Company name:
Created by:
Phone:

Date: 1/4/2022

Count	Description
1	**CRI 5-9 A-CA-A-E-HQQE**

Product photo could vary from the actual product

Product No.: On request

Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in contact with the liquid are in stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via FlexiClamps.

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

Further product details

Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process.

CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface.

An integral part of the process is a pretreatment.

Count	Description

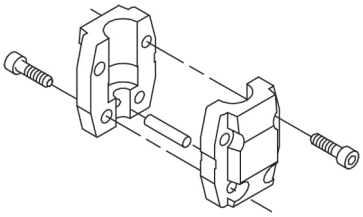
The entire process consists of these elements:

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

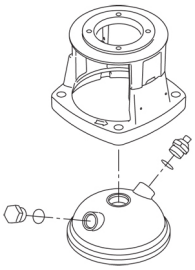
The colour code for the finished product is NCS 9000/RAL 9005.

Pump

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



The pump head and flange for motor mounting is made in one piece (cast iron). The pump head cover is a separate component (stainless steel). The pump head has a combined 1/2" priming plug and vent screw.



The pump is fitted with a balanced O-ring seal unit with a rigid torque-transmission system.

This seal type is assembled in a cartridge unit which makes replacement safe and easy.

Due to the balancing, this seal type is suitable for high-pressure applications.

The cartridge construction also protects the pump shaft from possible wear from a dynamic O-ring between pump shaft and shaft seal.

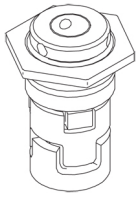
Primary seal:

- Rotating seal ring material: silicon carbide (SiC)
- Stationary seat material: silicon carbide (SiC)

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

Secondary seal material: EPDM (ethylene-propylene rubber)

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



The shaft seal is screwed into the pump head.

The chambers and impellers are made of stainless-steel sheet. The chambers are provided with a PTFE neck ring offering improved sealing and high efficiency. The impellers have smooth surfaces, and the shape of the blades ensure a high efficiency.

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

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

The outlet side of the base has a combined drain plug and bypass valve.

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

The base is prepared for connection by means of FlexiClamp couplings.

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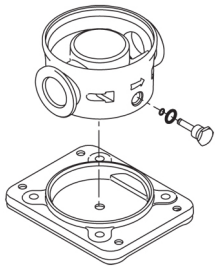


Motor

The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. The motor is flange-mounted with tapped-hole flange (FT).

Motor-mounting designation in accordance with IEC 60034-7: IM B 14 (Code I) / IM 3601 (Code II).

Electrical tolerances comply with IEC 60034.

The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.

The motor does not incorporate motor protection and must be connected to a motor-protective circuit breaker which can be manually reset. The motor-protective circuit breaker must be set according to the rated current of the motor (I1/1).

The motor can be connected to a variable speed drive for adjustment of pump performance to any duty point. Grundfos CUE offers a range of variable speed drives. Please find more information in Grundfos Product Center.

Technical data

Liquid:	
Pumped liquid:	
Liquid temperature range:	-4 .. 248 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Kinematic viscosity:	1 cSt
Technical:	
Rated pump speed:	2867 rpm
Actual calculated flow:	18.4 US gpm
Resulting head of the pump:	179.2 ft
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals:	CE,EAC,UKCA
Approvals for drinking water:	WRAS,ACS
Curve tolerance:	ISO9906:2012 3B
Materials:	
Base:	Stainless steel EN 1.4408 AISI 316
Impeller:	Stainless steel EN 1.4301 AISI 304
Bearing:	SIC
Installation:	
t max amb:	140 °F
Maximum operating pressure:	362.59 psi
Max pressure at stated temperature:	363 psi / 250 °F 363 psi / -4 °F
Type of connection:	FlexiClamp

GRUNDFOS

Company name:
Created by:
Phone:

Date: 1/4/2022

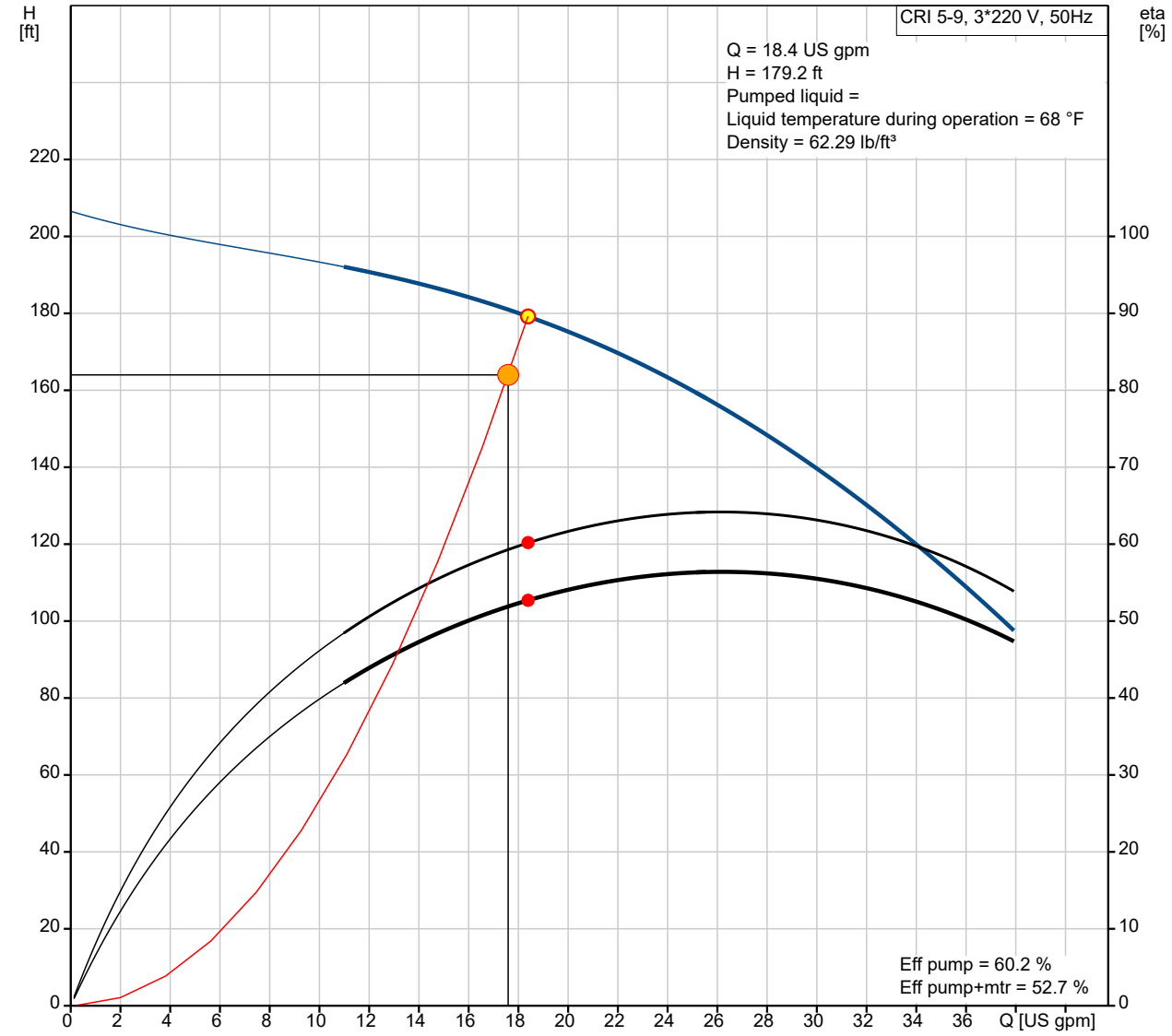
Count	Description	
	Size of inlet connection:	DN 32
	Size of outlet connection:	DN 32
	Pressure rating for connection:	PN 25
	Flange size for motor:	FT115
	Electrical data:	
	Motor standard:	IEC
	Motor type:	90SE
	IE Efficiency class:	IE3
	Rated power - P2:	2 HP
	Power (P2) required by pump:	2 HP
	Main frequency:	50 Hz
	Rated voltage:	3 x 200-220D/346-380Y V
	Rated current:	6,00-5,85/3,45-3,40 A
	Starting current:	880-990 %
	Cos phi - power factor:	0.86-0.80
	Rated speed:	2910-2930 rpm
	IE efficiency:	IE3 84,2% - IE3 84,2%
	Motor efficiency at full load:	84.2-84.2 %
	Motor efficiency at 3/4 load:	88.0 %
	Motor efficiency at 1/2 load:	87.6 %
	Number of poles:	2
	Enclosure class (IEC 34-5):	55 Dust/Jetting
	Insulation class (IEC 85):	F
	Motor Number:	99540165
	Controls:	
	Frequency converter:	NONE
	Others:	
	Minimum efficiency index, MEI ≥:	0.57
	Net weight:	73 lb
	Gross weight:	81.9 lb
	Shipping volume:	3.25 ft³

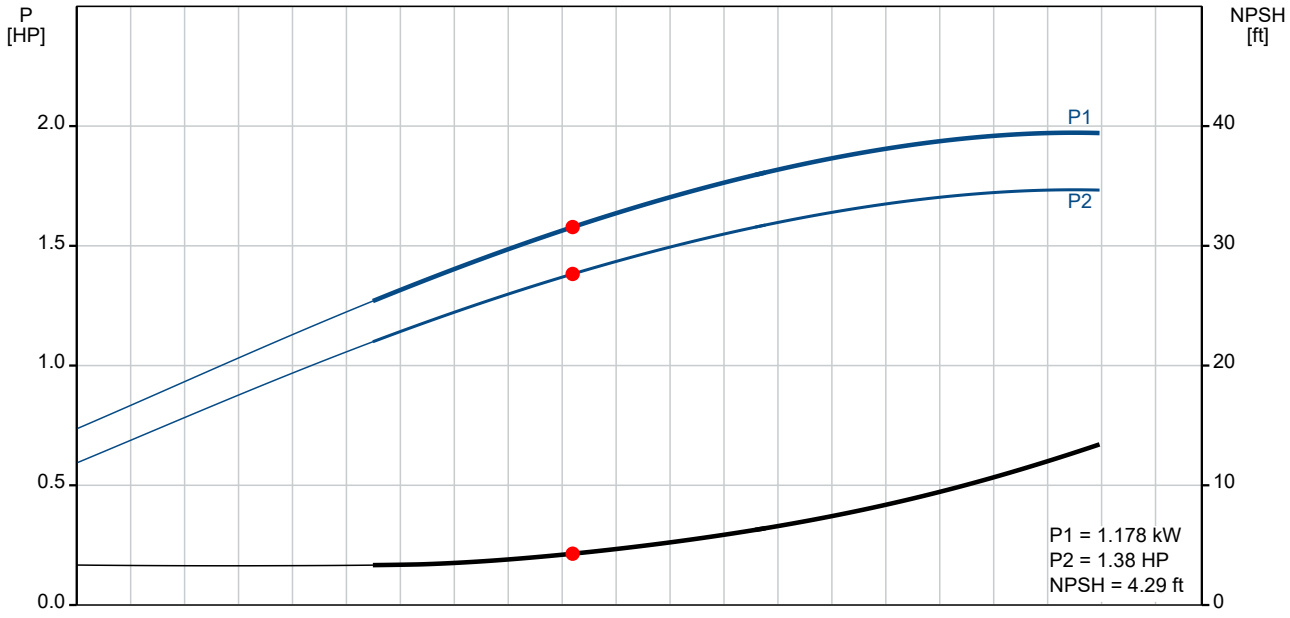
GRUNDFOS

Company name:
Created by:
Phone:

Date: 1/4/2022

On request CRI 5-9 A-CA-A-E-HQQE 50 Hz

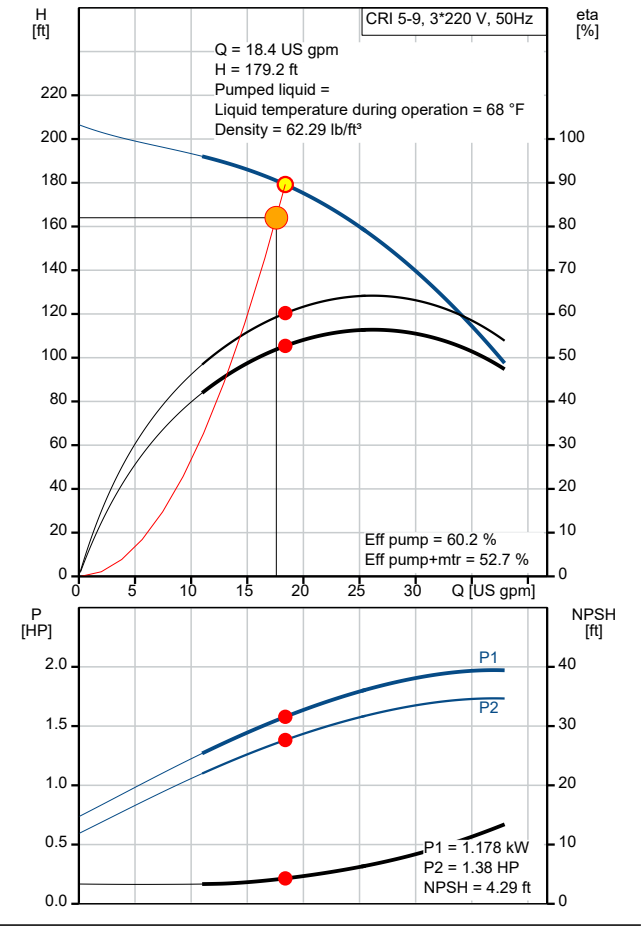


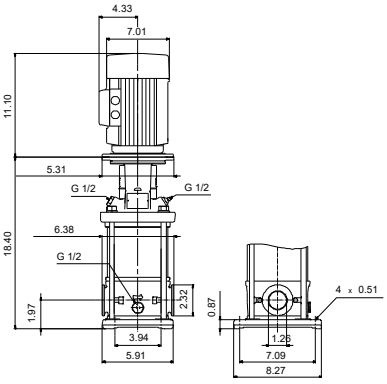


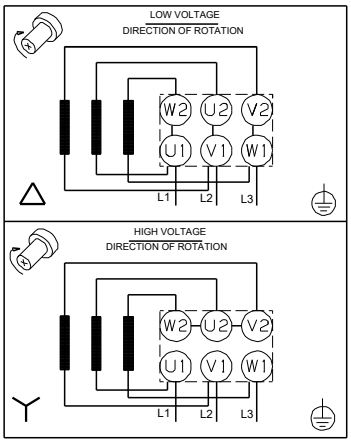
Company name:
Created by:
Phone:

Date: 1/4/2022

Description	Value
General information:	
Product name:	CRI 5-9 A-CA-A-E-HQQE
Product No.:	On request
EAN:	On request
Technical:	
Rated pump speed:	2867 rpm
Actual calculated flow:	18.4 US gpm
Resulting head of the pump:	179.2 ft
Maximum head:	205.4 ft
Stages:	9
Impellers:	9
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals:	CE,EAC,UKCA
Approvals for drinking water:	WRAS,ACS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
Materials:	
Base:	Stainless steel
Base:	EN 1.4408
Base:	AISI 316
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
Installation:	
t max amb:	140 °F
Maximum operating pressure:	362.59 psi
Max pressure at stated temperature:	363 psi / 250 °F
Max pressure at stated temperature:	363 psi / -4 °F
Type of connection:	FlexiClamp
Size of inlet connection:	DN 32
Size of outlet connection:	DN 32
Pressure rating for connection:	PN 25
Flange size for motor:	FT115
Connect code:	CA
Liquid:	
Pumped liquid:	
Liquid temperature range:	-4 .. 248 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Kinematic viscosity:	1 cSt
Electrical data:	
Motor standard:	IEC
Motor type:	90SE
IE Efficiency class:	IE3
Rated power - P2:	2 HP
Power (P2) required by pump:	2 HP
Main frequency:	50 Hz
Rated voltage:	3 x 200-220D/346-380Y V







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Company name:
Created by:
Phone:

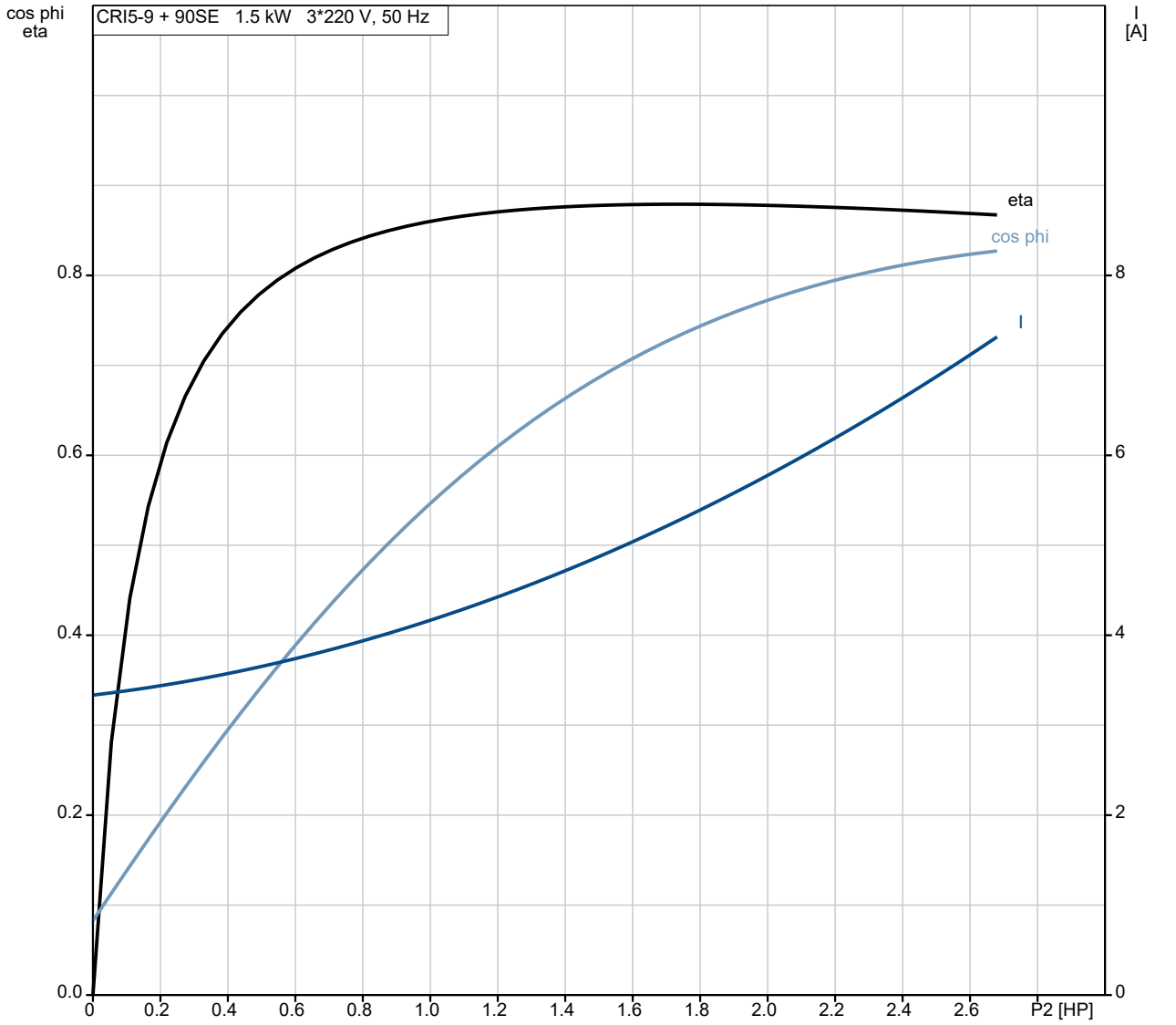
Date: 1/4/2022

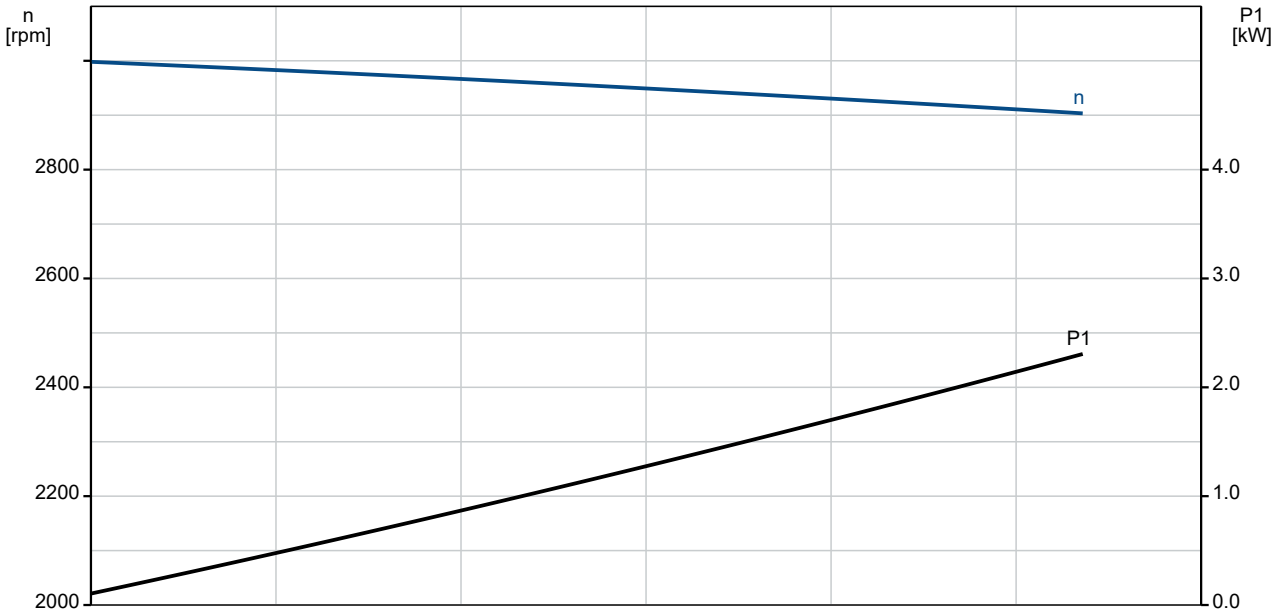
Description	Value
Rated current:	6,00-5,85/3,45-3,40 A
Starting current:	880-990 %
Cos phi - power factor:	0.86-0.80
Rated speed:	2910-2930 rpm
IE efficiency:	IE3 84,2% - IE3 84,2%
Motor efficiency at full load:	84.2-84.2 %
Motor efficiency at 3/4 load:	88.0 %
Motor efficiency at 1/2 load:	87.6 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Built-in motor protection:	NONE
Motor Number:	99540165
Controls:	
Frequency converter:	NONE
Others:	
Minimum efficiency index, MEI ≥:	0.57
Net weight:	73 lb
Gross weight:	81.9 lb
Shipping volume:	3.25 ft³

Company name:
Created by:
Phone:

Date: 1/4/2022

On request CRI 5-9 A-CA-A-E-HQQE 50 Hz

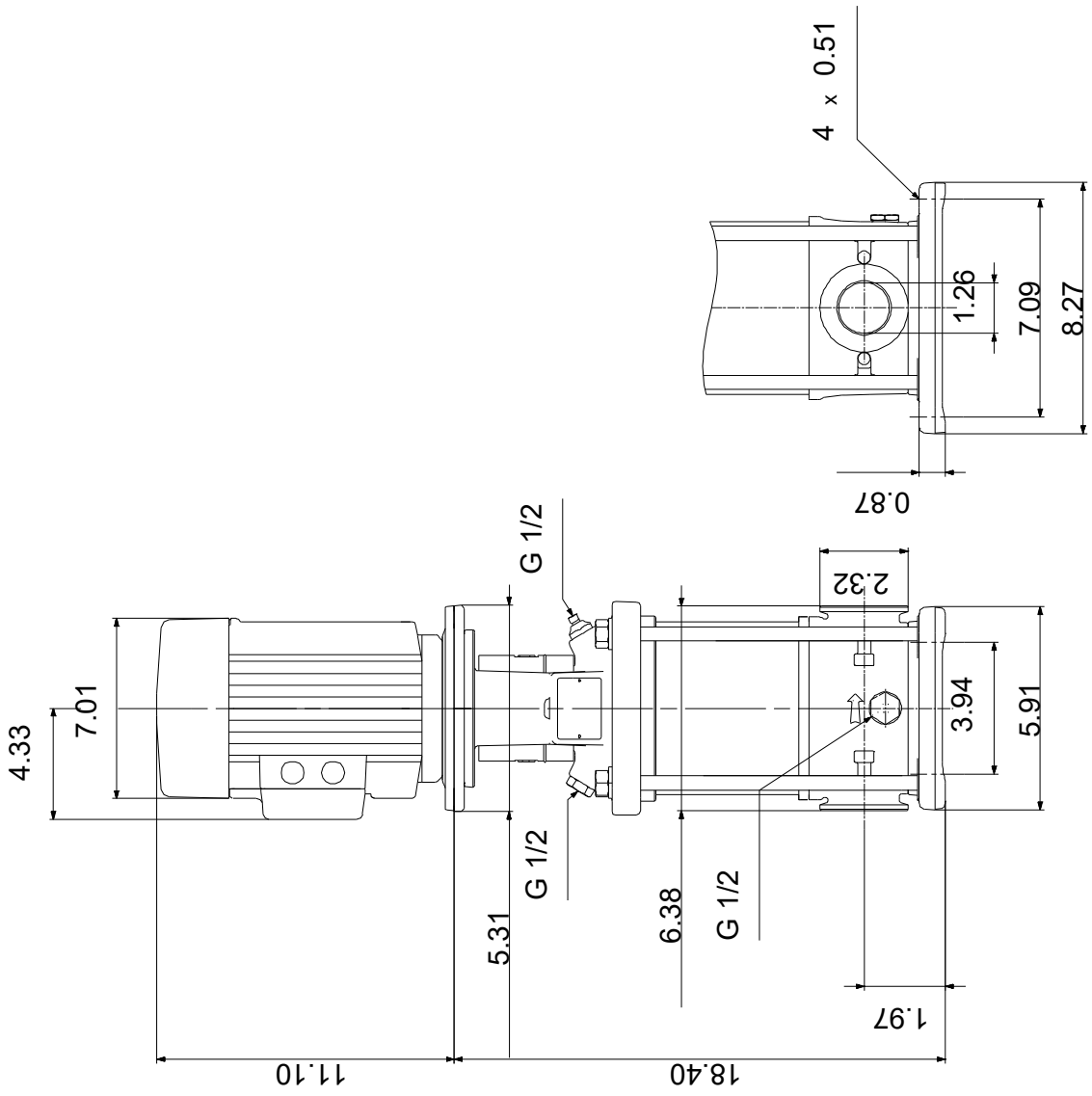




Company name:
Created by:
Phone:

Date: 1/4/2022

On request CRI 5-9 A-CA-A-E-HQQE 50 Hz

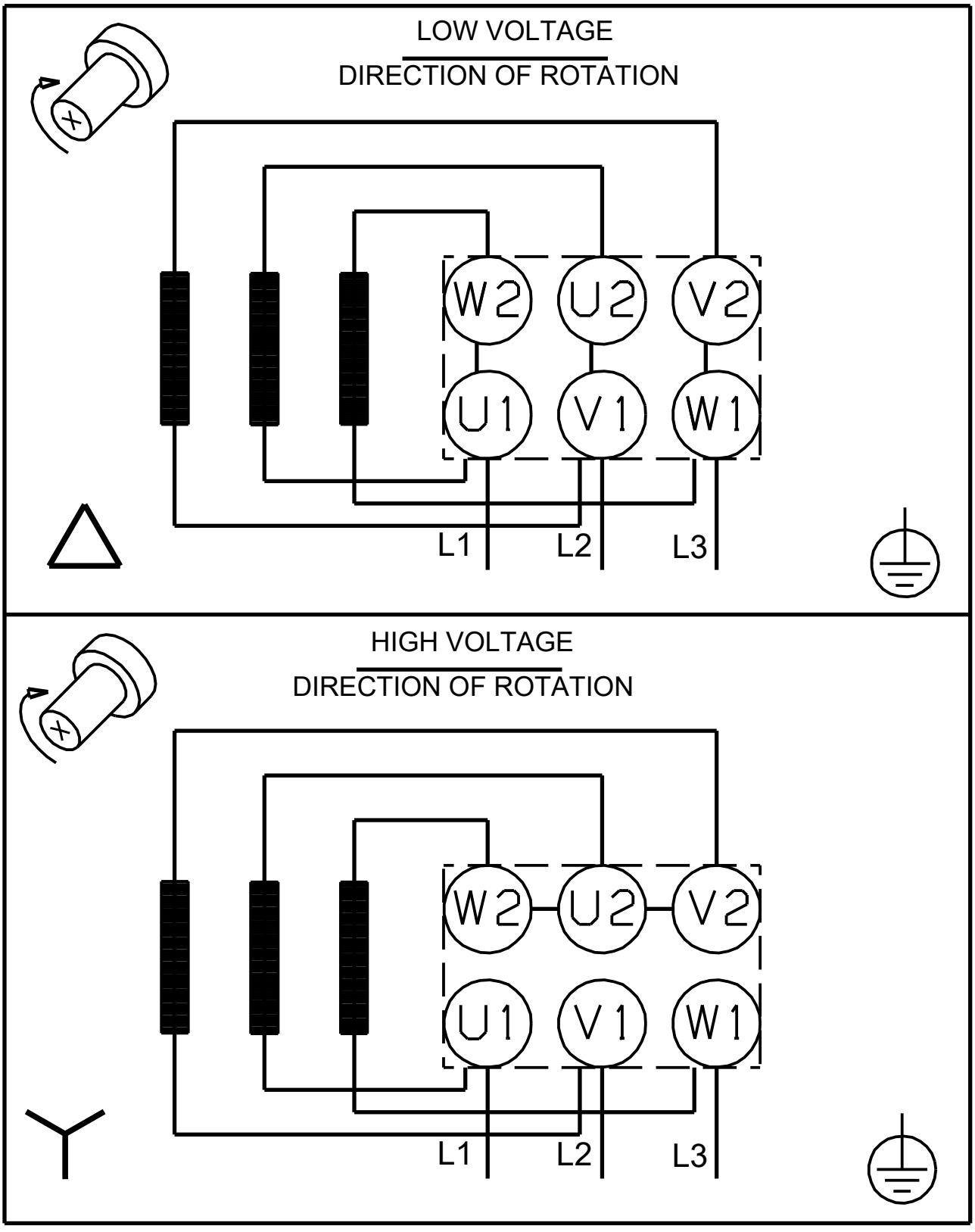


Note! All units are in [in] unless otherwise stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Company name:
Created by:
Phone:

Date: 1/4/2022

On request CRI 5-9 A-CA-A-E-HQQE 50 Hz



All units are [in] unless otherwise presented.

Company name:
Created by:
Phone:

Date: 1/4/2022

On request CRI 5-9 A-CA-A-E-HQQE 50 Hz

Input

General

Application	Pressure boosting

Edit load profile

Load profile	Full load

Life cycle cost

How detailed do you want your life cycle cost analysis?	Simple LCC analysis
	Pump A

Hit list settings

Energy price	0.15 $/kWh
Increase of energy price	6 %
Calculation period	10 years

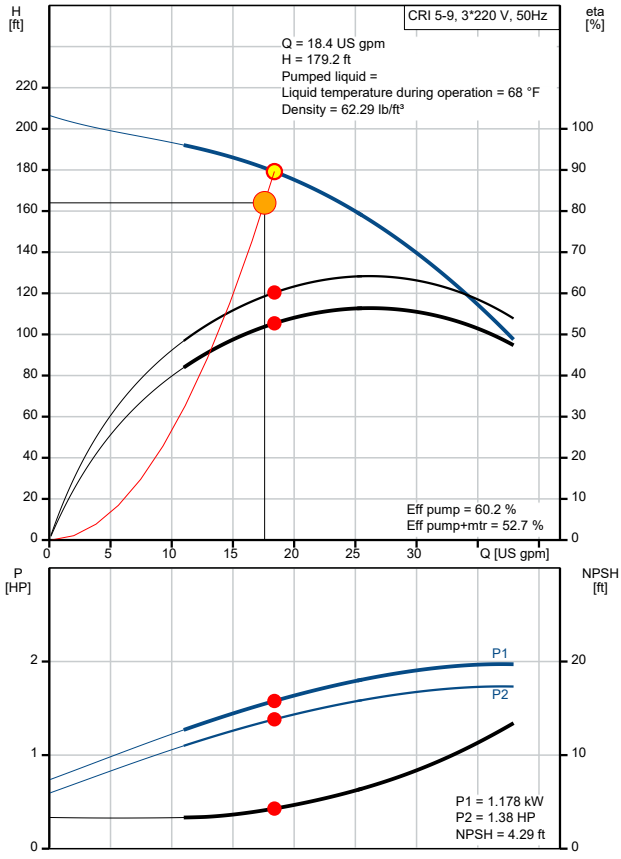
Load profile

	1
Flow (%)	100
Flow (m³/h)	4.0
Head (%)	110
Head ()	55.2
P1 (kW)	1.156
Eff total (%)	51.9
Time (h/a)	1000
Consumption (kWh/Year)	1156
Quantity	1

Sizing result

Type	CRI 5-9
Quantity	1
Motor	2.01 HP

Flow	18.4	US gpm (+5%)
Head	179.2	ft (+9%)
Power P1	1.178	kW
Power P2	1.38	HP
Eff pump	60.2	%
Eff pump+mtr	52.7	% =Eta pump * Eta motor
Consumption	1156	kWh/Year
Price	On request	
Life cycle cost	4176	€ /10Years



Company name:
Created by:
Phone:

Date: 1/4/2022

Installation and Input

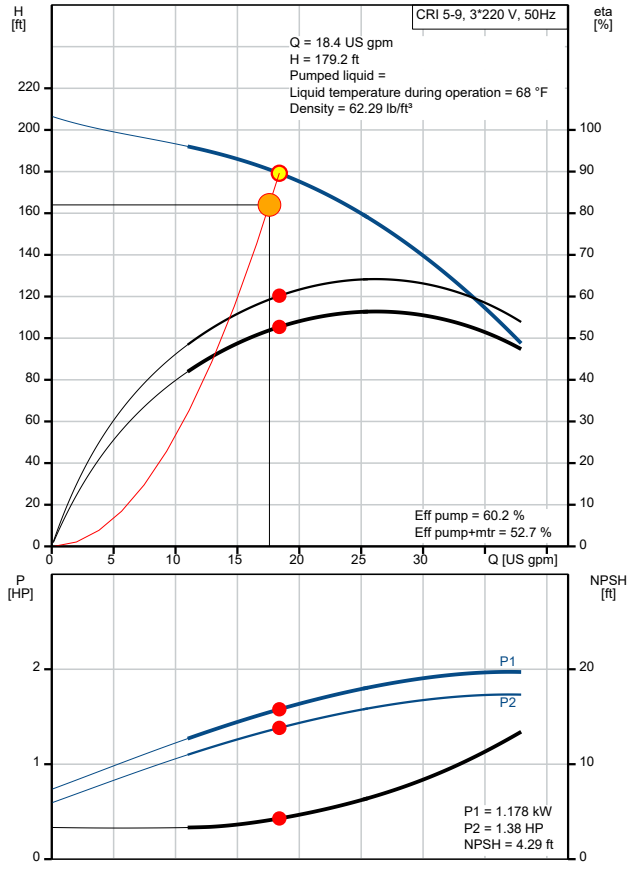
Sizing results

Product number:	On request
Type:	CRI 5-9
Quantity:	1
Motor:	2.01 HP
Flow:	18.4 US gpm (+5%)
Head:	179.2 ft (+9%)
Power P1:	1.178 kW
Eff pump:	60.2 %
Eff pump+mtr:	52.7 % =Eta pump * Eta motor
Consumption:	1156 kWh/Year
Price:	On request

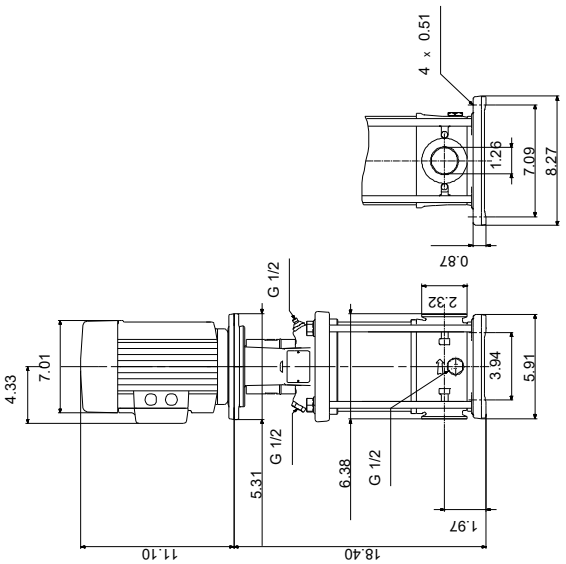
Load profile

	1
Flow (%)	100
Flow (m³/h)	4.0
Head (%)	110
Head ()	55.2
P1 (kW)	1.156
Eff total (%)	51.9
Time (h/a)	1000
Consumption (kWh/Year)	1156
Quantity	1

Pump curve



Dimensional drawing



Installation illustration

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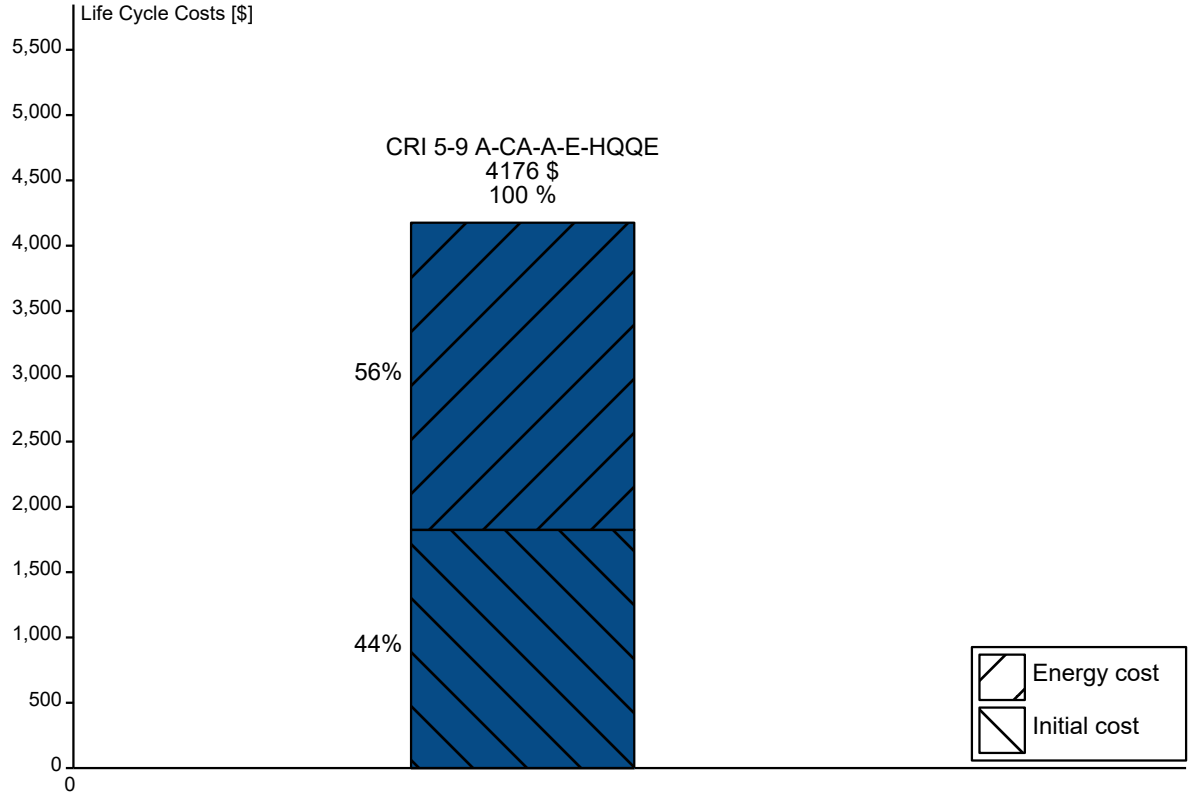
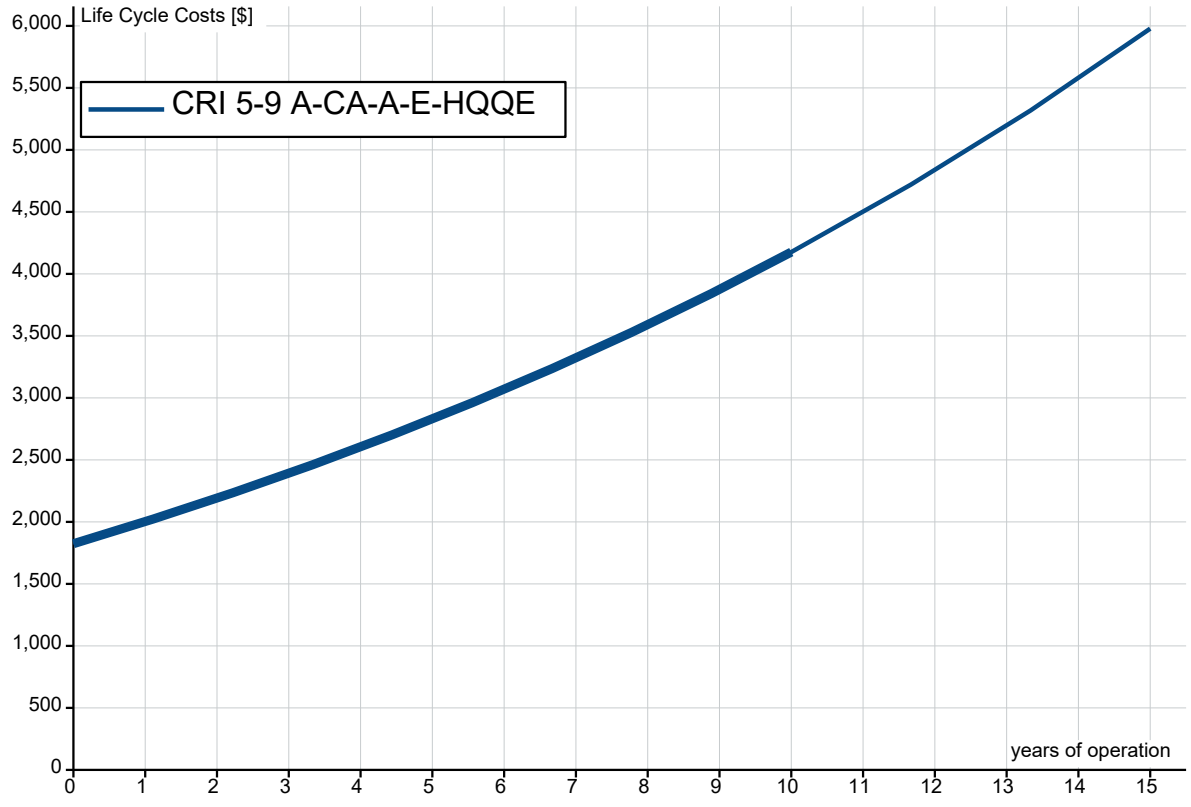
Company name:
Created by:
Phone:

Date: 1/4/2022

Life Cycle Costs - 10 years of operation



Payback Time



GRUNDFOS

Company name:
Created by:
Phone:

Date: 1/4/2022

Life Cycle Cost Report

Requirements:	***General inputs:***	
Flow: 18.4 US gpm	Energy price (high): 0.15 €/kWh	N - Life in years: 10
Capacity per year: ----		I - Interest rate: 0 %
Head: 179.2 ft		P - Inflation rate: 6 %

Inputs:	**A:**	
System:	CRI 5-9 A-CA-A-E-HQQE	
	per year	total (life)
Initial investment cost [$]		
Pump system [$]		
Further investment [$]		
Installation and commissioning cost [$]		
Reduction of investments in the grid [$]		
Energy cost [$]	**173**	**2353**
Energy consumption [kWh/Year]	1156	
Specific energy [kWh/1000 gal]		
Change of efficency per year [%/Year]		
Ops cost / yr [$/Year]		
[$/Year]		
Routine maintenance cost [$/Year]		
Repair cost [$/Year]		
Other yearly costs [$/Year]		
Downtime and loss of production cost [$/Year]		
Environmental cost [$]		
Decommisioning/disposal cost [$]		

Output:

Net present LCC-value [$]		**4176**
net present engy cost is [$]		2353
and maint cost is [$]		
of which net present energy cost % is [%]		56.3
and maintenance cost % is [%]		0.0

Company name:
Created by:
Phone:

Date: 1/4/2022

Order Data:

Product name: CRI 5-9
Amount: 1
Product No.: On request

Total: Price on request