41 bar)	00ID8568
Liquid-filled pressure gauge • AISI 316	30" Hg - 30 psi (2 bar)	91130835
	0-60 psi (0-4 bar)	00ID8569
	0-100 psi (0-7 bar)	00ID8570
	0-160 psi (0-11 bar)	00ID8571
	0-200 psi (0-14 bar)	00ID8572
	0-300 psi (0-21 bar)	00ID8573
	0-400 psi (0-27 bar)	00ID8574
	0-600 psi (0-41 bar)	00ID8575
	0-200 psi (0-14 bar)	00ID8576

Temperature sensor



Accessory:	Temperature sensor
Supplier:	Danfoss
Type:	MBT3270
Temperature range:	-58 °F to 392 °F (-50 to 200 °C)
Product number:	99501120
Output signal:	PT100 Class B, two-wire
Wetted parts, material:	AISI 316L
Cable:	6.5 ft. (1.9 m) silicone cable
Connection:	G 1/2 A thread It threads into the CRE, CRNE pump head.
O-rings:	EPDM and FKM included

Remote controls

Grundfos GO

Use the Grundfos GO for the following types of wireless communication with the pump:

- infrared
- radio
- Bluetooth.

Infrared and radio communication

The following motors connect to the pump through wireless infrared or radio communication:

- MLE 0.5 to 2 hp 1/60/200-240
- MLE 1.5 to 2 hp 3/60/200-240
- MLE 1 to 3 hp 3/60/440-480.

MI 301

The MI 301 is a module with built-in infrared and radio communication. It is required for the Grundfos GO communication. The MI 301 can be used together with Android or iOS-based smart devices with a Bluetooth connection. It has a rechargeable Li-ion battery that must be charged separately.



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MI 301

The following are supplied with the product:

- Grundfos MI 301
- sleeve
- battery charger
- quick guide.

Product numbers

Grundfos GO variant	Product number
Grundfos MI 301	98046408

Bluetooth communication

The following motors connect to the pump through Bluetooth communication:

- MLE 3hp to 15 hp 3/60/200-240
- MLE 5 hp to 30 hp 3/60/440-480.

Related information

[Bluetooth](#)

Communication Interface Unit (CIU)



GRA6118

Grundfos CIU

The CIU standard interface with internal power supply are suitable for Grundfos products that do not support the internal mounting of a communication interface module (CIM).

The CIU incorporates a 24-240 VAC/VDC power supply module. The CIU can either be mounted on a DIN rail or on a wall.

We offer the following communication interface units:

CIU 900

It is for mounting an add-on CIM. The CIU 900 includes an internal power supply.

A CIM is required.

CIU 901

It is for mounting an add-on CIM 200, CIM 280 or CIM 500.

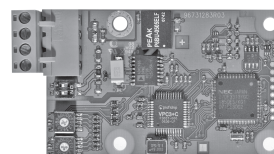
The CIM 500 only supports the Modbus TCP/IP and GiC/GRM IP when mounted in the CIU 901.

The CIU 901 includes an internal power supply and an integrated input/output board. The built-in multi-purpose input/output board enables the monitoring of standard pumps, sensors, meters and switches.

A CIM is required.

Description	Fieldbus protocol	Product number
CIU 900	CIU unit only	99448387
CIU 901	CIU unit with input/output board	99448389

Communication Interface Module (CIM)



GRA6121

Grundfos CIM

These modules enable communication of operating data, such as measured values and setpoints, between the pump and a building management system. The CIM is an add-on communication module fitted in the terminal box of the pump. Note that a CIM must be fitted by authorized persons.

We offer the following types of CIM:

Description	Fieldbus protocol	Product number
CIM 040	TTL Adaptor Module	98415941
CIM 050	GENIbus Interface	96824631
CIM 060 ³⁹⁾	Grundfos GO Remote Connection	98778356
CIM 100	LON interface for pumps	96824797
CIM 110	LON interface for boosters	96824798
CIM 200	Modbus RTU	96824796
CIM 280 ⁴⁰⁾	US GiC/GRM 3G/4G	99895386
CIM 300	BACnet Interface	96893770
CIM 500	Ethernet, Modbus TCP/IP, BACnet IP, PROFINET, GiC/GRM IP, EtherNet IP	98301408
CIM 550	Ethernet GIC (DHCP only)	92546689

³⁹⁾ Extended range antenna is available as an option for the CIM 060. Product number: 98778357.

⁴⁰⁾ Antenna is not included. See Antennas for the CIM 280.

Antennas for the CIM 280

Description	Product number
Antenna for GRM 3G/4G, flush mount	99606613
External mounting bracket for antenna (optional)	99606614
Directional antenna for 3G/4G High gain, mount and 25-foot cable included	98851149
Battery for the CIM 280 3G/4G, for power loss to the CIU (optional)	99499908

For further information about data communication via the CIM and fieldbus protocols, see the CIM documentation available at the Grundfos Product Center at www.grundfos.com.

13. Variants

Lists of variants on request

Although the Grundfos CR, CRE, CRI, CRIE, CRN, CRNE product range offers a number of pumps for different applications, customers require specific pump solutions to satisfy their needs.

Find below the range of options available for customizing the CRE pumps to meet the customers' demands. Contact Grundfos for further information or for requests other than the ones mentioned below.

Shaft seals

Variant	Description
Shaft seal with FFKM O-ring material	We recommend shaft seals with FFKM or FXM O-ring material for applications where the pumped liquid may damage the standard O-ring material.
Seal with flush, quench seal	It is recommended for applications involving crystallizing, hardening or sticky liquids.
Cool-Top® shaft seal system	It is recommended for applications involving extremely high temperatures. No conventional mechanical shaft seal can withstand liquid temperatures of up to 356 °F (180 °C) for any length of time. For that type of application, we recommend Grundfos' unique air-cooled shaft seal system. To ensure a low liquid temperature around the standard shaft seal, the pump is fitted with a special air-cooled shaft seal chamber. No separate cooling is required.
Double shaft seal with pressure chamber	It is recommended for applications involving poisonous or explosive liquids. It protects the surrounding environment and the people working in the vicinity of the pump. It consists of two seals mounted in a back-to-back arrangement inside a separate pressure seal chamber. As the pressure in the chamber is higher than the pump pressure, leakage is prevented. A dosing pump or a special pressure-intensifier generates the seal chamber pressure.
CRN MAGdrive	It is a magnetically driven pump for industrial applications. Key application is in industrial processes involving the handling of aggressive, environmental, dangerous or volatile liquids, such as organic compounds, solvents, etc.

Connections and other variants

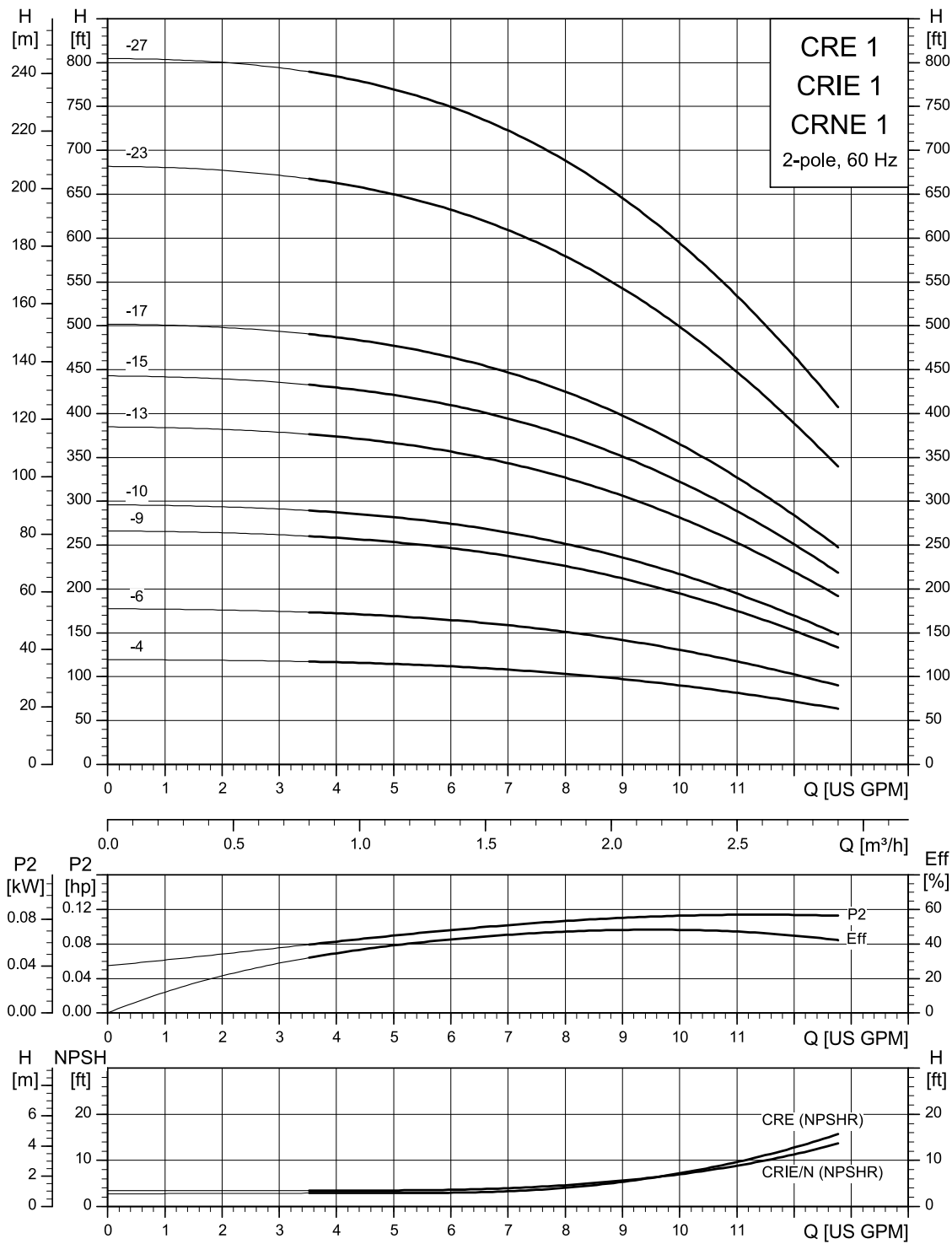
Variant	Description
Pipe connections	In addition to the wide range of standard flange connections, a 232 psi (16 bar) DIN standard clamping flange is available. Customized flanges are available according to specifications.
TriClamp connections	TriClamp connections are of a hygienic design with a sanitary coupling for use in the pharmaceutical and food industry.
Electropolished pumps	Electropolishing substantially reduces the risk of corrosion of the materials. Electropolishing is used in the pharmaceutical and food industry.

Pumps

Variant	Description
Horizontally mounted pump	For safety or height reasons, certain applications, for instance on ships, require the pump to be mounted in horizontal position. For easy installation, the pump is equipped with brackets that support the motor and pump.
Low-temperature pump to -40 °F	Exposed to temperatures down to -40 °F (-40 °C), coolant pumps may require neck-rings with a different diameter in order to prevent impeller drag.
High-speed pump up to 681 psi	For high-pressure applications, a unique pump capable of generating up to 681 psi (47 bar) pressure is available. The pump is equipped with a high-speed motor, type MLE. The direction of rotation is the opposite of that of standard pumps, and the chamber stack is turned upside-down, thus the pumped liquid flows in the opposite direction.
Low-NPSH pump (improved suction)	It is recommended for boiler-feed applications where cavitation may occur due to poor inlet conditions.
Belt-driven pumps	Belt-driven pumps are designed to operate in places with limited space or where no electrical power is available.
Pumps for pharmaceutical and biotechnological applications	The CRN, CRNE pumps are designed for applications requiring the sterilization and CIP (Clean-In-Place) capability of pipes, valves and pumps.

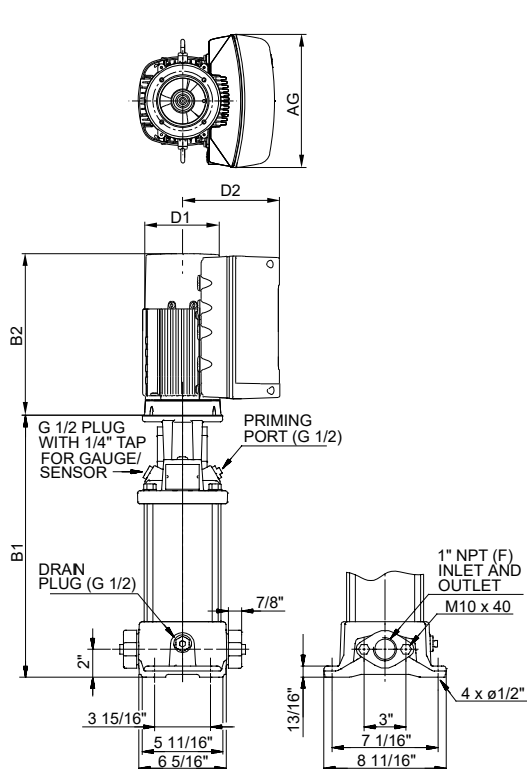
Classic 3600 rpm CRE, CRIE, CRNE 1 - 20 pumps

CRE, CRIE, CRNE 1

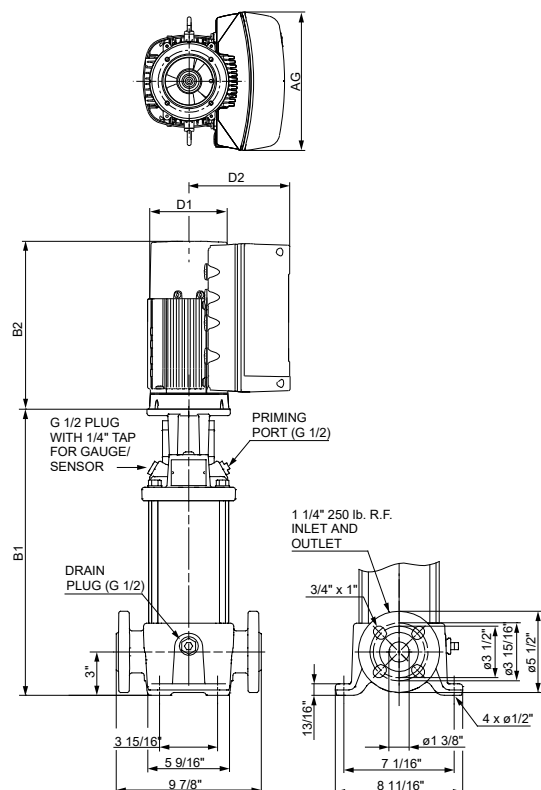


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CRE 1 dimensional data



TM069111

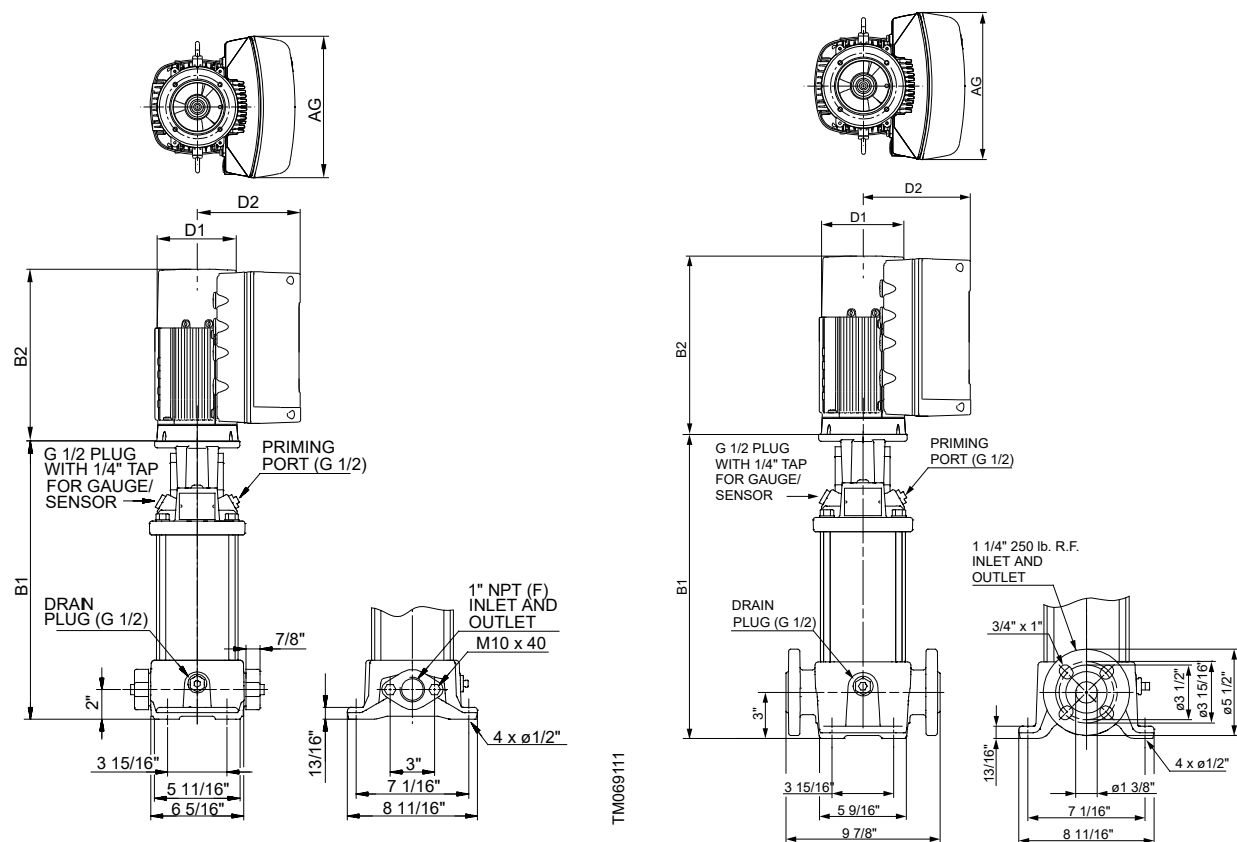


TM069137

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 1-4	0.5	1	200-240	56C	*	12.68 (322.07)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	21.14 (536.96)	74 (33)
CRE 1-6	0.75	1	200-240	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	22.55 (572.77)	76 (34)
CRE 1-9	1	1	200-240	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	24.68 (626.87)	79 (36)
		3	440-480	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	26.26 (667)	83 (38)
CRE 1-10	1.5	3	200-240	56C	*	16.93 (430.02)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	26.97 (685.04)	85 (39)
		1	200-240	56C	*	19.06 (484.12)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	27.52 (699.01)	88 (40)
CRE 1-13	1.5	3	200-240	56C	*	19.06 (484.12)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	29.10 (739.14)	91 (41)
		3	440-480	56C	*	19.06 (484.12)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	29.10 (739.14)	92 (42)
CRE 1-15	2	3	200-240	56C	*	20.47 (519.94)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	31.30 (795.02)	97 (44)
		3	440-480	56C	*	20.47 (519.94)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	31.30 (795.02)	97 (44)
CRE 1-17	2	1	200-240	56C	*	21.89 (556.01)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	31.14 (790.96)	95 (43)
		3	200-240	56C	*	21.89 (556.01)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	32.72 (831.09)	99 (45)
		3	440-480	56C	*	21.89 (556.01)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	32.72 (831.09)	99 (45)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 1-23	3	3	200-240	182TC	-	27.24 (691.90)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	40.39 (1025.91)	128 (58)
		3	440-480	182TC	-	27.24 (691.90)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	38.07 (966.98)	120 (54)
CRE 1-27	3	3	200-240	182TC	-	30.08 (764.03)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	48.23 (1225.04)	131 (59)
		3	440-480	182TC	-	30.08 (764.03)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	43.23 (1098.04)	123 (56)

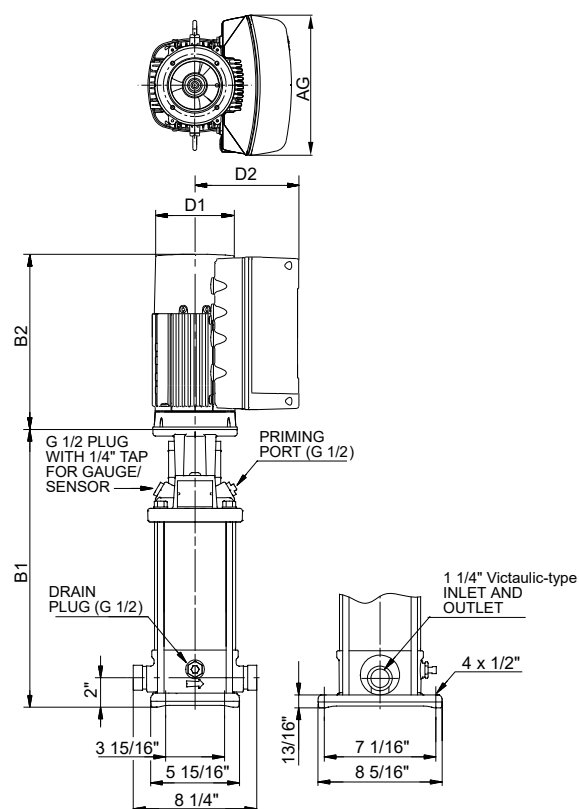
CRIE 1 dimensional data



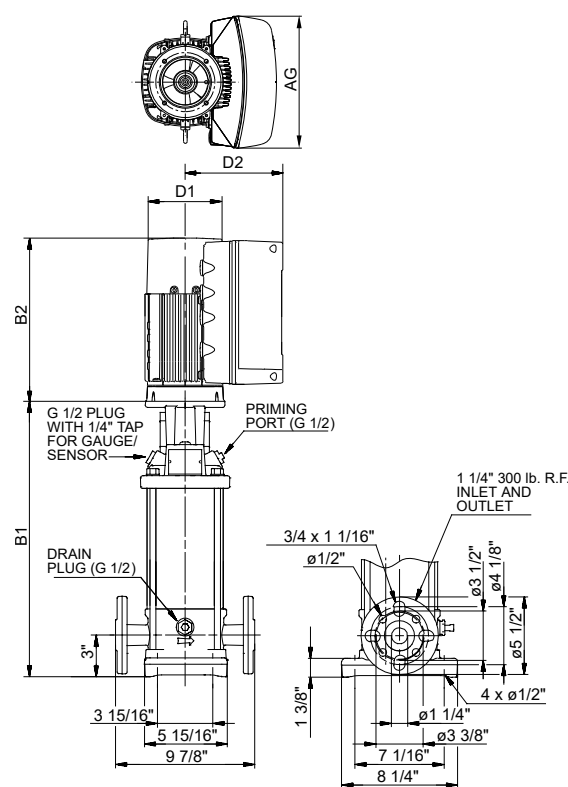
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁽⁴²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 1-4	0.5	1	200-240	56C	*	12.80 (325)	4.80 (122)	6.22 (158)	8.34 (212)	21.26 (540)	69 (31)
CRIE 1-6	0.75	1	200-240	56C	*	14.21 (361)	4.80 (122)	6.22 (158)	8.34 (212)	22.67 (576)	71 (32)
CRIE 1-9	1	1	200-240	56C	*	16.34 (415)	4.80 (122)	6.22 (158)	8.34 (212)	24.80 (630)	74 (34)
		3	440-480	56C	*	16.34 (415)	4.80 (122)	6.22 (158)	10.56 (268)	26.38 (670)	78 (35)
CRIE 1-10	1.5	3	200-240	56C	*	17.05 (433)	4.80 (122)	6.22 (158)	10.56 (268)	27.09 (688)	80 (36)
CRIE 1-13	1.5	1	200-240	56C	*	19.17 (487)	4.80 (122)	6.22 (158)	8.34 (212)	27.63 (702)	83 (38)
		3	200-240	56C	*	19.17 (487)	4.80 (122)	6.22 (158)	10.56 (268)	29.21 (742)	86 (39)
		3	440-480	56C	*	19.17 (487)	4.80 (122)	6.22 (158)	10.56 (268)	29.21 (742)	86 (39)
CRIE 1-15	2	3	200-240	56C	*	20.59 (523)	4.80 (122)	6.22 (158)	10.56 (268)	31.42 (798)	92 (42)
		3	440-480	56C	*	20.59 (523)	4.80 (122)	6.22 (158)	10.56 (268)	31.42 (798)	92 (42)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 1-17	2	1	200-240	56C	*	22.01 (559)	4.80 (122)	6.22 (158)	8.34 (212)	31.26 (794)	90 (41)
		3	200-240	56C	*	22.01 (559)	4.80 (122)	6.22 (158)	10.56 (268)	32.84 (834)	944 (428)
		3	440-480	56C	*	22.01 (559)	4.80 (122)	6.22 (158)	10.56 (268)	32.84 (834)	94 (43)
CRIE 1-23	3	3	200-240	182TC	-	27.36 (695)	7.53 (191)	7.91 (201)	11.46 (291)	40.51 (1029)	121 (55)
		3	440-480	182TC	-	27.36 (695)	4.80 (122)	6.22 (158)	10.56 (268)	38.19 (970)	113 (51)
CRIE 1-27	3	3	200-240	182TC	-	30.20 (767)	7.53 (191)	7.91 (201)	11.46 (291)	43.35 (1101)	124 (56)
		3	440-480	182TC	-	30.20 (767)	4.80 (122)	6.22 (158)	10.56 (268)	41.03 (1042)	116 (53)

CRNE 1 dimensional data



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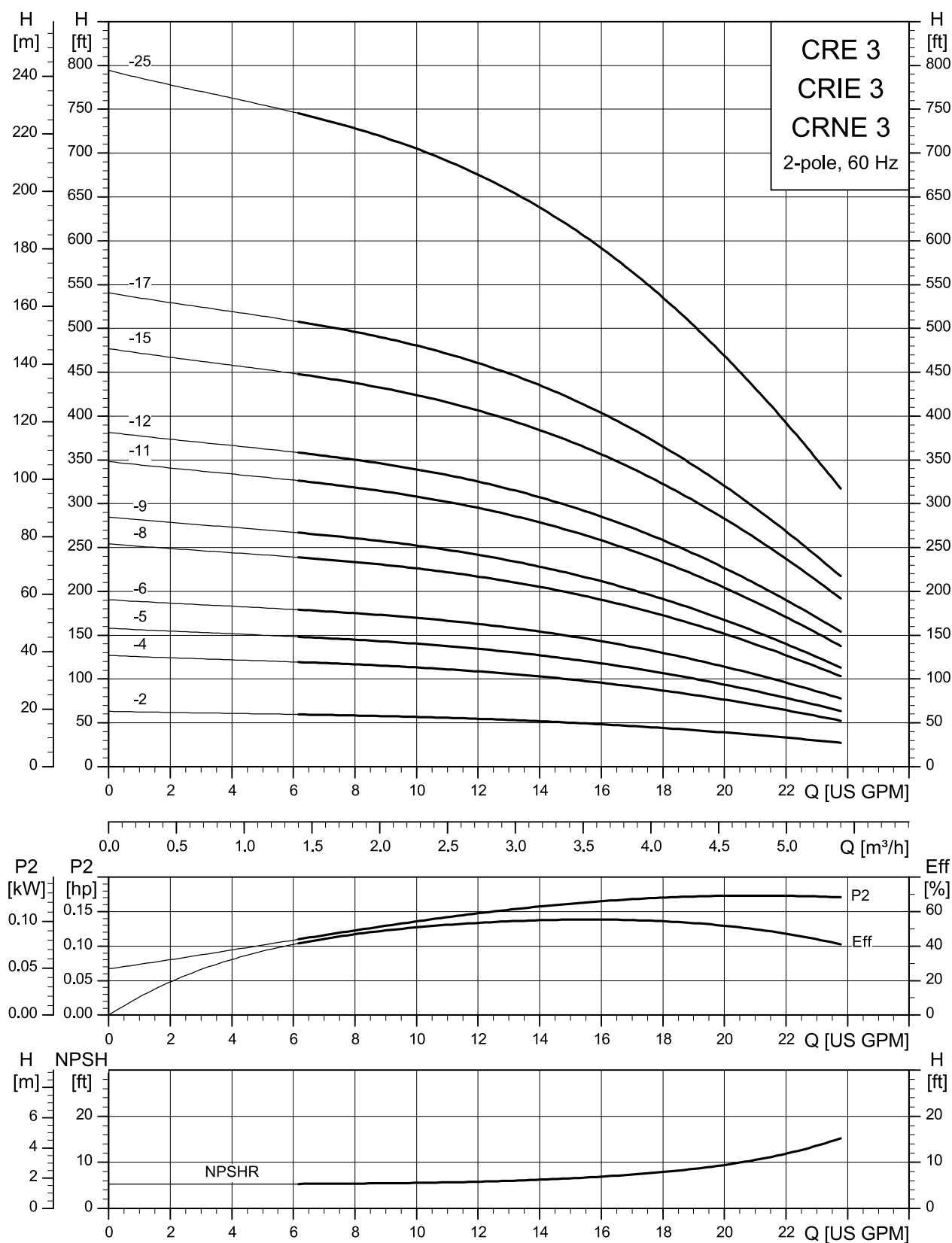


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	PJE ⁴³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 1-4	0.5	1	200-240	56C	*	12.80 (325.12)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	21.26 (540.00)	69 (31)
CRNE 1-6	0.75	1	200-240	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	22.67 (575.82)	71 (32)
CRNE 1-9	1	1	200-240	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	24.80 (629.92)	74 (34)
		3	440-480	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	26.38 (670.05)	77 (35)
CRNE 1-10	1.5	3	200-240	56C	*	17.05 (433.07)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	27.09 (688.09)	80 (36)
		1	200-240	56C	*	19.17 (486.92)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	27.63 (701.80)	82 (37)
CRNE 1-13	1.5	3	200-240	56C	*	19.17 (486.92)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.21 (741.93)	86 (39)
		3	440-480	56C	*	19.17 (486.92)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.21 (741.93)	86 (39)
CRNE 1-15	2	3	200-240	56C	*	20.59 (522.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	31.42 (798.07)	91 (41.2)
		3	440-480	56C	*	20.59 (522.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	31.42 (798.07)	92 (41.7)

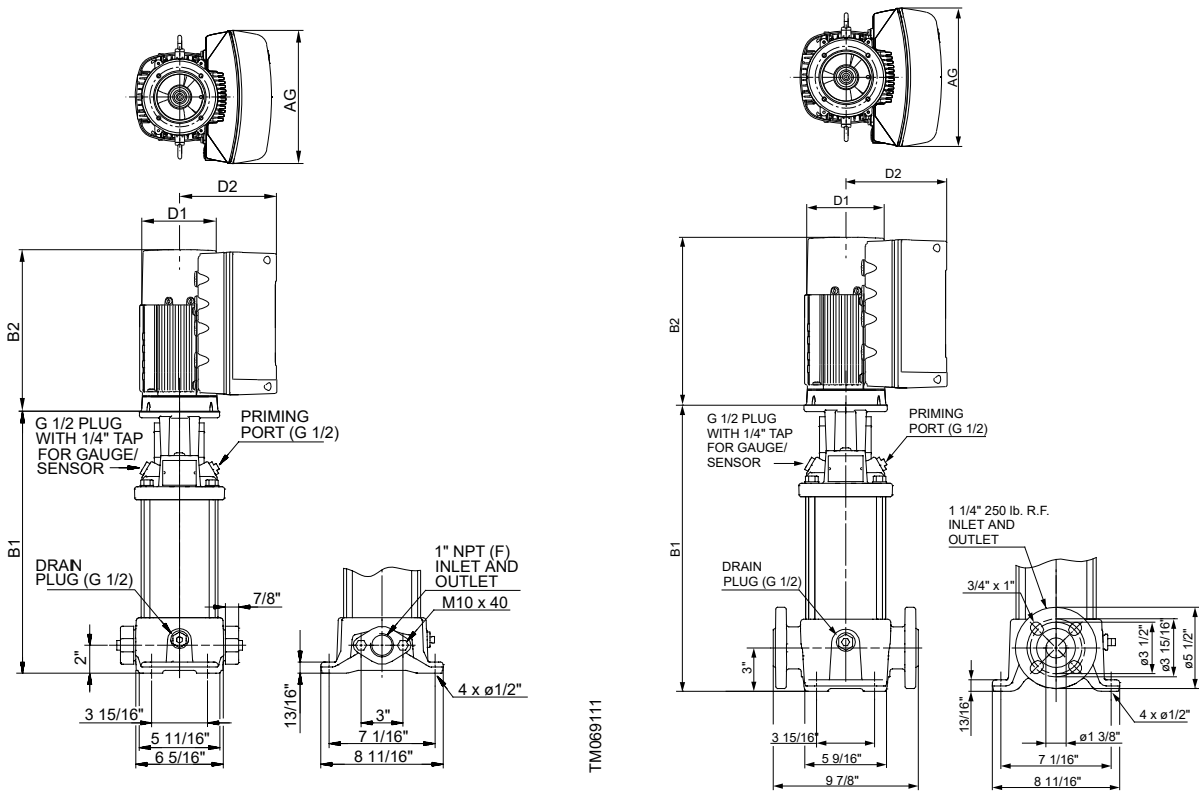
Pump type	[hp]	PH	Voltage [V]	Frame size	PJE ⁴³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 1-17	2	1	200-240	56C	*	22.01 (559.05)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	31.26 (794.00)	90 (40)
		3	200-240	56C	*	22.01 (559.05)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	32.84 (834.14)	93 (42)
		3	440-480	56C	*	22.01 (559.05)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	32.84 (834.14)	94 (43)
CRNE 1-23	3	3	200-240	182TC	*	27.36 (694.94)	7.53 (10.09)	7.91 (200.91)	11.46 (291.08)	40.51 (1028.95)	120 (54)
		3	440-480	182TC	*	27.36 (694.94)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	38.19 (970.03)	112 (51)
CRNE 1-27	3	3	200-240	182TC	*	30.20 (767.08)	7.53 (10.09)	7.91 (200.91)	11.46 (291.08)	43.35 (1101.09)	124 (56)
		3	440-480	182TC	*	30.20 (767.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	41.03 (1042.16)	116 (53)

CRE, CRIE, CRNE 3



TM059413

CRE 3 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	Ship wt. [lb (kg)]
CRE 3-2	0.5	1	200-240	56C	*	11.97 (304.04)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	20.43 (518.92)	73 (33.1)
CRE 3-4	0.75	1	200-240	56C	*	12.68 (322.07)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	21.14 (536.96)	74 (33)
CRE 3-5	1	1	200-240	56C	*	13.39 (340.11)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	21.85 (554.99)	75 (34)
CRE 3-6	1.5	3	200-240	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	24.13 (612.90)	82 (37)
	1	3	440-480	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	24.13 (612.90)	80 (36)
CRE 3-8	1.5	1	200-240	56C	*	15.51 (393.95)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	23.97 (608.84)	80 (36)
CRE 3-9	1.5	3	200-240	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	26.26 (667)	84 (38)
		3	440-480	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	26.26 (667)	85 (39)
CRE 3-11	2	1	200-240	56C	*	17.64 (448.06)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	26.89 (683.01)	90 (41)
CRE 3-12	2	3	200-240	56C	*	18.35 (466.09)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.18 (741.17)	94 (42)
		3	440-480	56C	*	18.35 (466.09)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.18 (741.17)	95 (43)
CRE 3-15	3	3	200-240	182TC	*	21.57 (547.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	34.72 (881.89)	117 (53)
		3	440-480	182TC	*	21.57 (547.88)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	32.40 (822.96)	109 (49)

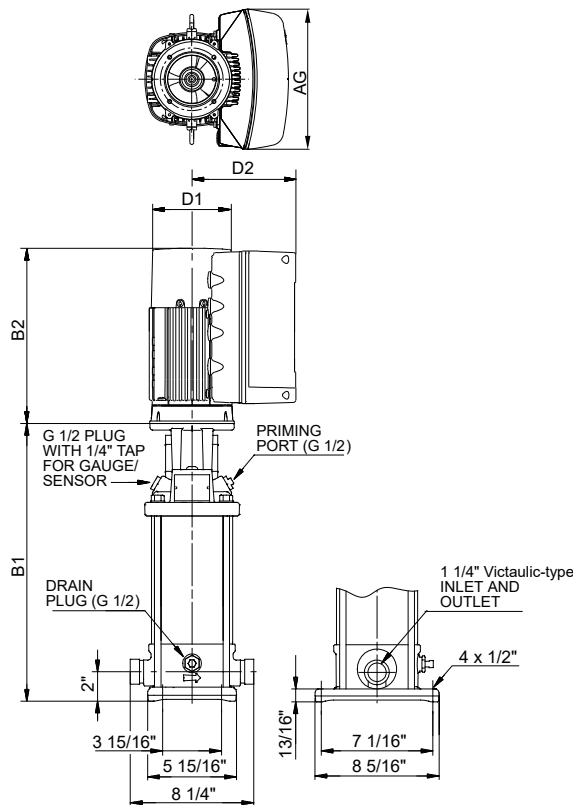
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	Ship wt. [lb (kg)]
CRE 3-17	3	3	200-240	182TC	*	22.99 (583.95)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	36.14 (917.96)	119 (54)
		3	440-480	182TC	*	22.99 (583.95)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	33.82 (859.03)	111 (50)
CRE 3-25	5	3	200-240	182TC	-	28.66 (727.96)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	41.81 (1061.97)	136 (62)
		3	440-480	182TC	-	28.66 (727.96)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	41.81 (1061.97)	147 (67)

Variants

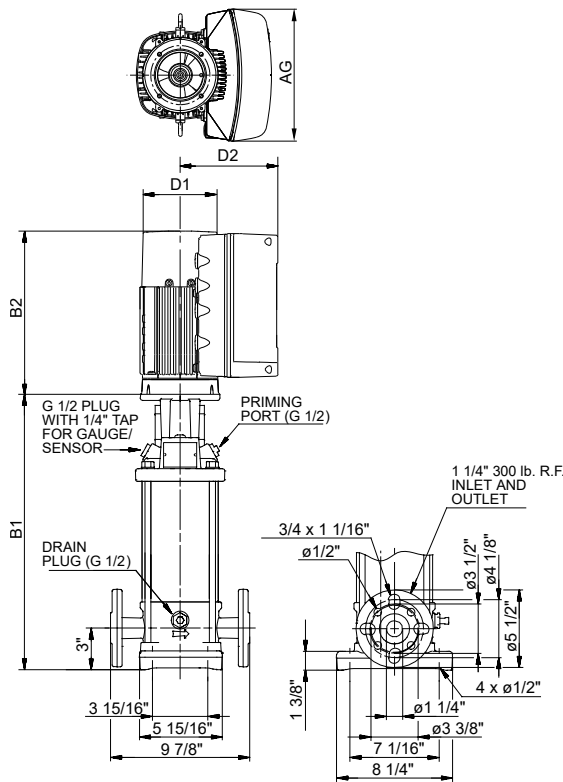
158

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁵⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 3-15	3	3	200-240	182TC	*	21.69 (551)	7.53 (191)	7.91 (201)	11.46 (291)	34.84 (885)	110 (50)
		3	440-480	182TC	*	21.69 (551)	4.80 (122)	6.22 (158)	10.56 (268)	32.52 (826)	102 (46)
CRIE 3-17	3	3	200-240	182TC	*	23.11 (587)	7.53 (191)	7.91 (201)	11.46 (291)	36.26 (921)	112 (51)
		3	440-480	182TC	*	23.11 (587)	4.80 (122)	6.22 (158)	10.56 (268)	33.94 (862)	104 (47)
CRIE 3-25	5	3	200-240	182TC	-	28.78 (731)	7.53 (191)	7.91 (201)	11.46 (291)	41.93 (1065)	129 (59)
		3	440-480	182TC	-	28.78 (731)	7.53 (191)	7.91 (201)	11.46 (291)	41.93 (1065)	140 (64)

CRNE 3 dimensional data



TM069138

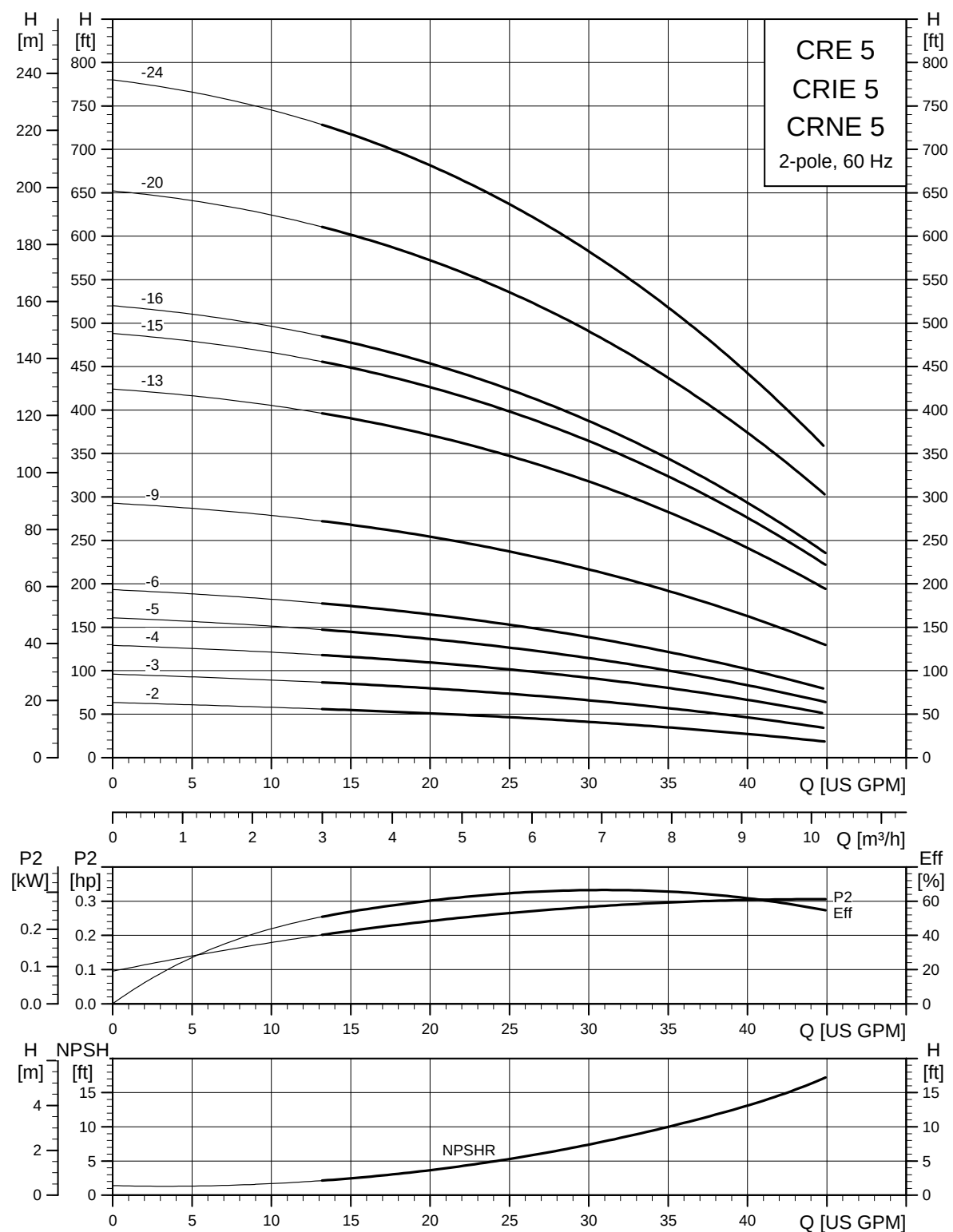


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	PJE ⁴⁶⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 3-2	0.5	1	200-240	56C	*	12.09 (307.09)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	20.55 (521.97)	68 (30)
CRNE 3-4	0.75	1	200-240	56C	*	12.80 (325.12)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	21.26 (540)	69 (31)
CRNE 3-5	1	1	200-240	56C	*	13.50 (342.90)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	21.96 (557.78)	70 (32)
CRNE 3-6	1.5	3	200-240	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	24.25 (615.95)	76 (34.4)
	1	3	440-480	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	24.25 (615.95)	75 (34)
CRNE 3-8	1.5	1	200-240	56C	*	15.63 (397)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	24.09 (611.89)	74 (33)
CRNE 3-9	1.5	3	200-240	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	26.38 (670.05)	79 (36)
		3	440-480	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	26.38 (670.05)	79 (36)
CRNE 3-11	2	1	200-240	56C	*	17.76 (451.10)	4.80 (121.92)	6.22 (157.99)	8.34 (211.84)	27.01 (686.05)	84 (38)
CRNE 3-12	2	3	200-240	56C	*	18.46 (468.88)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.29 (743.97)	899 (408)
		3	440-480	56C	*	18.46 (468.88)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	29.29 (743.97)	89 (40)

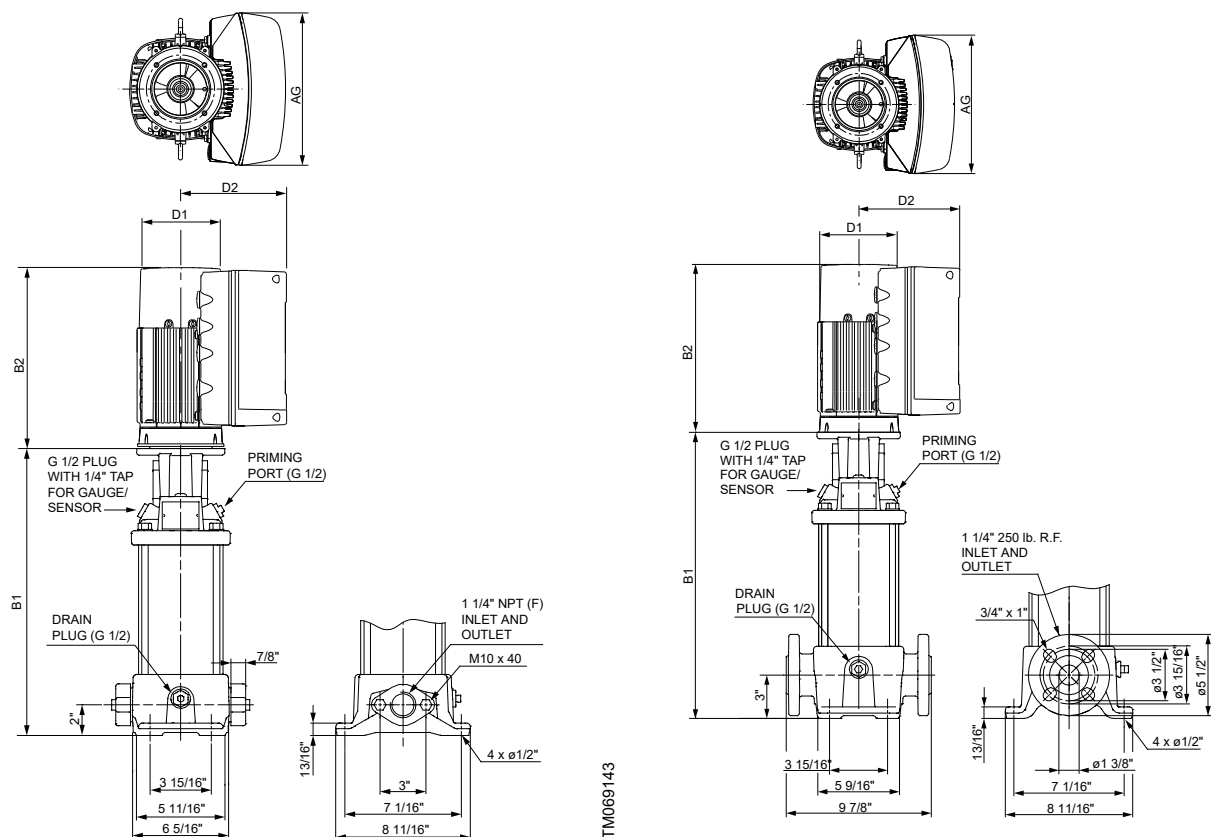
Pump type	[hp]	PH	Voltage [V]	Frame size	PJE ⁴⁶⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 3-15	3	3	200-240	182TC	*	21.69 (550.93)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	34.84 (884.94)	110 (50)
		3	440-480	182TC	*	21.69 (550.93)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	32.52 (826.01)	102 (46)
CRNE 3-17	3	3	200-240	182TC	*	23.11 (586.99)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	36.26 (921)	112 (51)
		3	440-480	182TC	*	23.11 (586.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268.22)	33.94 (862.08)	103 (47)
CRNE 3-25	5	3	200-240	182TC	*	28.78 (731.01)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	41.93 (1065.02)	129 (58)
		3	440-480	182TC	*	28.78 (731.01)	7.53 (191.26)	7.91 (200.91)	11.46 (291.08)	41.93 (1065.02)	140 (64)

CRE, CRIE, CRNE 5



TM059414

CRE 5 dimensional data



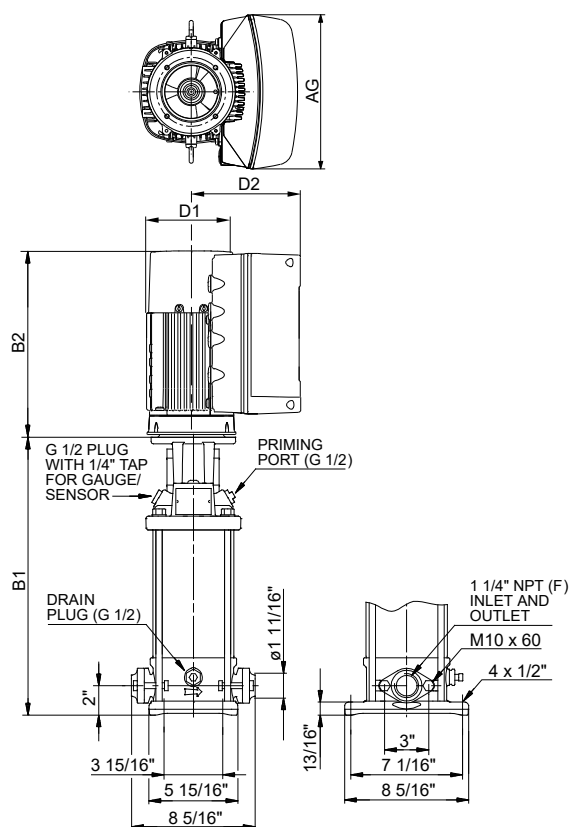
TM069143

TM069137

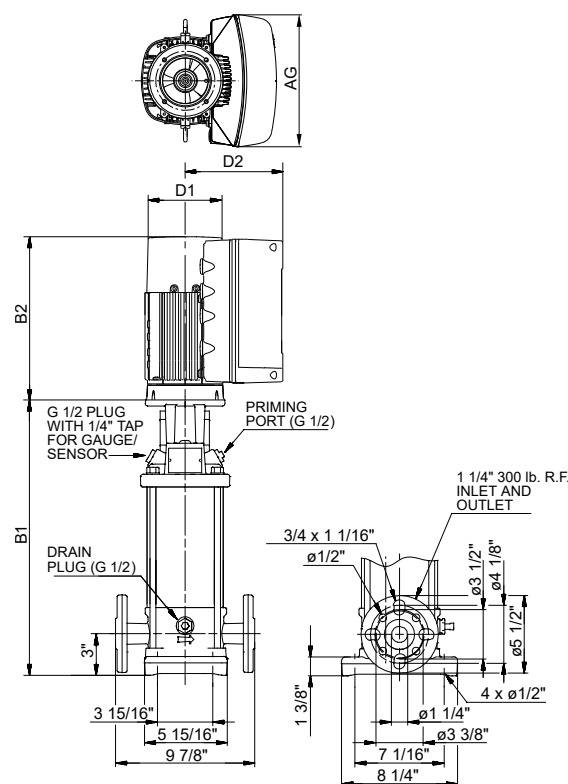
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁷⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 5-2	0.75	1	200-240	56C	*	11.97 (304.04)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	20.43 (518.92)	73 (33)
CRE 5-3	1.5	3	200-240	56C	*	13.03 (330.96)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	23.07 (585.98)	80 (36)
	1	3	440-480	56C	*	13.03 (330.96)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	23.07 (585.98)	79 (36)
CRE 5-4	1.5	1	200-240	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	22.55 (572.77)	78 (35)
		3	200-240	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	24.13 (612.90)	81 (37)
		3	440-480	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	24.13 (612.90)	82 (37)
		3	440-480	56C	*	14.09 (357.89)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	24.13 (612.90)	82 (37)
CRE 5-5	2	1	200-240	56C	*	15.16 (385.06)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	24.41 (620.01)	83 (38)
CRE 5-6	2	3	200-240	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.05 (687.07)	91 (41)
		3	440-480	56C	*	16.22 (411.99)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.05 (687.07)	91 (41)
CRE 5-9	3	3	200-240	182TC	*	20.51 (520.95)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	33.66 (854)	115 (52)
		3	440-480	182TC	*	20.51 (520.95)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	31.34 (796.04)	107 (48)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁷⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 5-13	5	3	200-240	182TC	*	24.76 (628.90)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	37.91 (962.91)	130 (59)
		3	440-480	182TC	*	24.76 (628.90)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	37.91 (962.91)	141 (64)
CRE 5-16	5	3	200-240	182TC	*	27.95 (709.93)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	41.10 (1043.94)	133 (60)
		3	440-480	182TC	*	27.95 (709.93)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	41.10 (1043.94)	145 (66)
CRE 5-20	7.5	3	200-240	213TC	-	32.72 (831.09)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	48.03 (1219.96)	184 (83)
		3	440-480	213TC	-	32.72 (831.09)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	47.09 (1196.09)	175 (79)
CRE 5-24	7.5	3	200-240	213TC	-	36.97 (939.04)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	52.28 (1327.91)	264 (120)
		3	440-480	213TC	-	36.97 (939.04)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	51.34 (1304.04)	255 (116)

CRIE 5 dimensional data



TM069148

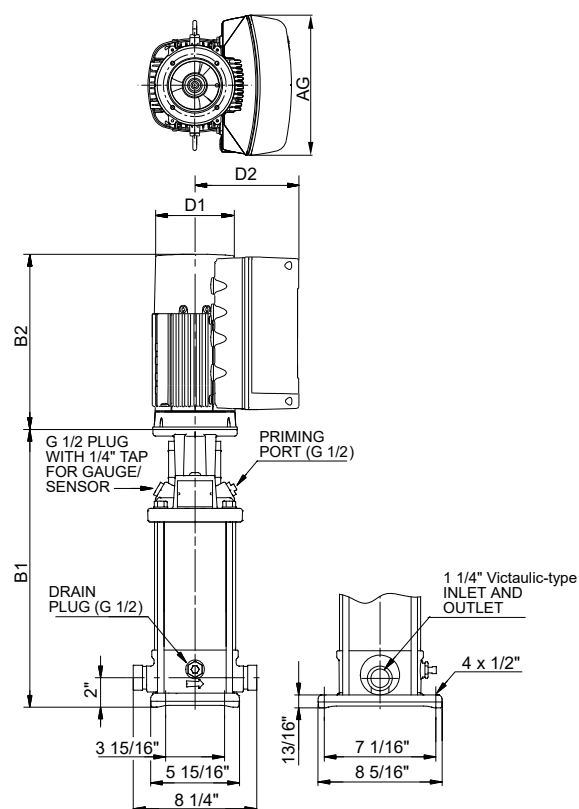


TM069139

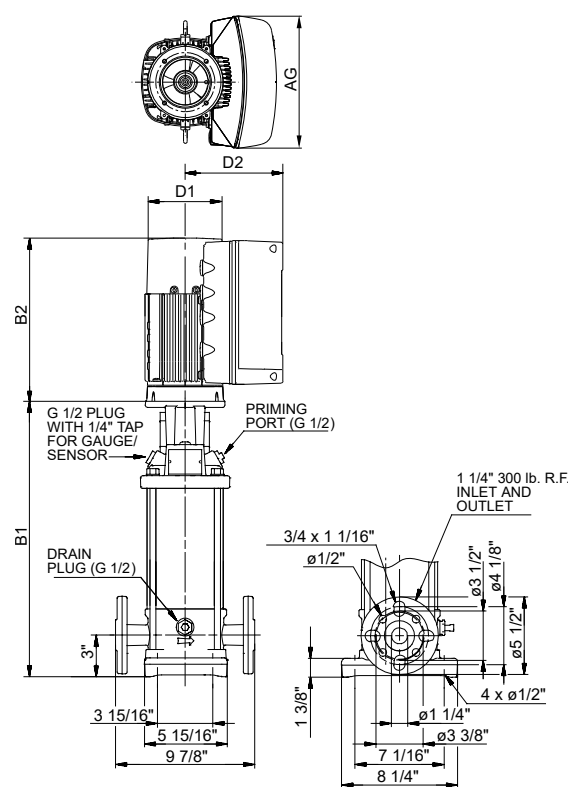
Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁸⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 5-2	0.75	1	200-240	56C	*	12.09 (307)	4.80 (122)	6.22 (158)	8.34 (212)	20.55 (522)	68 (31)
CRIE 5-3	1.5	3	200-240	56C	*	13.15 (334)	4.80 (122)	6.22 (158)	10.56 (268)	23.19 (589)	75 (34)
	1	3	440-480	56C	*	13.15 (334)	4.80 (122)	6.22 (158)	10.56 (268)	23.19 (589)	73 (33)
CRIE 5-4	1.5	1	200-240	56C	*	14.21 (361)	4.80 (122)	6.22 (158)	8.34 (212)	22.67 (576)	72 (32)
		3	200-240	56C	*	14.21 (361)	4.80 (122)	6.22 (158)	10.56 (268)	24.25 (616)	76 (34.4)
		3	440-480	56C	*	14.21 (361)	4.80 (122)	6.22 (158)	10.56 (268)	24.25 (616)	76 (34.4)
		3	440-480	56C	*	14.21 (361)	4.80 (122)	6.22 (158)	10.56 (268)	24.25 (616)	76 (34.4)
CRIE 5-5	2	1	200-240	56C	*	15.28 (388)	4.80 (122)	6.22 (158)	8.34 (212)	24.53 (623)	78 (35)
CRIE 5-6	2	3	200-240	56C	*	16.34 (415)	4.80 (122)	6.22 (158)	10.56 (268)	27.17 (690)	86 (39)
		3	440-480	56C	*	16.34 (415)	4.80 (122)	6.22 (158)	10.56 (268)	27.17 (690)	86 (39)
CRIE 5-9	3	3	200-240	182TC	*	20.63 (524)	7.53 (191)	7.91 (201)	11.46 (291)	33.78 (858)	108 (49)
		3	440-480	182TC	*	20.63 (524)	4.80 (122)	6.22 (158)	10.56 (268)	31.46 (799)	100 (45)

Pump type	[hp]	PH	Voltage [V]	Frame size	Oval ⁴⁸⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 5-13	5	3	200-240	182TC	*	24.88 (632)	7.53 (191)	7.91 (201)	11.46 (291)	38.03 (966)	123 (56)
		3	440-480	182TC	*	24.88 (632)	7.53 (191)	7.91 (201)	11.46 (291)	38.03 (966)	134 (61)
CRIE 5-16	5	3	200-240	182TC	*	28.07 (713)	7.53 (191)	7.91 (201)	11.46 (291)	41.22 (1047)	126 (57)
		3	440-480	182TC	*	28.07 (713)	7.53 (191)	7.91 (201)	11.46 (291)	41.22 (1047)	138 (63)
CRIE 5-20	7.5	3	200-240	213TC	-	32.83 (834)	10.04 (255)	9.33 (237)	13.62 (346)	48.14 (1223)	177 (80)
		3	440-480	213TC	-	32.83 (834)	7.53 (191)	7.91 (201)	11.46 (291)	47.20 (1199)	168 (76)
CRIE 5-24	7.5	3	200-240	213TC	-	37.09 (942)	10.04 (255)	9.33 (237)	13.62 (346)	52.40 (1331)	257 (117)
		3	440-480	213TC	-	37.09 (942)	7.53 (191)	7.91 (201)	11.46 (291)	51.46 (1307)	248 (112)

CRNE 5 dimensional data



TM069138

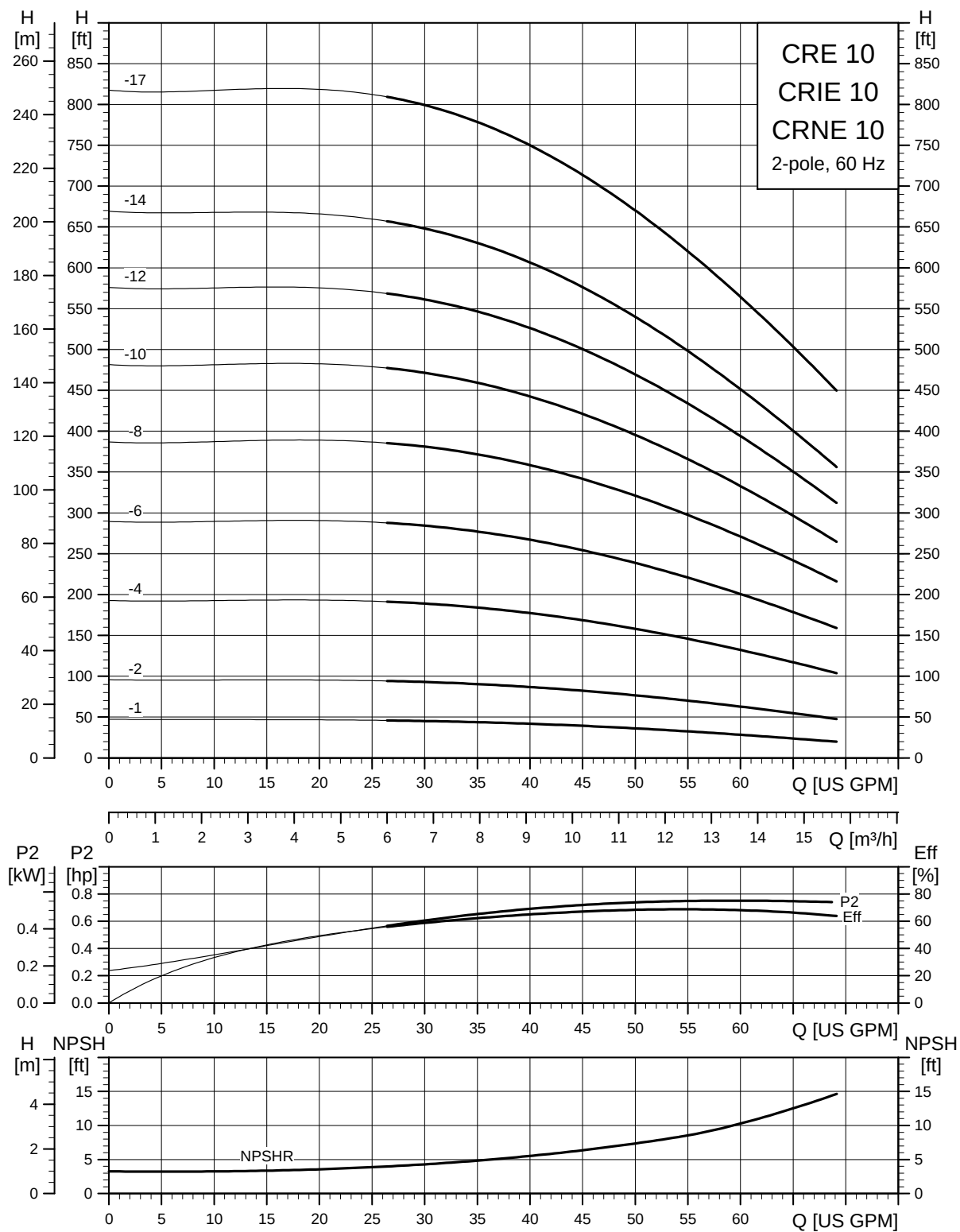


TM069139

Pump type	[hp]	PH	Voltage [V]	Frame size	PJE	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 5-2	0.75	1	200-240	56C	*	12.09 (307.09)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	20.55 (521.97)	68 (31)
CRNE 5-3	1.5	3	200-240	56C	*	13.15 (334.01)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	23.19 (589.03)	75 (34)
	1	3	440-480	56C	*	13.15 (334.01)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	23.19 (589.03)	73 (33)
CRNE 5-4	1.5	1	200-240	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	22.67 (575.82)	72 (32)
		3	200-240	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	24.25 (615.95)	76 (34.4)
		3	440-480	56C	*	14.21 (360.93)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	24.25 (615.95)	76 (34.4)
		1	200-240	56C	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	24.53 (623.06)	77 (35)
CRNE 5-5	2	1	200-240	56C	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	24.53 (623.06)	77 (35)
CRNE 5-6	2	3	200-240	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.17 (690.12)	86 (39)
		3	440-480	56C	*	16.34 (415.04)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.17 (690.12)	86 (39)
CRNE 5-9	3	3	200-240	182TC	*	20.63 (524)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	33.78 (858)	108 (49)
		3	440-480	182TC	*	20.63 (524)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	31.46 (799.08)	100 (45)

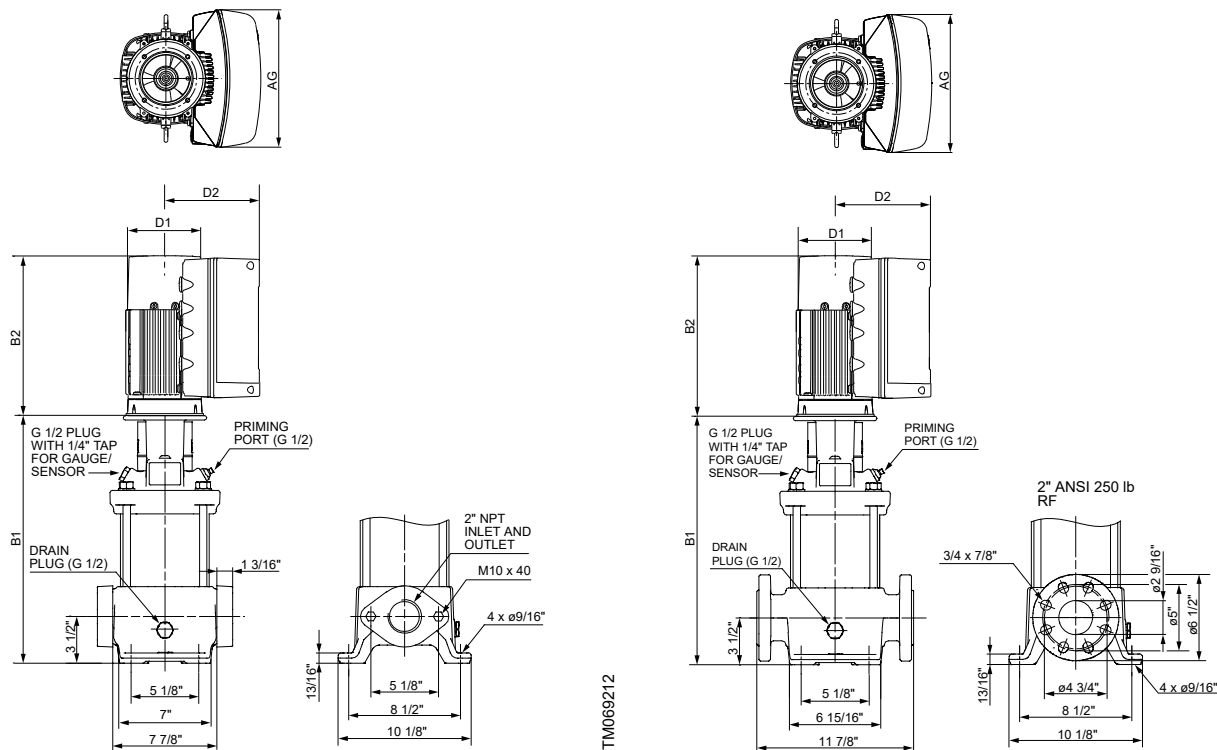
Pump type	[hp]	PH	Voltage [V]	Frame size	PJE	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 5-13	5	3	200-240	182TC	*	24.88 (631.95)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	38.03 (965.96)	123 (56)
		3	440-480	182TC	*	24.88 (631.95)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	38.03 (965.96)	134 (61)
CRNE 5-16	5	3	200-240	182TC	*	28.07 (712.98)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	41.22 (1046.99)	126 (57)
		3	440-480	182TC	*	28.07 (712.98)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	41.22 (1046.99)	138 (63)
CRNE 5-20	7.5	3	200-240	213TC	*	32.83 (833.88)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	48.14 (1222.76)	176 (80)
		3	440-480	213TC	*	32.83 (833.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	47.20 (1198.88)	167 (76)
CRNE 5-24	7.5	3	200-240	213TC	*	37.09 (942.09)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	52.40 (1330.96)	256 (116)
		3	440-480	213TC	*	37.09 (942.09)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	51.46 (1307.08)	247 (112)

CRE, CRIE, CRNE 10



TM059415

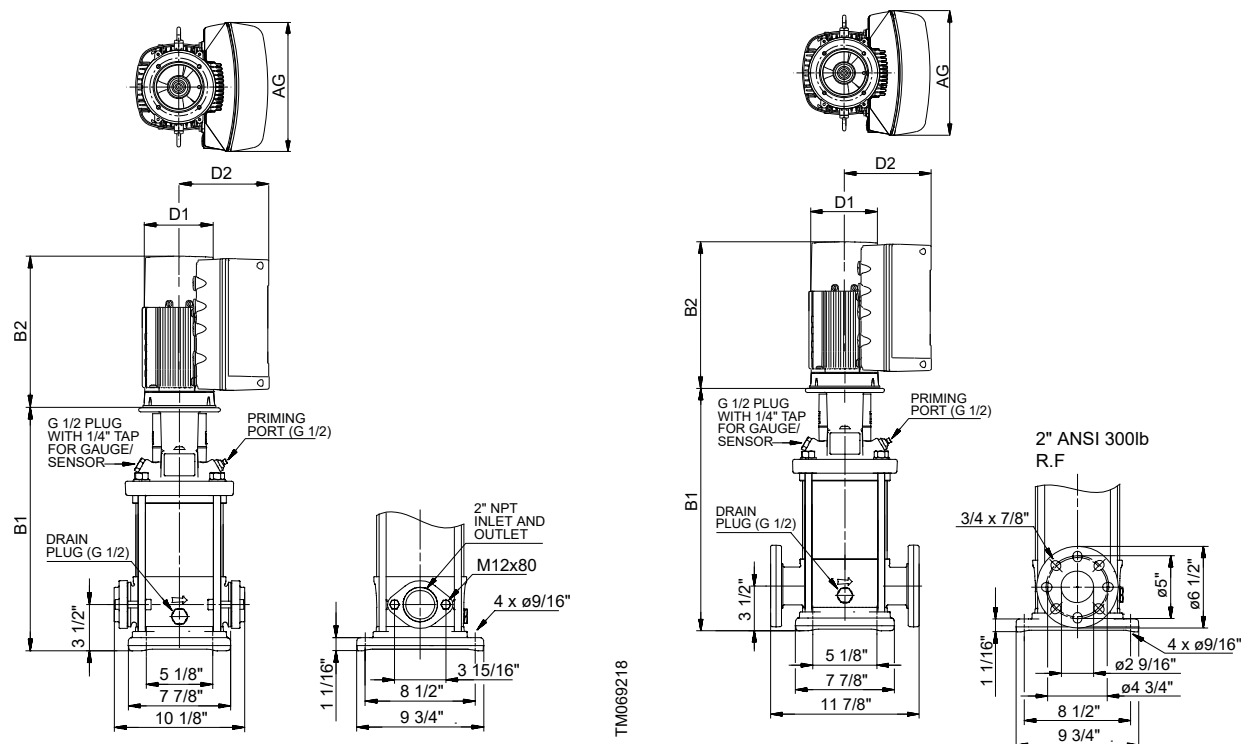
CRE 10 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter Oval ⁴⁹⁾ [in (mm)]	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 10-1	1	1	200-240	56C	0.41	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	111 (50)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	116 (53)
	1	3	440-480	56C	0.39	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	114 (52)
CRE 10-2	2	1	200-240	56C	0.41	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	116 (53)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	116 (53)
	1.5	3	440-480	56C	0.39	3.66 (92.90)	*	15.28 (388.11)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	116 (53)
CRE 10-4	3	3	200-240	182TC	0.38	3.66 (92.90)	*	18.39 (467.11)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	152 (69)
		3	440-480	182TC	0.39	3.66 (92.90)	*	18.39 (467.11)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	144 (65)
CRE 10-6	5	3	200-240	182TC	0.38	3.66 (92.90)	*	20.75 (527.05)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	164 (74)
		3	440-480	182TC	0.39	3.66 (92.90)	*	20.75 (527.05)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	175 (79)
CRE 10-8	7.5	3	200-240	213TC	0.38	3.66 (92.90)	-	23.43 (595.12)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	216 (98)
		3	440-480	213TC	0.39	3.66 (92.90)	-	23.43 (595.12)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	207 (94)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁴⁹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 10-10	7.5	3	200-240	213TC	0.38	3.66 (92.90)	-	25.79 (655.07)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	41.10 (1043.94)	220 (100)
		3	440-480	213TC	0.39	3.66 (92.90)	-	25.79 (655.07)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	40.16 (1020.06)	211 (96)
CRE 10-12	10	3	440-480	213TC	0.39	3.66 (92.90)	-	28.15 (715.01)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	43.46 (1103.88)	324 (147)
CRE 10-14	15	3	440-480	254TC	0.39	3.66 (92.90)	-	33.06 (839.72)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	49.04 (1245.62)	356 (161)
CRE 10-17	15	3	440-480	254TC	0.39	3.66 (92.90)	-	37.80 (960.12)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	53.78 (1366.01)	372 (169)

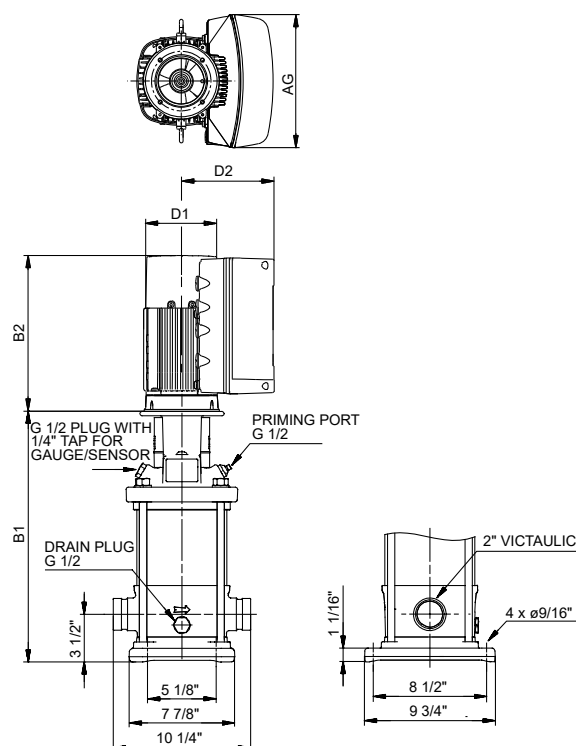
CRIE 10 dimensional data



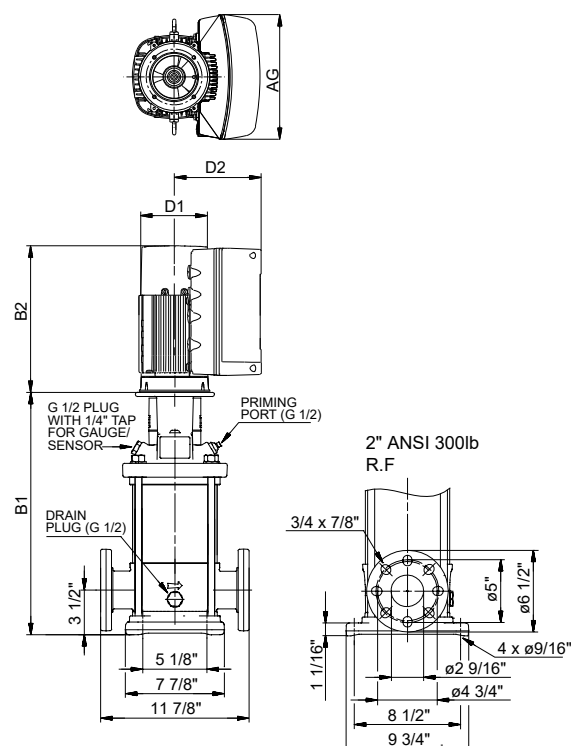
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵⁰⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 10-1	1	1	200-240	56C	0.41	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	8.34 (212)	23.66 (601)	100 (45)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.56 (268)	25.24 (641)	105 (48)
	1	3	440-480	56C	0.39	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.56 (268)	25.24 (641)	103 (47)
CRIE 10-2	2	1	200-240	56C	0.41	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	8.34 (212)	24.45 (621)	105 (48)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.56 (268)	25.24 (641)	105 (48)
	1.5	3	440-480	56C	0.39	3.66 (92.90)	*	15.20 (386)	4.80 (122)	6.22 (158)	10.56 (268)	25.24 (641)	105 (48)
CRIE 10-4	3	3	200-240	182TC	0.38	3.66 (92.90)	*	18.31 (465)	7.53 (191)	7.91 (201)	11.46 (291)	31.46 (799)	146 (66)
		3	440-480	182TC	0.39	3.66 (92.90)	*	18.31 (465)	4.80 (122)	6.22 (158)	10.56 (268)	29.14 (740)	138 (63)
CRIE 10-6	5	3	200-240	182TC	0.38	3.66 (92.90)	*	20.67 (525)	7.53 (191)	7.91 (201)	11.46 (291)	33.82 (859)	157 (71)
		3	440-480	182TC	0.39	3.66 (92.90)	*	20.67 (525)	7.53 (191)	7.91 (201)	11.46 (291)	33.82 (859)	168 (76)
CRIE 10-8	7.5	3	200-240	213TC	0.38	3.66 (92.90)	-	23.35 (593)	10.04 (255)	9.33 (237)	13.62 (346)	38.66 (982)	207 (94)
		3	440	213TC	0.39	3.66 (92.90)	-	23.35 (593)	7.53 (191)	7.91 (201)	11.46 (291)	37.72 (958)	198 (90)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵⁰⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 10-10	7.5	3	200-240	213TC	0.38	3.66 (92.90)	-	25.71 (653)	10.04 (255)	9.33 (237)	13.62 (346)	41.02 (1042)	211 (96)
		3	440-480	213TC	0.39	3.66 (92.90)	-	25.71 (653)	7.53 (191)	7.91 (201)	11.46 (291)	40.08 (1018)	203 (92)
CRIE 10-12	10	3	440-480	213TC	0.39	3.66 (92.90)	-	28.07 (713)	10.04 (255)	9.33 (237)	13.62 (346)	43.38 (1102)	315 (143)
CRIE 10-14	15	3	440-480	254TC	0.39	3.66 (92.90)	-	32.95 (837)	10.04 (255)	9.33 (237)	13.62 (346)	48.93 (1243)	350 (159)
CRIE 10-17	15	3	440-480	254TC	0.39	3.66 (92.90)	-	37.68 (957)	10.04 (255)	9.33 (237)	13.62 (346)	53.66 (1363)	365 (166)

CRNE 10 dimensional data



TM069220

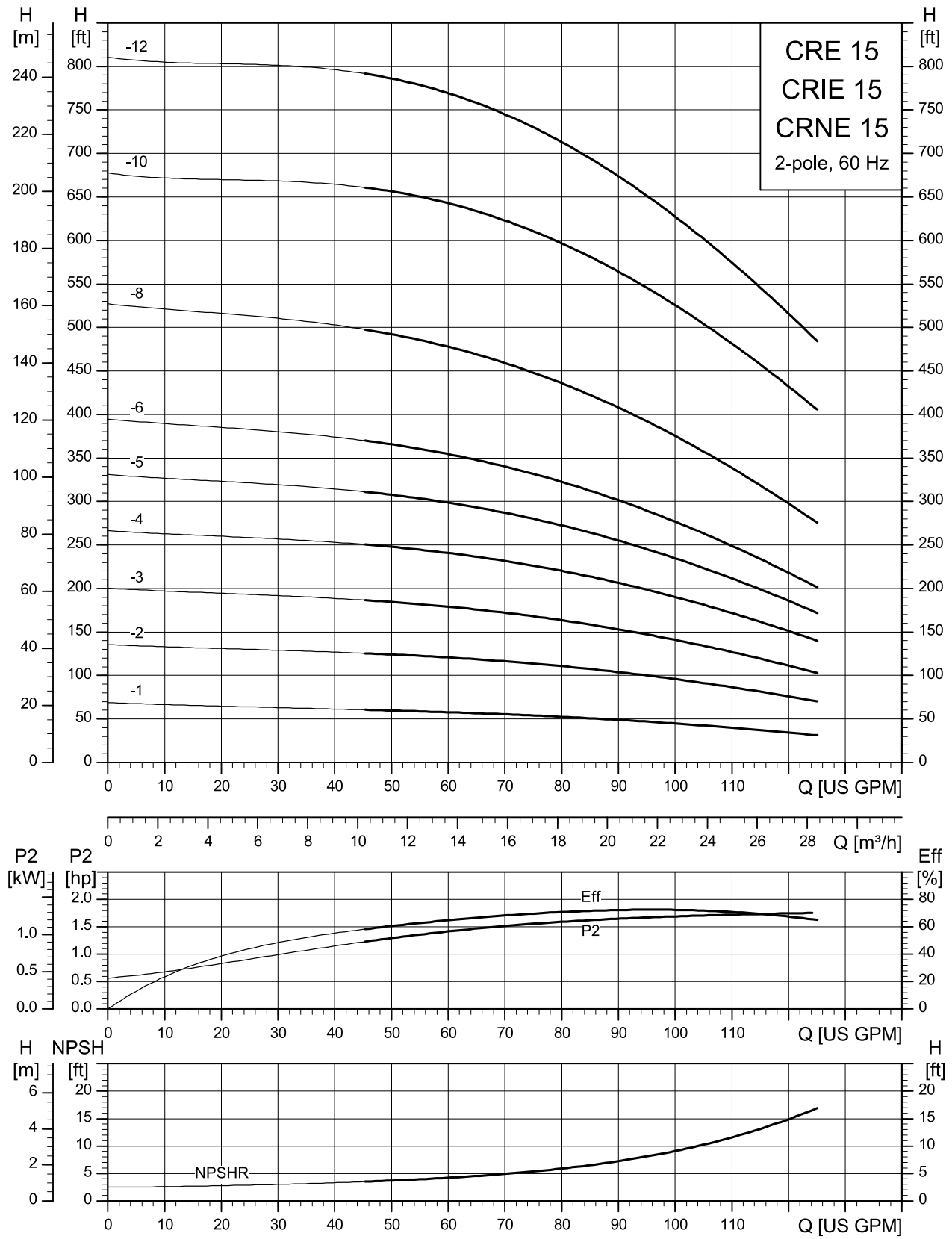


TM069219

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ⁵¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 10-1	1	1	200-240	56C	0.41	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	23.66 (600.96)	100 (45)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	25.24 (641.10)	105 (48)
	1	3	440-480	56C	0.39	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	25.24 (641.10)	103 (47)
CRNE 10-2	2	1	200-240	56C	0.41	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	24.45 (621.03)	105 (48)
	1.5	3	200-240	56C	0.38	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	25.24 (641.10)	105 (48)
	1.5	3	440-480	56C	0.39	3.66 (92.90)	*	15.20 (386.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	25.24 (641.10)	105 (48)
CRNE 10-4	3	3	200-240	182TC	0.38	3.66 (92.90)	*	18.31 (465.07)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	31.46 (799.08)	146 (66)
		3	440-480	182TC	0.39	3.66 (92.90)	*	18.31 (465.07)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	29.14 (740.16)	138 (63)
CRNE 10-6	5	3	200-240	182TC	0.38	3.66 (92.90)	*	20.67 (525.02)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	33.82 (859.03)	157 (71)
		3	440-480	182TC	0.39	3.66 (92.90)	*	20.67 (525.02)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	33.82 (859.03)	168 (76)
CRNE 10-8	7.5	3	200-240	213TC	0.38	3.66 (92.90)	*	23.35 (593.09)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	38.66 (981.96)	207 (94)
		3	440-480	213TC	0.39	3.66 (92.90)	*	23.35 (593.09)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	37.72 (958.09)	198 (90)

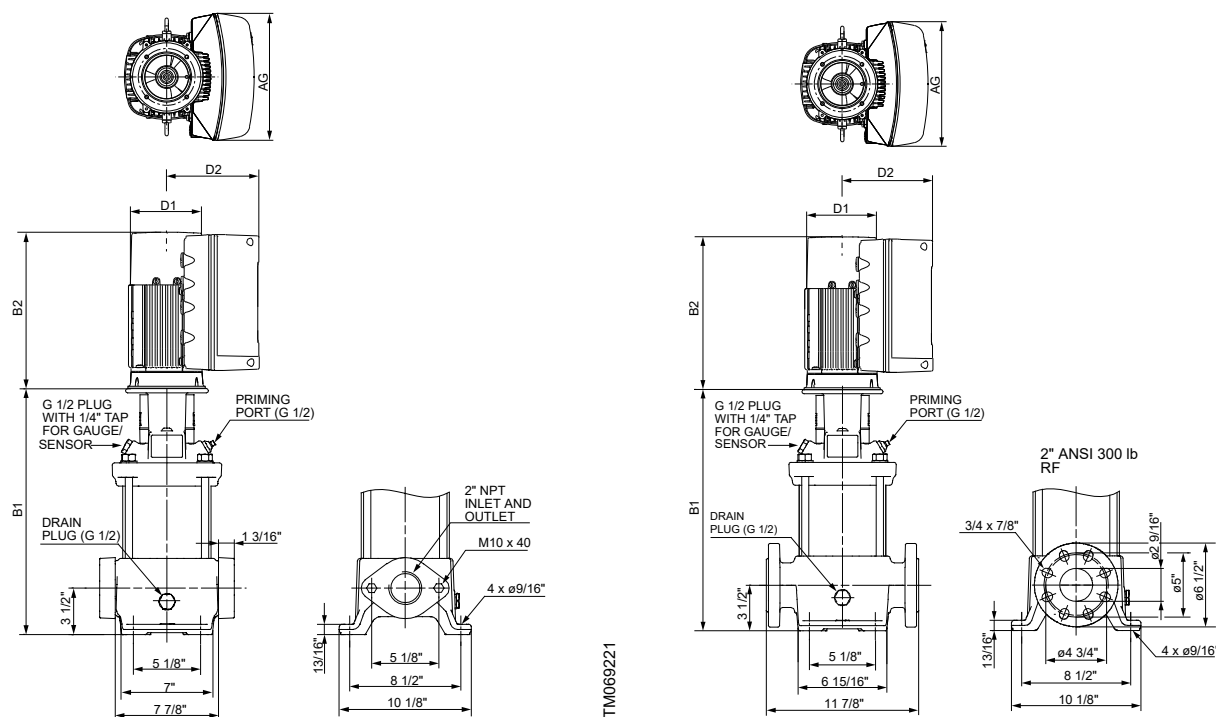
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{vL}	Impeller diameter [in (mm)]	PJE ⁵¹⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 10-10	7.5	3	200-240	213TC	0.38	3.66 (92.90)	*	25.71 (653.03)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	41.02 (1041.91)	211 (96)
		3	440-480	213TC	0.39	3.66 (92.90)	*	25.71 (653.03)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	40.08 (1018.03)	203 (92)
CRNE 10-12	10	3	440-480	213TC	0.39	3.66 (92.90)	*	28.07 (712.98)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	43.38 (1101.85)	315 (143)
CRNE 10-14	15	3	440-480	254TC	0.39	3.66 (92.90)	*	32.95 (836.93)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	48.93 (1242.82)	350 (159)
CRNE 10-17	15	3	440-480	254TC	0.39	3.66 (92.90)	*	37.68 (957.07)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	53.66 (1362.96)	365 (166)

CRE, CRIE, CRNE 15



TM059416

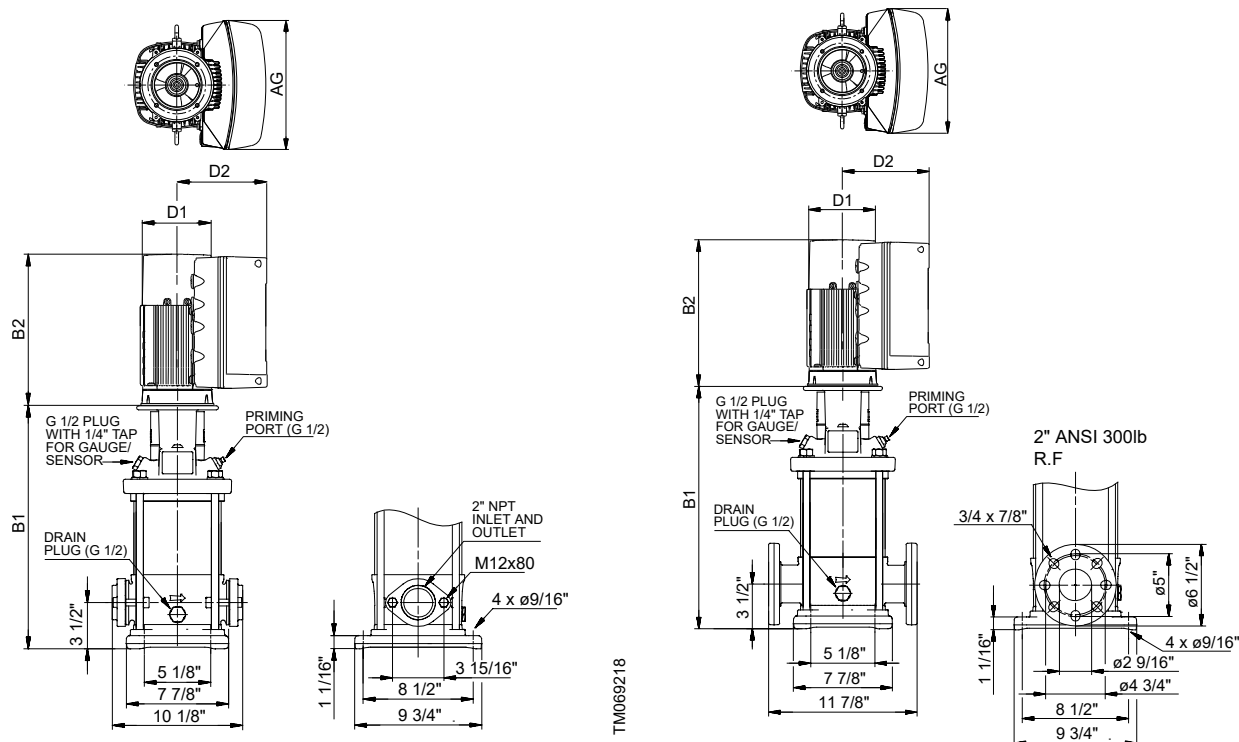
CRE 15 dimensional data



Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 15-1	2	1	200-240	56C	0.45	4.13 (104.80)	*	16.46 (418.08)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	25.71 (653.03)	119 (54)
		3	200-240	56C	0.41	4.13 (104.80)	*	16.46 (418.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.29 (693.17)	122 (55)
		3	440-480	56C	0.40	4.13 (104.80)	*	16.46 (418.08)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.29 (693.17)	122 (55)
CRE 15-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.20 (436.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.35 (770.89)	157 (71)
		3	440-480	182TC	0.40	4.13 (104.80)	*	17.20 (436.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.35 (770.89)	168 (76)
CRE 15-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.29 (489.97)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	34.60 (878.84)	200 (91)
CRE 15-4	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	21.06 (534.92)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	36.37 (923.80)	211 (96)
		3	440-480	213TC	0.40	4.13 (104.80)	*	21.06 (534.92)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	35.43 (899.92)	202 (92)
CRE 15-5	10	3	440-480	213TC	0.40	4.13 (104.80)	*	22.83 (579.88)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	38.14 (968.76)	228 (103)
CRE 15-6	15	3	440-480	254TC	0.40	4.13 (104.80)	-	27.17 (690.12)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	43.15 (1096.01)	255 (116)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵²⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 15-8	15	3	440-480	254TC	0.40	4.13 (104.80)	-	30.71 (780.03)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	46.69 (1185.93)	356 (161)
CRE 15-10	20	3	440-480	254TC	0.40	4.13 (104.90)	*	34.25 (869.95)	12.52 (318)	11.93 (303)	16.54 (420)	53.46 (1357.88)	418.95 (190.03)
CRE 15-12	25	3	440-480	284TC	0.40	4.13 (104.90)	*	37.17 (944.12)	12.52 (318)	11.93 (303)	16.54 (420)	57.40 (1457.96)	456.44 (207.04)

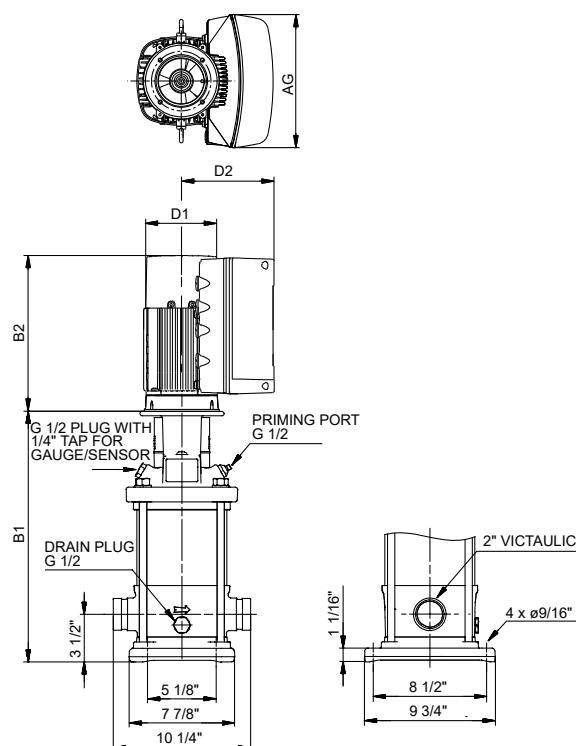
CRIE 15 dimensional data



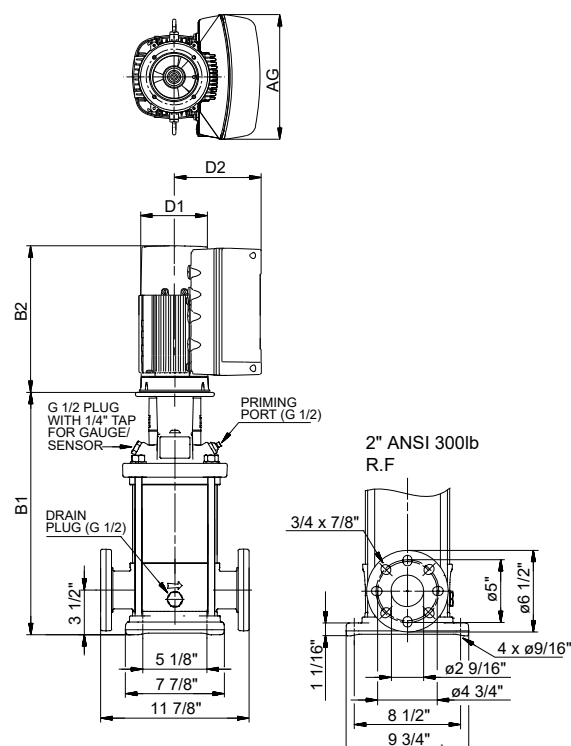
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 15-1	2	1	200-240	56C	0.45	4.13 (104.80)	*	16.38 (416)	4.80 (122)	6.22 (158)	8.34 (212)	25.63 (651)	110 (50)
		3	200-240	56C	0.41	4.13 (104.80)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.56 (268)	27.21 (691)	113 (51)
		3	440-480	56C	0.40	4.13 (104.80)	*	16.38 (416)	4.80 (122)	6.22 (158)	10.56 (268)	27.21 (691)	113 (51)
CRIE 15-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (191)	7.91 (201)	11.46 (291)	30.28 (769)	150 (68)
		3	440-480	182TC	0.40	4.13 (104.80)	*	17.13 (435)	7.53 (191)	7.91 (201)	11.46 (291)	30.28 (769)	161 (73)
CRIE 15-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.21 (488)	10.04 (255)	9.33 (237)	13.62 (346)	34.52 (877)	192 (87)
CRIE 15-4	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	20.98 (533)	10.04 (255)	9.33 (237)	13.62 (346)	36.29 (922)	202 (92)
		3	440-480	213TC	0.40	4.13 (104.80)	*	20.98 (533)	7.53 (191)	7.91 (201)	11.46 (291)	35.35 (898)	193 (88)
CRIE 15-5	10	3	440-480	213TC	0.40	4.13 (104.80)	*	22.76 (578)	10.04 (255)	9.33 (237)	13.62 (346)	38.07 (967)	228 (103)
CRIE 15-6	15	3	440-480	254TC	0.40	4.13 (104.80)	-	27.05 (687)	10.04 (255)	9.33 (237)	13.62 (346)	43.03 (1093)	330 (150)

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵³⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 15-8	15	3	440-480	254TC	0.40	4.13 (104.80)	-	30.59 (777)	10.04 (255)	9.33 (237)	13.62 (346)	46.57 (1183)	348 (158)
CRIE 15-10	20	3	440-480	254TC	0.40	4.13 (104.90)	*	34.13 (866.90)	12.52 (318)	11.93 (303)	16.54 (420)	53.35 (1355.09)	412.34 (187.03)
CRIE 15-12	25	3	440-480	284TC	0.40	4.13 (104.90)	*	37.05 (941.07)	12.52 (318)	11.93 (303)	16.54 (420)	57.28 (1454.91)	449.82 (204.03)

CRNE 15 dimensional data



TM069220

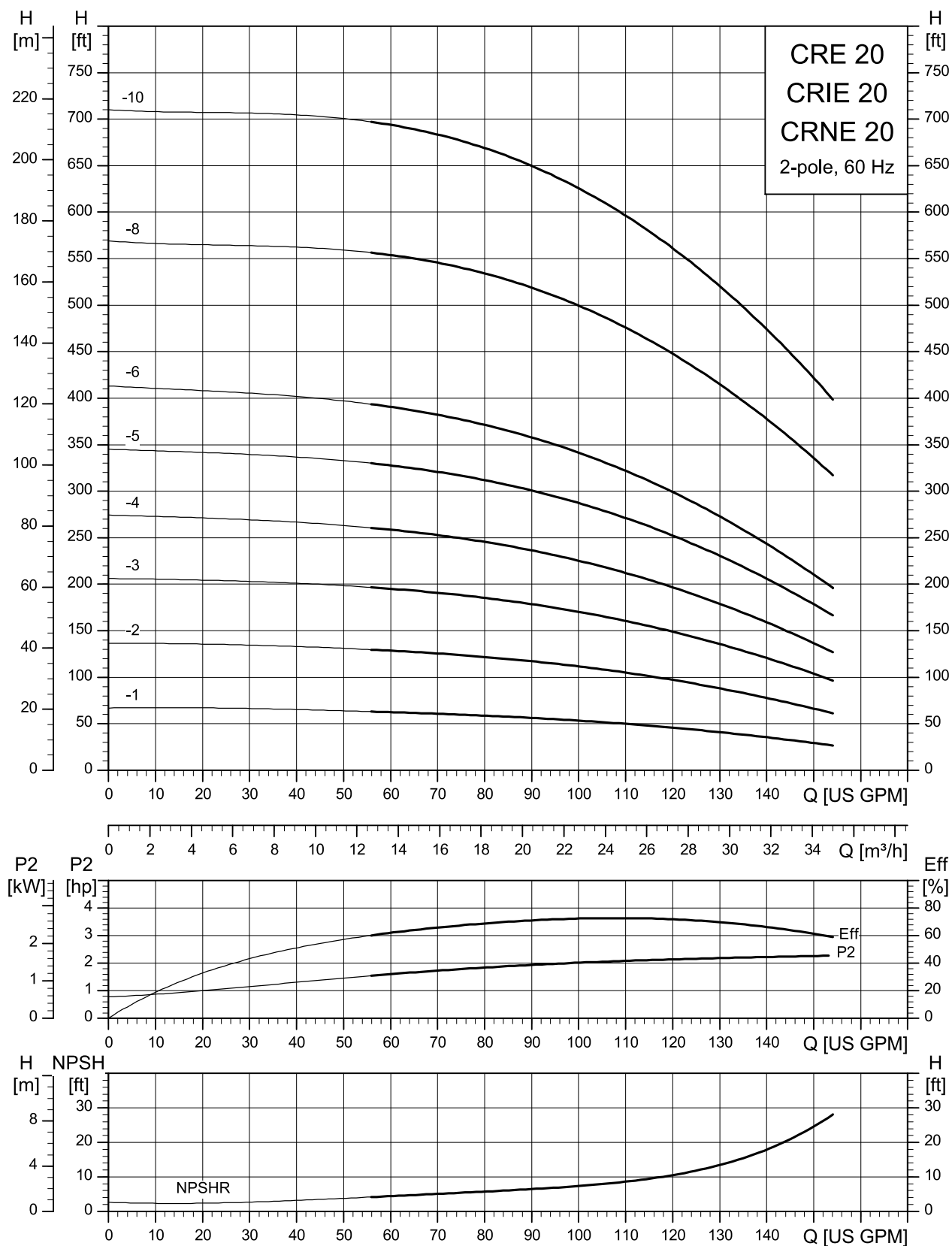


TM069219

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ⁵⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 15-1	2	1	200-240	56C	0.45	4.13 (104.80)	*	16.38 (416.05)	4.80 (121.92)	6.22 (157.99)	8.34 (212)	25.63 (651)	110 (50)
		3	200-240	56C	0.41	4.13 (104.80)	*	16.38 (416.05)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.21 (691.13)	113 (51)
		3	440-480	56C	0.40	4.13 (104.80)	*	16.38 (416.05)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	27.21 (691.13)	113 (51)
CRNE 15-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435.10)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.28 (769.11)	150 (68)
		3	440-480	182TC	0.40	4.13 (104.80)	*	17.13 (435.10)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.28 (769.11)	161 (73)
CRNE 15-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.21 (487.93)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	34.52 (876.81)	192 (87)
CRNE 15-4	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	20.98 (532.89)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	36.29 (921.77)	202 (92)
		3	440-480	213TC	0.40	4.13 (104.80)	*	20.98 (532.89)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	35.35 (897.89)	193 (88)
CRNE 15-5	10	3	440-480	213TC	0.40	4.13 (104.80)	*	22.76 (578.10)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	38.07 (966.98)	307 (139)
CRNE 15-6	15	3	440-480	254TC	0.40	4.13 (104.80)	*	27.05 (687.07)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	43.03 (1092.96)	330 (150)

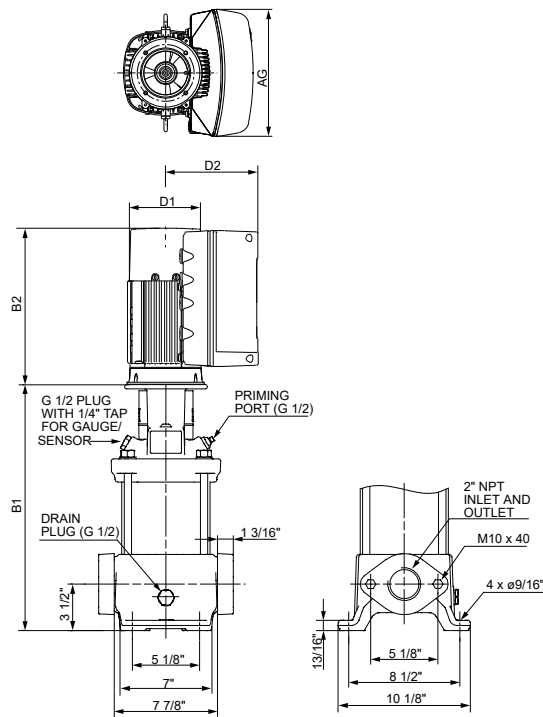
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	PJE ⁵⁴⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 15-8	15	3	440-480	254TC	0.40	4.13 (104.80)	*	30.59 (776.99)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	46.57 (1182.88)	348 (158)
CRNE 15-10	20	3	440-480	254TC	0.40	4.13 (104.90)	*	34.13 (866.90)	12.52 (318)	11.93 (303)	16.54 (420)	53.35 (1355.09)	412.34 (187.03)
CRNE 15-12	25	3	440-480	284TC	0.40	4.13 (104.90)	*	37.05 (941.07)	12.52 (318)	11.93 (303)	16.54 (420)	57.28 (1454.91)	449.82 (204.03)

CRE, CRIE, CRNE 20

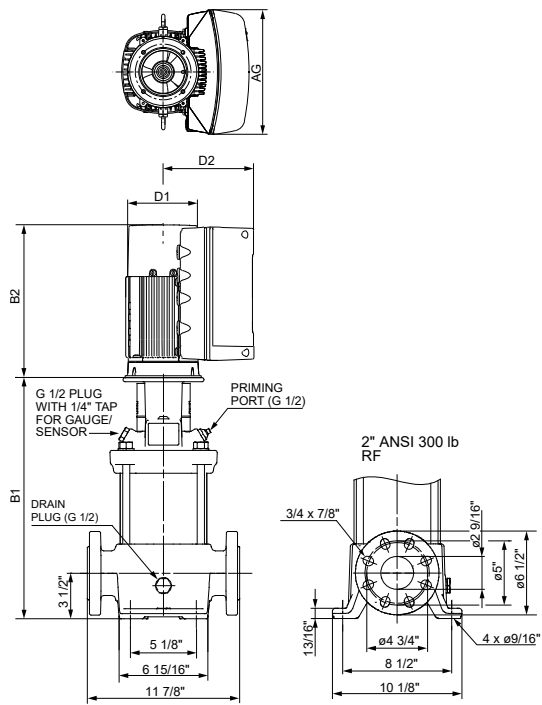


TM059417

CRE 20 dimensional data



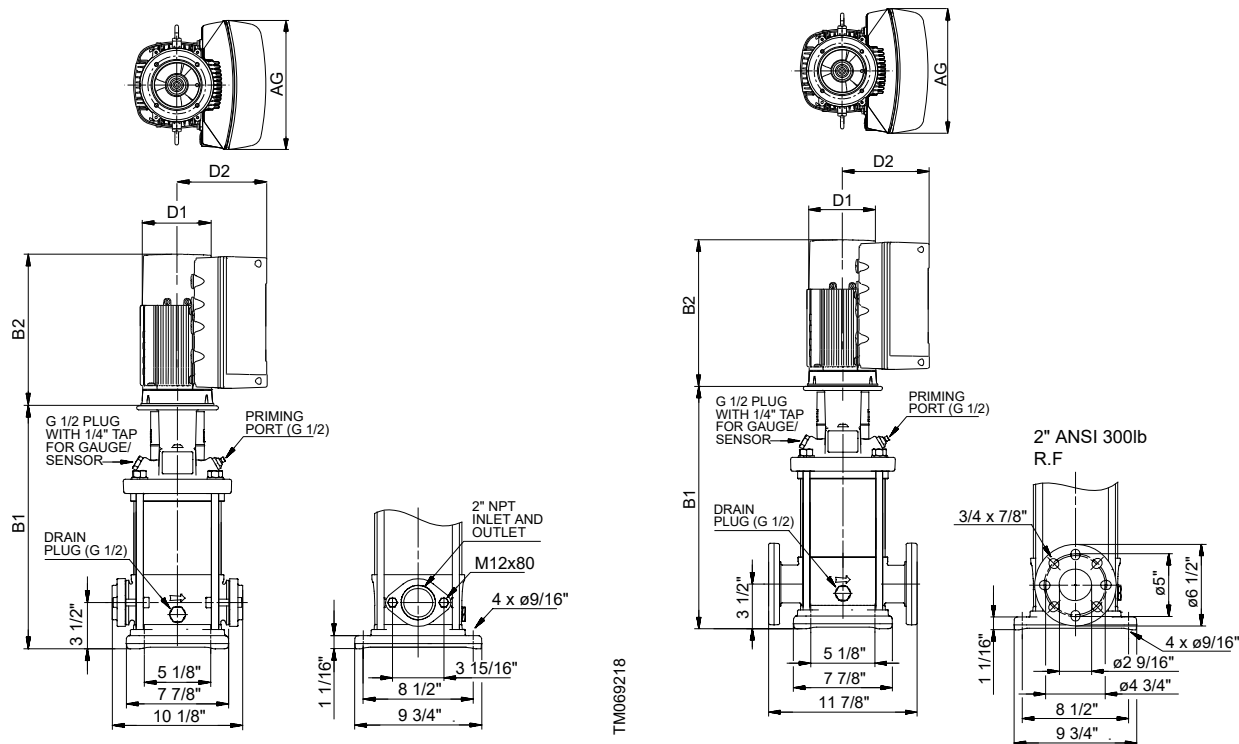
TM069221



TM069222

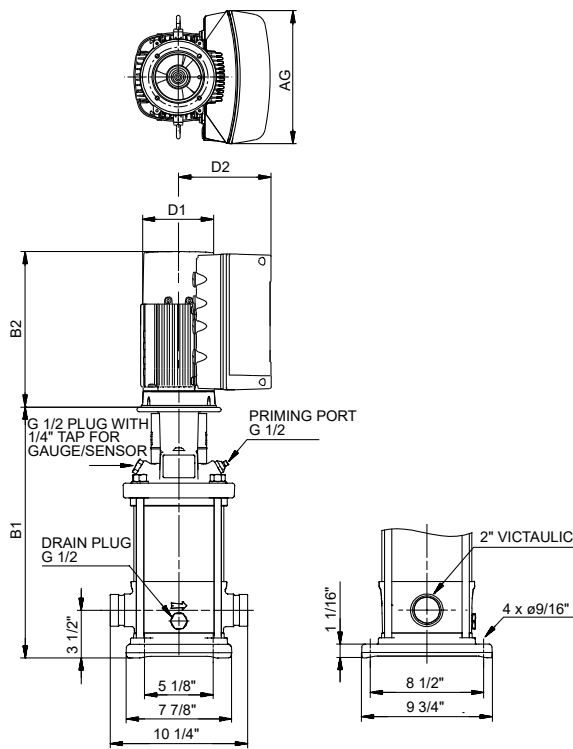
Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵⁵⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRE 20-1	3	3	200-240	182TC	0.41	4.13 (104.80)	*	17.20 (436.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.35 (770.89)	150 (68)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.20 (436.88)	4.80 (121.92)	6.22 (157.99)	10.56 (268)	28.03 (711.96)	142 (64)
CRE 20-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.20 (436.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.35 (770.89)	157 (71)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.20 (436.88)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	30.35 (770.89)	168 (76)
CRE 20-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.29 (489.97)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	34.60 (878.84)	206 (93)
		3	440-480	213TC	0.41	4.13 (104.80)	*	19.29 (489.97)	7.53 (191.26)	7.91 (200.91)	11.46 (291)	33.66 (854.96)	197 (89)
CRE 20-4	10	3	440-480	213TC	0.41	4.13 (104.80)	*	21.06 (534.92)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	36.37 (923.80)	232 (105)
CRE 20-5	15	3	440-480	254TC	0.41	4.13 (104.80)	*	25.39 (644.91)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	41.37 (1050.80)	341 (155)
CRE 20-6	15	3	440-480	254TC	0.41	4.13 (104.80)	-	27.17 (690.12)	10.04 (255.02)	9.33 (236.98)	13.62 (346)	43.15 (1096.01)	343 (156)
CRE 20-8	20	3	440-480	254TC	0.41	4.13 (104.90)	*	30.71 (780.03)	12.52 (318)	11.93 (303)	16.54 (420)	49.92 (1267.97)	410.13 (186.03)
CRE 20-10	25	3	440-480	284TC	0.41	4.13 (104.90)	*	33.62 (853.95)	12.52 (318)	11.93 (303)	16.54 (420)	53.86 (1368.04)	449.82 (204.03)

CRIE 20 dimensional data

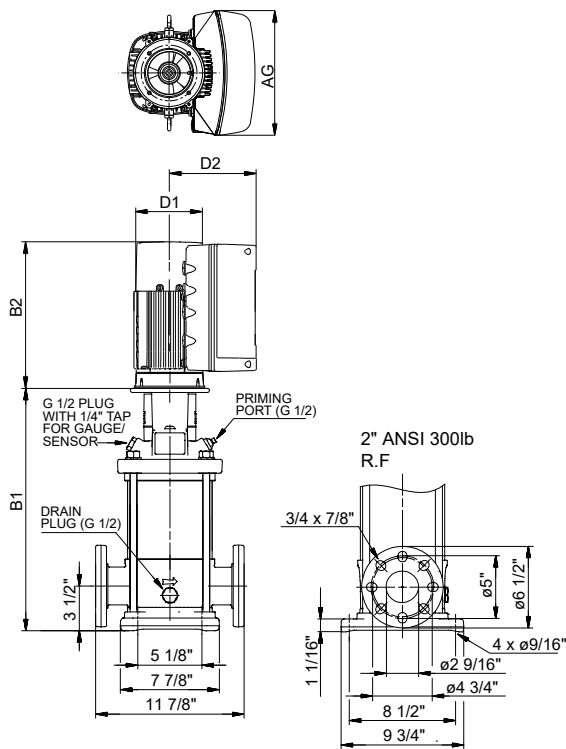


Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _{VL}	Impeller diameter [in (mm)]	Oval ⁵ 6)	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRIE 20-1	3	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (191)	7.91 (201)	11.46 (291)	30.28 (769)	144 (65)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.56 (268)	27.96 (710)	135 (61)
CRIE 20-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (191)	7.91 (201)	11.46 (291)	30.28 (769)	150 (68)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (191)	7.91 (201)	11.46 (291)	30.28 (769)	161 (73)
CRIE 20-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.21 (488)	10.04 (255)	9.33 (237)	13.62 (346)	34.52 (877)	200 (91)
		3	440-480	213TC	0.41	4.13 (104.80)	*	19.21 (488)	7.53 (191)	7.91 (201)	11.46 (291)	33.58 (853)	191 (87)
CRIE 20-4	10	3	440-480	213TC	0.41	4.13 (104.80)	*	20.98 (533)	10.04 (255)	9.33 (237)	13.62 (346)	36.29 (922)	225 (102)
CRIE 20-5	15	3	440-480	254TC	0.41	4.13 (104.80)	*	25.28 (642)	10.04 (255)	9.33 (237)	13.62 (346)	41.26 (1048)	332 (151)
CRIE 20-6	15	3	440-480	254TC	0.41	4.13 (104.80)	-	27.05 (687)	10.04 (255)	9.33 (237)	13.62 (346)	43.03 (1093)	337 (153)
CRIE 20-8	20	3	440-480	254TC	0.41	4.13 (104.90)	*	30.59 (776.99)	12.52 (318)	11.93 (303)	16.54 (420)	49.80 (1264.92)	403.52 (183.03)
CRIE 20-10	25	3	440-480	284TC	0.41	4.13 (104.90)	*	33.50 (850.90)	12.52 (318)	11.93 (303)	16.54 (420)	53.74 (1365)	441 (200.03)

CRNE 20 dimensional data



TM069220

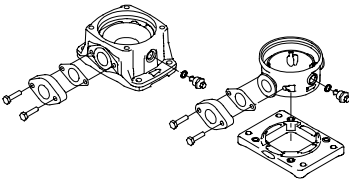
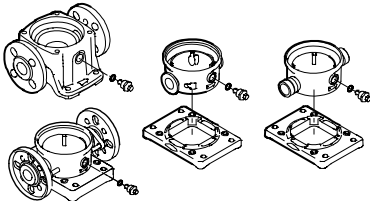


TM069219

Pump type	[hp]	PH	Voltage [V]	Frame size	PEI _V L	Impeller diameter [in (mm)]	PJE ⁵⁷⁾	B1 [in (mm)]	D1 [in (mm)]	D2 [in (mm)]	AG [in (mm)]	B1+B2 [in (mm)]	ship wt. [lb (kg)]
CRNE 20-1	3	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (192)	7.91 (201)	11.46 (291)	30.28 (769)	144 (65)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.13 (435)	4.80 (122)	6.22 (158)	10.56 (268)	27.96 (710)	135 (61)
CRNE 20-2	5	3	200-240	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (192)	7.91 (201)	11.46 (291)	30.28 (769)	150 (68)
		3	440-480	182TC	0.41	4.13 (104.80)	*	17.13 (435)	7.53 (192)	7.91 (201)	11.46 (291)	30.28 (769)	161 (73)
CRNE 20-3	7.5	3	200-240	213TC	0.41	4.13 (104.80)	*	19.21 (488)	10.04 (255)	9.33 (237)	13.62 (346)	34.52 (877)	200 (91)
		3	440-480	213TC	0.41	4.13 (104.80)	*	19.21 (488)	7.53 (192)	7.91 (201)	11.46 (291)	33.58 (853)	191 (87)
CRNE 20-4	10	3	440-480	213TC	0.41	4.13 (104.80)	*	20.98 (533)	10.04 (255)	9.33 (237)	13.62 (346)	36.29 (922)	225 (102)
CRNE 20-5	15	3	440-480	254TC	0.41	4.13 (104.80)	*	25.28 (642)	10.04 (255)	9.33 (237)	13.62 (346)	41.26 (1048)	332 (151)
CRNE 20-6	15	3	440-480	254TC	0.41	4.13 (104.80)	*	27.05 (687)	10.04 (255)	9.33 (237)	13.62 (346)	43.03 (1093)	337 (153)
CRNE 20-8	20	3	440-480	254TC	0.41	4.13 (104.90)	*	30.59 (776.99)	12.52 (318)	11.93 (303)	16.54 (420)	49.8 (1264.92)	403.52 (183.03)
CRNE 20-10	25	3	440-480	284TC	0.41	4.13 (104.90)	*	33.5 (850.90)	12.52 (318)	11.93 (303)	16.54 (420)	53.74 (1365)	441 (200.03)

Classic 3600rpm CRE CRIE CRNE 1-20 pumps

Maximum operating pressure and liquid temperature

Pump type	Oval flange		ANSI, Clamp, PJE	
				
	Max. permissible operating pressure [psi]	Liquid temperature range [°F]	Max. permissible operating pressure [psi]	Liquid temperature range [°F]
CRE, CRIE, CRNE 1	232	-4 to +248	362	-4 to +248
CRE, CRIE, CRNE 3	232		362	
CRE, CRIE, CRNE 5	232		362	
CRE 10-1 → 10-6	145		-	
CRIE, CRNE 10-1 → 10-10	232		-	
CRE, CRIE 10-1 → 10-10	-	-	232	-4 to +248
CRE, CRIE 10-12 → 10-17	-	-	362	
CRNE 10	-	-	362	
CRE 15-1 → 15-5	145	-4 to +248	-	
CRIE, CRNE 15-1 → 15-8	232		-	
CRE, CRIE 15-1 → 15-8	-		232	
CRE, CRIE 15-9 → 15-12	-		362	
CRNE 15	-		362	
CRE 20-1 → 20-5	145	-4 to +248	-	-4 to +248
CRIE, CRNE 20-1 → 20-7	232		-	
CRE, CRIE 20-1 → 20-7	-		232	
CRE, CRIE 20-8 → 20-10	-		362	
CRNE 20	-		362	

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure plus the pressure against a closed valve must always be lower than the maximum permissible operating pressure.

If the maximum permissible operating pressure is exceeded, the conical bearing in the motor may be damaged and the life of the shaft seal reduced.

Pump type	Max. inlet pressure [psi (bar)]
CRE, CRIE, CRNE 1	
1-2 → 1-25	145 (10)
1-27	218 (15)
CRE, CRIE, CRNE 3	
3-2 → 3-17	145 (10)
3-19 → 3-25	218 (15)
CRE, CRIE, CRNE 5	
5-2 → 5-9	145 (10)
5-10 → 5-24	218 (15)
CRE, CRIE, CRNE 10	
10-1 → 10-5	116 (8)
10-6 → 10-17	145 (10)
CRE, CRIE, CRNE 15	
15-1 → 15-2	116 (8)
15-3 → 15-12	145 (10)
CRE, CRIE, CRNE 20	
20-1	116 (8)
20-2 → 20-10	145 (10)

Examples of operating and inlet pressures

The values for the operating pressures and inlet pressures must not be considered individually. The outlet pressure must be equal to or lower than the maximum operating pressure.

Example:

Pump	CRE 3-9 A-B-A
Maximum operating pressure	232 psi (16 bar)
Maximum inlet pressure	145 psi (10 bar)
Outlet pressure against a closed valve	121.6 psi (8.4 bar)

In this example, the pump outlet pressure against a closed valve is 121.6 psi.

The inlet pressure added to the outlet pressure against a closed valve must not exceed the maximum operating pressure of the pump. The maximum operating pressure of the CRE 3-9 A-B-A is 232 psi.

The first-stage pump is not allowed to operate at the maximum inlet pressure of 145 psi, since the maximum inlet pressure (145 psi) added to the outlet pressure against a closed valve (121.6 psi) is greater than the maximum operating pressure of the pump (232 psi).

The maximum allowed inlet pressure of the pump is 110.4 psi, that is the difference between the maximum operating pressure of the pump (232 psi) and the outlet pressure against a closed valve (121.6 psi).

CRE, CRIE, CRNE				Company name:			
Vertical multistage centrifugal pumps				Prepared by: Phone number: () Fax number: () Date: Page 1 of: Quote number:			
Client information							
Project title:				Client name:			
Reference number:				Client number:			
Client contact:				Client phone number: ()			
Location information							
For:				Unit:			
Site:				Service:			
Address:				City:		State: Zip Code:	
Application information							
Operating conditions				Pumped liquid			
				Liquid type:			
Max. Norm. Min.				Rated Max. Norm.			
Capacity [(gpm (m ³ /h))]				Liquid Temperature [(°F (°C))]			
inlet pressure (psig)				at designated temperature			
Outlet pressure (psig)				Specific gravity			
Differential head [(ft (m))]				Vapor pressure (psia)			
Hydraulic power [hp]				Viscosity (cp)			
at designated capacity							
NPSH available [(ft (m))]							
Service				Liquid ph: Chlorides (ppm):			
Continuous				Hazardous: Corrosion/erosion			
Intermittent (starts/day):				Flammable: caused by:			
				Other:			
Pump information							
Model information from type key and codes:				----> (Example: CRE 5-10 A-FGJ-A-E-HQQE)			
Quantity required:							
Minimum required flow:				NPSH required at duty point:			
Product guide additional information pages							
Materials page number:				Performance curve page number:			
Technical data page number:				Motor data page number:			
Motor information							
hp:		Phase:		Voltage:		Enclosure:	
Custom-built pump information (optional):							
Additional Information							

14. Grundfos Product Center

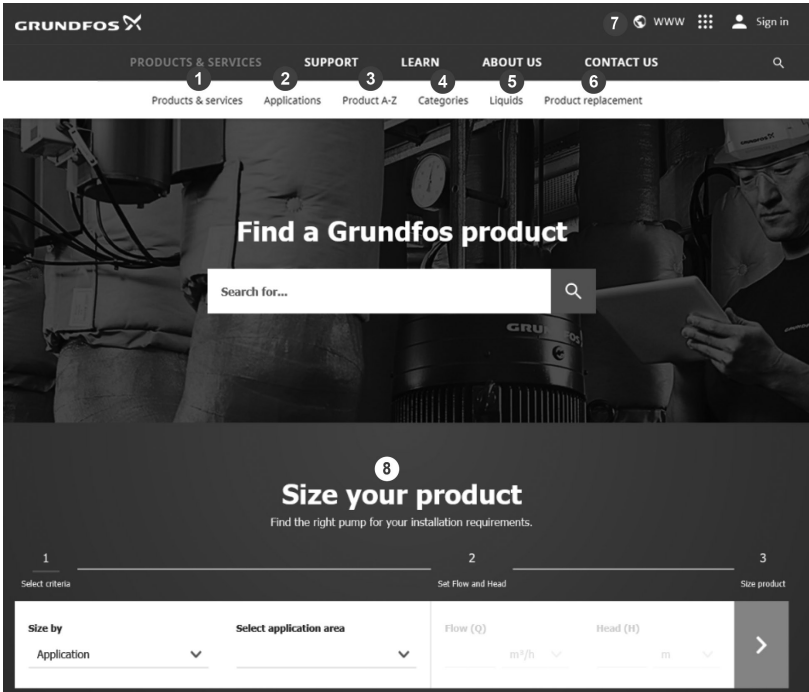
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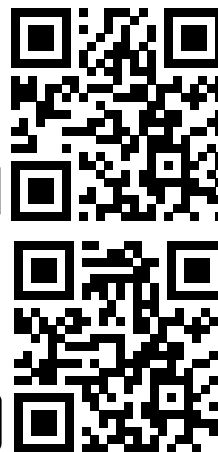
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