GRUNDFOS **DATA BOOKLET**

CR, CRN high pressure

Vertical multistage centrifugal pumps
50/60 Hz

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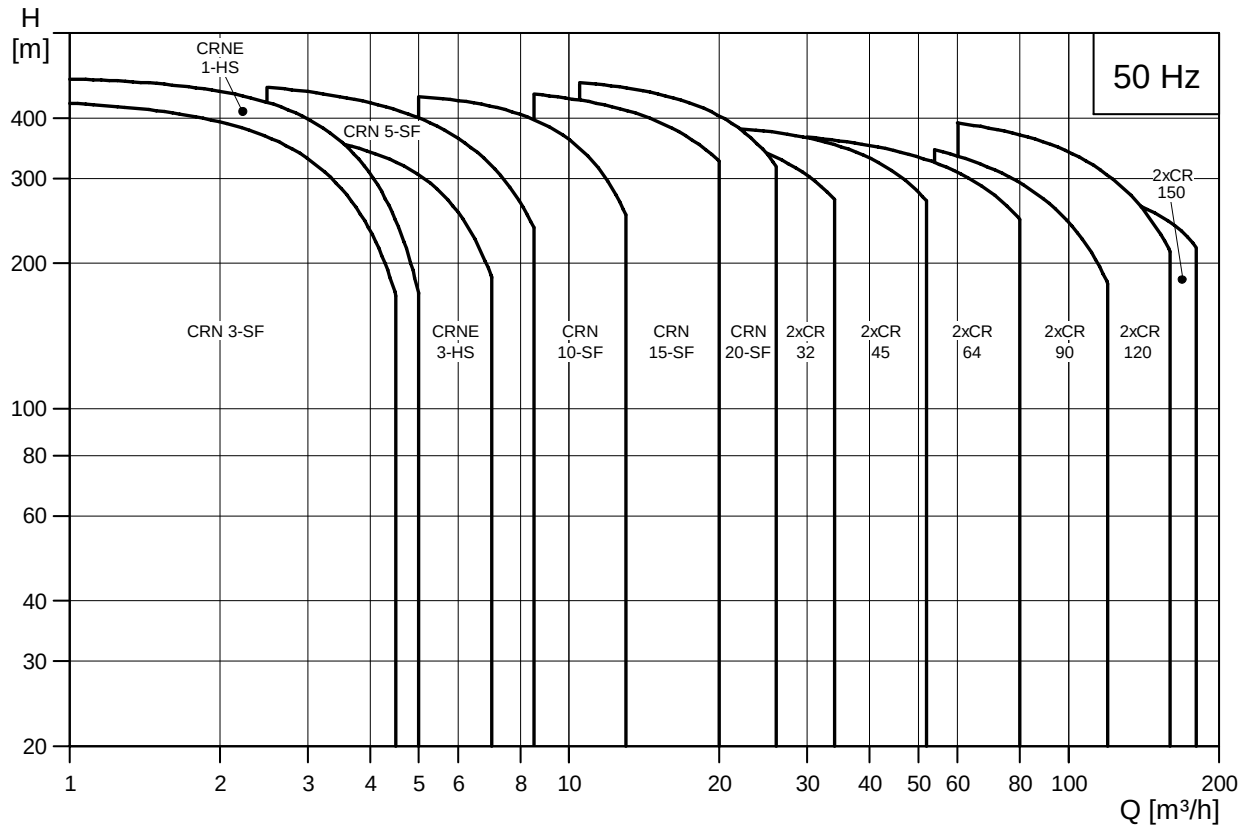
Contents

Performance range



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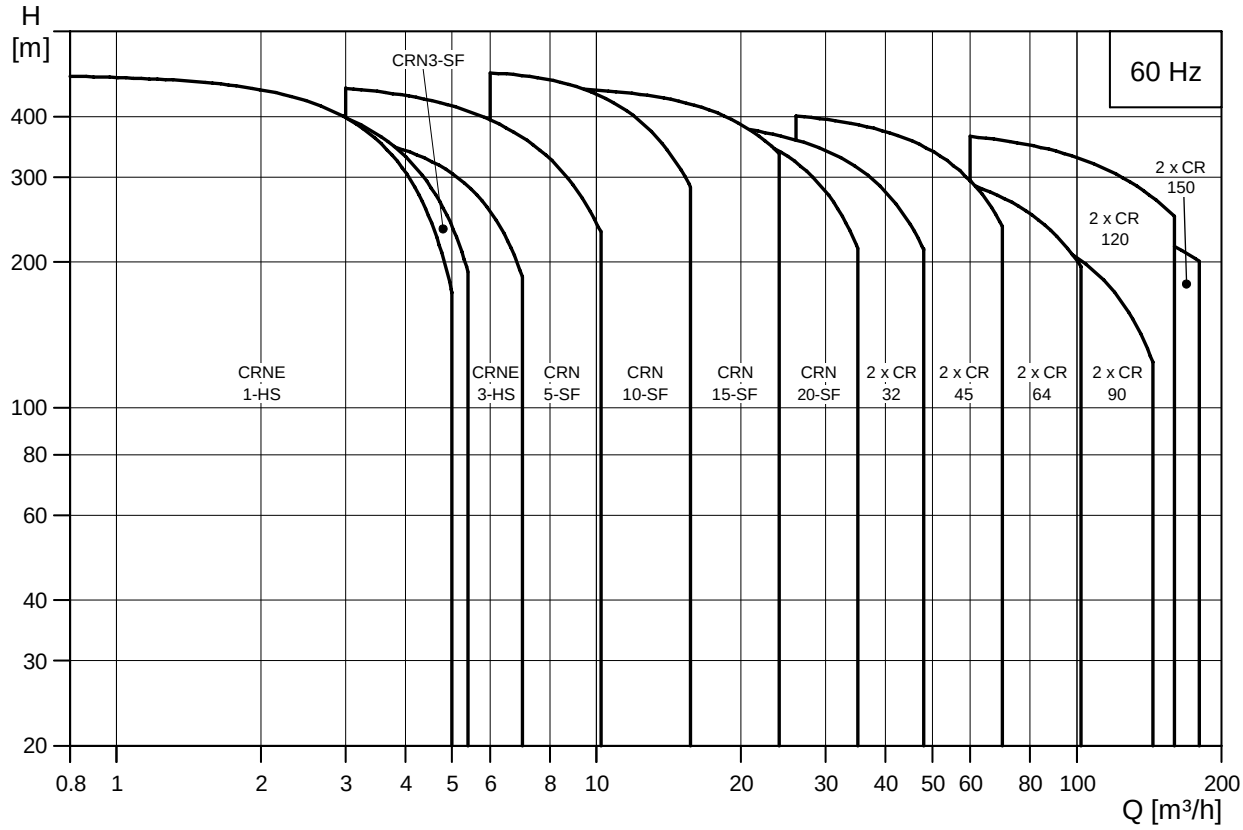

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Introduction

This data booklet deals with CR and CRN pumps for high-pressure applications.

A high pressure is achieved in two ways:

- Single pump with frequency-controlled high-speed motor, type HS
  - CRNE-HS, pump sizes 1 and 3.
- Feed pump + high-pressure pump connected in series.
  - CRN-SF, pump sizes 3 to 20
  - CR, CRN, pump sizes 32 to 150.

The high-pressure pump comes in two designs depending on pump size.

- CRNE-HS and CRN-SF: The chamber stack is up-side-down compared to a CR standard pump.
- CR, CRN: Standard pump with or without bearing flange.

The pumps in this data booklet are a CR or CRN standard pump as feed pump connected in series to a larger pump, the high-pressure pump.

For use of other CR pumps as high-pressure pump, see the CR data booklet “Custom-built pumps”.

The pressure generated by the high-pressure pump makes special demands to the design. This data booklet primarily describes the following aspects where the high-pressure is different from the standard pump:

- design
- operating conditions
- performance curves
- dimensions.

The performance curves and dimensional tables show the high-pressure pump connected in series with a standard pump with various numbers of stages.

Product range

Range	CRNE 1 HS	CRNE 3 HS	CRN 3 SF	CRN 5 SF	CRN 10 SF	CRN 15 SF	CRN 20 SF	2 x CR, CRN 32	2 x CR, CRN 45	2 x CR, CRN 64	2 x CR, CRN 90	2 x CR, CRN 120	2 x CR, CRN 150
Nominal flow rate, 50 Hz [m^3/h]	1	3	3	5	10	15	20	32	45	64	90	120	150
Nominal flow rate, 60 Hz [m^3/h	1.2	3.6	3.6	6	12	18	24	38	54	77	108	144	180
Flow range, 50 Hz [m^3/h]	0.8-5	1-7	1.2-4.5	2.5-8.5	5-13	9-24	11-29	15-40	22-58	30-85	45-120	60-160	75-180
Flow range, 60 Hz [m^3/h]	0.8-5	1-7	1.4-5.4	3-10.2	6-16	10-29	13-35	18-48	26-70	36-102	54-146	60-160	75-180
Max. pressure, 50 Hz [bar]	47	41	44	47	44	47	48	39	39	39	40	40	39
Max. pressure, 60 Hz [bar]	48	42	48	48	47	47	47	40	40	36	33	37	31
Motor power [kW]	4.0-7.5	4.0-7.5	0.37-4.0	0.55-5.5	0.75-7.5	3-15	4-18.5	11-18.5	11-30	11-45	7.5-45	11-75	11-75
Temperature range [°C]	–20 to +120				–20 to +120			–30 to +120					
Version													
CR, CRE: Cast iron and stainless steel EN/DIN 1.4301/AISI 304	-	-	-	-	-	-	-	●	●	●	●	●	●
CRN, CRNE: Stainless steel EN/DIN 1.4401/AISI 316	●	●	●	●	●	●	●	●	●	●	●	●	●
Pipe connection													
Flange	-	-	-	-	-	-	-	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125
Flange - on request	-	-	-	-	-	-	-	DN 80	DN 100	DN 125	DN 125	DN 150	DN 150
PJE coupling (Victaulic)	●	●	●	●	●	●	●	❍	❍	❍	❍	-	-
System													
One pump with high-speed motor	●	●	●	-	-	-	-	-	-	-	-	-	-
Two pumps in series	-	-	-	●	●	●	●	●	●	●	●	●	●

● Available
❍ On request

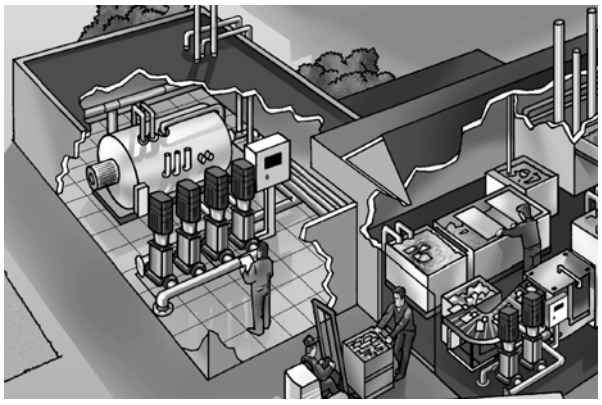
Applications

The CRN high-pressure series is a multi-purpose pump range suitable for a variety of different applications demanding reliable and cost-efficient supply.

CRN handles a variety of liquids from potable water to industrial liquids within a very wide temperature, flow and pressure scale. Below is a list representing some general examples of applications requiring a high pressure.

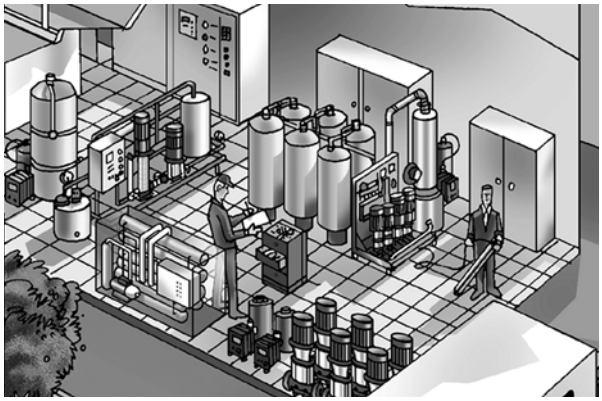
Pressure boosting

- Process water systems
- Washing and cleaning systems
- High-pressure washdown systems
- Boiler feed and condensate systems.



Water treatment

- Ultra-filtration systems
- Reverse osmosis systems.



CRNE 1 and 3 HS

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Fig. 1 CRNE 3-HS pump

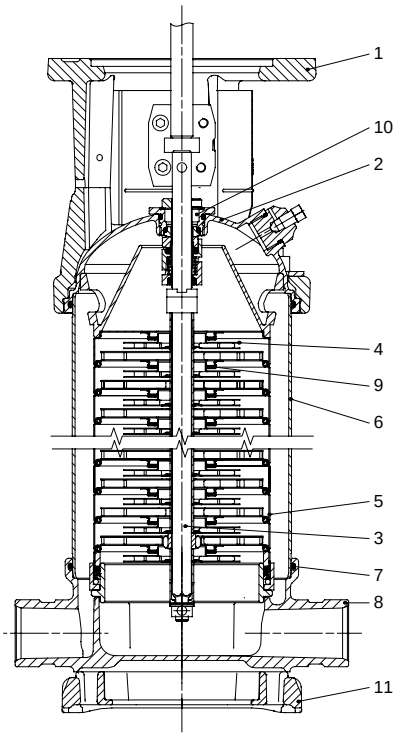

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Fig. 2 Sectional drawing of CRNE 1 and 3-HS

Pump

CRNE-HS is a single pump solution capable of generating up to 48 bar.

The CRNE-HS pump is a non-self-priming, vertical multistage centrifugal pump fitted with a high-speed Grundfos motor with integrated frequency converter, type MGE.

The direction of rotation is the opposite of that of standard pumps, and the chamber stack is turned upside-down, as a result of which the pumped liquid flows in the opposite direction.

This special design ensures that the shaft seal is not affected by the pump discharge pressure.

The base, the pump head cover as well as parts in contact with the pumped liquid are made from stainless steel.

The pump has a maintenance-free mechanical cartridge shaft seal.

Operating conditions - high-pressure pump

Liquid temperature:	–20 °C to +120 °C.
Ambient temperature:	Maximum +40 °C.
Minimum inlet pressure:	See page 13.
Maximum inlet pressure:	15/25 bar (static/operation).
Maximum operating pressure:	50 bar.

Materials

Pos.	Description	Materials	EN/DIN	AISI/ASTM
1	Pump head	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
2	Pump head cover	Stainless steel	1.4408	CF8M (eq. to AISI 316
3	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	O-ring for outer sleeve	EPDM, FKM, FFKM, and FXM		
8	Base	Stainless steel	1.4408	CF8M (eq. to AISI 316
9	Neck ring	PTFE		
10	Shaft seal	HQQE, HQQV, HQQF, and HQQK		
11	Base plate	Cast iron EN-GJL-200 [1)]	EN-JL1030	ASTM 25B
	Other rubber parts	EPDM, FKM, FFKM, and FXM		

[1)] Stainless steel on request

CRN 3, 5, 10, 15, 20 SF

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Fig. 3 CRN 10 + CRN 10 SF pump system

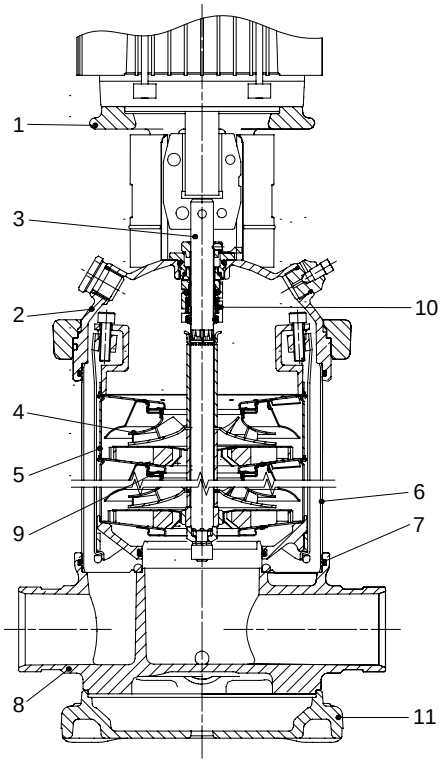

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Fig. 4 Sectional drawing of CRN 3, 5, 10, 15, 20 SF

Pump

CRN-SF is a double pump system capable of generating up to 48 bar.

The system consists of two pumps in series. The first pump is a standard pump for feeding. The second pump is a high-pressure pump especially designed for high pressures. The CRN-SF pump is a non-self-priming, vertical multistage centrifugal pump fitted with a Grundfos standard motor.
The CRN-SF pump is also available with a Grundfos motor with integrated frequency converter, type MGE. When fitted with this motor the pump designation is CRNE-SF.

The direction of rotation is the opposite of that of standard pumps, and the chamber stack is turned upside-down, as a result of which the pumped liquid flows in the opposite direction.

This special design ensures that the shaft seal is not affected by the pump discharge pressure.

The base, the pump head cover as well as vital pump components are made from stainless steel.

The pump has a maintenance-free mechanical cartridge shaft seal.

Operating conditions - high-pressure pump

Liquid temperature:	–20 °C to +120 °C.
Ambient temperature:	See page 11.
Minimum inlet pressure:	2 bar.
Maximum inlet pressure:	
CRN 3, 5 SF	15/25 bar
CRN 10, 15, 20 SF	10/25 bar (static/operation)
Maximum operating pressure:	50 bar.

Materials

Pos.	Description	Materials	EN/DIN	AISI/ASTM
1	Pump head	Cast iron	EN-GJS-450-10	
2	Pump head cover	Stainless steel	1.4408	CF8M (eq. to AISI 316)
3	Shaft	Stainless steel	1.4460	AISI 329
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	O-ring for outer sleeve	EPDM, FKM, FFKM, and FXM	1.0037	
8	Base	Stainless steel	1.4408	CF8M (eq. to AISI 316)
9	Neck ring	PTFE		
10	Shaft seal	HQQE, HQQV, HQQF, and HQQK		
11	Base plate	Cast iron EN-GJL-200 [1)]	0.6020	ASTM 25B
	Other rubber parts	EPDM, FKM, FFKM, and FXM		

[1)] Stainless steel on request

2 x CR 32, 45, 64 and 90
2 x CRN 32, 45, 64 and 90

Fig. 5 2 x CR, CRN double-pump system

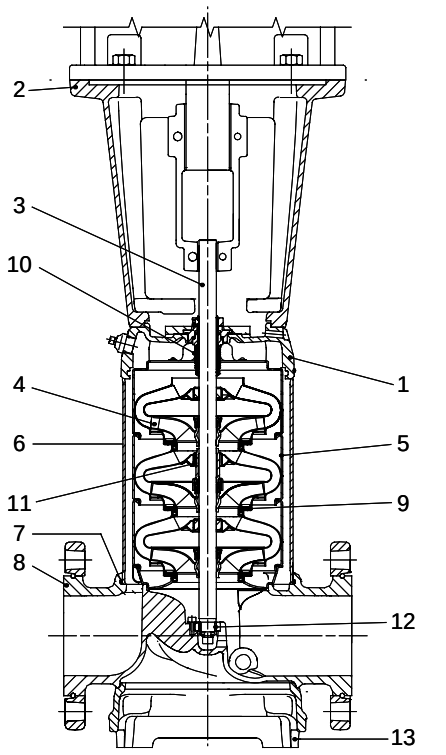

Fig. 6 Sectional drawing of a CR(N) pump

Pump

2 x CR, CRN is a double-pump system capable of generating up to 40 bar.

The system consists of two pumps in series. The first pump is a standard pump for feeding.

The second pump is a high-pressure pump especially designed for high pressures. If the maximum pressure from the feed pump exceeds 15 bar, the high-pressure pump must have a bearing flange to be capable of handling the higher inlet pressure.

CRN

The base, the pump head cover and all components in contact with the pumped liquid are made of stainless steel.

CR

The base and the pump head are made of ductile cast iron.

Operating conditions - high-pressure pump

Liquid temperature:	–30 °C to +120 °C.
Ambient temperature:	See page 11.
Maximum inlet pressure:	
without bearing flange	15 bar.
with bearing flange	25 bar.
Maximum operating pressure:	40 bar.

Materials

Pos.	Description	Materials	EN/DIN	AISI/ASTM
1	Pump head	CR: Cast iron EN-GJS-500-7	EN-JS1050	
		CRN: Stainless steel	1.4408	CF8M (eq. to AISI 316)
2	Motor stool	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
3	Shaft	Stainless steel	1.4462	
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	O-ring for outer sleeve	EPDM, FKM, FFKM, and FXM		
8	Base	CR: Cast iron EN-GJS-500-7	EN-JS1050	
		CRN: Stainless steel	1.4408	CF8M (eq. to AISI 316)
9	Neck ring	Carbon-graphite filled PTFE		
10	Shaft seal	HQQE, HQQV, HQQF, and HQQK		
11	Bearing ring	Bronze/carbon-graphite filled PTFE		
12	Bottom bearing ring	TC/TC [1]		
13	Base plate	Cast iron EN-GJS-500-7	EN-JS1050	ASTM 80-55-06
		Stainless steel		
	Other rubber parts	EPDM, FKM, FFKM, and FXM		

[1] TC = Tungsten carbide (cemented)

2 x CR 120 and 150
2 x CRN 120 and 150

Fig. 7 2 x CR, CRN double-pump system

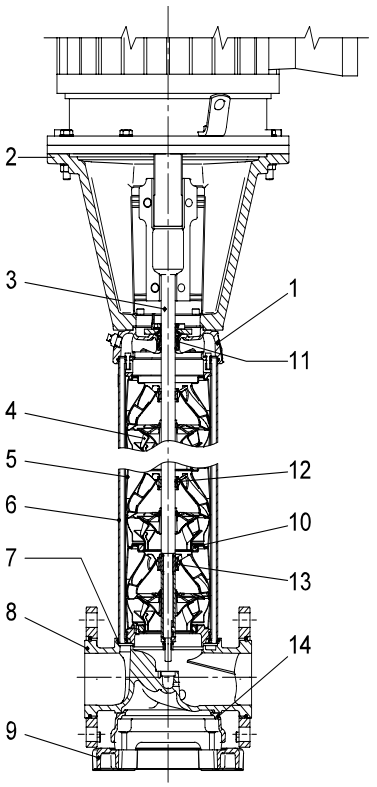

Fig. 8 Sectional drawing of a CR(N) pump

Pump

2 x CR, CRN is a double-pump system capable of generating up to 40 bar.

The system consists of two pumps in series. The first pump is a standard pump for feeding. The second pump is a high-pressure pump.

The CR, CRN pump is a non-self-priming, vertical multi-stage centrifugal pump fitted with a Grundfos standard motor.

CRN

The base, the pump head cover and all components in contact with the pumped liquid are made of stainless steel.

CR

The base and the pump head are made of cast iron.

Operating conditions - high-pressure pump

Liquid temperature:	–30 °C to +120 °C.
Ambient temperature:	See page 11.
Maximum inlet pressure:	20 bar.
Maximum operating pressure:	40 bar.

Materials

Pos.	Designation	Materials	EN/DIN	AISI/ASTM
1	Pump head	CR: Cast iron EN-GJS-500-7	EN-JS1050	A 536 65-45-12
		CRN: Stainless steel	1.4408	A 351 CF 8M
2	Motor stool (11-45 kW)	Cast iron EN-GJL-200	EN-JL1030	A48-30 B
	Motor stool (55-75 kW)	Cast iron EN-GJS-500-7	EN-JS1050	A 536 65-45-12
3	Shaft	Stainless steel	CR: 1.4057 CRN: 1.4462	AISI 431 SAF 2205
4	Impeller	Stainless steel	CR: 1.4301 CRN:1.4401	CR: AISI 304 CRN: AISI 316
5	Chamber			
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	O-ring for outer sleeve	EPDM, FKM, FFKM, and FXM		
8	Base	CR: Cast iron EN-GJS-500-7	EN-JS1050	A 536 65-45-12
		CRN: Stainless steel	1.4408	A 351 CF 8M
9	Base plate	Cast iron EN-GJS-500-7[1)]	EN-JS1050	A 536 65-45-12
10	Neck ring	PTFE		
11	Shaft seal[2)]	SiC/SiC (Ø22) Carbon/SiC (Ø32)		
12	Support bearing	PTFE		
13	Bearing ring	SiC/SiC		
14	Base plate, CRN only	Cast iron EN-GJS-500-7[1)]	EN-JS1050	A 536 65-45-12
	Other rubber parts	EPDM, FKM, FFKM, and FXM		

[1)] Stainless steel available on request.

[2)] Ø22 mm shaft, 11-45 kW. Ø32 mm shaft, 55-75 kW.

Type key

CRNE 1 and 3 HS

Example	CRNE	3	-23	HS	-P	-G	-E	-HQQE
Type range: CRNE								
Flow rate [m^3/h]								
Number of impellers								
Code for pump version								
Code for pipe connection								
Code for materials								
Code for rubber parts								
Code for shaft seal								

CRN 3, 5, 10, 15 and 20 SF

Example	CRN	5	-34	-SF	-P	-G	-E	-HQQE
Type range: CRN								
Flow rate [m^3/h]								
Number of impellers								
Code for pump version								
Code for pipe connection								
Code for materials								
Code for rubber parts								
Code for shaft seal								

2 x CRN 32, 45, 64, 90, 120 and 150

Example	CRN	32	-2	-1	-A	-F	-G	-E	-HQQE
Type range: CR, CRN									
Flow rate [m^3/h]									
Number of stages									
Number of reduced - diameter impellers (if any)									
Code for pump version									
Code for pipe connection									
Code for materials									
Code for rubber parts									
Code for shaft seal									

Codes

Example	A	-F	-A	-E	-H	QQ	E
Pump version							
A Basic version							
B Oversize motor							
E Pump with certificate/approval							
F CR pump for high temperatures (air-cooled top assembly)							
H Horizontal version							
HS High-pressure pump with high-speed MGE motor							
I Different pressure rating							
J Pump w/different max speed [1]							
K Pump with low NPSH							
M Magnetic drive							
N Fitted with sensor							
P Undersize motor							
R Horizontal version with bearing bracket							
SF High-pressure pump							
X Special version							
Pipe connection							
A Oval flange							
B NPT thread							
CA FlexiClamp (CRI(E), CRN(E) 1, 3, 5, 10, 15, 20)							
F DIN flange							
G ANSI flange							
J JIS flange							
N Changed diameter of ports							
P PJE coupling							
X Special version							
Materials							
A Basic version, cast iron/1.4301							
D Carbon-graphite filled PTFE (bearings)							
G Wetted parts 1.4401/AISI 316							
GI All parts stainless steel, wetted parts 1.4401/AISI 316							
I Wetted parts 1.4301/AISI 304							
II All parts stainless steel, wetted parts 1.4301/AISI 304							
K Bronze (bearings)							
S SiC bearings + PTFE neck rings							
X Special version							
Code for rubber parts							
E EPDM							
F FXM							
K FFKM							
V FKM							
Shaft seal							
H Balanced cartridge seal							
B Carbon							
Q Silicon carbide							
U Tungsten carbide							
E EPDM							
F FXM							
K FFKM							
V FKM							

[1] The output frequency of the frequency converter of the motor differs from the standard 50 Hz. In this situation, the frequency is approximately 75 Hz.

Operating range of the shaft seal for the high-pressure pump

The actual operating range of the shaft seal for the high-pressure pump depends on operating pressure, type of shaft seal and liquid temperature. The following temperature ranges apply to clean water.

Operating conditions of the shaft seal for the CR high-pressure pump

Standard shaft seal	Motor size [kW]	Description	Max. temperature range [°C]
HQQE	0.37-45	O-ring (cartridge) (balanced seal), SiC/SiC, EPDM	–40 °C to +120 °C
HBQE[1)]	55-75	O-ring (cartridge) (balanced seal), carbon/SiC, EPDM	0 °C to +120 °C
HQQV	0.37-45	O-ring (cartridge) (balanced seal), SiC/SiC, FKM	–20 °C to +90 °C
HBQV[1)]	55-75	O-ring (cartridge) (balanced seal), carbon/SiC, FKM	0 °C to +90 °C

[1)] Available as HQQE and HQQV on request

Motor protection

MG and Siemens motors

Single-phase Grundfos motors have a built-in thermal overload switch (IEC 34-11: TP 211).

Three-phase motors **must** be connected to a motor-protective circuit breaker in accordance with local regulations.

Three-phase Grundfos motors from 3 kW and upwards have a built-in thermistor (PTC) according to DIN 44 082 (IEC 34-11: TP 211).

MGE motors

CRE, CRIE, CRNE pumps require no external motor protection. The MGE motor incorporates thermal protection against slow overloading and blocking (IEC 34-11: TP 211).

Terminal box positions

As standard the terminal box is mounted on the suction side of the pump.

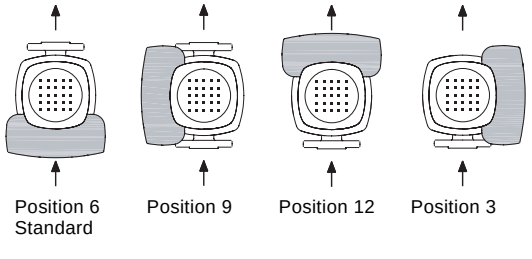

Fig. 9 Terminal box positions

Ambient temperature

Motor power [kW]	Motor make	Motor efficiency class	Maximum ambient temperature [°C]	Maximum altitude above sea level [m]
0.37-0.75	Grundfos MG	EFF 2	+40	1000
1.1-11	Grundfos MG	EFF 1	+60	3500
15-75	Siemens	EFF 1	+55	2750

If the ambient temperature exceeds the above temperature values or the pump is installed at an altitude exceeding the above altitude values, the motor must not be fully loaded due to the risk of overheating. Overheating may result from excessive ambient temperatures or the low density and consequently low cooling effect of the air.

In such cases, it may be necessary to use a motor with a higher rated output.

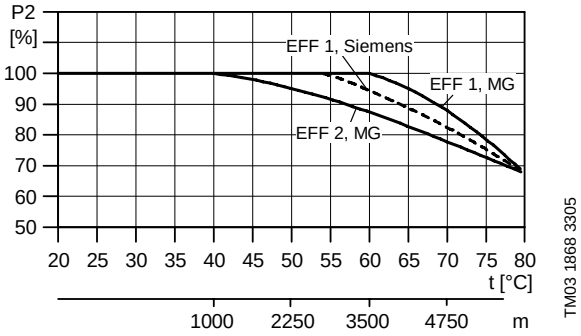

Fig. 10 Motor output in relation to temperature/altitude

Pumped liquids

Thin, non-flammable liquids, not containing solid particles or fibres. The liquid must not chemically attack the pump materials.

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

In such situations, the pump should be equipped with a larger motor.

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

Please note that aggressive liquids (e.g. sea water and some acids) may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

If in doubt, contact Grundfos.

Performance curves

The guidelines below apply to the curves shown on the following pages:

1. Tolerances to ISO 9906, Annex A, if indicated.
2. The motors used for the measurements are standard Grundfos motors.
3. Measurements have been made with airless water at a temperature of 20 °C.
4. The curves apply to a kinematic viscosity of $\upsilon = 1\ mm^2/s$ (1 cSt).
5. Due to the risk of overheating, the pumps should **not** be used at a flow below the minimum flow rate.

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

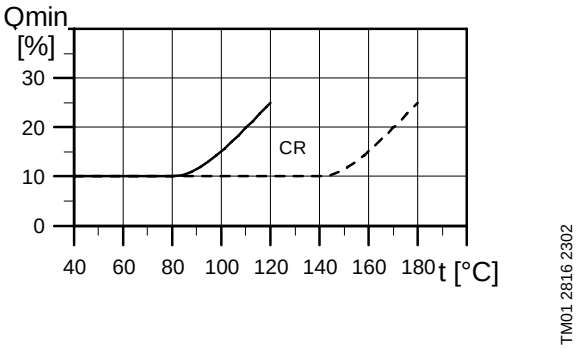

Fig. 11 Minimum flow rate

Selection of high-pressure pumps

Pump size

Selection of pump size should be based on these parameters:

- Required flow and pressure at the draw-off point.
- Pressure loss as a result of height differences.
- Friction loss in the pipework.
  It may be necessary to account for pressure loss in connection with long pipes, bends or valves, etc.
- Best efficiency at the estimated duty point.

Efficiency

If the pump is expected always to operate at the same duty point, select a pump which is operating at a duty point corresponding with the best efficiency of the pump.

In case of varying consumption, select a pump which best efficiency falls within the duty range representing the highest power consumption, i.e. typically the duty range covering the greater part of the duty time.

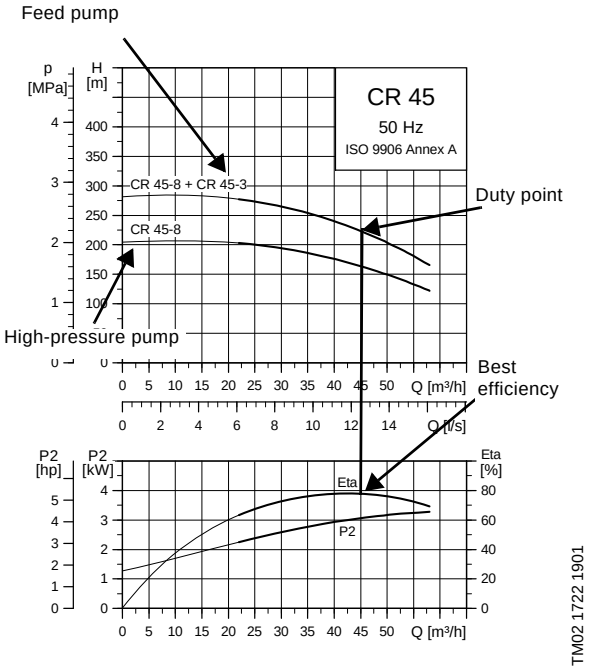

Fig. 12 Example of a duty point

Minimum inlet pressure, NPSH

Calculation of the inlet pressure "H" is recommended in these situations:

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

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in metres head can be calculated as follows:

$H = p_b \times 10.2 - NPSH - H_f - H_v - H_s$

p_b	=	Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems, p_b indicates the system pressure in bar.
NPSH	=	Net Positive Suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering.)
H_f	=	Friction loss in suction pipe in metres head. (At the highest flow the pump will be delivering.)
H_v	=	Vapour pressure in metres head. (To be read from the vapour pressure scale. "H_v" depends on the liquid temperature "T_m".)
H_s	=	Safety margin = minimum 0.5 metres head.

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

If the "H" calculated is negative, an inlet pressure of minimum "H" metres head is required.

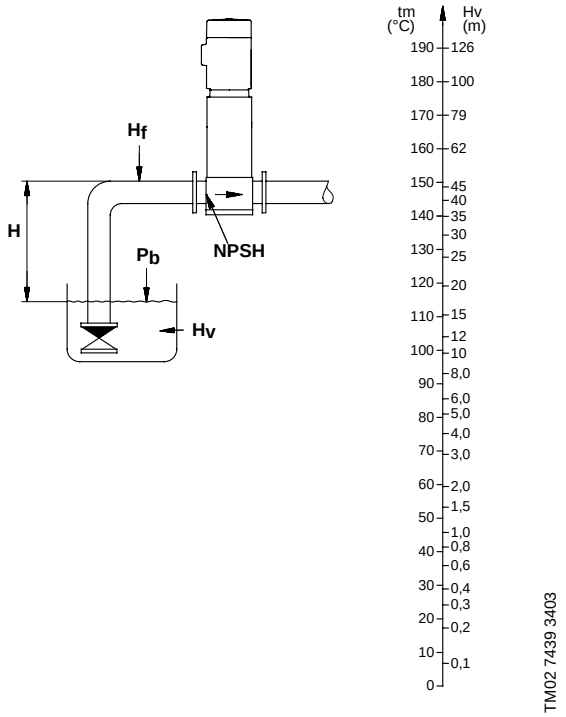

Fig. 13 Minimum inlet pressure - NPSH

Note: To avoid cavitation, **never** select a pump with a duty point too far to the right on the NPSH curve.

Always check the NPSH value of the pump at the highest possible flow.

Shaft seal

As standard, the CR, CRN high-pressure range is fitted with a HQQE shaft seal suitable for the most common high-pressure applications.

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

- type of pumped liquid
- liquid temperature.

Grundfos offers a wide range of shaft seal variants to meet specific demands.

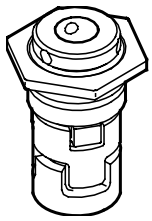

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Fig. 14 Shaft seal (cartridge type)

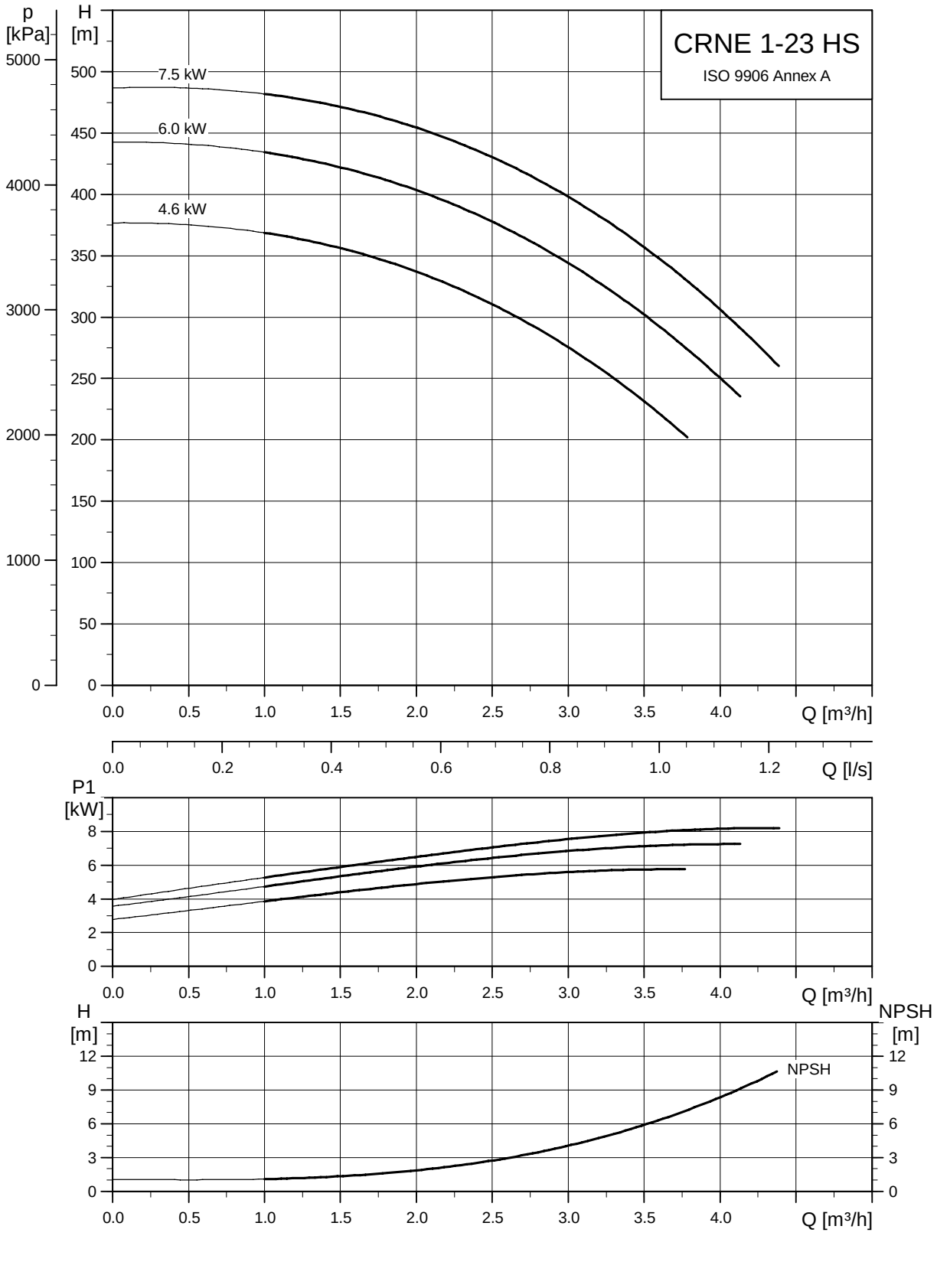
Inlet pressure and operating pressure

Do not exceed the limit values stated on pages 6 and 9 as regards these pressures:

- minimum inlet pressure
- maximum inlet pressure
- maximum operating pressure.

Performance curves/ Technical data

CRNE 1 HS - 50/60 Hz



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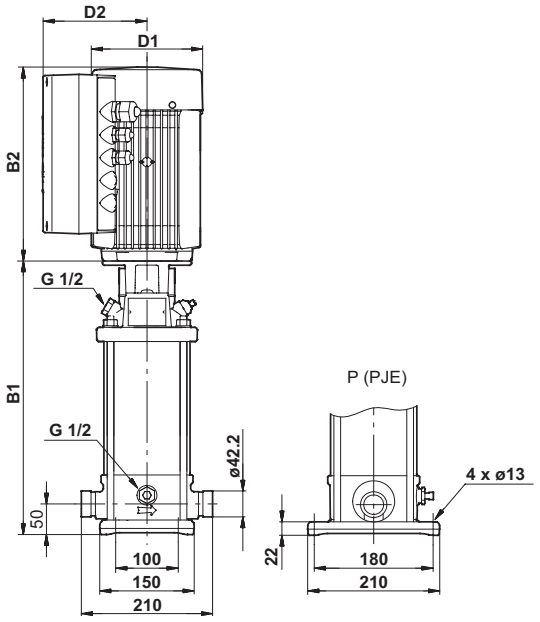
Dimensional sketch

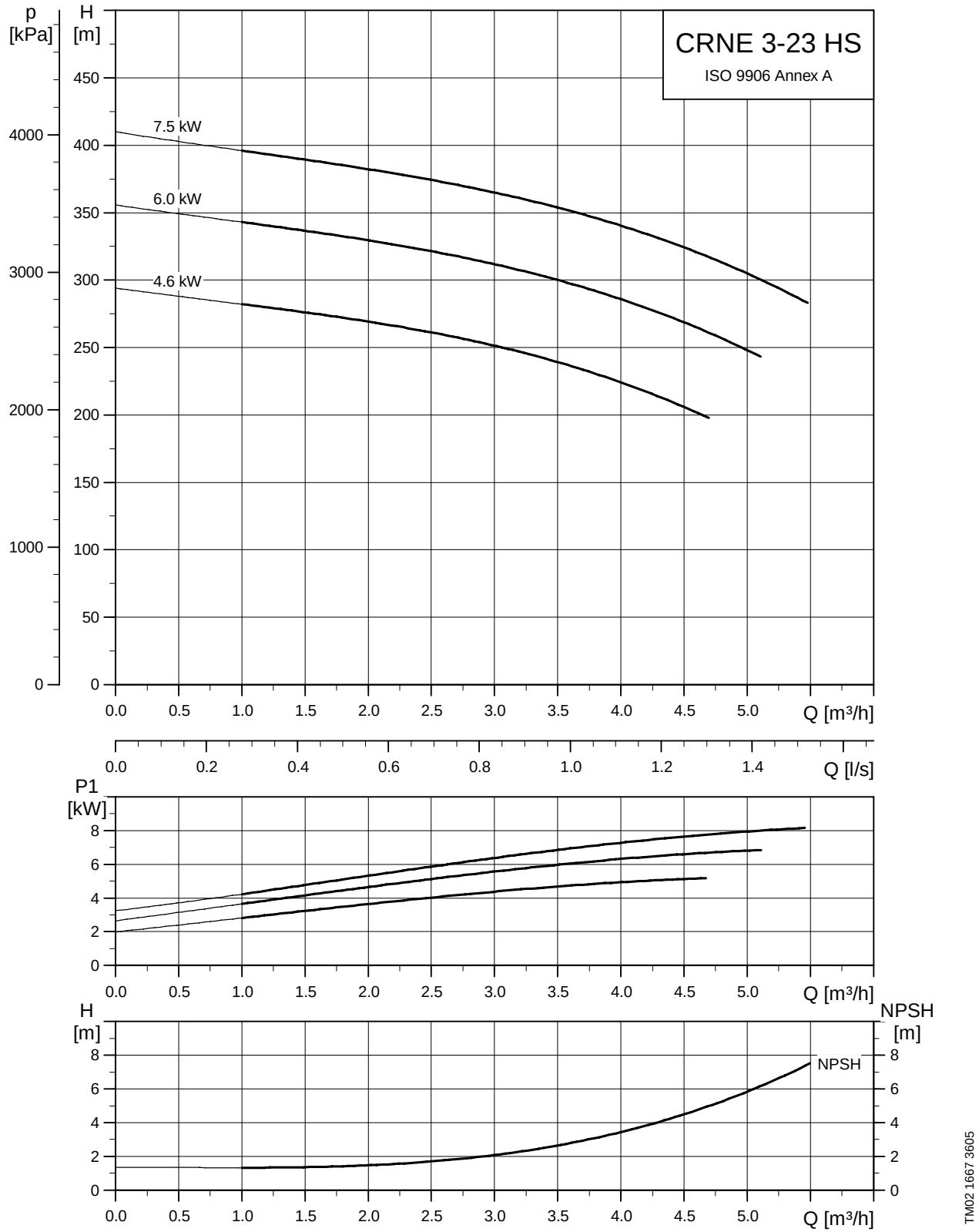


Dimensions and weights

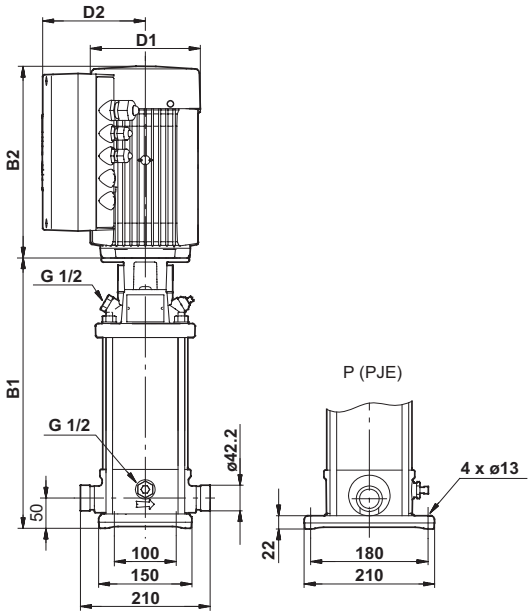
Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRNE 1-23 HS	4.6	680	372	1052	220	188	160	65
CRNE 1-23 HS	6.0	680	391	1071	220	188	200	66
CRNE 1-23 HS	7.5	680	391	1071	220	188	200	66

Performance curves

CRNE 3 HS - 50/60 Hz



Dimensional sketch

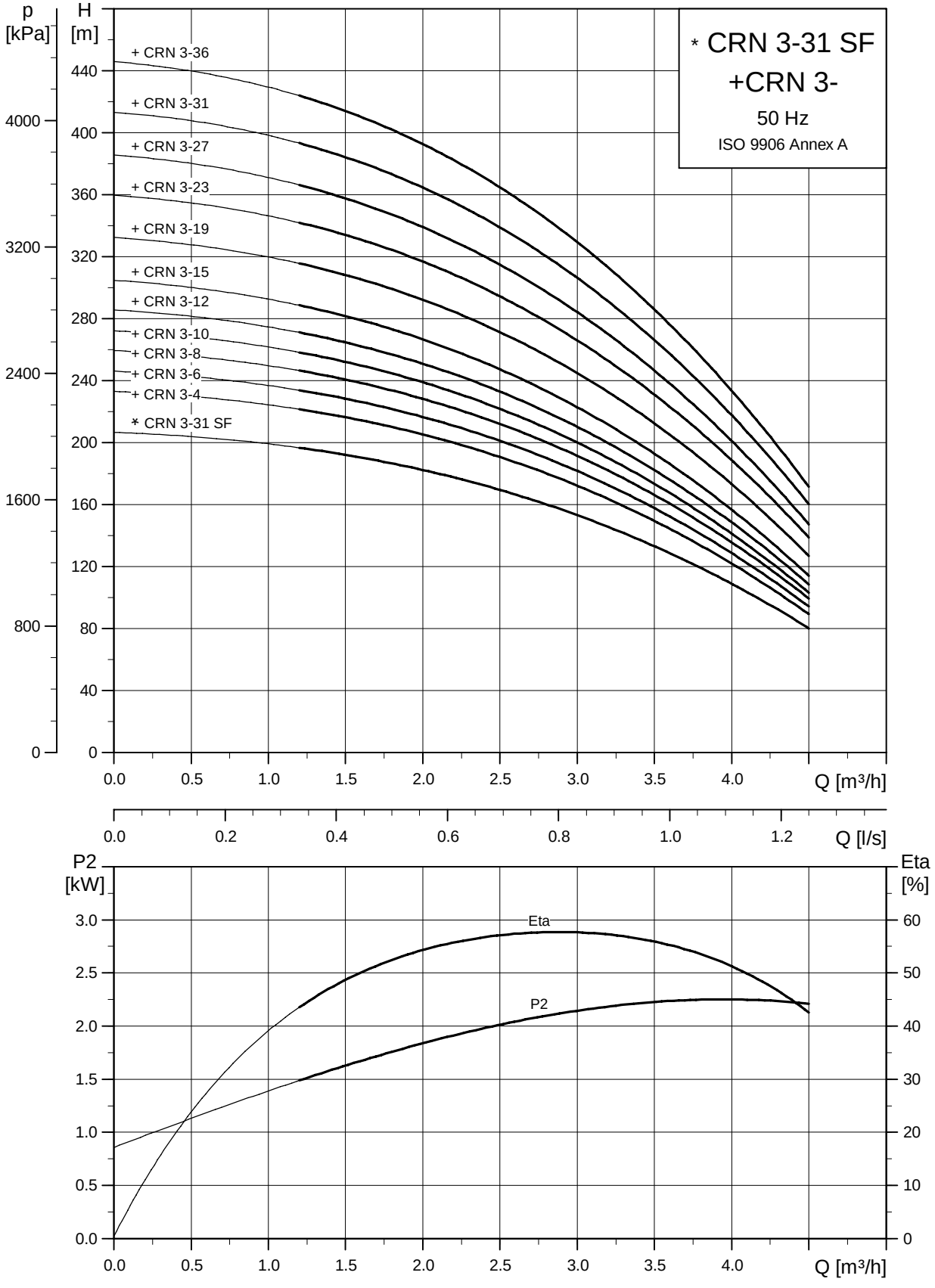


Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRNE 3-23 HS	4.6	680	372	1052	220	188	160	66
CRNE 3-23 HS	6.0	680	391	1071	220	188	200	67
CRNE 3-23 HS	7.5	680	391	1071	220	188	200	70

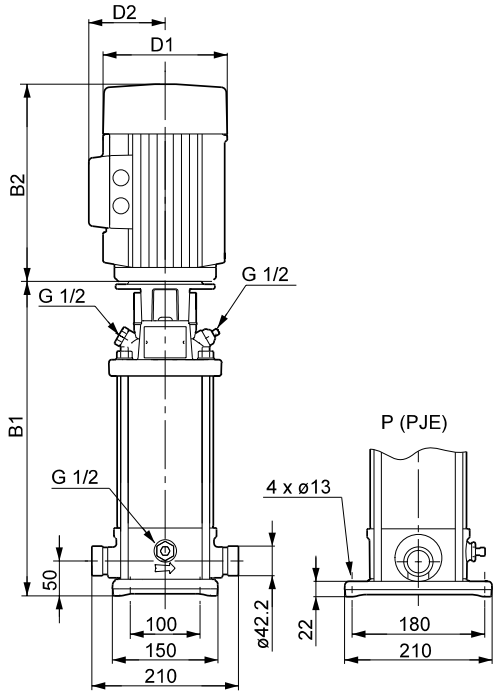
Performance curves

CRN 3 SF, 50 Hz

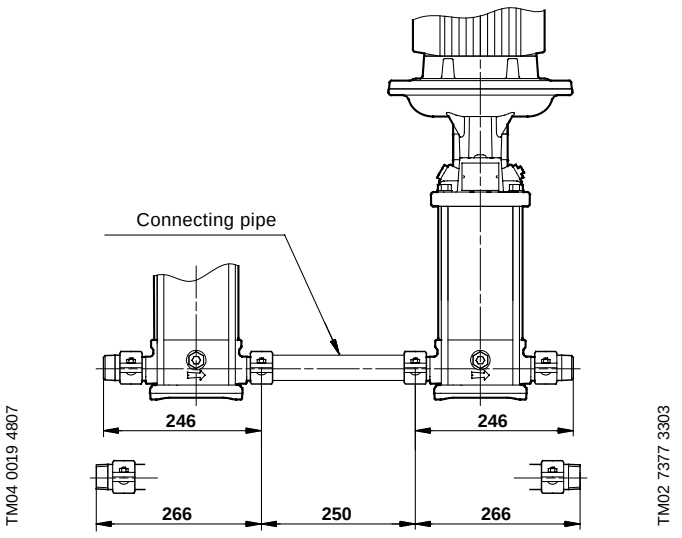


Technical data

Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

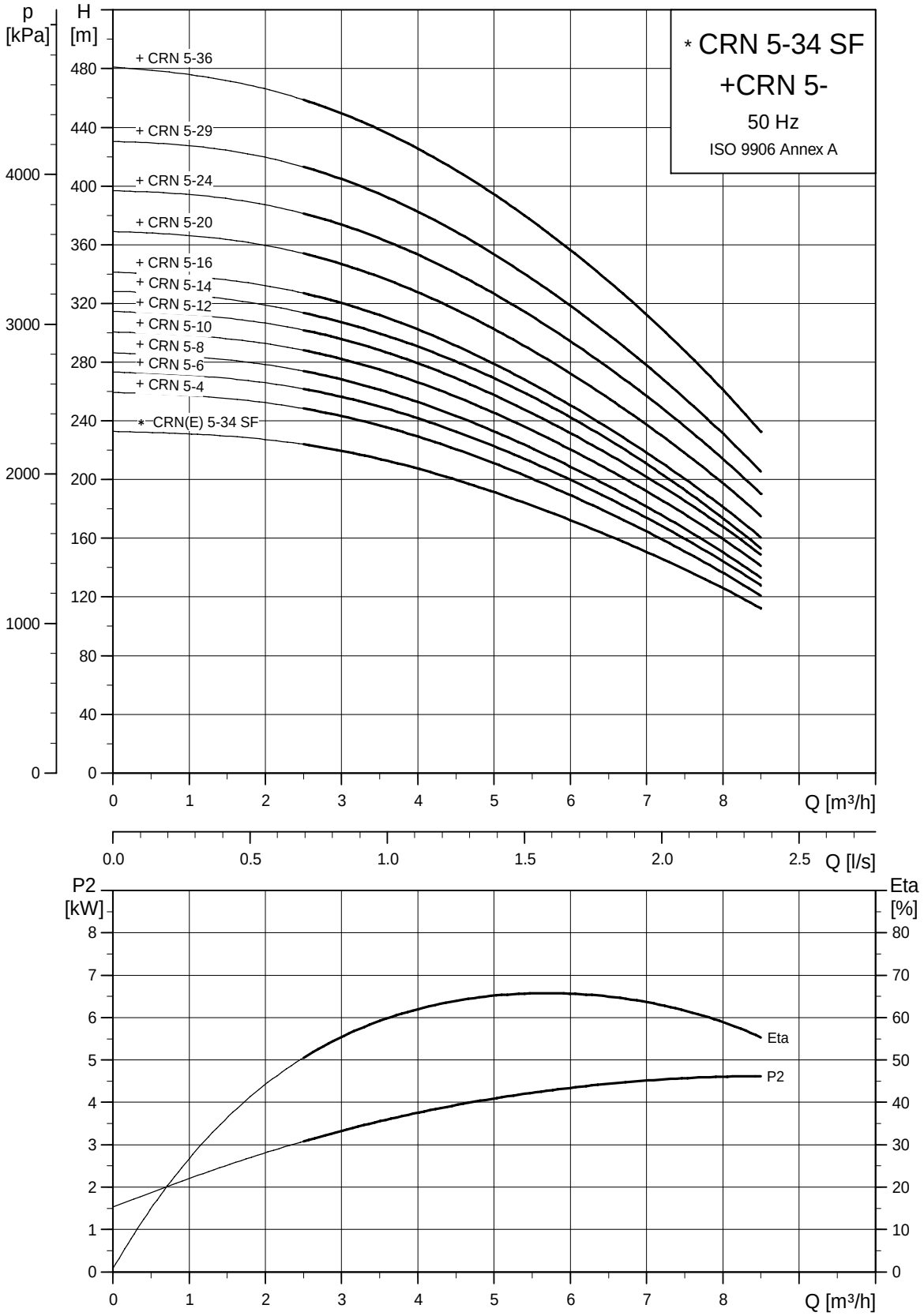
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN						CRNE					
		Dimension [mm]					Net weight [kg]	Dimension [mm]					Net weight [kg]
		B1	B2	B1+B2	D1	D2		B1	B2	B1+B2	D1	D2	
CRN 3-4	0.37	275	191	466	141	109	17	-	-	-	-	-	-
CRN 3-6	0.55	311	191	502	141	109	18	-	-	-	-	-	-
CRN 3-8	0.75	353	231	584	141	109	21	-	-	-	-	-	-
CRN 3-10	0.75	389	231	620	141	109	22	-	-	-	-	-	-
CRN 3-12	1.1	425	231	656	141	109	25	-	-	-	-	-	-
CRN 3-15	1.1	479	231	710	141	109	26	-	-	-	-	-	-
CRN 3-19	1.5	567	281	848	178	110	34	-	-	-	-	-	-
CRN 3-23	2.2	639	321	960	178	110	37	-	-	-	-	-	-
CRN 3-27	2.2	711	321	1032	178	110	38	-	-	-	-	-	-
CRN 3-31	3	788	335	1123	198	120	44	-	-	-	-	-	-
CRN 3-36	3	878	335	1213	198	120	46	-	-	-	-	-	-
CRN(E) 3-31 SF [1]	3	820	335	1155	1148	198	48	820	335	155	198	177	58

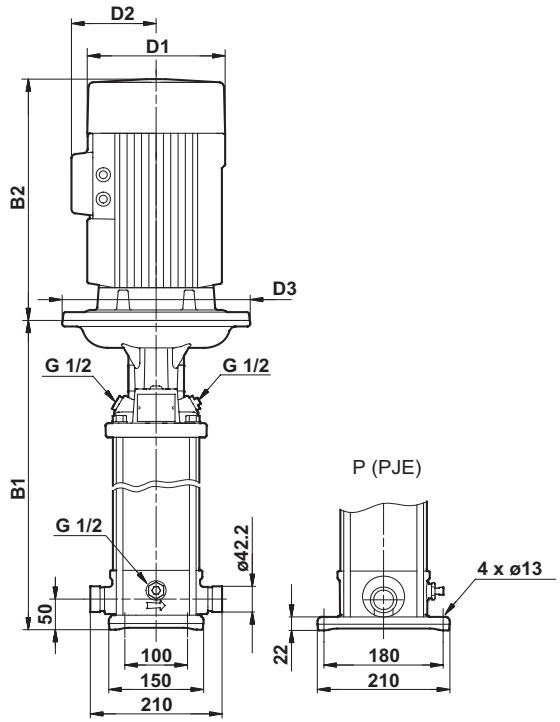
[1] High-pressure pump

Performance curves

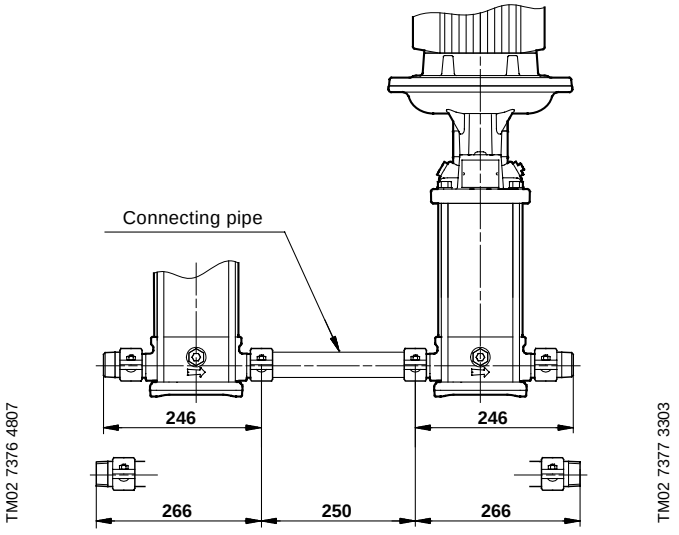
CRN 5 SF, 50 Hz



Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

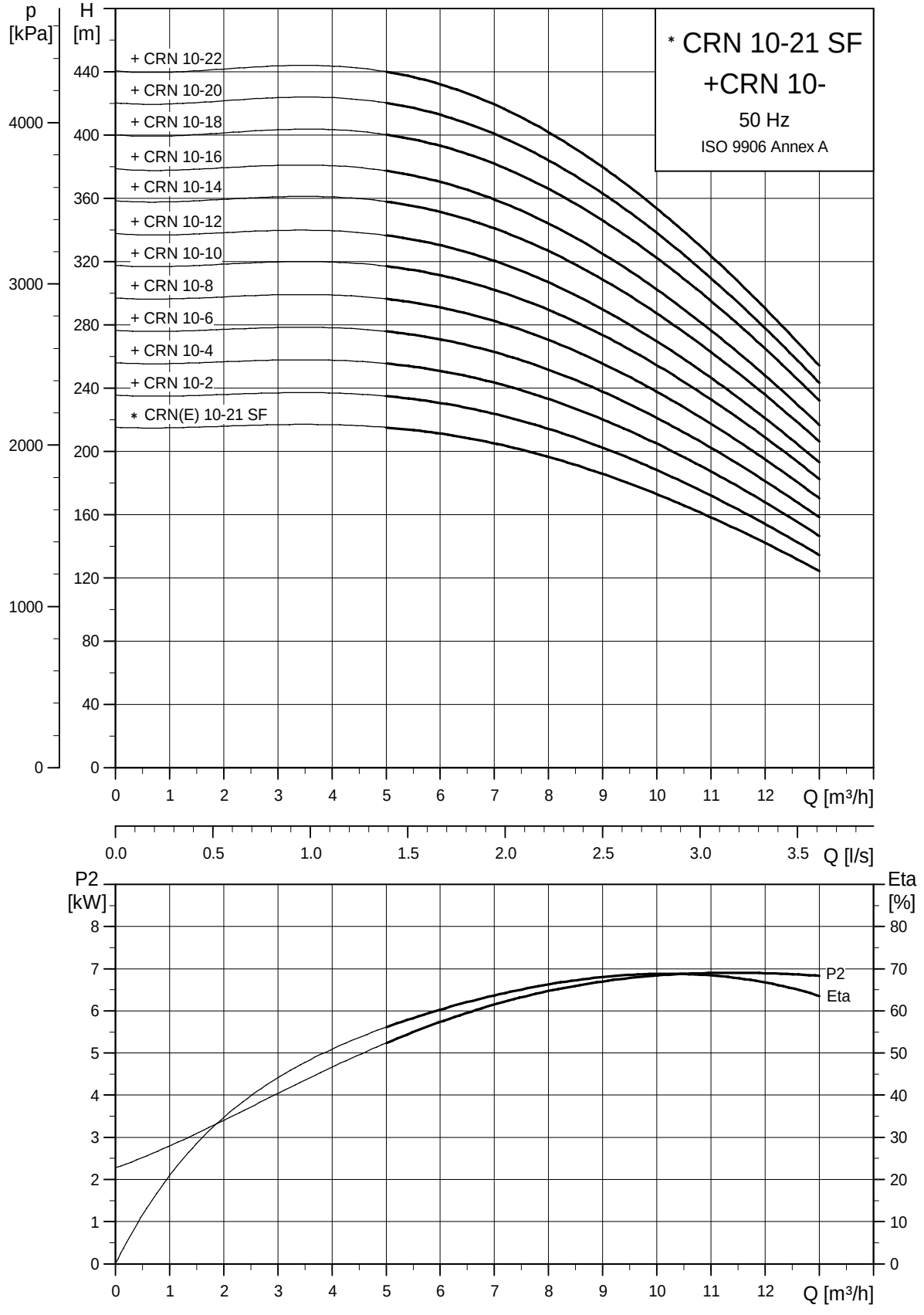
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 5-4	0.55	311	191	502	141	109	-	18	-	-	-	-	-	-	-
CRN 5-6	1.1	371	231	602	141	109	-	24	-	-	-	-	-	-	-
CRN 5-8	1.1	425	231	656	141	109	-	25	-	-	-	-	-	-	-
CRN 5-10	1.5	495	281	776	178	110	-	32	-	-	-	-	-	-	-
CRN 5-12	2.2	549	321	870	178	110	-	34	-	-	-	-	-	-	-
CRN 5-14	2.2	603	321	924	178	110	-	35	-	-	-	-	-	-	-
CRN 5-16	2.2	657	321	978	178	110	-	36	-	-	-	-	-	-	-
CRN 5-20	3	770	335	1105	198	120	-	43	-	-	-	-	-	-	-
CRN 5-24	4	878	372	1250	220	134	-	56	-	-	-	-	-	-	-
CRN 5-29	4	1013	372	1385	220	134	-	59	-	-	-	-	-	-	-
CRN 5-36	5.5	1231	391	1622	220	134	300	77	-	-	-	-	-	-	-
CRN(E) 5-34 SF [1]	5.5	1228	391	1619	220	134	300	76	1228	391	1619	220	188	298	89

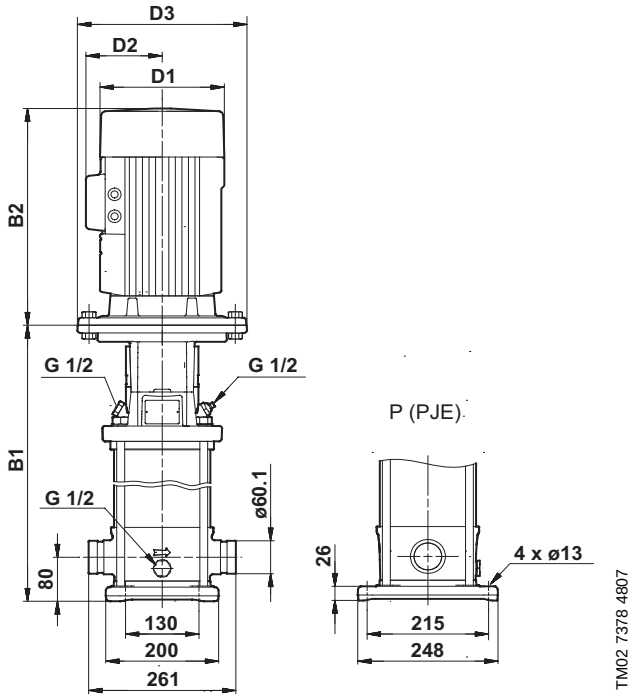
[1] High-pressure pump

Performance curves

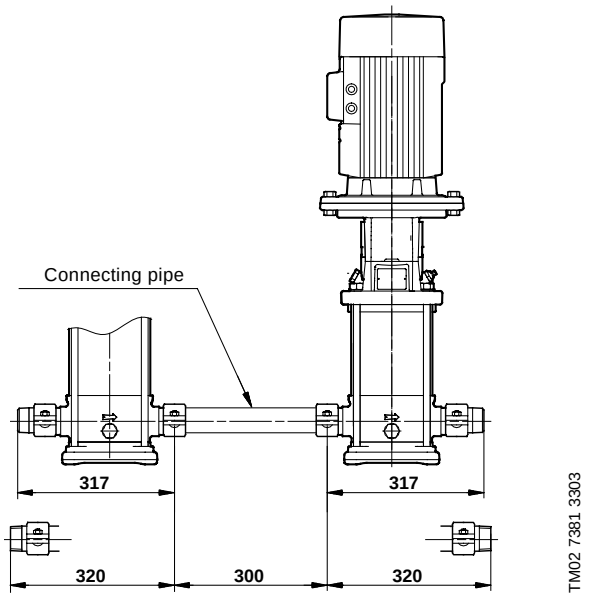
CRN 10 SF, 50 Hz



Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

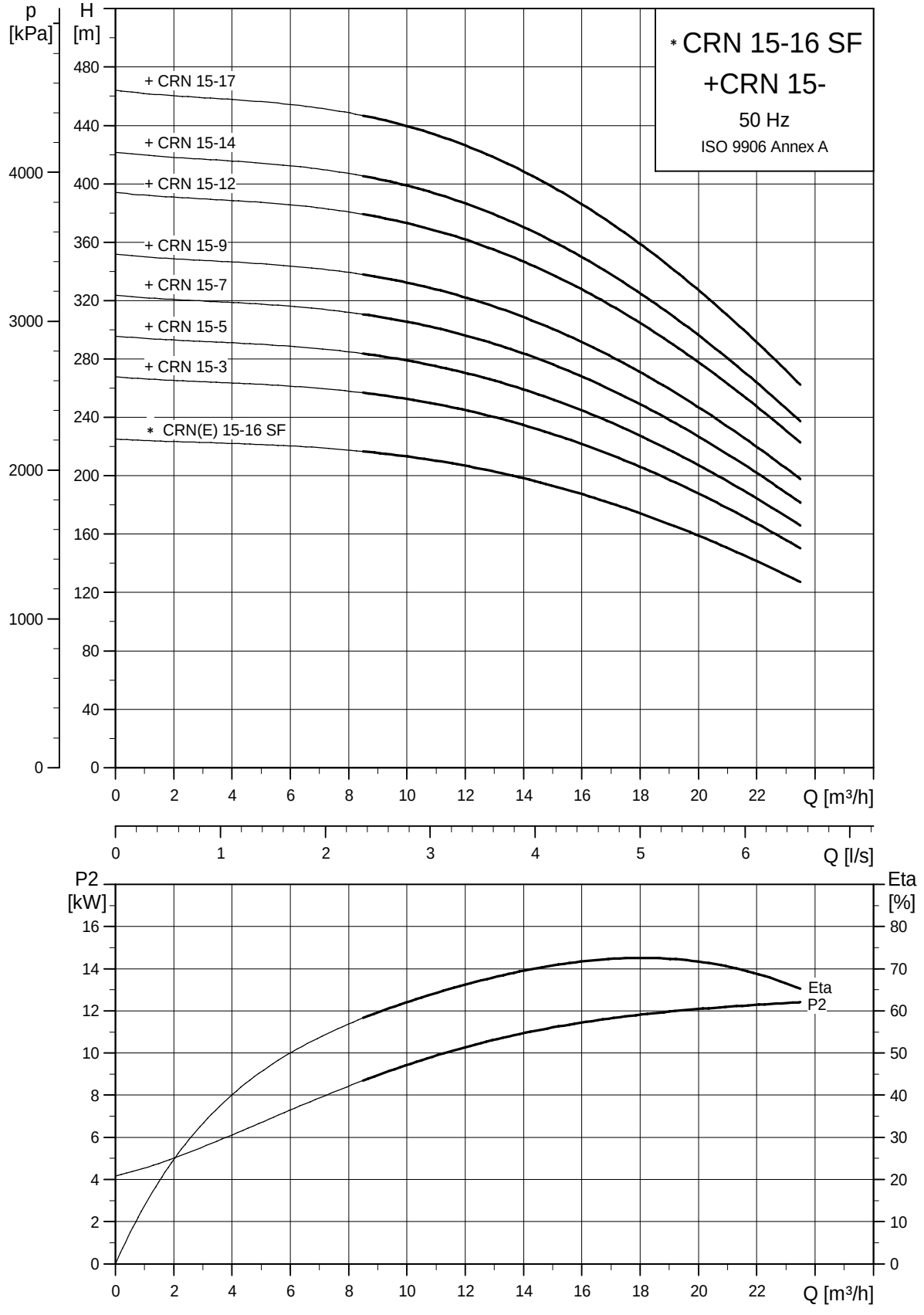
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 10-2	0.75	357	231	588	141	109	-	31	-	-	-	-	-	-	-
CRN 10-4	1.5	433	281	714	178	110	-	42	-	-	-	-	-	-	-
CRN 10-6	2.2	493	321	814	178	110	-	45	-	-	-	-	-	-	-
CRN 10-8	3	558	335	893	198	120	-	52	-	-	-	-	-	-	-
CRN 10-10	4	618	372	990	220	134	-	65	-	-	-	-	-	-	-
CRN 10-12	4	678	372	1050	220	134	-	67	-	-	-	-	-	-	-
CRN 10-14	5.5	770	391	1161	220	134	300	89	-	-	-	-	-	-	-
CRN 10-16	5.5	830	391	1221	220	134	300	91	-	-	-	-	-	-	-
CRN 10-18	7.5	890	391	1281	220	134	300	96	-	-	-	-	-	-	-
CRN 10-20	7.5	950	391	1341	220	134	300	98	-	-	-	-	-	-	-
CRN 10-22	7.5	1010	391	1401	220	134	300	100	-	-	-	-	-	-	-
CRN(E) 10-21 SF [1]	7.5	1010	391	1401	220	134	300	99	1010	391	1401	220	188	298	111

[1] High-pressure pump

Performance curves

CRN 15 SF, 50 Hz



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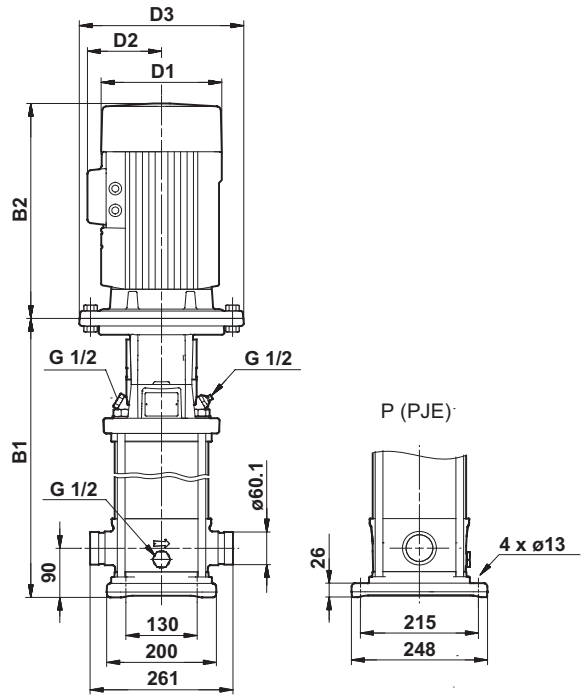
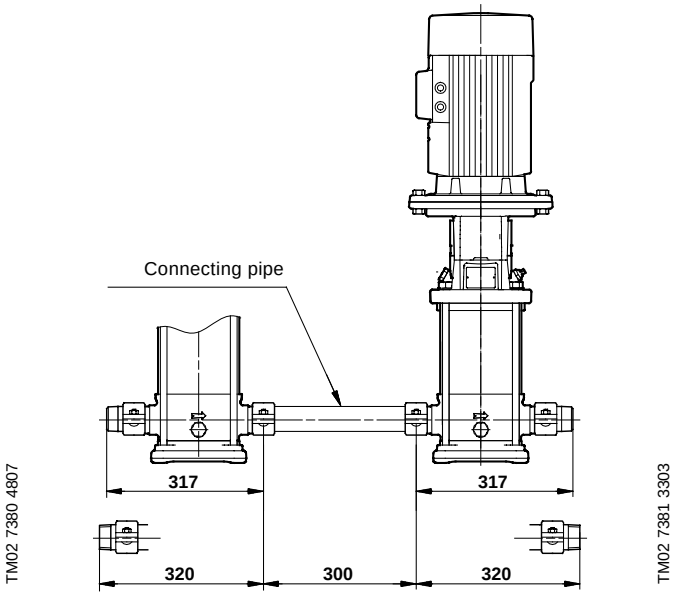
Technical data

Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

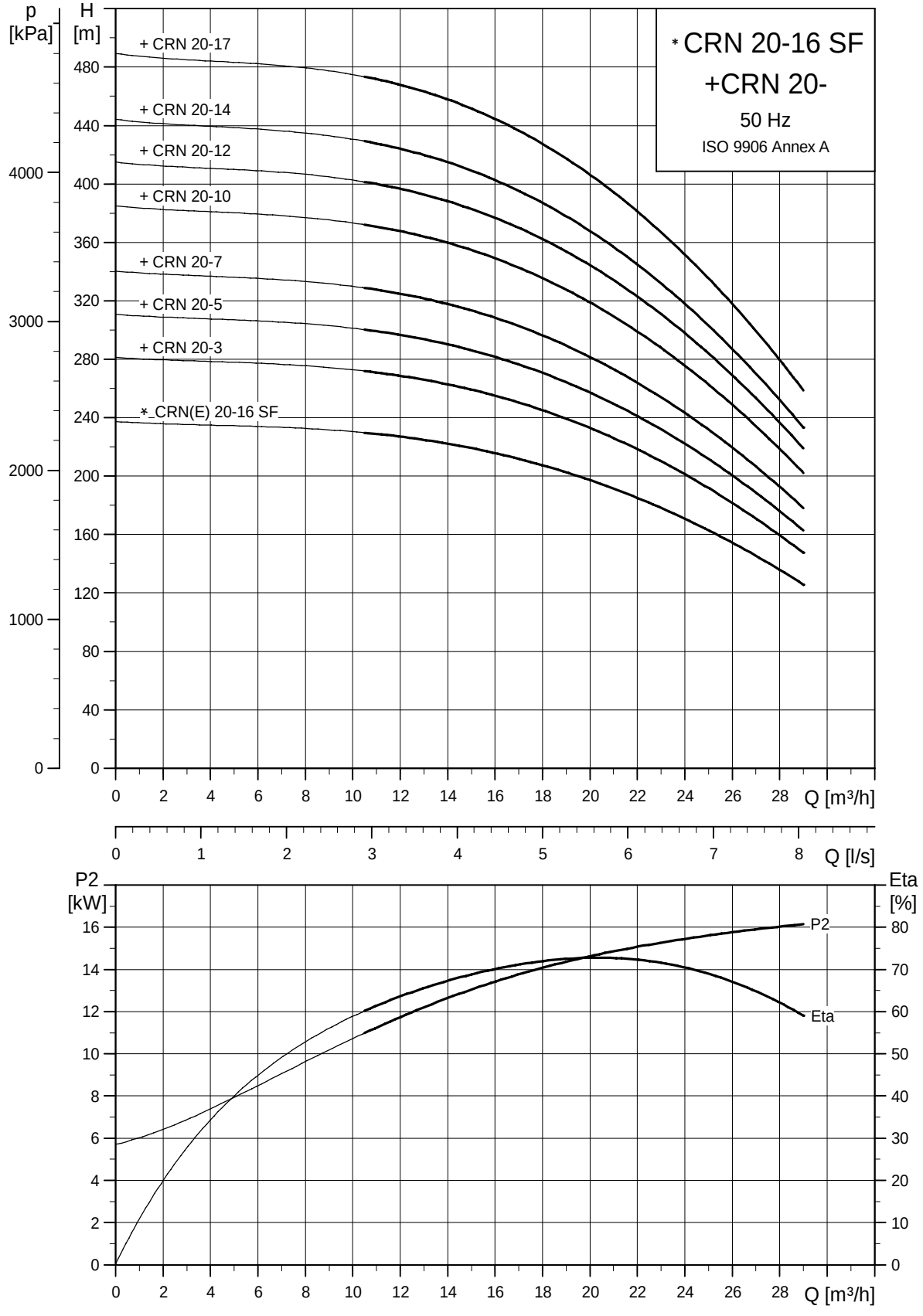
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 15-3	3	463	335	798	198	120	-	48	-	-	-	-	-	-	-
CRN 15-5	4	553	372	925	220	134	-	62	-	-	-	-	-	-	-
CRN 15-7	5.5	675	391	1066	220	134	300	86	-	-	-	-	-	-	-
CRN 15-9	7.5	765	391	1156	220	134	300	91	-	-	-	-	-	-	-
CRN 15-12	11	977	499	1476	260	172	350	126	-	-	-	-	-	-	-
CRN 15-14	11	1067	499	1566	260	172	350	130	-	-	-	-	-	-	-
CRN 15-17	15	1202	478	1680	320	197	350	149	-	-	-	-	-	-	-
CRN(E) 15-16 SF [1]	15	1202	478	1680	320	197	350	146	1202	461	1663	313	377	350	182

[1] High-pressure pump

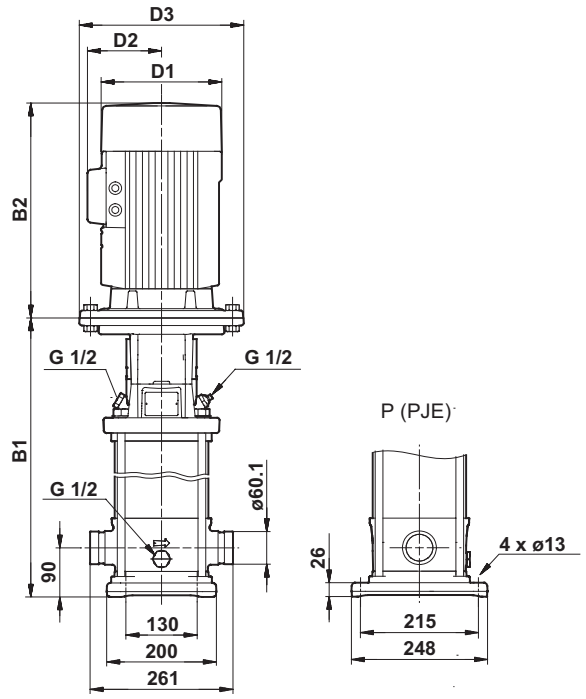
Performance curves

CRN 20 SF, 50 Hz

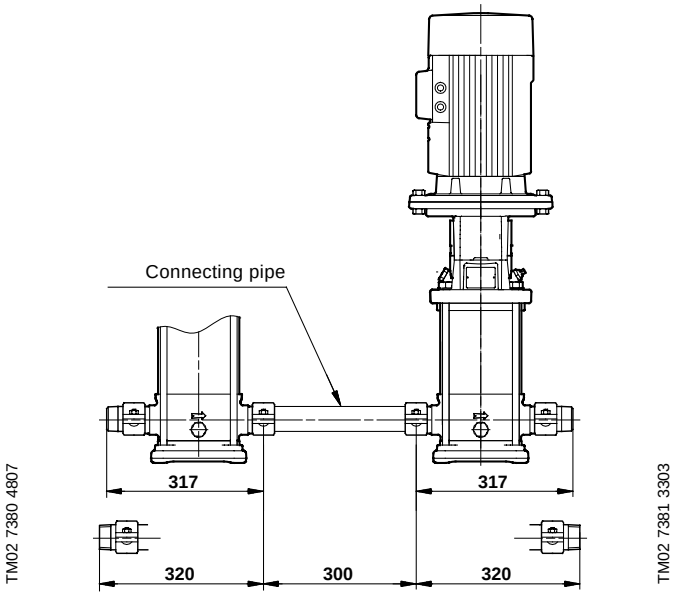


Technical data

Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

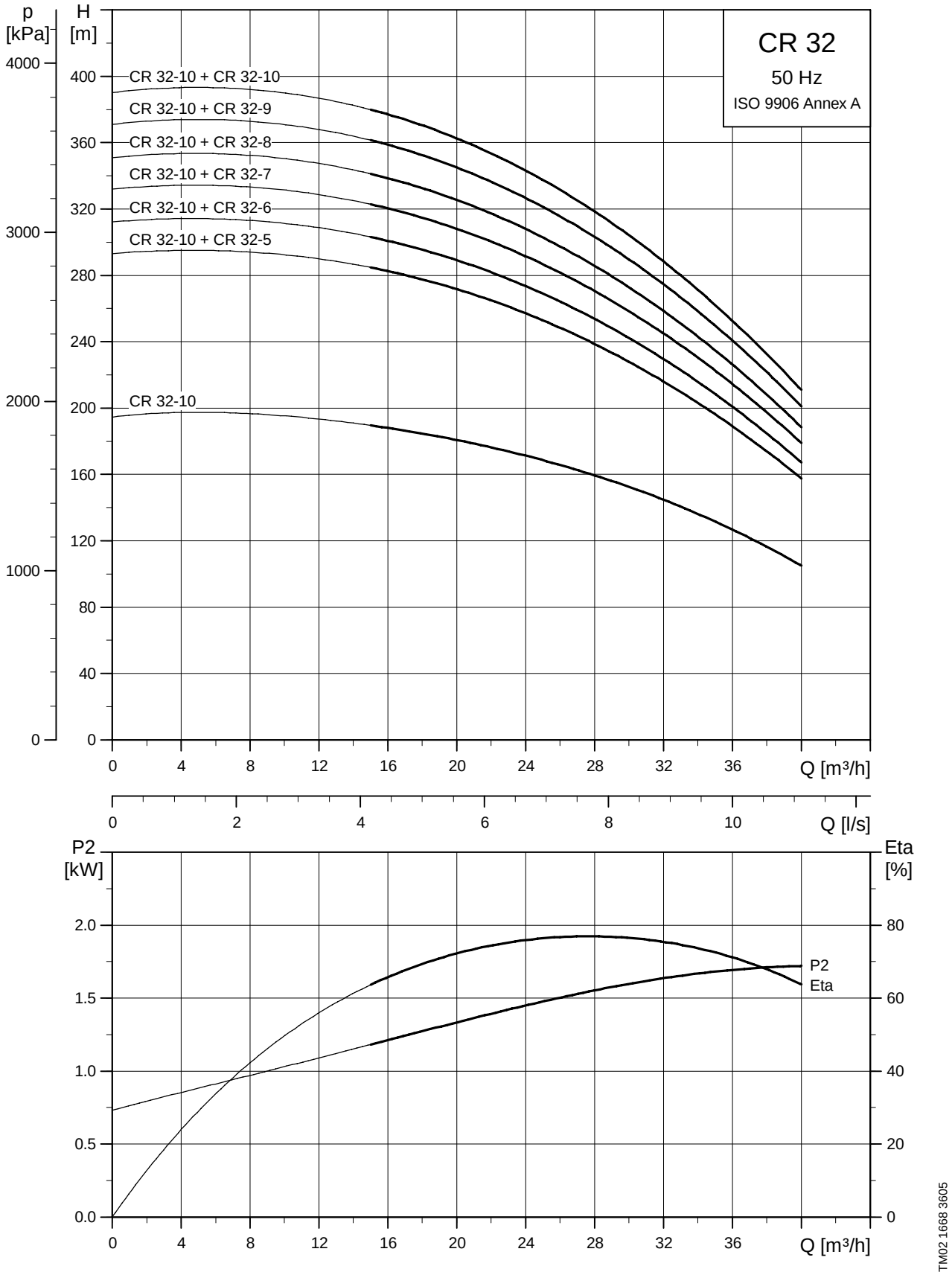
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 20-3	4	463	372	835	220	134	-	59	-	-	-	-	-	-	-
CRN 20-5	5.5	585	391	976	220	134	300	82	-	-	-	-	-	-	-
CRN 20-7	7.5	675	391	1066	220	134	300	88	-	-	-	-	-	-	-
CRN 20-10	11	887	499	1386	260	172	350	123	-	-	-	-	-	-	-
CRN 20-12	15	977	478	1455	320	197	350	140	-	-	-	-	-	-	-
CRN 20-14	15	1067	478	1545	320	197	350	144	-	-	-	-	-	-	-
CRN 20-17	18.5	1202	518	1720	320	197	350	179	-	-	-	-	-	-	-
CRN(E) 20-16 SF [1]	18.5	1202	518	1720	320	197	350	177	1202	499	1701	313	377	350	218

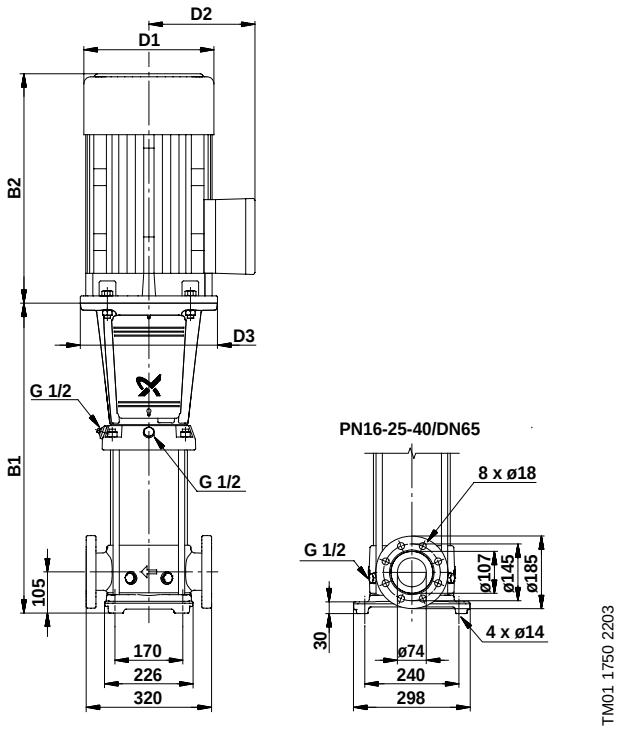
[1] High-pressure pump

Performance curves

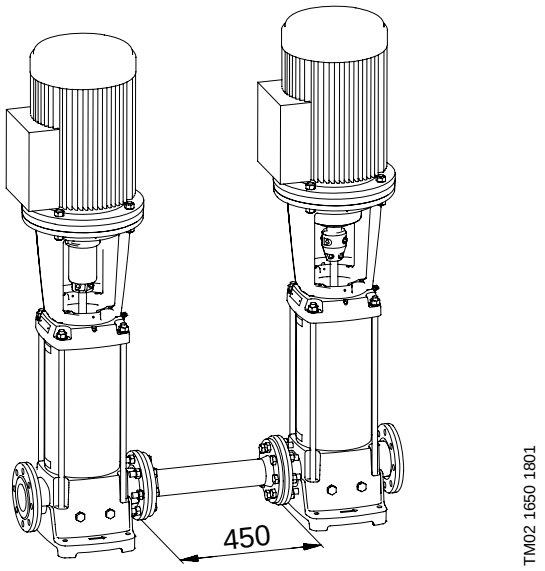
CR 32, 50 Hz



Dimensional sketches



CR feed pump/CR high-pressure pump



CR feed pump, connecting pipe and CR high-pressure pump

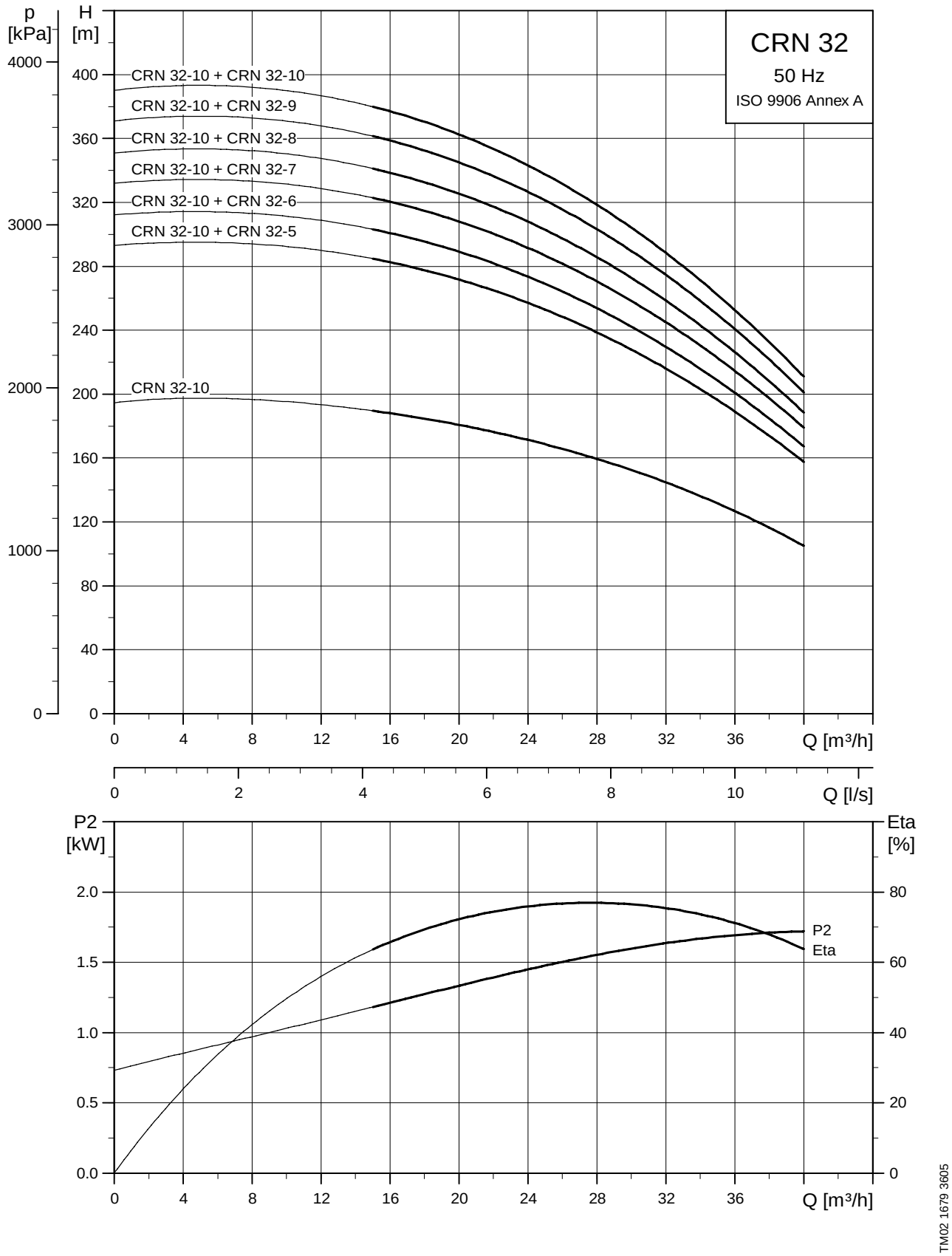
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 32-5	11	895	499	1394	260	172	350	139
CR 32-6	11	965	499	1464	260	172	350	142
CR 32-7	15	1035	478	1513	320	197	350	163
CR 32-8	15	1105	478	1583	320	197	350	169
CR 32-9	18.5	1175	518	1693	320	197	350	180
CR 32-10	18.5	1245	518	1763	320	197	350	183
CR 32-10 [1)]	18.5	1245	518	1763	320	197	350	183

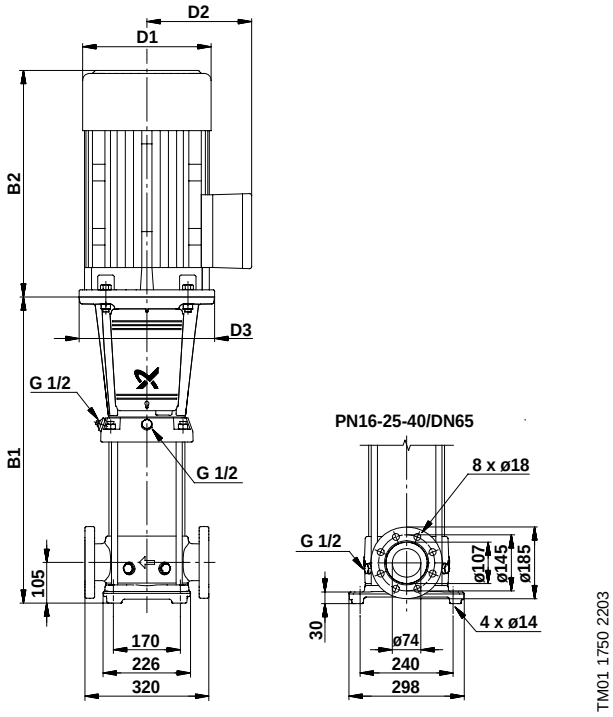
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 24 kg.

Performance curves

CRN 32, 50 Hz



Dimensional sketches



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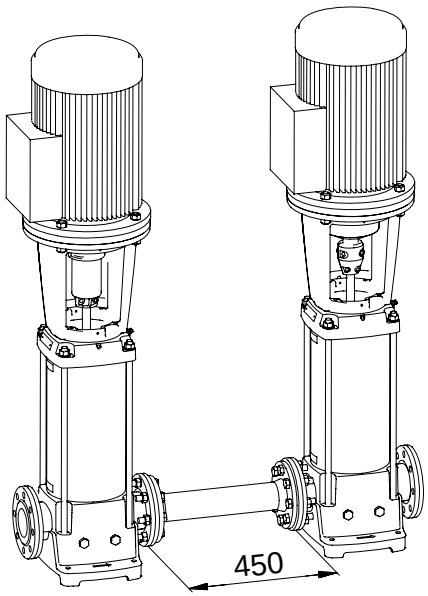
CRN feed pump/CRN high-pressure pump



TM02 1650 1801

CRN feed pump, connecting pipe and CRN high-pressure pump

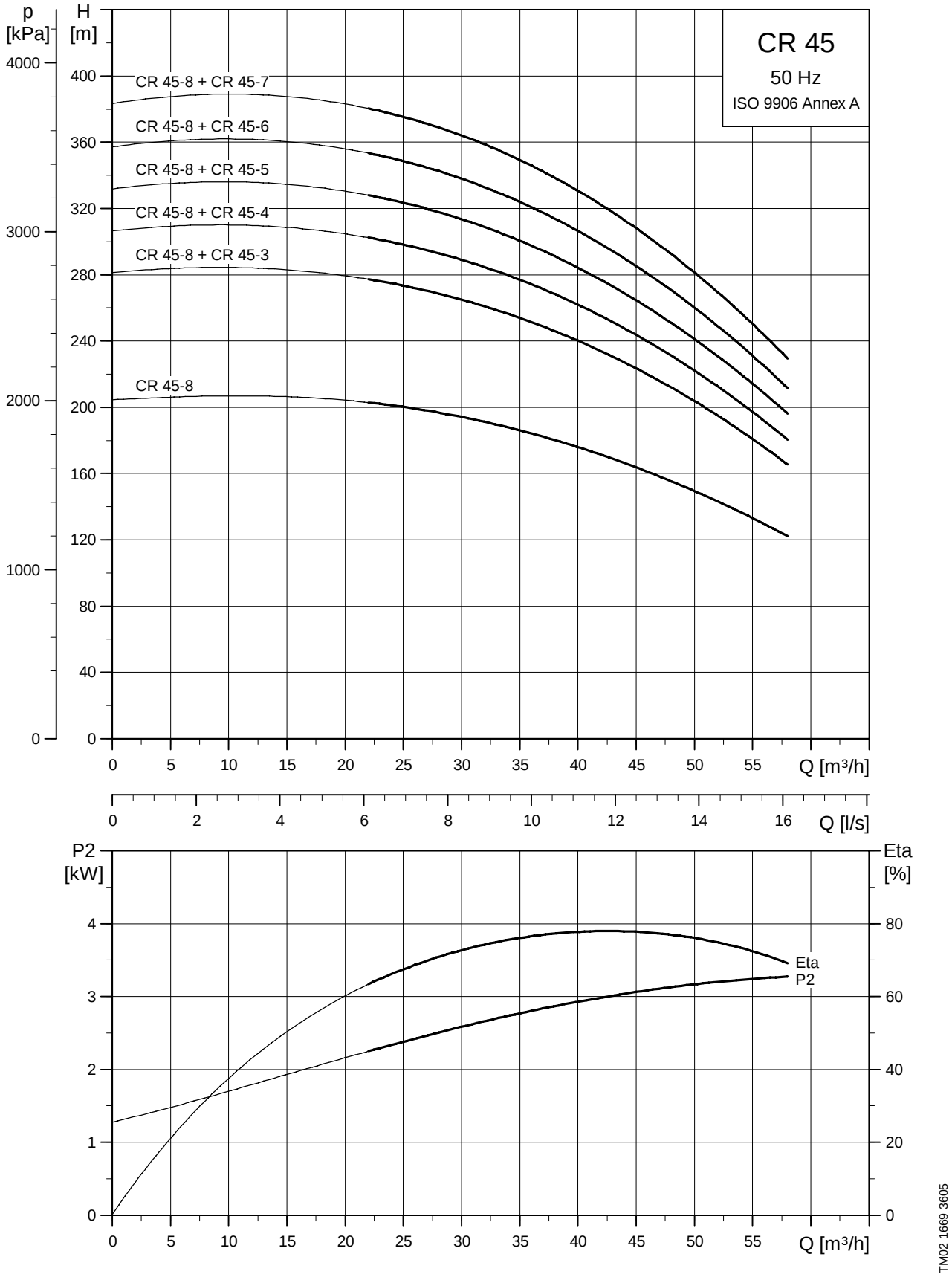
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 32-5	11	895	499	1394	260	172	350	141
CRN 32-6	11	965	499	1464	260	172	350	144
CRN 32-7	15	1035	478	1513	320	197	350	165
CRN 32-8	15	1105	478	1583	320	197	350	171
CRN 32-9	18.5	1175	518	1693	320	197	350	182
CRN 32-10	18.5	1245	518	1763	320	197	350	185
CRN 32-10 [1)]	18.5	1245	518	1763	320	197	350	185

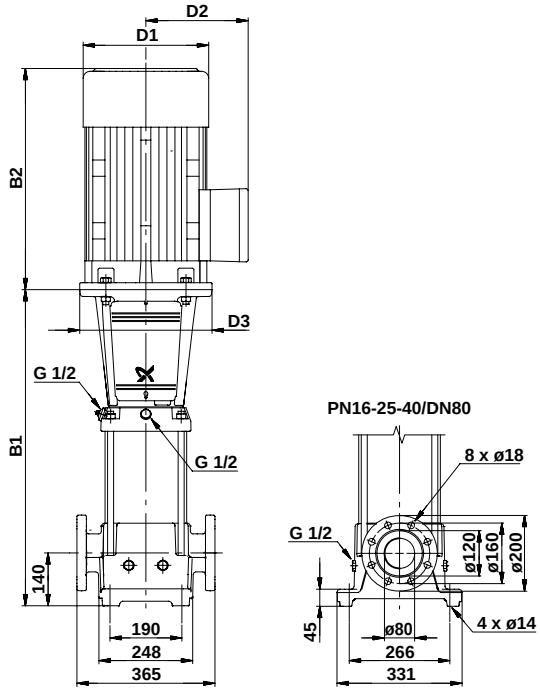
1) High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 24 kg.

Performance curves

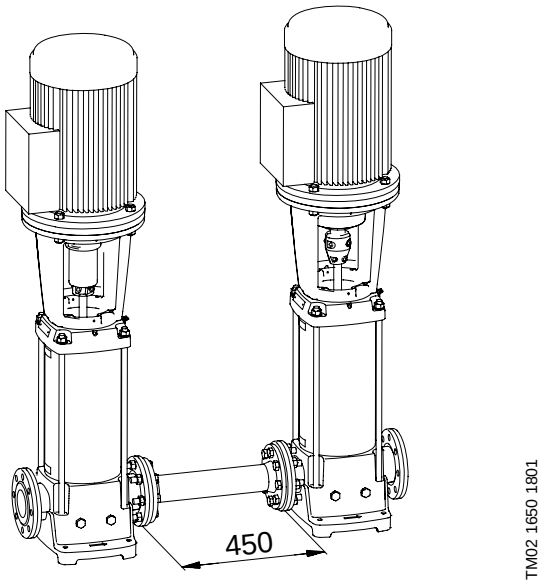
CR 45, 50 Hz



Dimensional sketches



CR feed pump/CR high-pressure pump



CR feed pump, connecting pipe and CR high-pressure pump

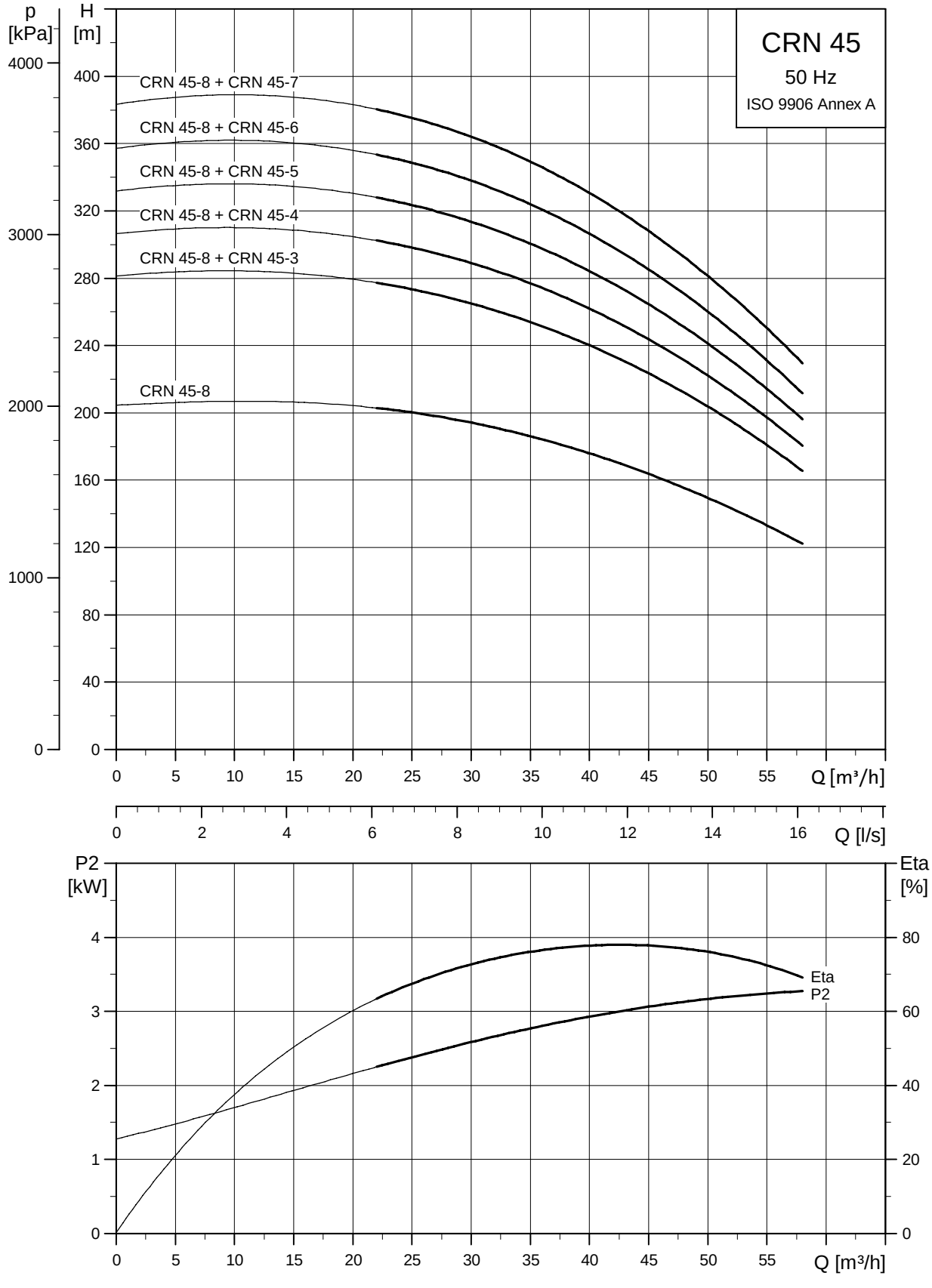
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 45-3	11	829	499	1328	260	172	350	144
CR 45-4	15	909	478	1387	320	197	350	166
CR 45-5	18.5	989	518	1507	320	197	350	177
CR 45-6	22	1069	610	1679	363	262	350	269
CR 45-7	30	1149	646	1795	415	300	400	324
CR 45-8 [1]	30	1229	646	1875	415	300	400	328

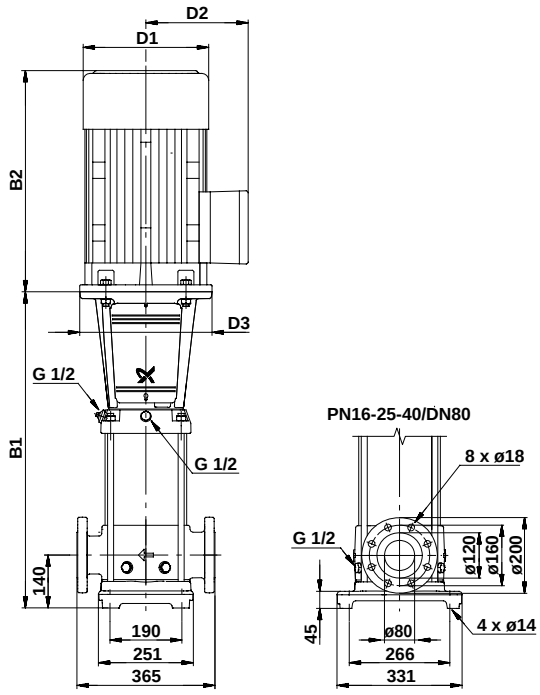
[1] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 27 kg.

Performance curves

CRN 45, 50 Hz

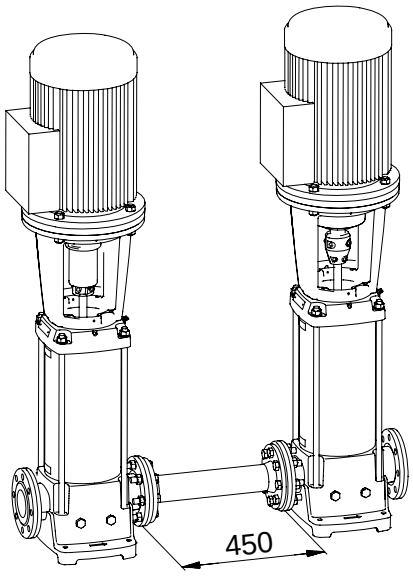


Dimensional sketches



TM02 1769 2803

CRN feed pump/ CRN high-pressure pump



TM02 1650 1801

CRN feed pump, connecting pipe and CRN high-pressure pump

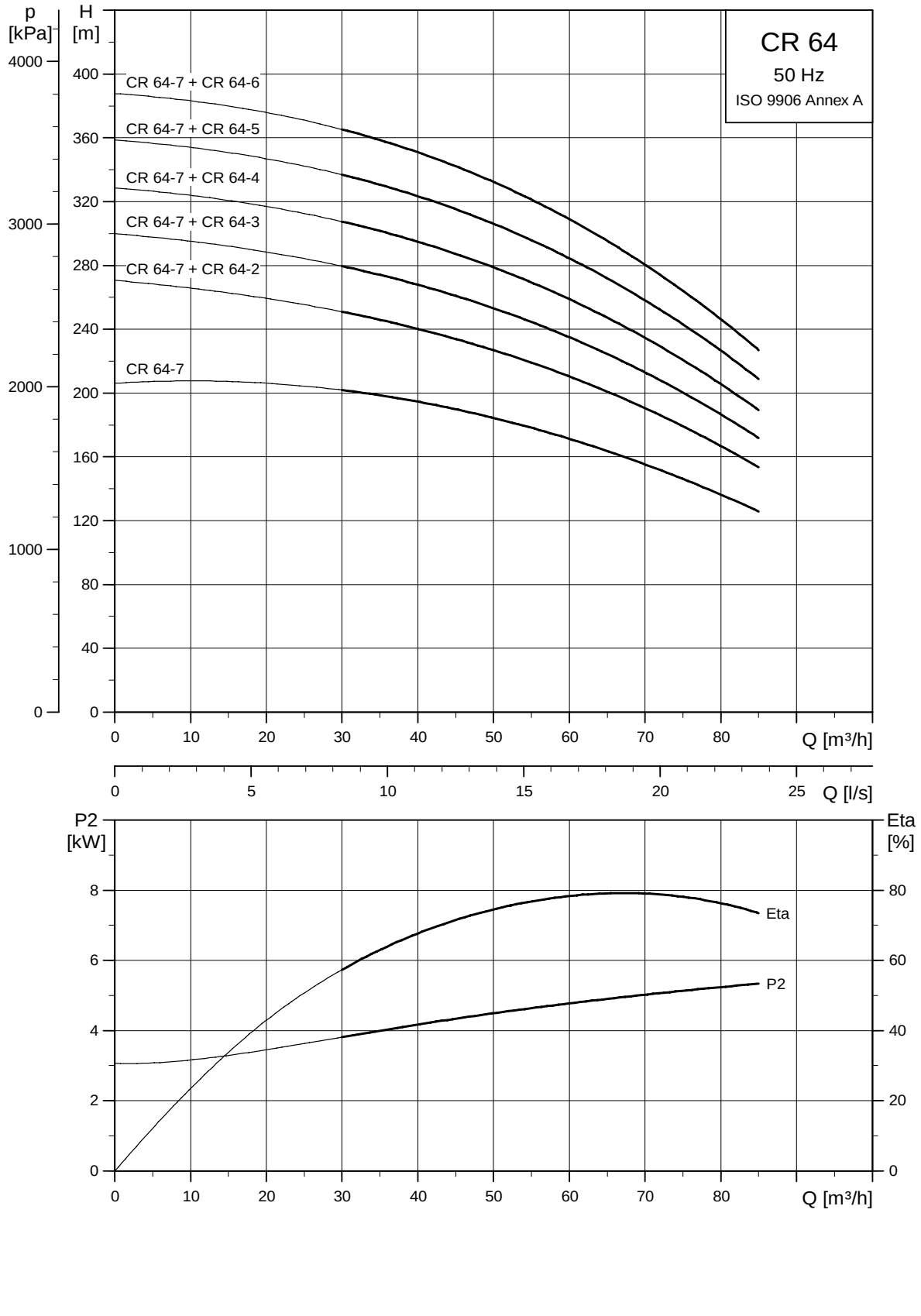
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 45-3	11	829	499	1328	260	172	350	145
CRN 45-4	15	909	478	1387	320	197	350	166
CRN 45-5	18.5	989	518	1507	320	197	350	177
CRN 45-6	22	1069	610	1679	363	262	350	270
CRN 45-7	30	1149	646	1795	415	300	400	324
CRN 45-8 [1)]	30	1229	646	1875	415	300	400	328

[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 27 kg.

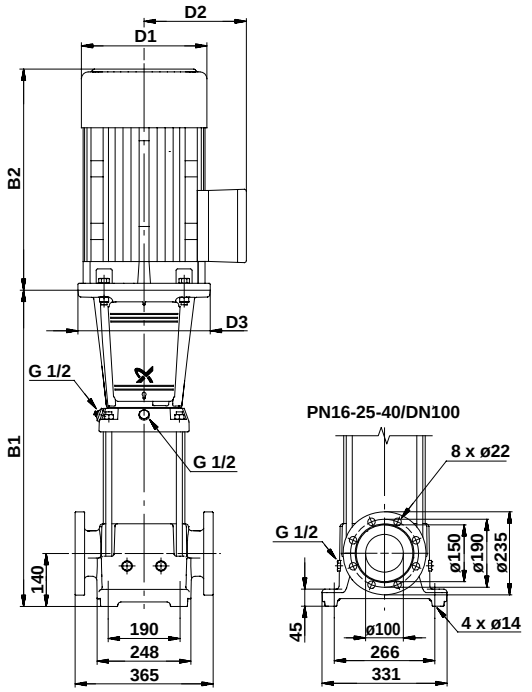
Performance curves

CR 64, 50 Hz

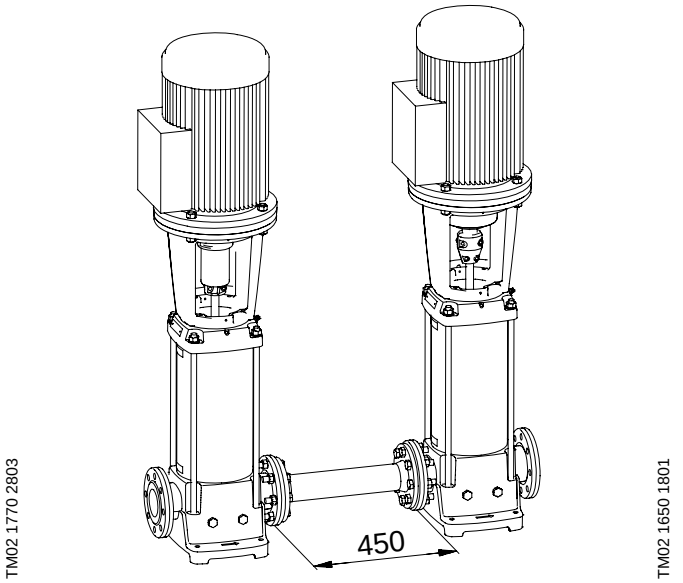


TM02 1670 1801

Dimensional sketches



CR feed pump/CR high-pressure pump



CR feed pump, connecting pipe and CR high-pressure pump

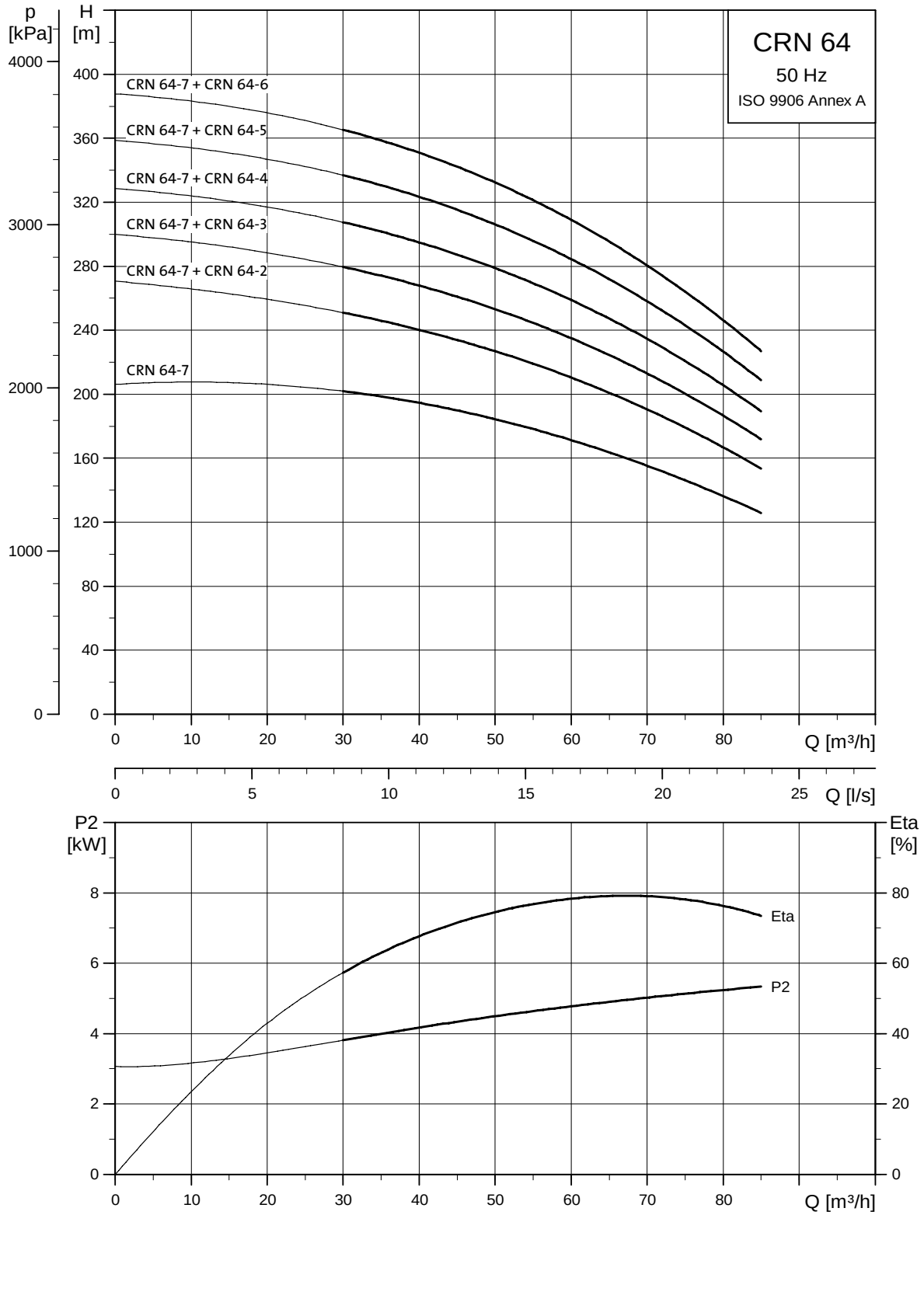
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 64-2	11	754	499	1253	260	172	350	143
CR 64-3	18.5	836	518	1354	320	197	350	173
CR 64-4	22	919	610	1529	363	262	350	263
CR 64-5	30	1001	646	1647	415	300	400	318
CR 64-6	37	1084	703	1787	415	300	400	354
CR 64-7 [1)]	45	1166	709	1875	442	325	450	438

[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

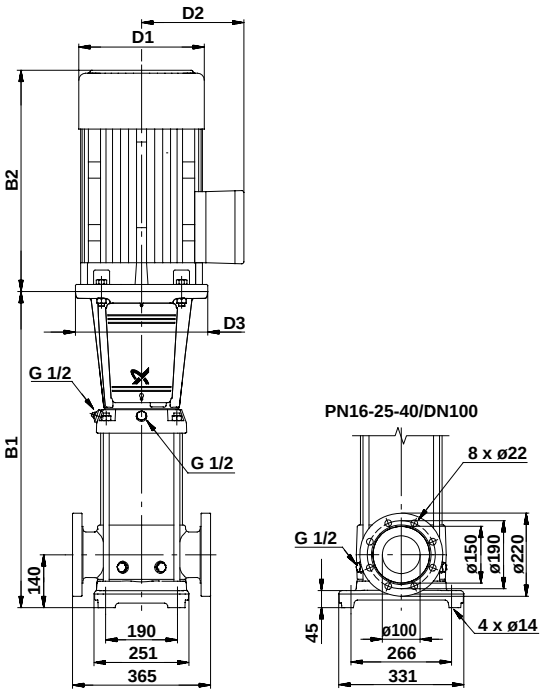
Performance curves

CRN 64, 50 Hz



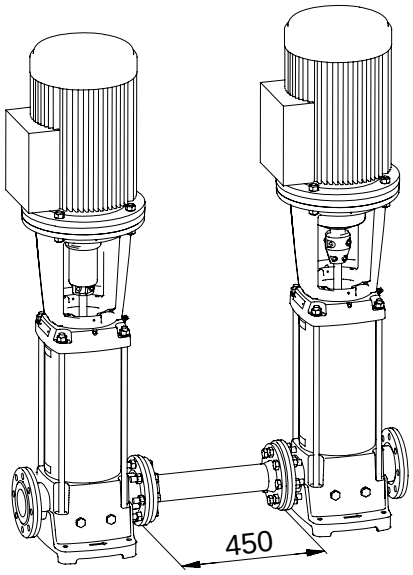
TM02 1681 1801

Dimensional sketches



TM02 1771 2803

CRN feed pump/CRN high-pressure pump



TM02 1650 1801

CRN feed pump, connecting pipe and CRN high-pressure pump

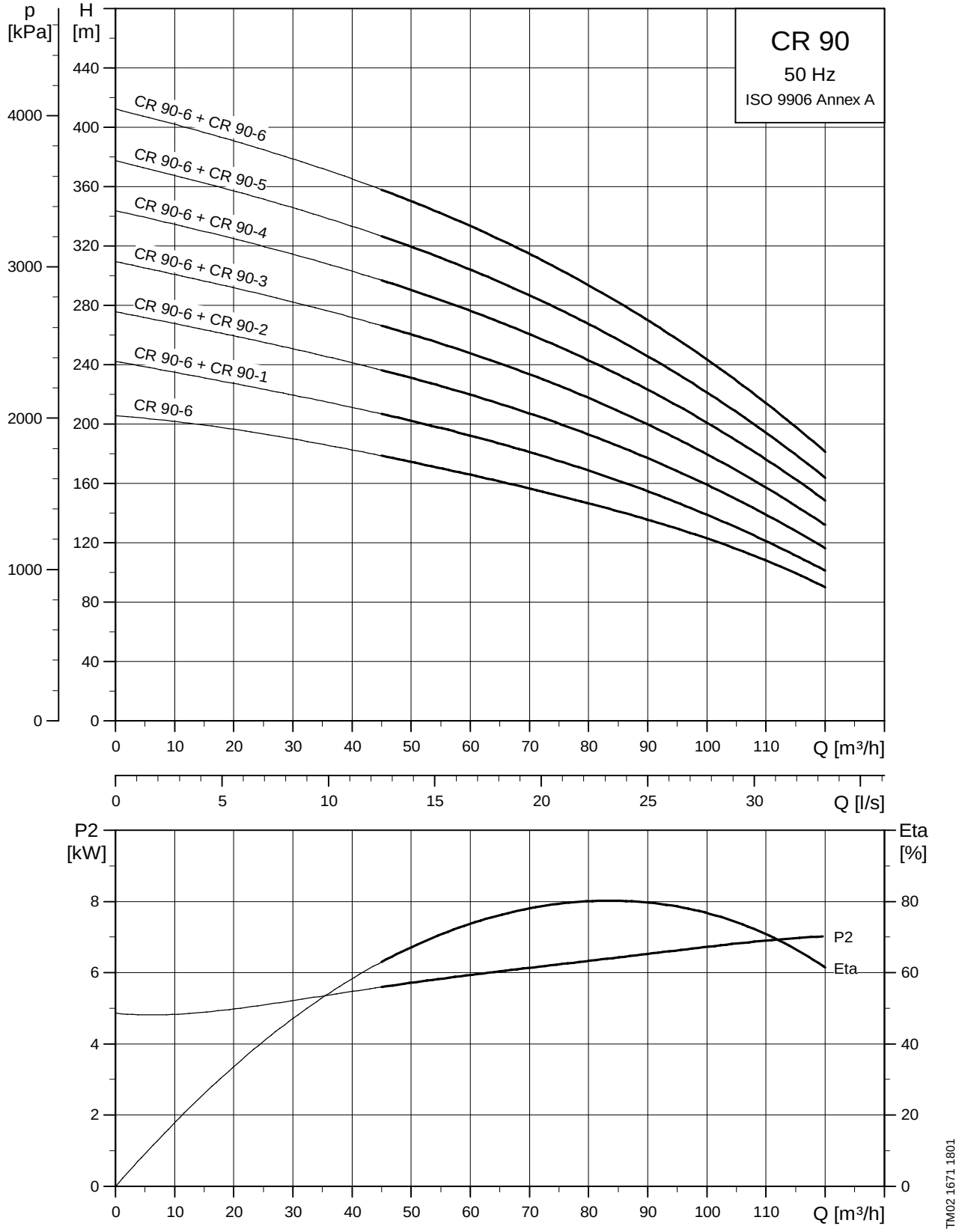
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 64-2	11	754	499	1253	260	172	350	143
CRN 64-3	18.5	836	518	1354	320	197	350	173
CRN 64-4	22	919	610	1529	363	262	350	263
CRN 64-5	30	1001	646	1647	415	300	400	318
CRN 64-6	37	1084	703	1787	415	300	400	355
CRN 64-7 [1)]	45	1166	709	1875	442	325	450	439

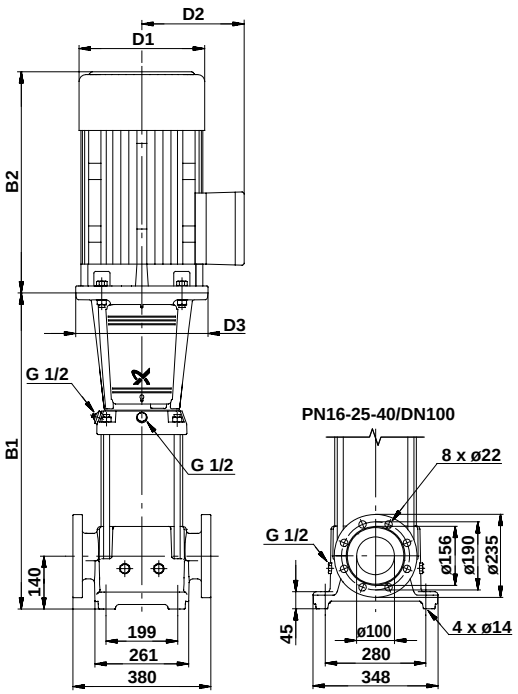
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

Performance curves

CR 90, 50 Hz

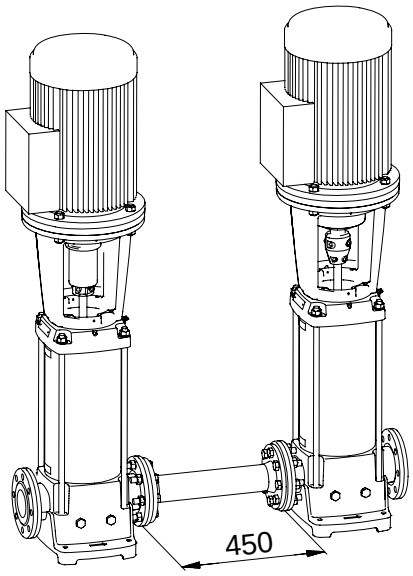


Dimensional sketches



TM02 1772 2803

CR feed pump/CR high-pressure pump



TM02 1650 1801

CR feed pump, connecting pipe and CR high-pressure pump

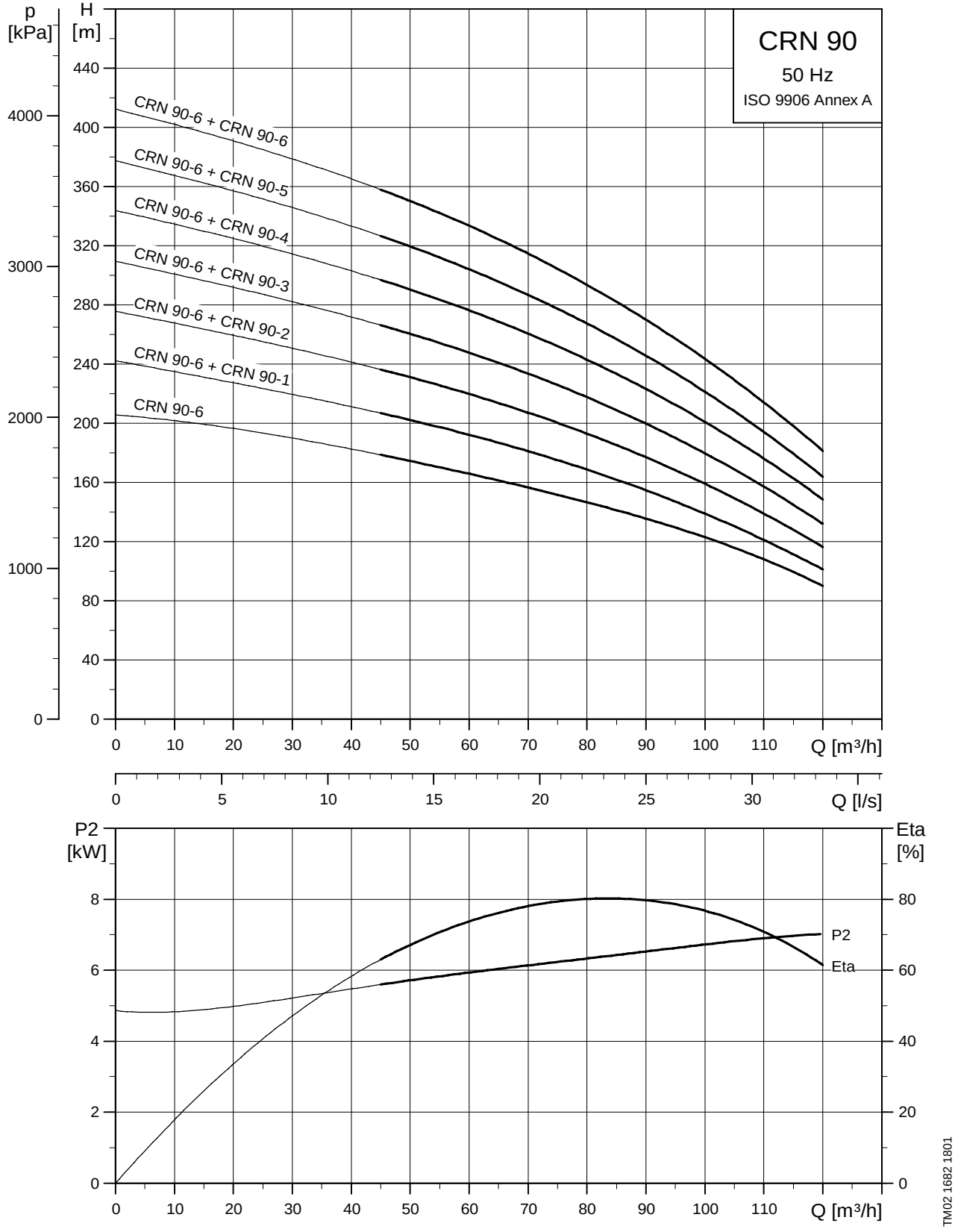
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 90-1	7.5	571	391	962	220	134	300	109
CR 90-2	15	773	478	1251	320	197	350	167
CR 90-3	22	865	610	1475	363	262	350	264
CR 90-4	30	957	646	1603	415	300	400	320
CR 90-5	37	1049	703	1752	415	300	400	356
CR 90-6	45	1141	709	1850	442	325	450	441
CR 90-6 [1)]	45	1141	709	1850	442	325	450	441

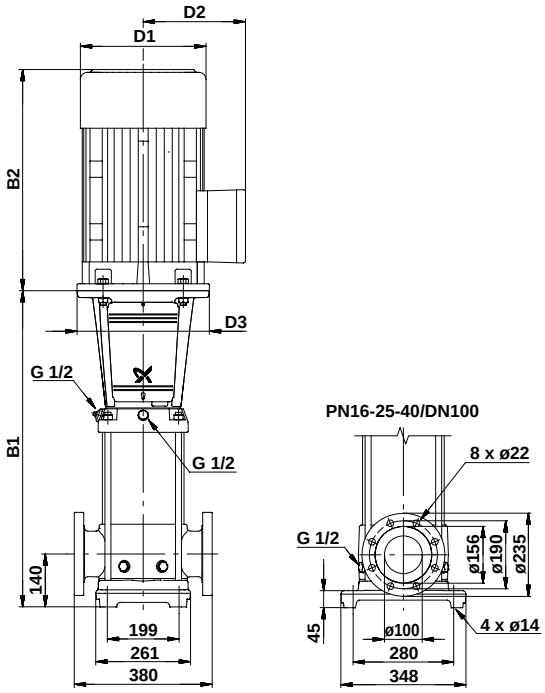
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

Performance curves

CRN 90, 50 Hz

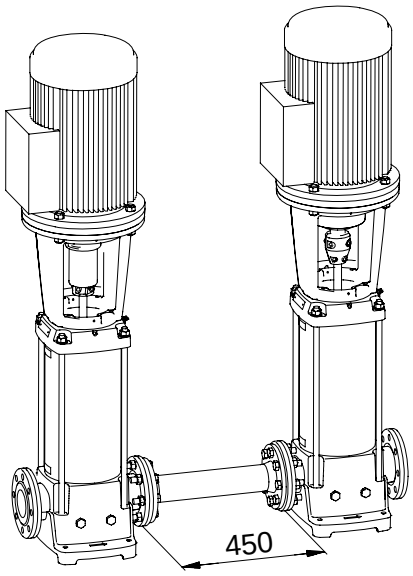


Dimensional sketches



TM02 1773 2803

CRN feed pump/CRN high-pressure pump



TM02 1650 1801

CRN feed pump, connecting pipe and CRN high-pressure pump

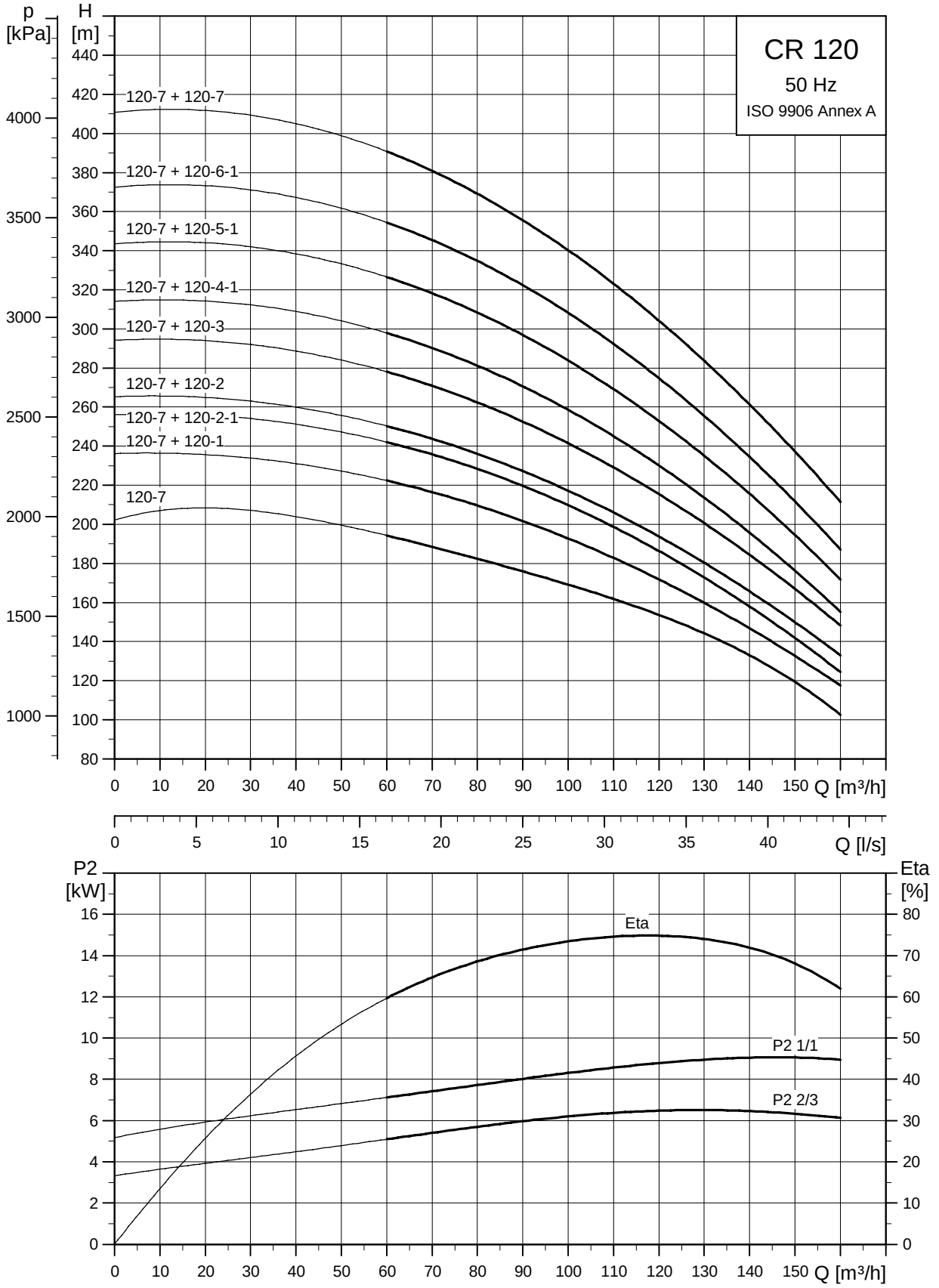
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 90-1	7.5	571	391	962	220	134	300	111
CRN 90-2	15	773	478	1251	320	197	350	168
CRN 90-3	22	865	610	1475	363	262	350	266
CRN 90-4	30	957	646	1603	415	300	400	321
CRN 90-5	37	1049	703	1752	415	300	400	359
CRN 90-6	45	1141	709	1850	442	325	450	443
CRN 90-6 [1)]	45	1141	709	1850	442	325	450	443

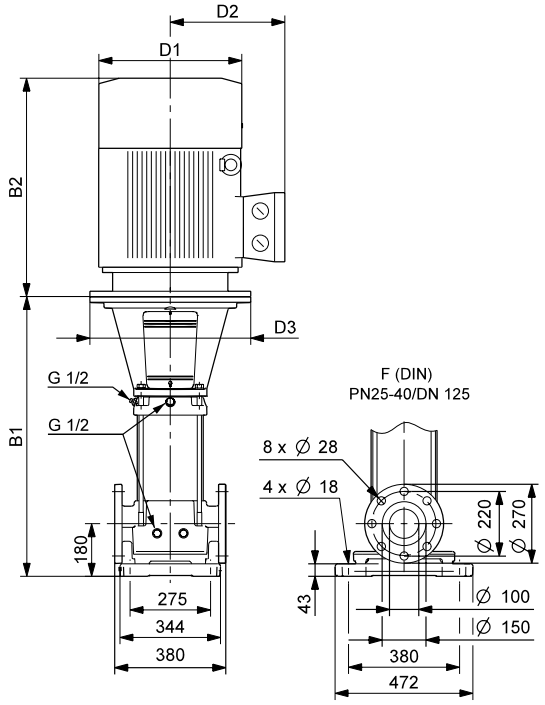
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

Performance curves

CR 120, 50 Hz

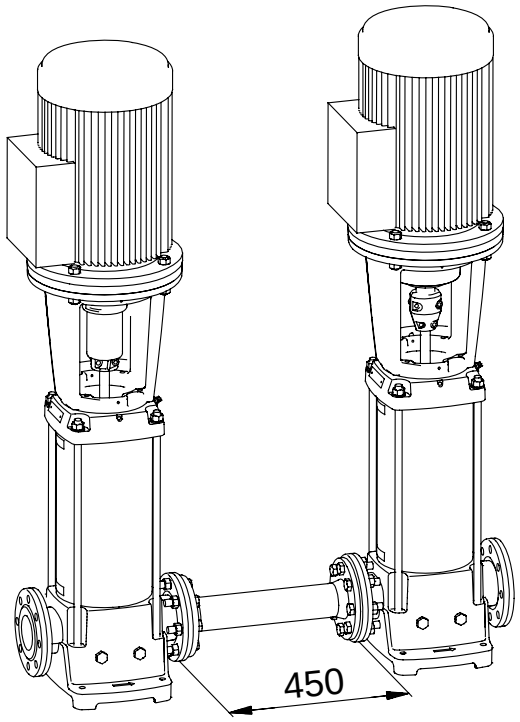


Dimensional sketches



TM03 9704 4407

CR feed pump/CR high-pressure pump



TM02 1650 0801

CR feed pump, connecting pipe and CR high-pressure pump

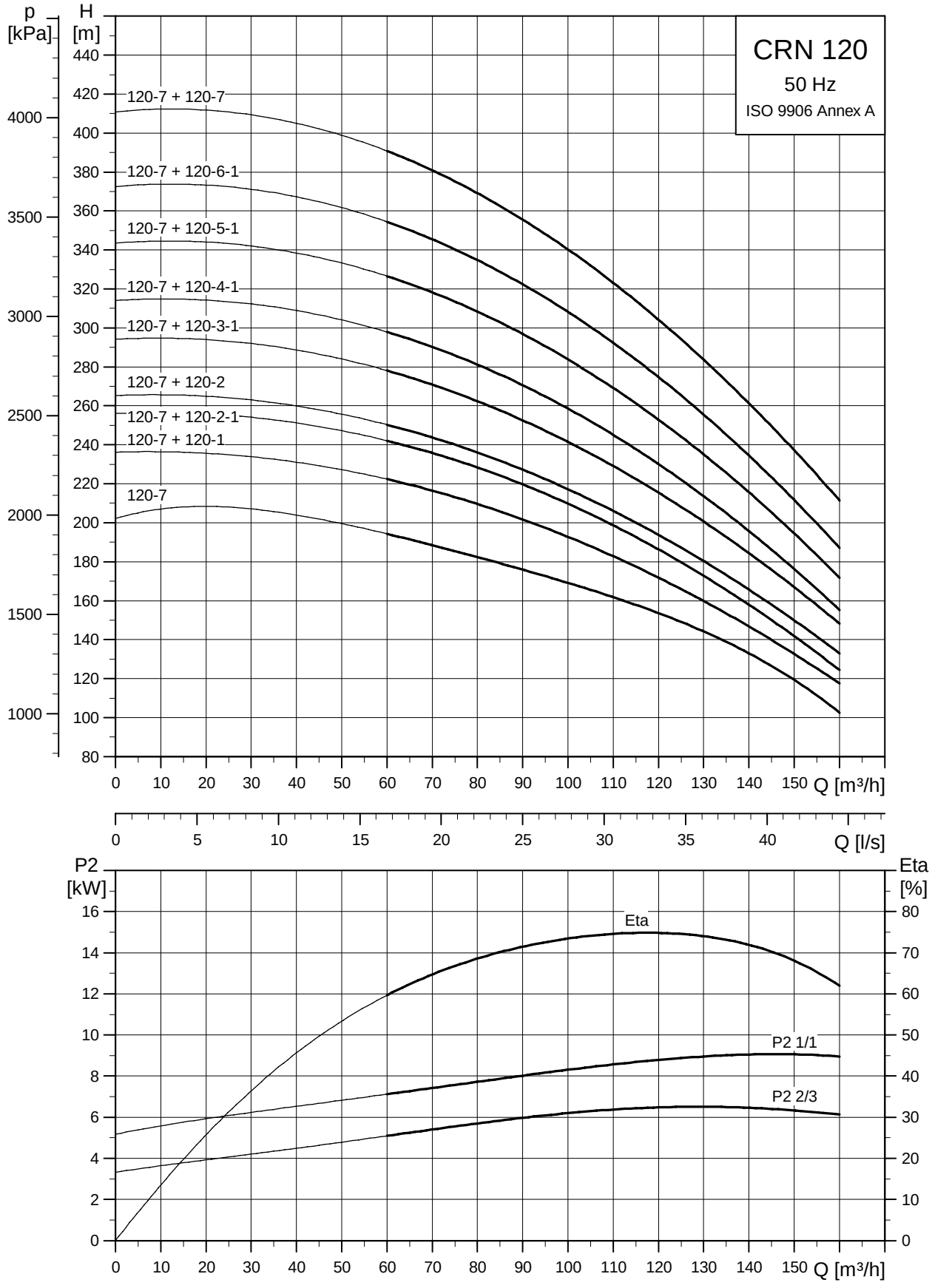
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 120-1	11	834	499	1333	260	172	350	172
CR 120-2-1	18.5	990	518	1508	320	197	350	207
CR 120-2	22	990	610	1600	363	262	350	293
CR 120-3	30	1145	646	1791	415	300	400	353
CR 120-4-1	37	1301	703	2004	415	300	400	392
CR 120-5-1	45	1456	709	2165	442	325	450	482
CR 120-6-1	55	1642	747	2389	495	392	550	627
CR 120-7	75	1797	820	2617	555	432	550	771
CR 120-7 [1)]	75	1797	820	2617	555	432	550	771

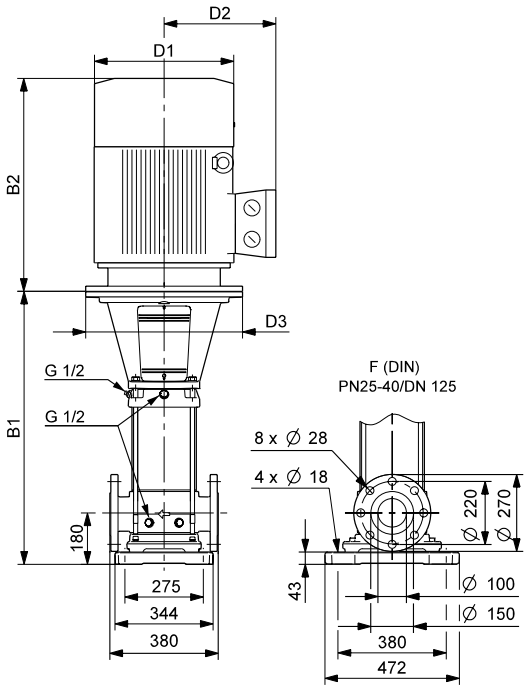
[1)] High-pressure pump

Performance curves

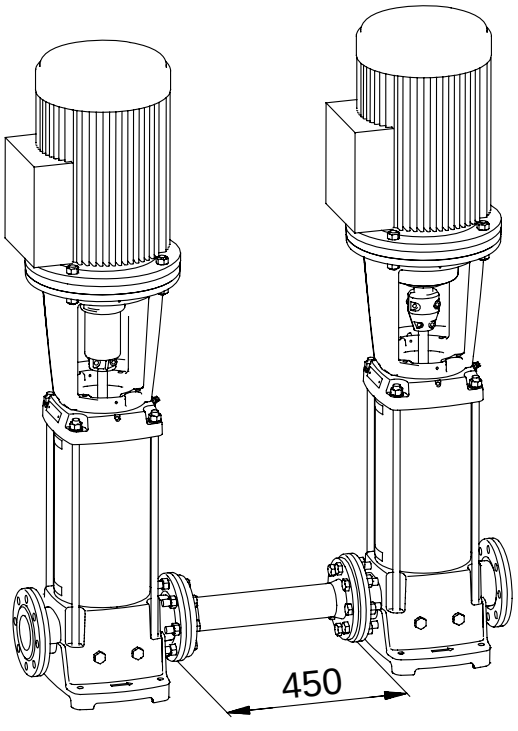
CRN 120, 50 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

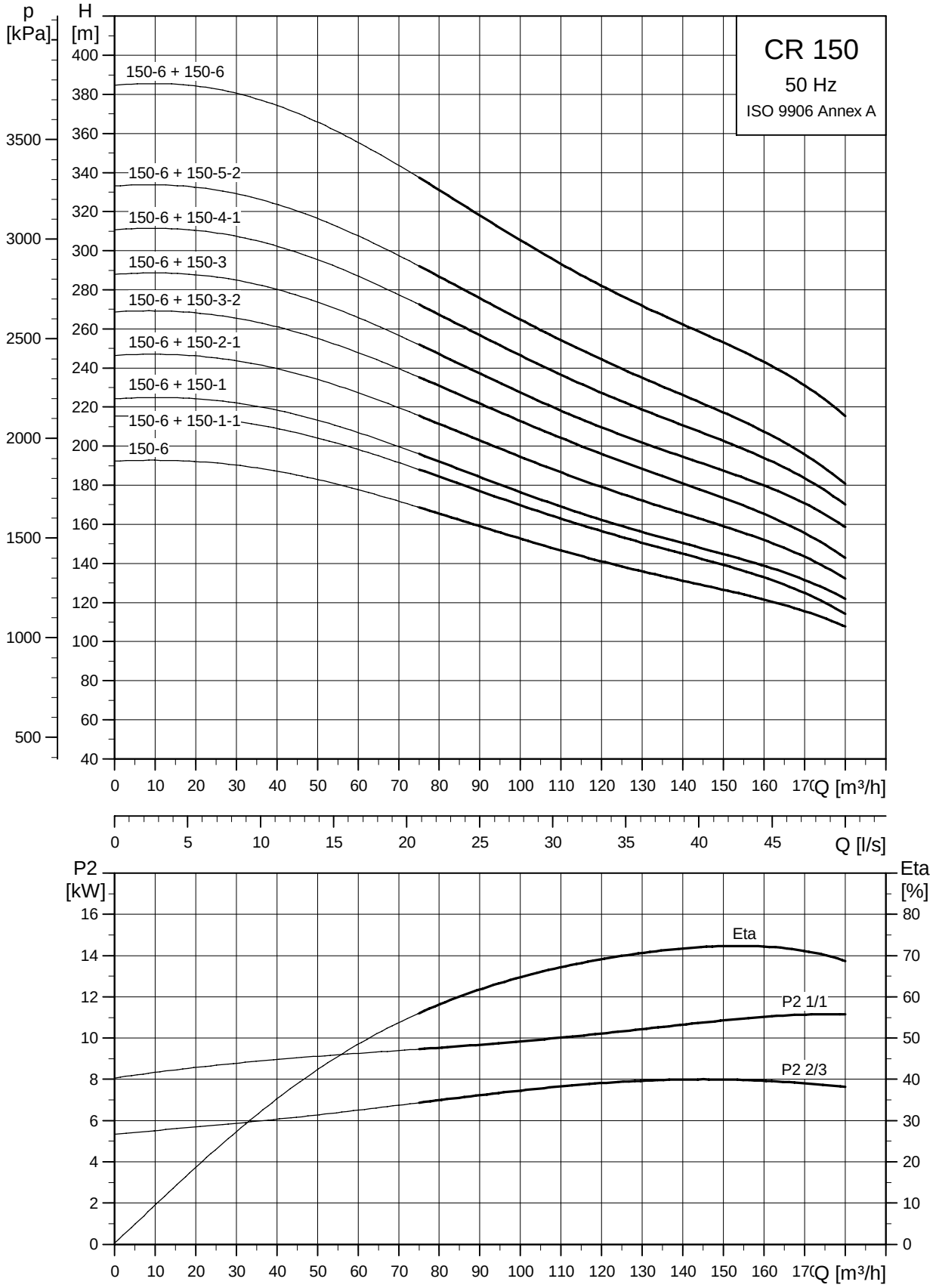
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 120-1	11	834	499	1333	260	172	350	175
CRN 120-2-1	18.5	990	518	1508	320	197	350	210
CRN 120-2	22	990	610	1600	363	262	350	296
CRN 120-3	30	1145	646	1791	415	300	400	356
CRN 120-4-1	37	1301	703	2004	415	300	400	395
CRN 120-5-1	45	1456	709	2165	442	325	450	485
CRN 120-6-1	55	1642	747	2389	495	392	550	630
CRN 120-7	75	1798	820	2618	555	432	550	775
CRN 120-7 [1]	75	1798	820	2618	555	432	550	775

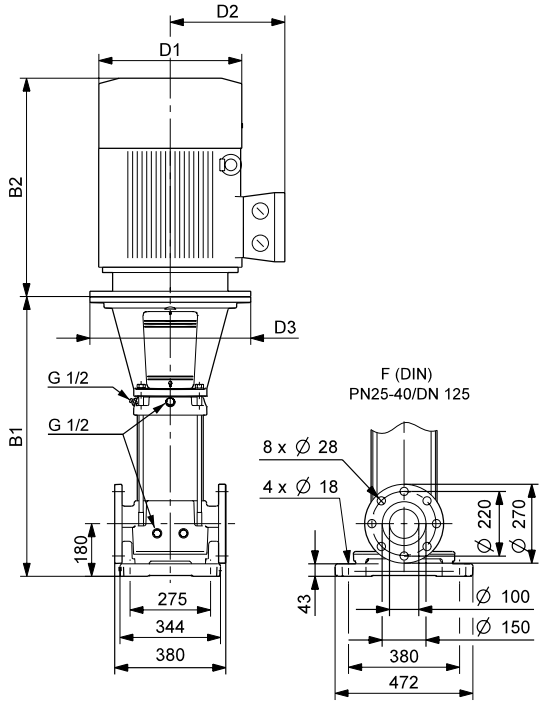
[1] High-pressure pump

Performance curves

CR 150, 50 Hz

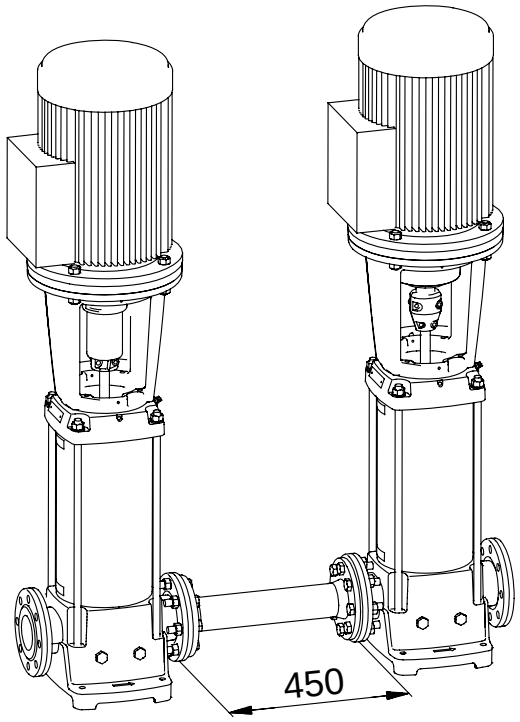


Dimensional sketches



TM03 9704 4407

CR feed pump/CR high-pressure pump



TM02 1650 0801

CR feed pump, connecting pipe and CR high-pressure pump

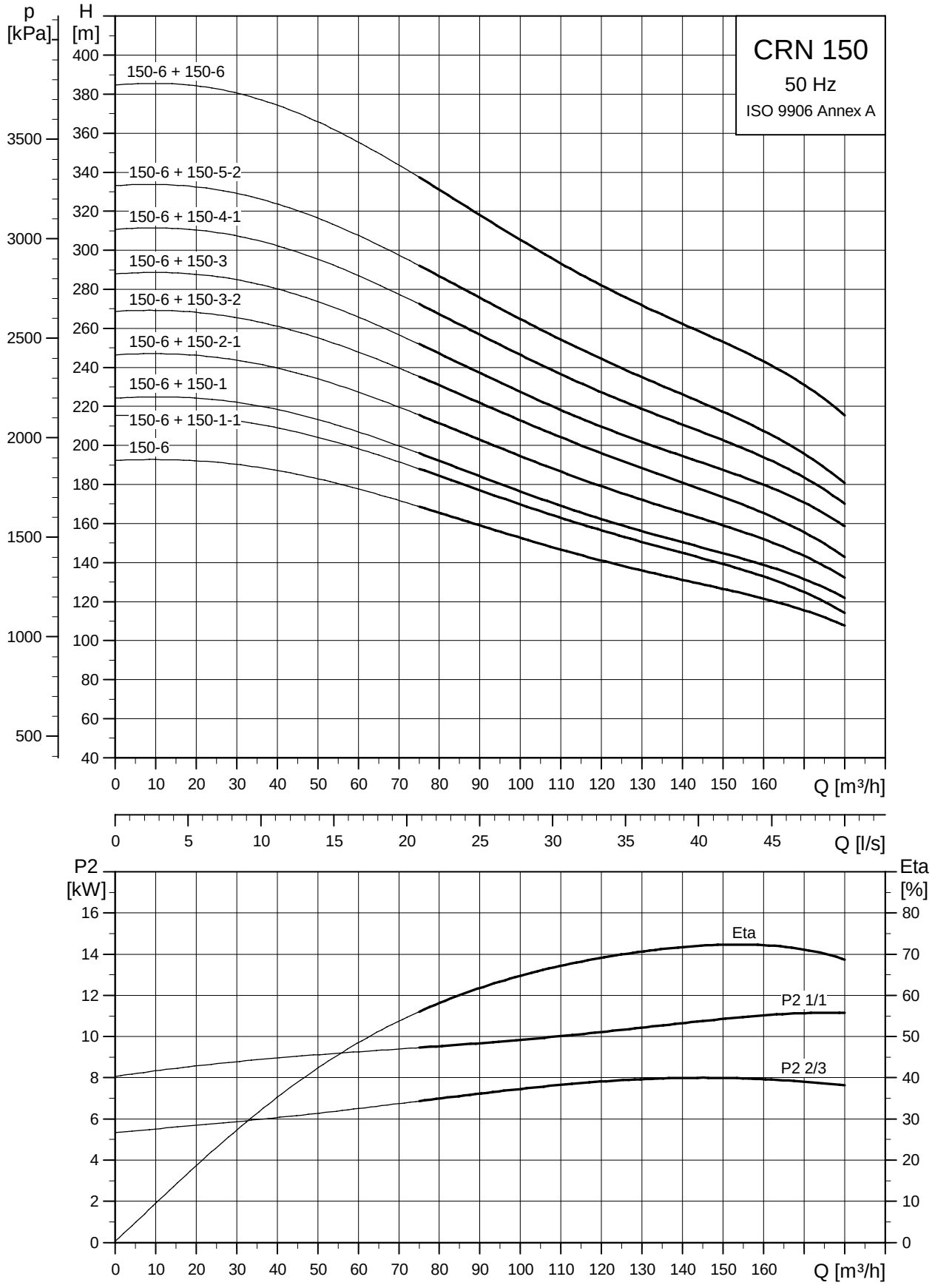
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 150-1-1	11	834	499	1333	260	172	350	172
CR 150-1	15	834	478	1312	320	197	350	190
CR 150-2-1	22	990	610	1600	363	262	350	293
CR 150-3-2	30	1145	646	1791	415	300	400	353
CR 150-3	37	1145	703	1848	415	300	400	383
CR 150-4-1	45	1301	709	2010	442	325	450	472
CR 150-5-2	55	1486	747	2233	495	392	550	617
CR 150-6	75	1642	820	2462	555	432	550	766
CR 150-6 [1)]	75	1642	820	2462	555	432	550	766

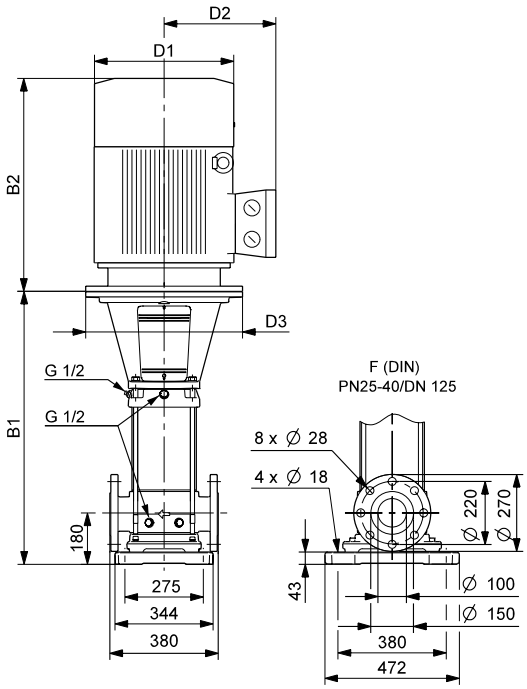
[1)] High-pressure pump

Performance curves

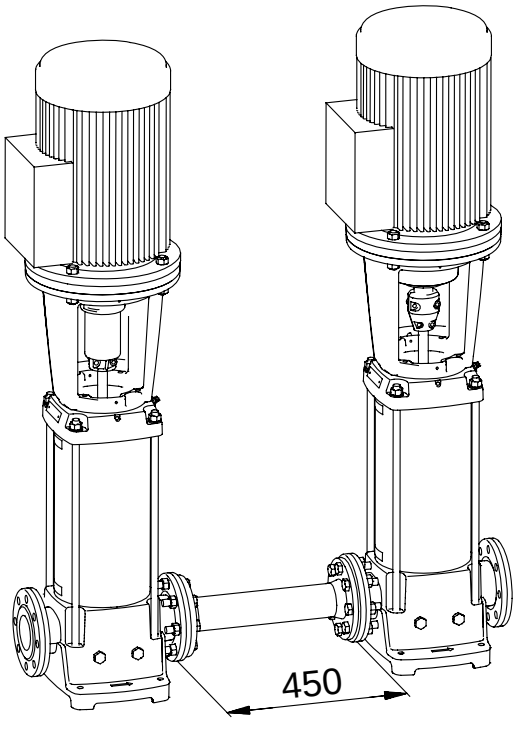
CRN 150, 50 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

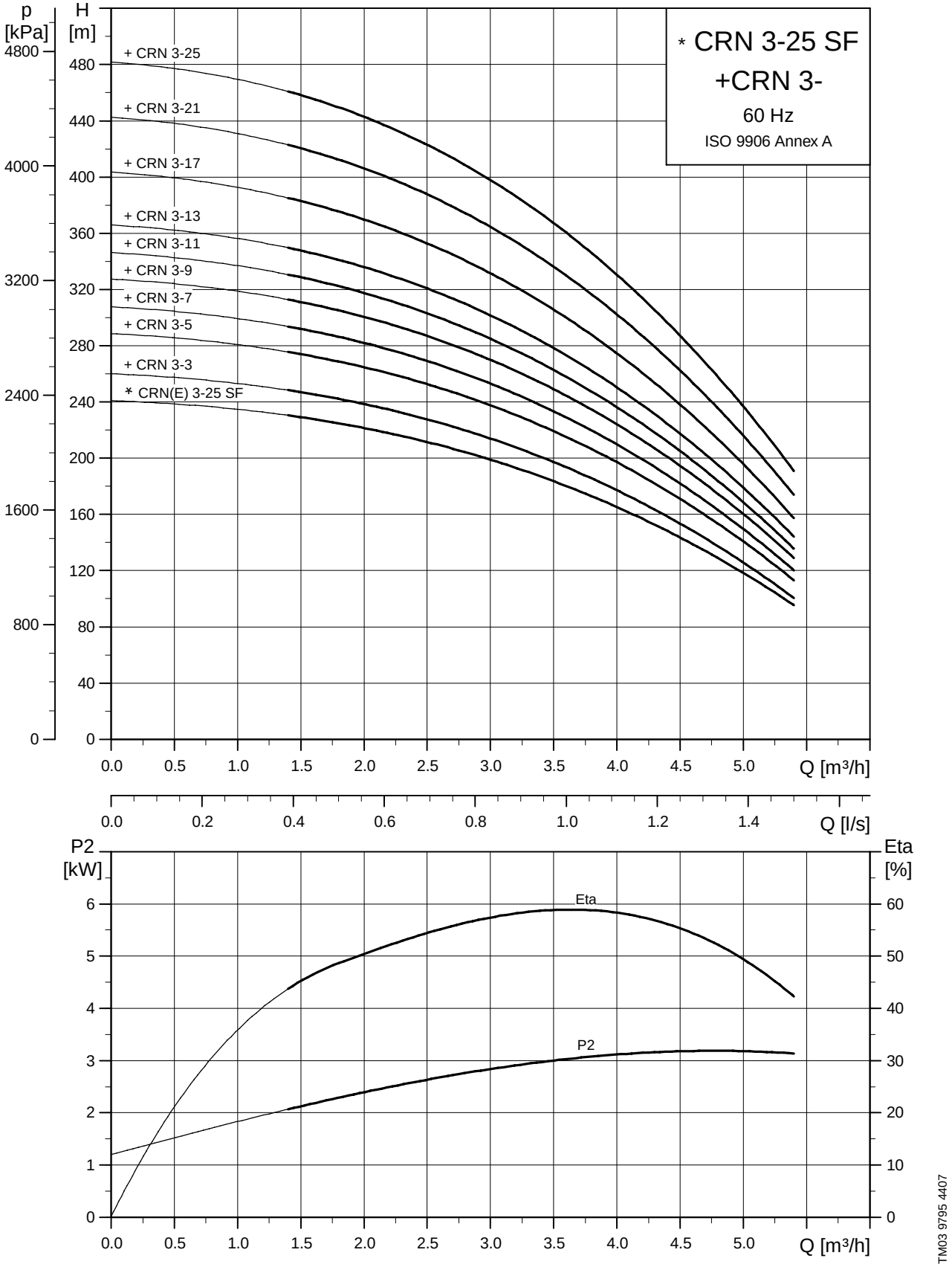
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 150-1-1	11	834	499	1333	260	172	350	175
CRN 150-1	15	834	478	1312	320	197	350	193
CRN 150-2-1	22	990	610	1600	363	262	350	296
CRN 150-3-2	30	1145	646	1791	415	300	400	356
CRN 150-3	37	1145	703	1848	415	300	400	386
CRN 150-4-1	45	1301	709	2010	442	325	450	475
CRN 150-5-2	55	1486	747	2233	495	392	550	621
CRN 150-6	75	1642	820	2462	555	432	550	766
CRN 150-6 [1)]	75	1642	820	2462	555	432	550	766

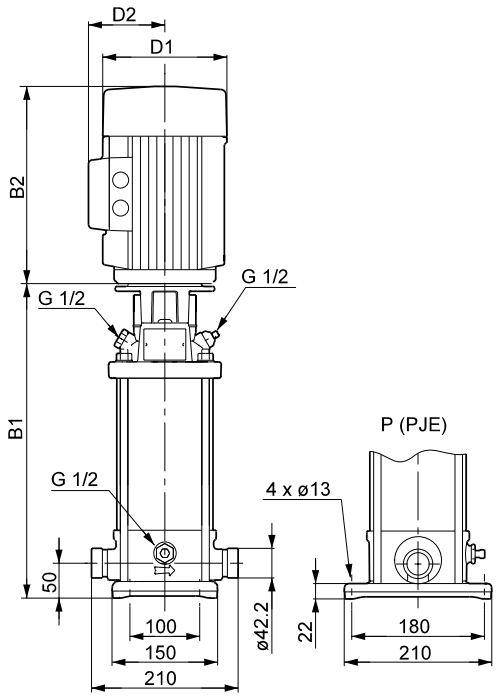
[1)] High-pressure pump

Performance curves

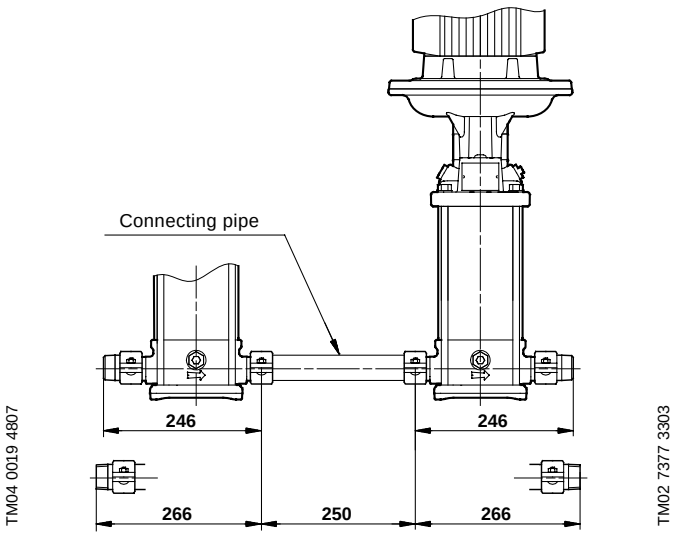
CRN 3 SF, 60 Hz



Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

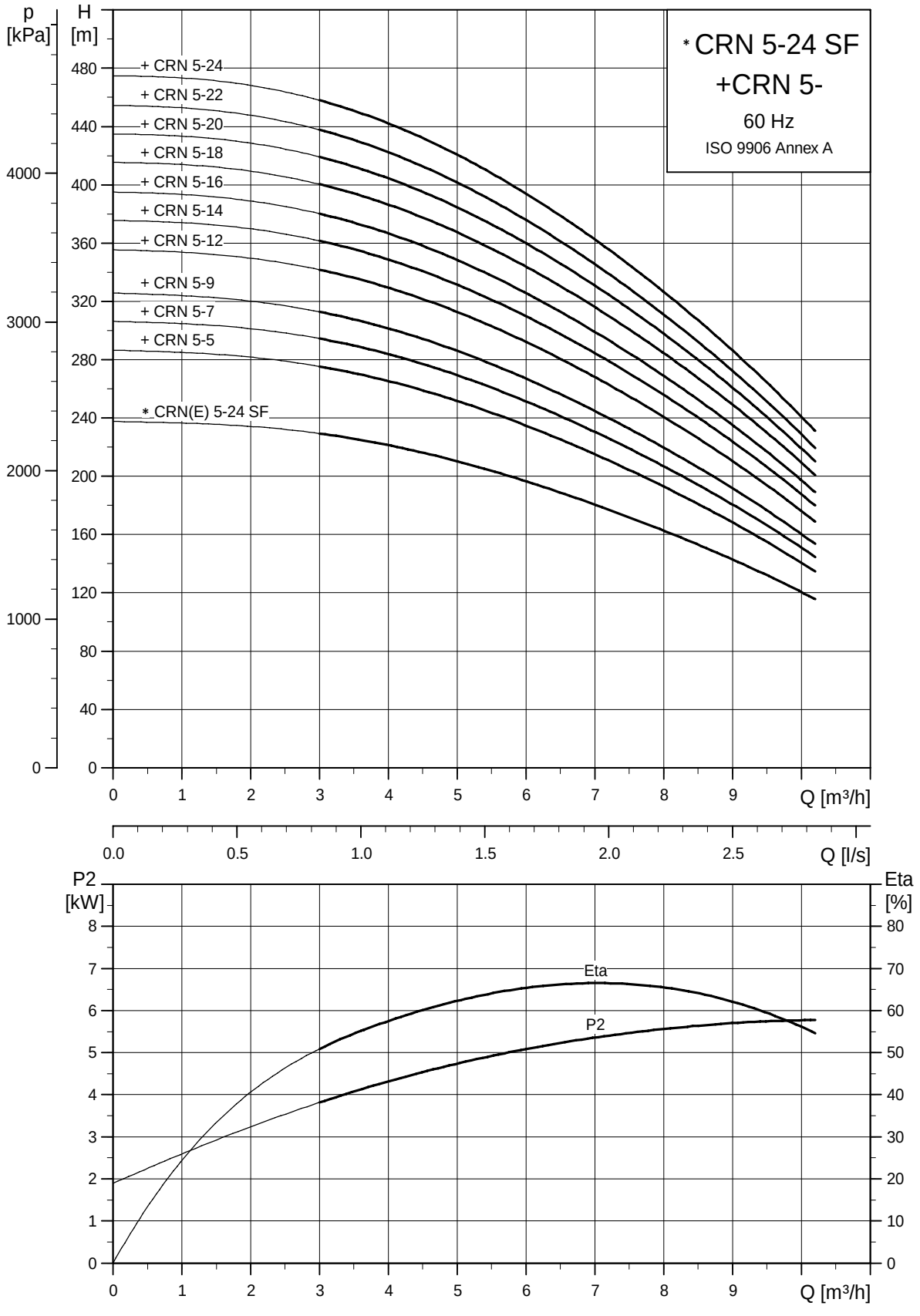
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN						CRNE					
		Dimension [mm]					Net weight [kg]	Dimension [mm]					Net weight [kg]
		B1	B2	B1+B2	D1	D2		B1	B2	B1+B2	D1	D2	
CRN 3-3	0.55	257	191	448	141	109	17	-	-	-	-	-	-
CRN 3-5	0.75	299	231	530	141	109	20	-	-	-	-	-	-
CRN 3-7	1.1	335	231	566	141	109	23	-	-	-	-	-	-
CRN 3-9	1.5	387	281	668	178	110	30	-	-	-	-	-	-
CRN 3-11	1.5	423	281	704	178	110	31	-	-	-	-	-	-
CRN 3-13	2.2	459	321	780	178	110	33	-	-	-	-	-	-
CRN 3-17	2.2	531	321	852	178	110	34	-	-	-	-	-	-
CRN 3-31	3	608	335	943	198	120	40	-	-	-	-	-	-
CRN 3-25	4	680	372	1052	220	134	53	-	-	-	-	-	-
CRN(E) 3-25 SF [1]	4	708	372	1080	220	134	53	708	372	1080	220	188	63

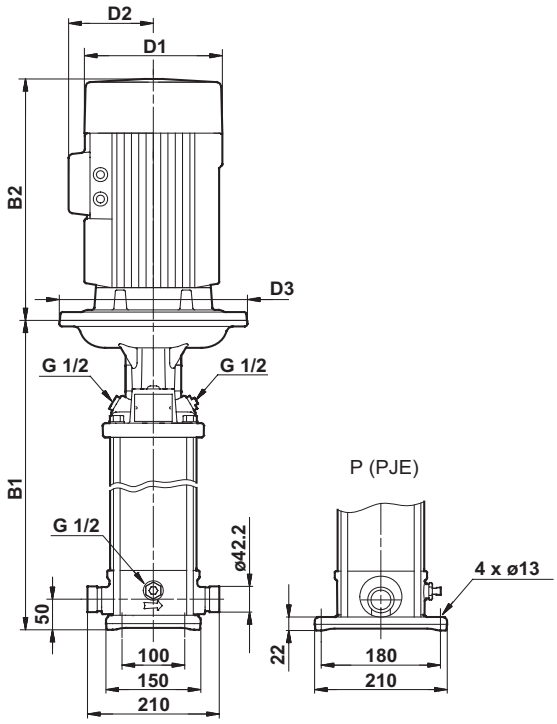
[1] High-pressure pump

Performance curves

CRN 5 SF, 60 Hz

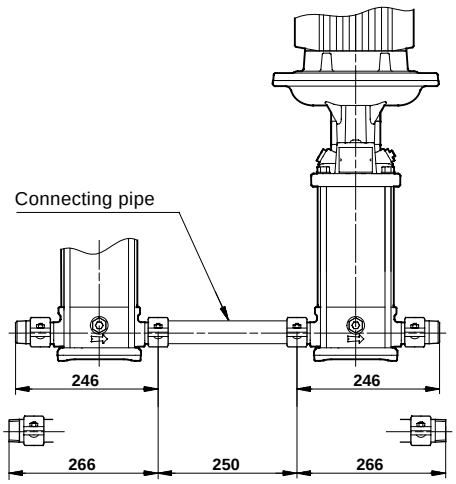


Dimensional sketches



TM02 7376 4807

CRN feed pump/CRN SF high-pressure pump



TM02 7377 3303

CRN feed pump, connecting pipe and CRN SF high-pressure pump

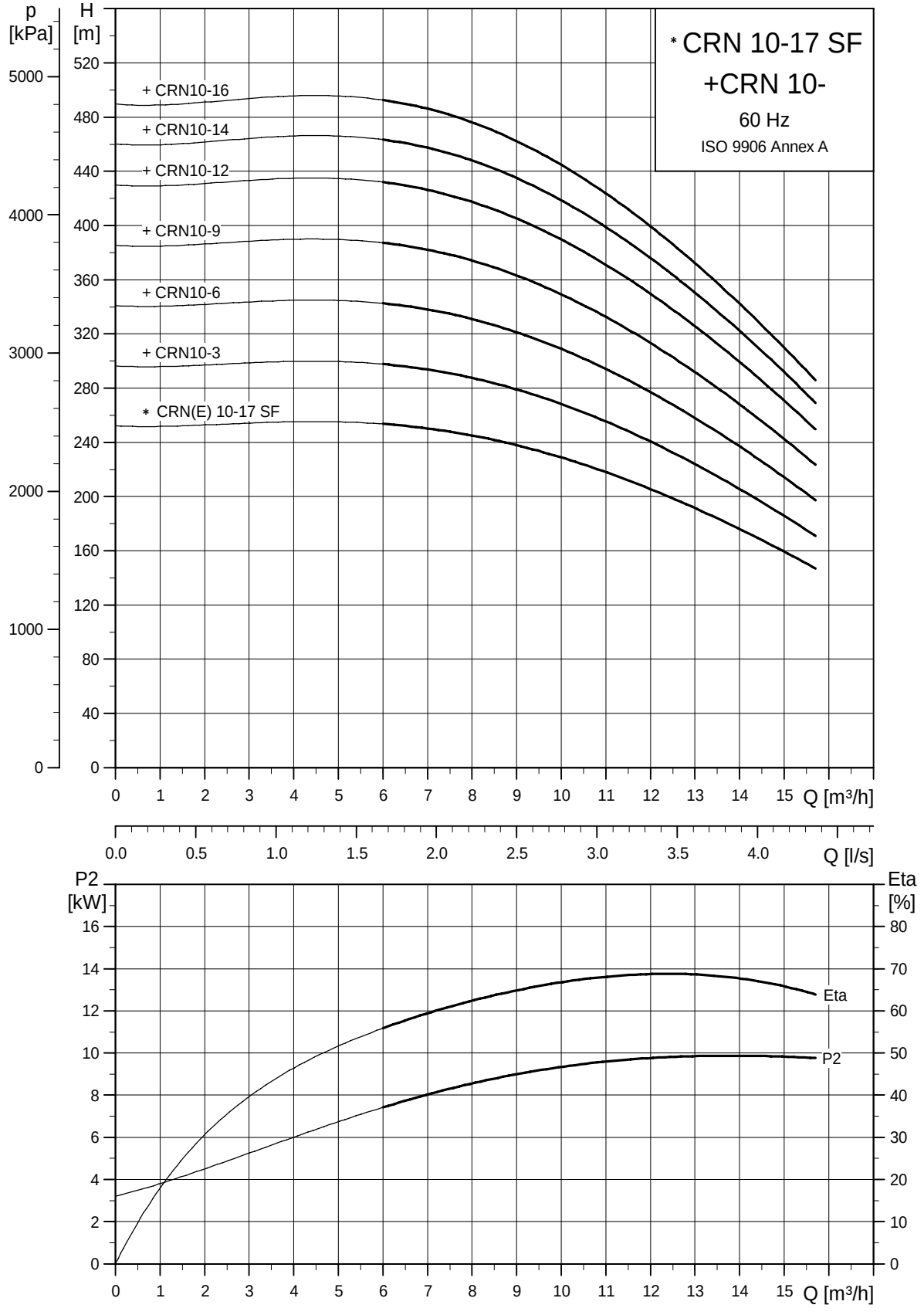
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 5-5	1.5	360	281	641	178	110	-	30	-	-	-	-	-	-	-
CRN 5-7	2.2	414	321	735	178	110	-	31	-	-	-	-	-	-	-
CRN 5-9	2.2	468	321	789	178	110	-	32	-	-	-	-	-	-	-
CRN 5-12	3	554	335	889	198	120	-	39	-	-	-	-	-	-	-
CRN 5-14	4	608	372	980	220	134	-	51	-	-	-	-	-	-	-
CRN 5-16	4	662	372	1034	220	134	-	52	-	-	-	-	-	-	-
CRN 5-18	5.5	745	391	1136	220	134	300	67	-	-	-	-	-	-	-
CRN 5-20	5.5	799	391	1190	220	134	300	68	-	-	-	-	-	-	-
CRN 5-22	5.5	853	391	1244	220	134	300	69	-	-	-	-	-	-	-
CRN 5-24	7.5	907	391	1298	220	134	300	72	-	-	-	-	-	-	-
CRN(E) 5-24 SF [1]	7.5	928	391	1319	220	134	300	71	928	391	1319	220	188	298	80

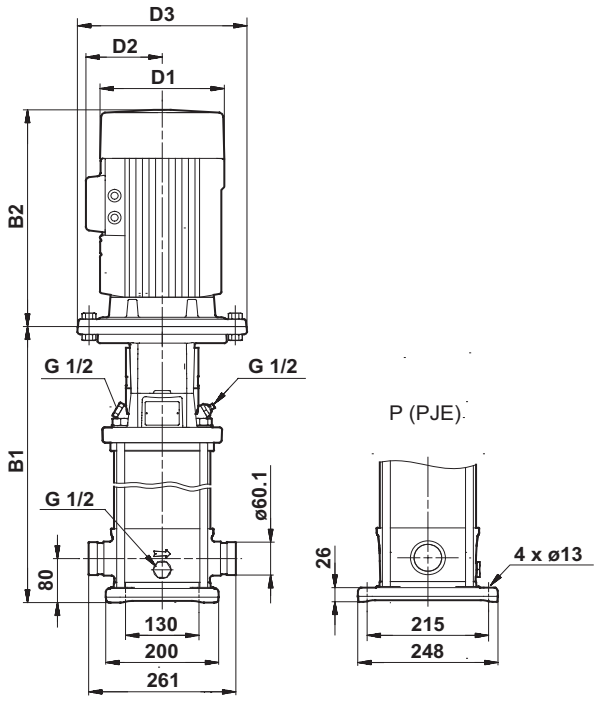
[1] High-pressure pump

Performance curves

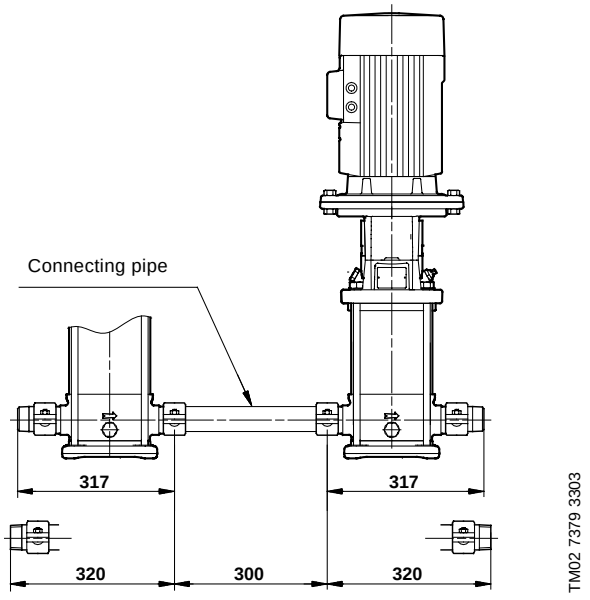
CRN 10 SF, 60 Hz



Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



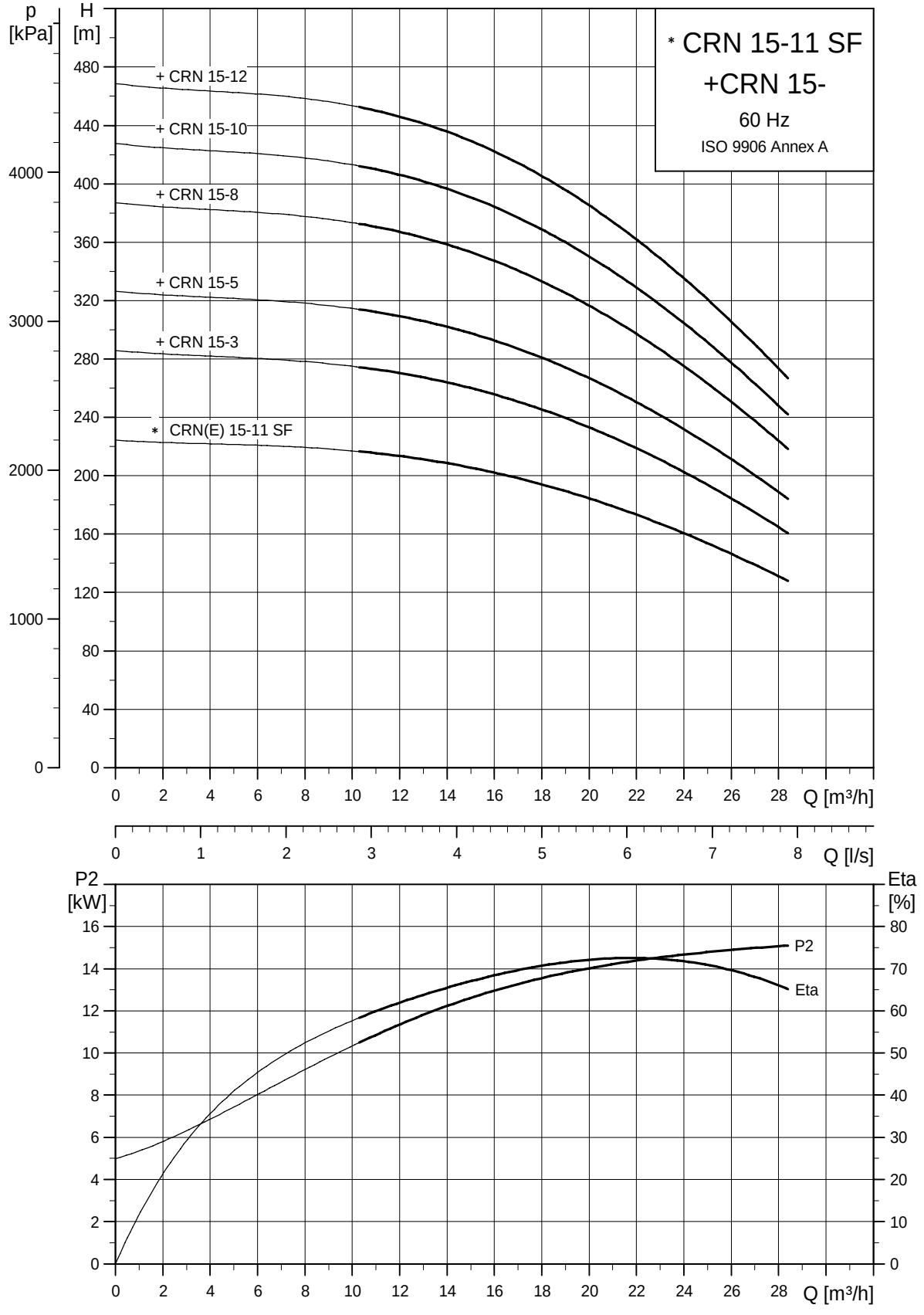
CRN feed pump, connecting pipe and CRN SF high-pressure pump

Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 10-3	2.2	403	321	724	178	110	-	42	-	-	-	-	-	-	-
CRN 10-6	4	498	372	870	220	134	-	60	-	-	-	-	-	-	-
CRN 10-9	5.5	620	391	1011	220	134	300	84	-	-	-	-	-	-	-
CRN 10-12	7.5	710	391	1101	220	134	300	89	-	-	-	-	-	-	-
CRN 10-14	11	847	499	1346	260	172	350	121	-	-	-	-	-	-	-
CRN 10-16	11	907	499	1406	260	172	350	124	-	-	-	-	-	-	-
CRN(E) 10-17 SF [1]	11	967	499	1466	260	172	350	126	967	449	1416	258	359	350	179

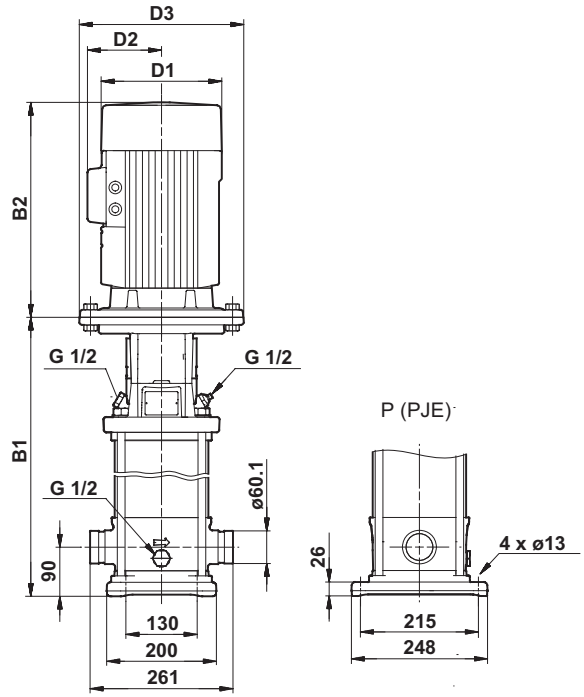
[1] High-pressure pump

CRN 15 SF, 60 Hz

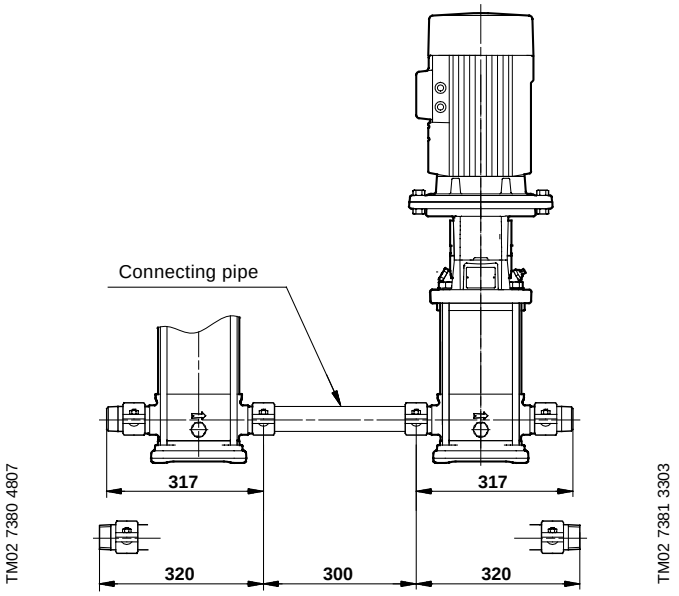


Technical data

Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



CRN feed pump, connecting pipe and CRN SF high-pressure pump

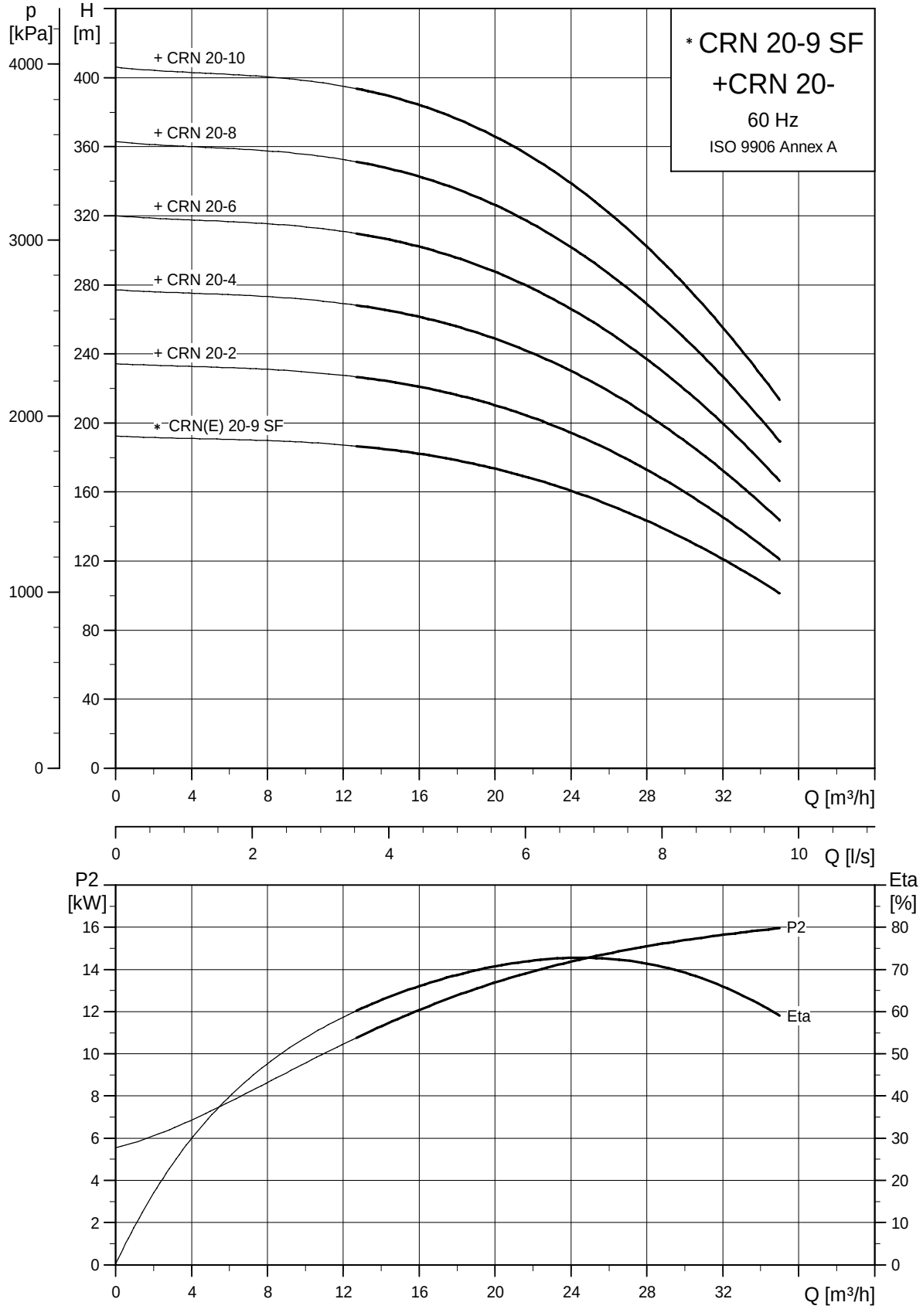
Dimensions and weights

Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 15-3	4	463	372	835	220	134	-	59	-	-	-	-	-	-	-
CRN 15-5	7.5	585	391	976	220	134	300	84	-	-	-	-	-	-	-
CRN 15-8	11	797	499	1296	260	172	350	119	-	-	-	-	-	-	-
CRN 15-10	15	887	478	1365	320	197	350	137	-	-	-	-	-	-	-
CRN 15-12	18.5	977	518	1495	320	197	350	170	-	-	-	-	-	-	-
CRN(E) 15-11 SF [1]	15	977	478	1455	320	197	350	149	977	461	1438	313	377	350	172

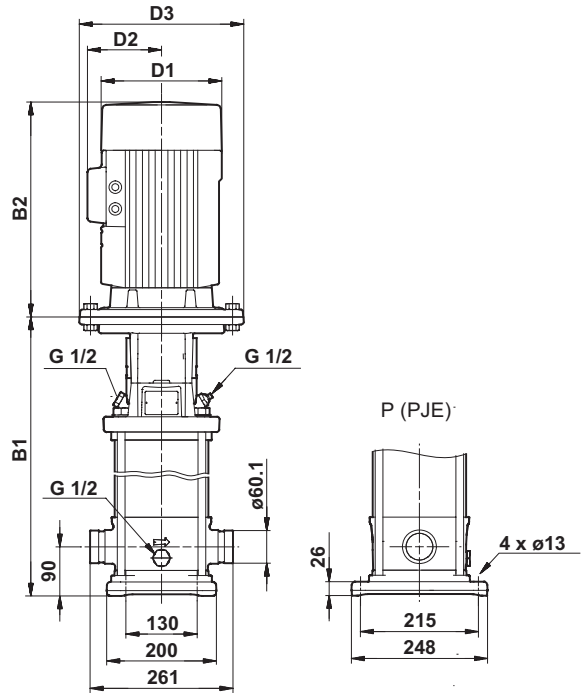
[1] High-pressure pump

Performance curves

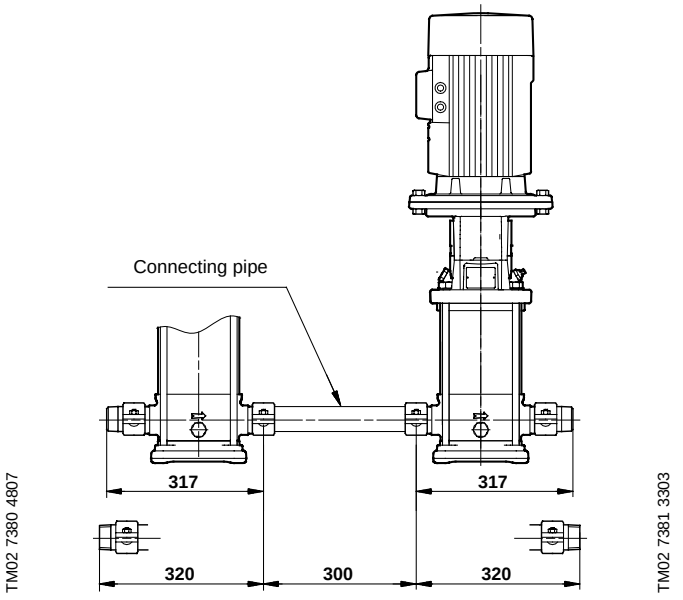
CRN 20 SF, 60 Hz



Dimensional sketches



CRN feed pump/CRN SF high-pressure pump



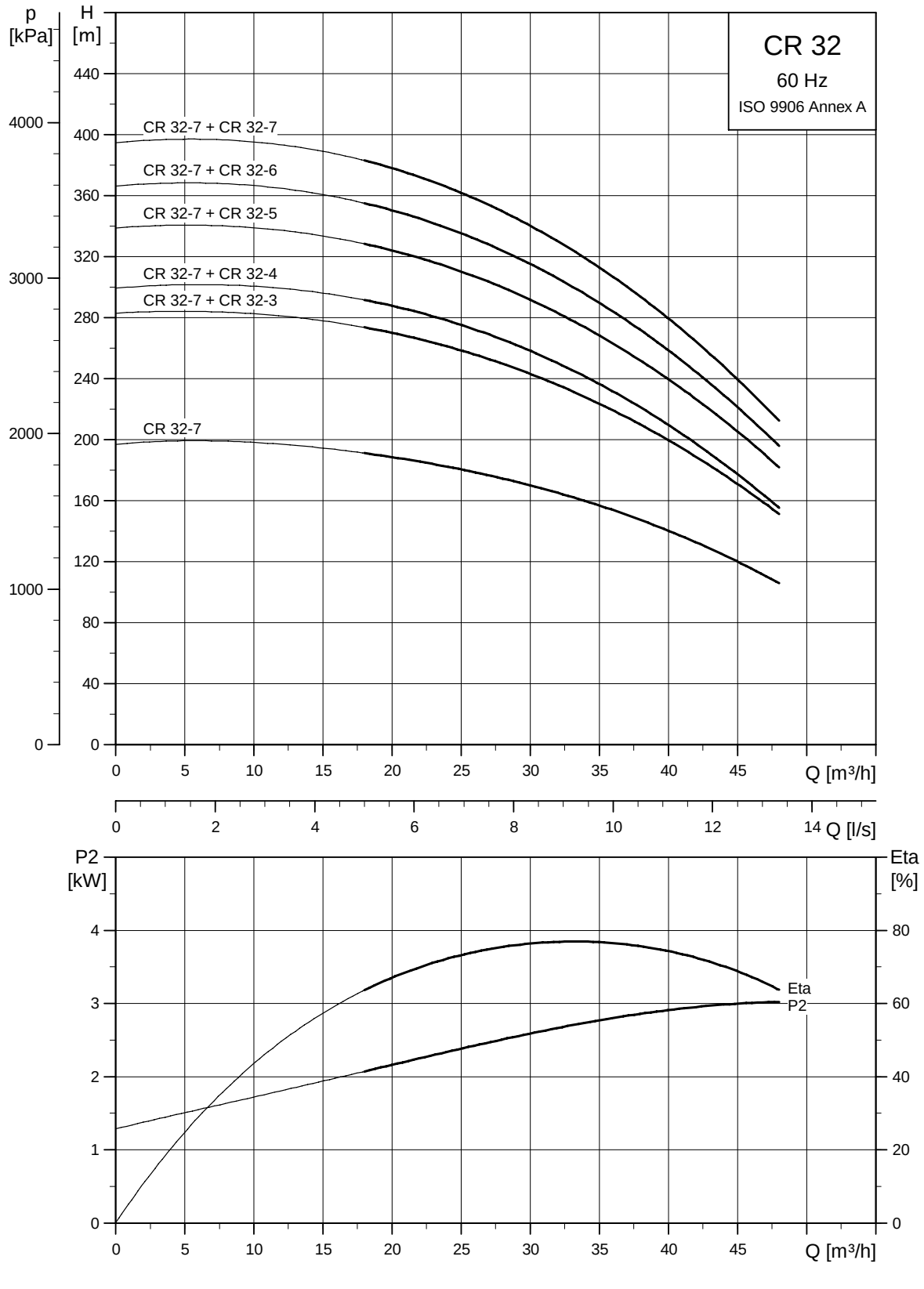
CRN feed pump, connecting pipe and CRN SF high-pressure pump

Dimensions and weights

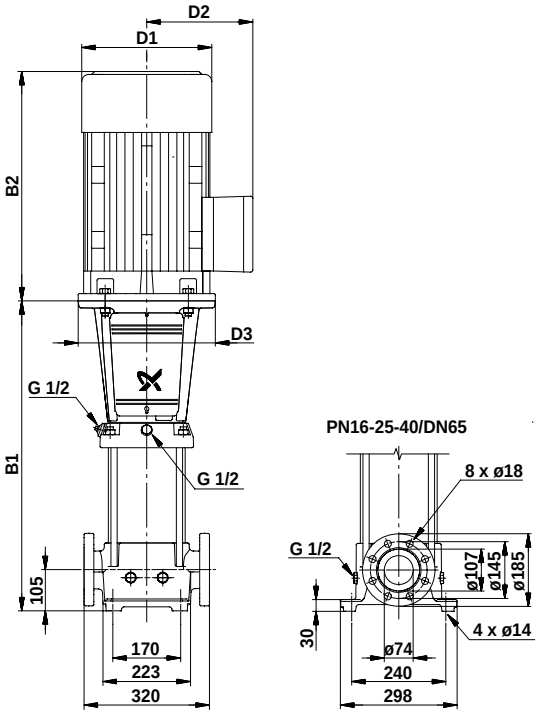
Pump type	Motor P_2 [kW]	CRN							CRNE						
		Dimension [mm]						Net weight [kg]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3		B1	B2	B1+B2	D1	D2	D3	
CRN 20-2	4	418	372	790	220	134	-	58	-	-	-	-	-	-	-
CRN 20-4	7.5	540	391	931	220	134	300	83	-	-	-	-	-	-	-
CRN 20-6	11	707	499	1206	260	172	350	116	-	-	-	-	-	-	-
CRN 20-8	15	797	478	1275	320	197	350	133	-	-	-	-	-	-	-
CRN 20-10	18.5	887	518	1405	320	197	350	167	-	-	-	-	-	-	-
CRN(E) 20-9 SF [1]	18.5	887	518	1405	320	197	350	165	887	499	1386	313	377	350	207

[1] High-pressure pump

CR 32, 60 Hz

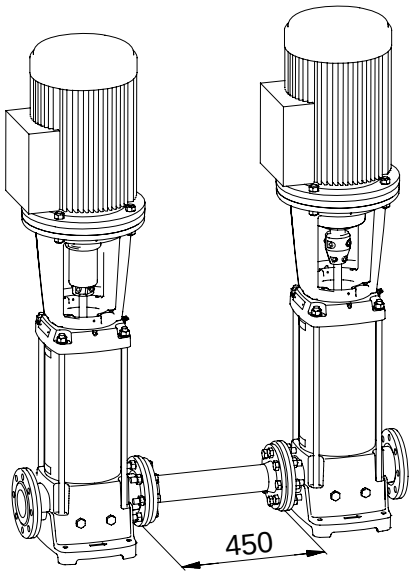

CR 32
60 Hz
ISO 9906 Annex A
p [kPa]
H [m]
CR 32-7 + CR 32-7
CR 32-7 + CR 32-6
CR 32-7 + CR 32-5
CR 32-7 + CR 32-4
CR 32-7 + CR 32-3
CR 32-7
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
TM02 1672 3605

Dimensional sketches



TM01 1749 2203

CR feed pump/ CR high-pressure pump



TM02 1650 1801

CR feed pump, connecting pipe and CR high-pressure pump

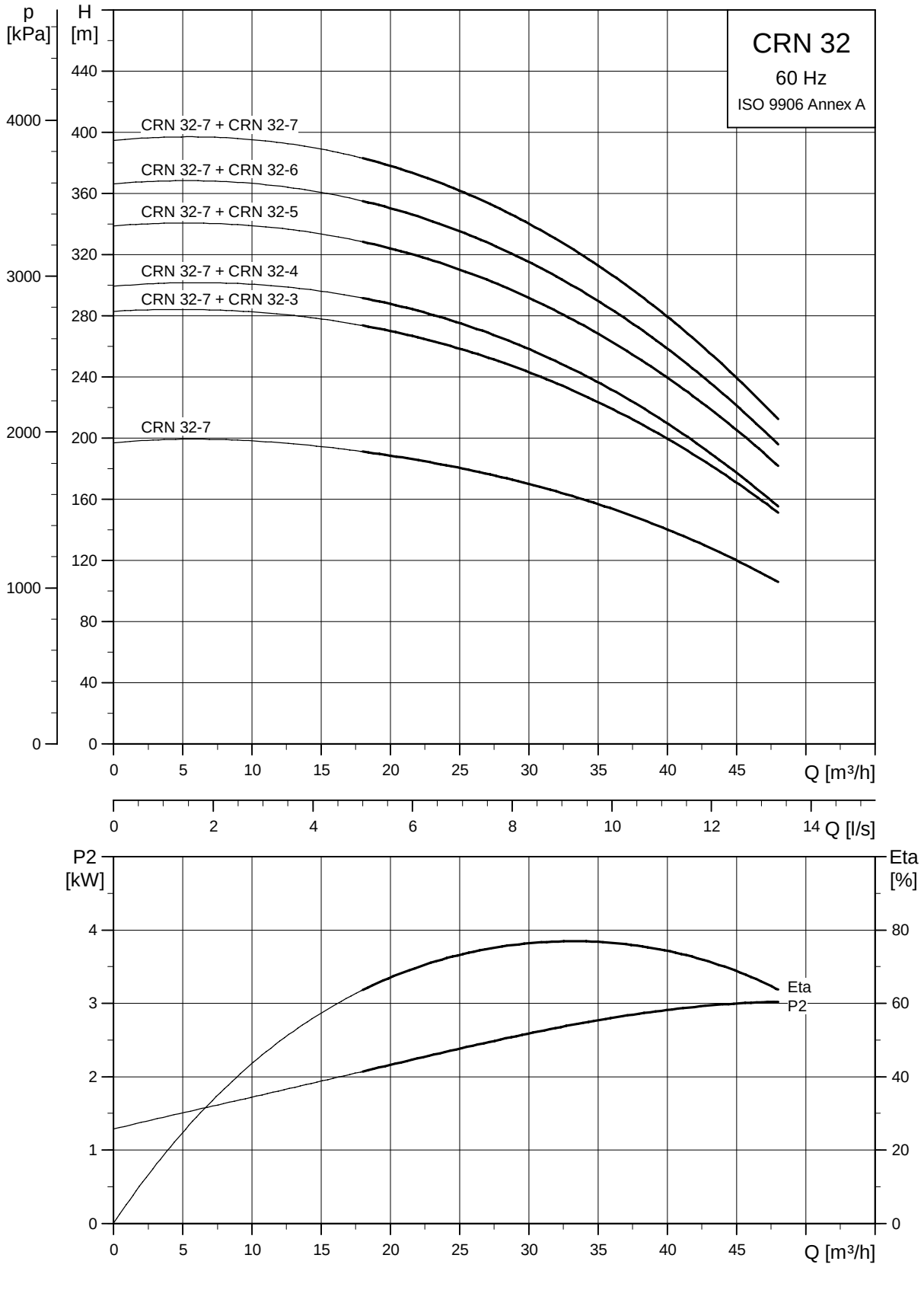
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 32-3	11	755	499	1254	260	172	350	133
CR 32-4	15	825	478	1303	320	197	350	154
CR 32-5	18.5	895	518	1413	320	197	350	164
CR 32-6	18.5	965	518	1483	320	197	350	167
CR 32-7	22	1035	610	1645	636	262	350	256
CR 32-7 [1]	22	1035	610	1645	636	262	350	256

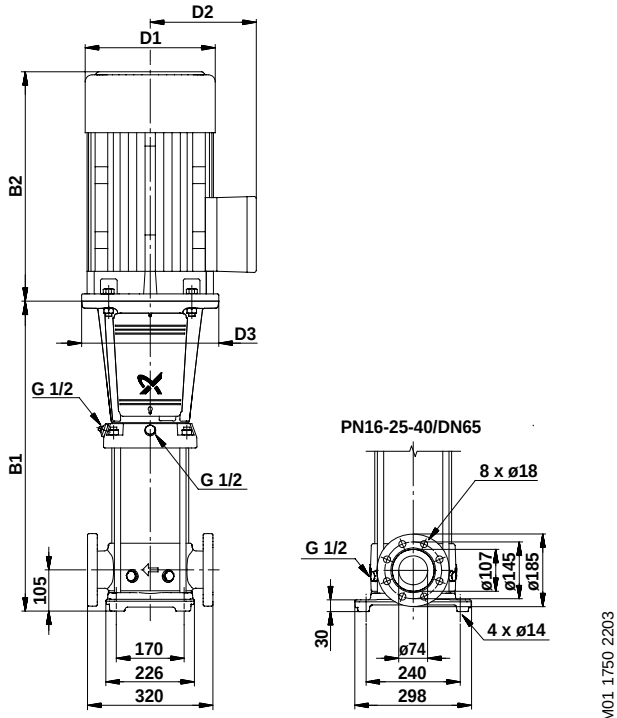
[1] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 23 kg.

Performance curves

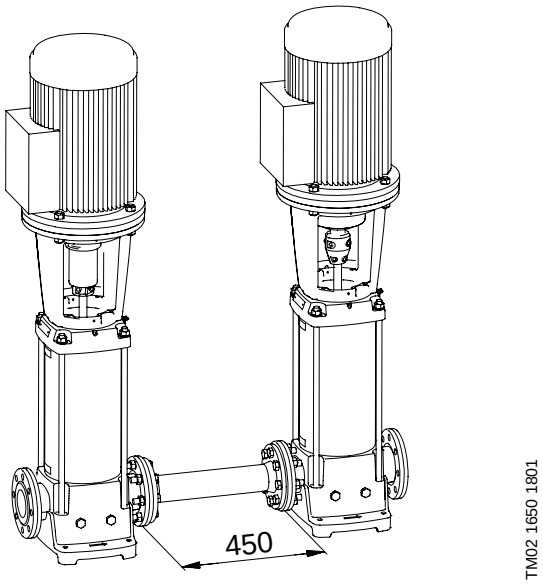
CRN 32, 60 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

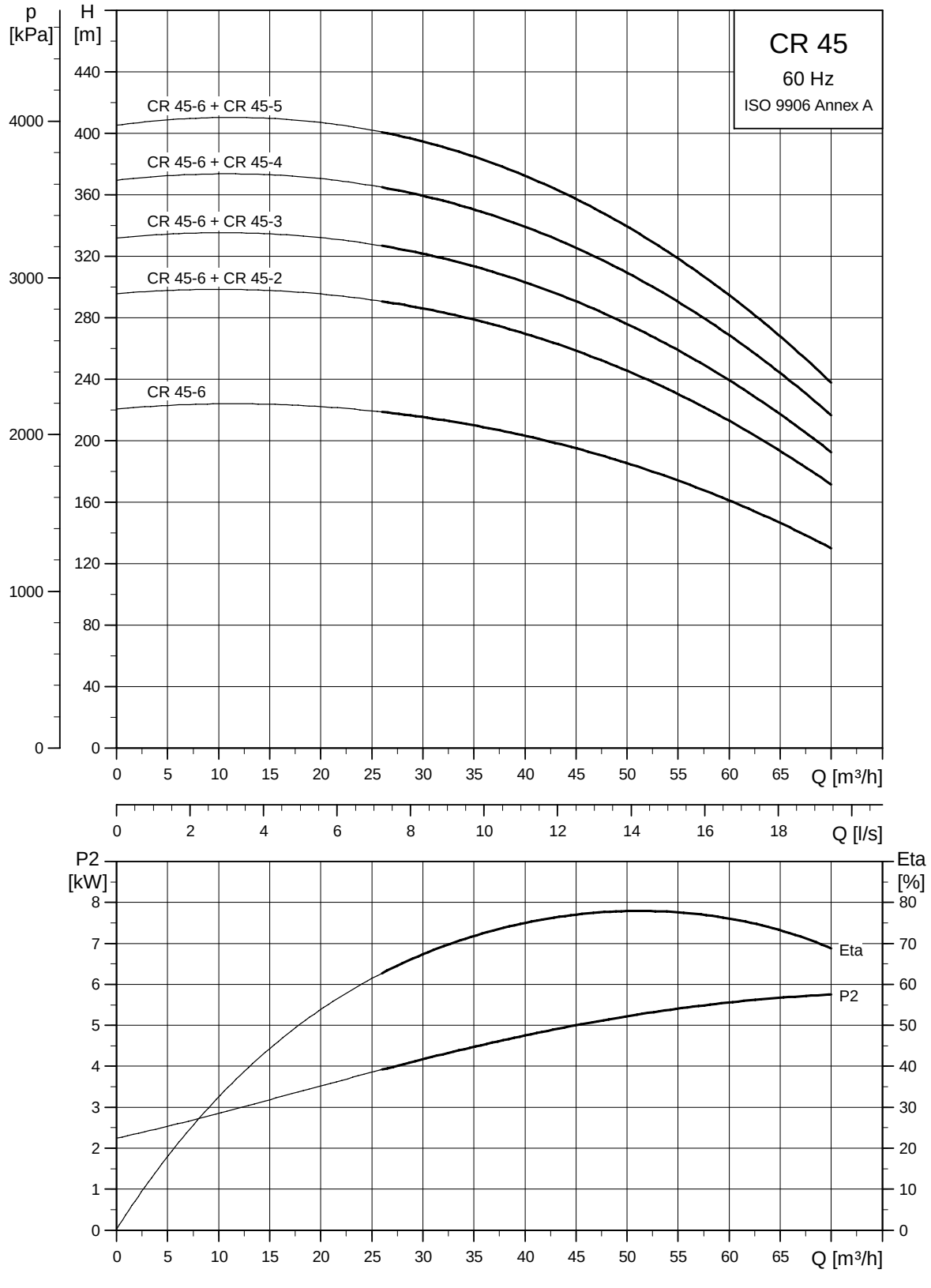
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 32-3	11	755	499	1254	260	172	350	135
CRN 32-4	15	825	478	1303	320	197	350	156
CRN 32-5	18.5	895	518	1413	320	197	350	166
CRN 32-6	18.5	965	518	1483	320	197	350	169
CRN 32-7	22	1035	610	1645	636	262	350	258
CRN 32-7 [1]	22	1035	610	1645	636	262	350	258

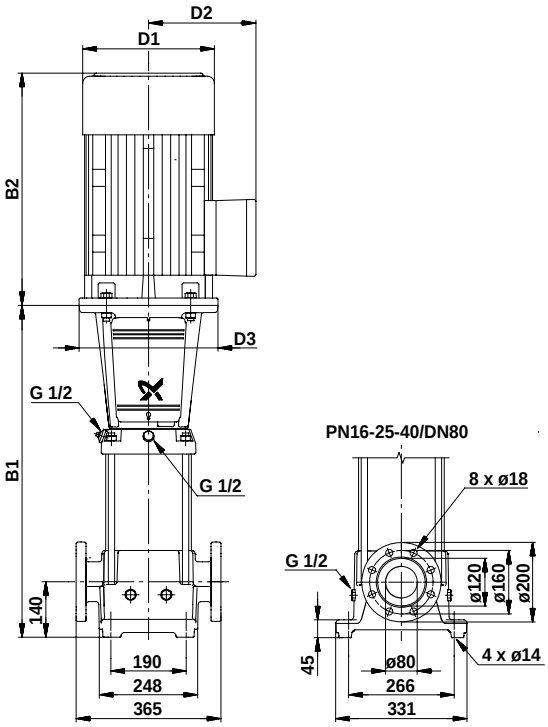
[1] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 23 kg.

Performance curves

CR 45, 60 Hz

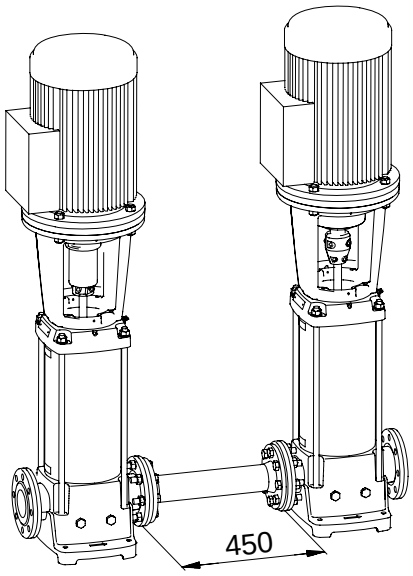


Dimensional sketches



TM02 1751 3298

CR feed pump/CR high-pressure pump



TM02 1650 1801

CR feed pump, connecting pipe and CR high-pressure pump

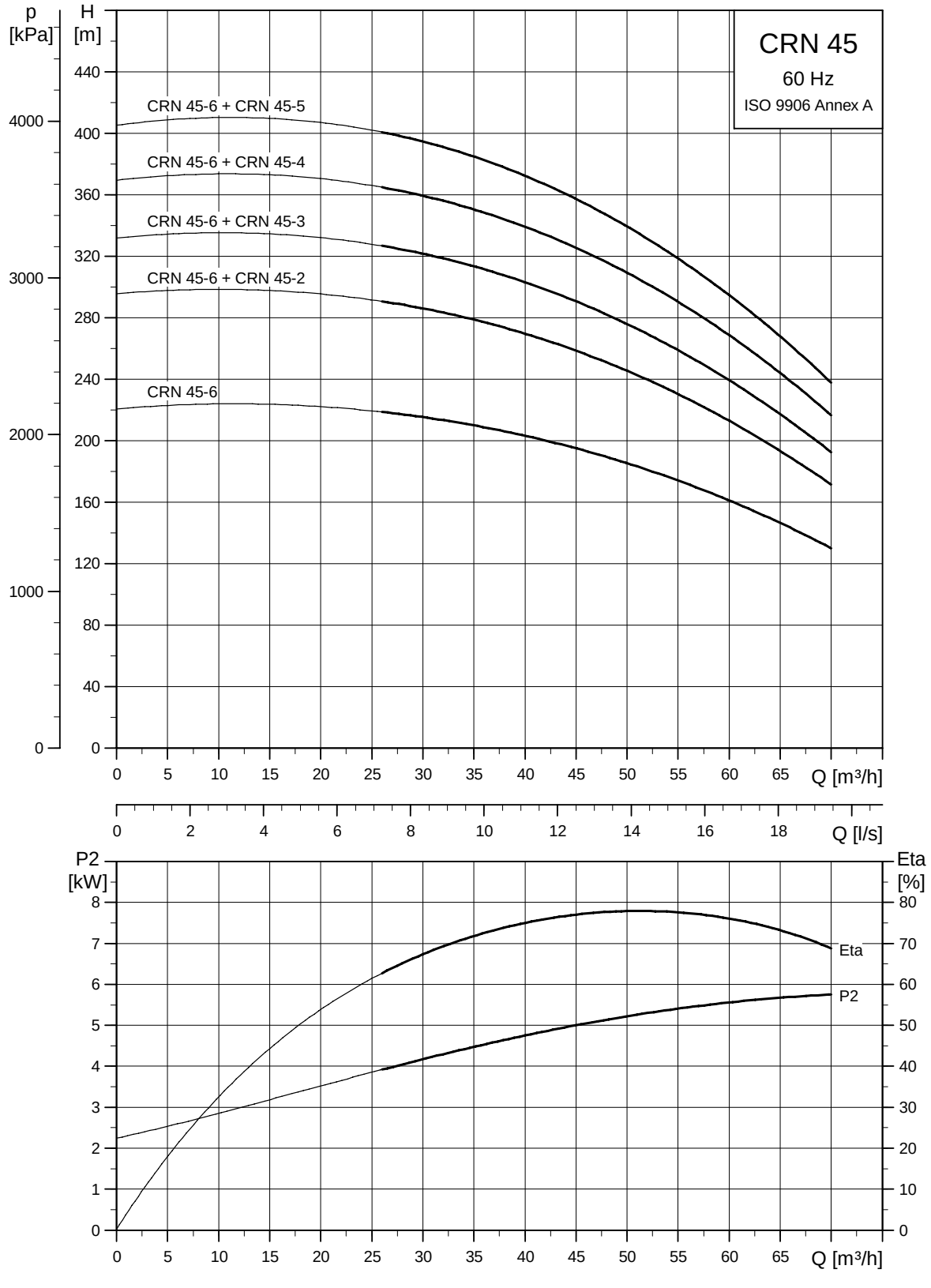
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 45-2	15	749	478	1227	320	197	350	158
CR 45-3	18.5	829	518	1347	320	197	350	169
CR 45-4	30	909	646	1555	415	300	400	309
CR 45-5	30	989	646	1635	415	300	400	313
CR 45-6 [1)]	37	1069	703	1772	415	300	400	349

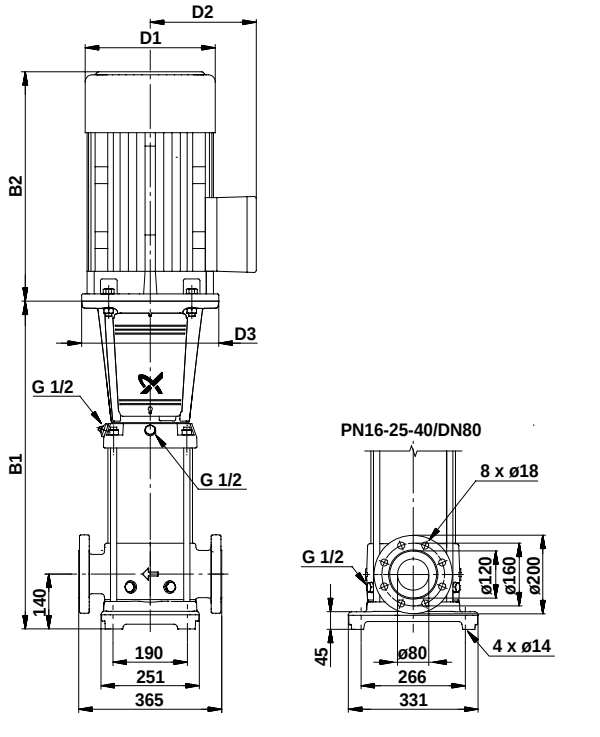
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 27 kg.

Performance curves

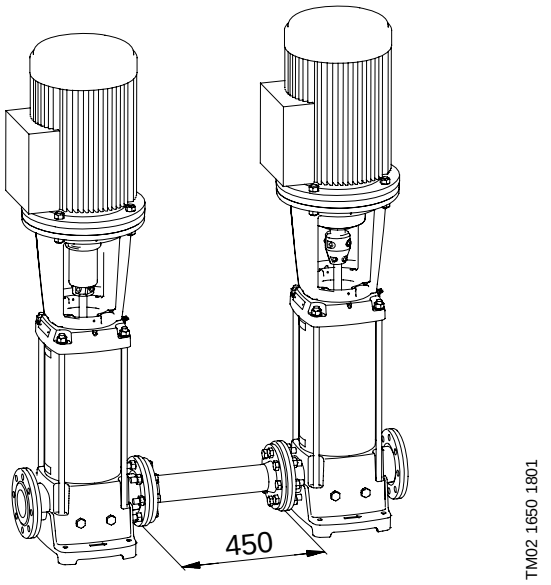
CRN 45, 60 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



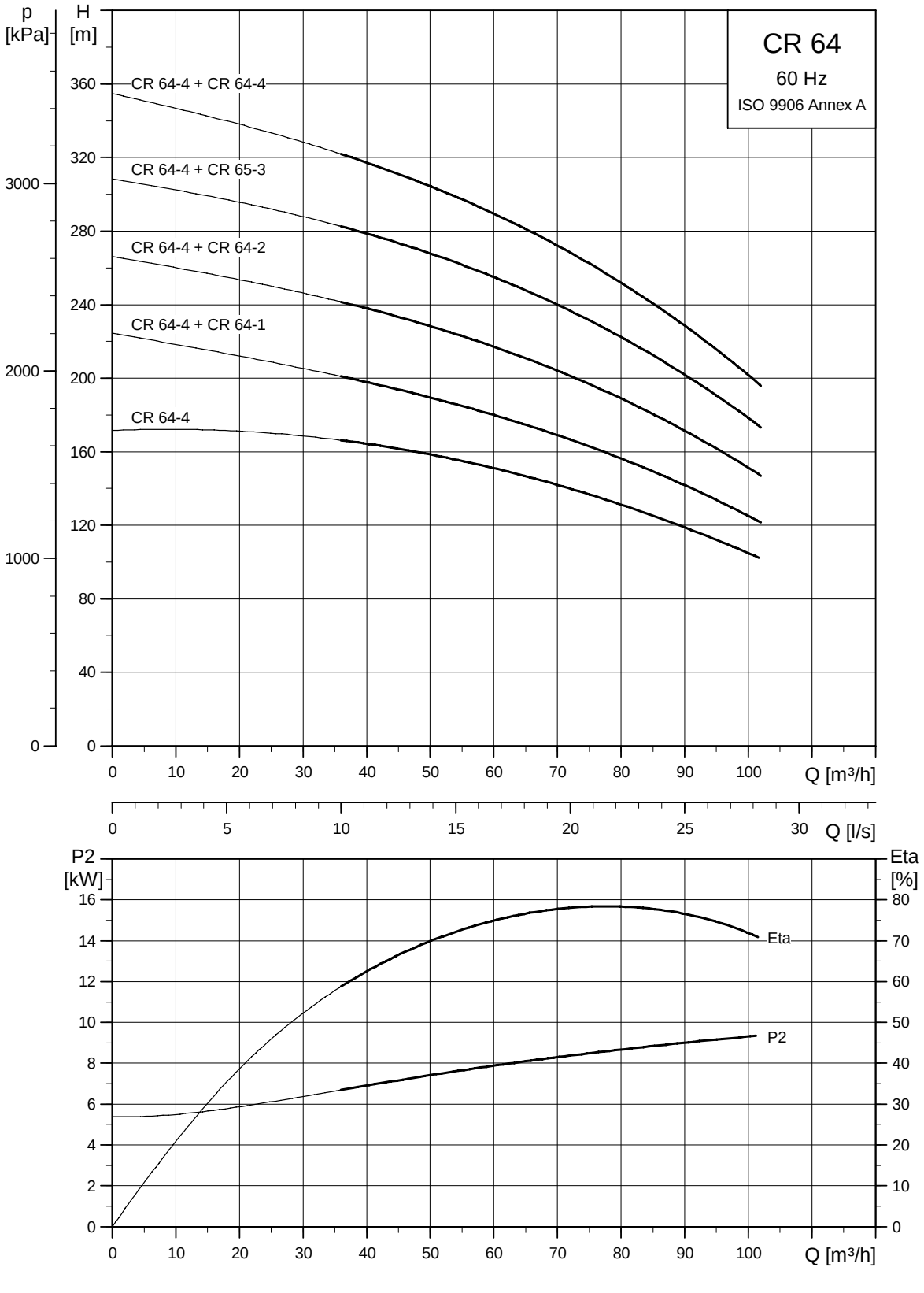
CRN feed pump, connecting pipe and CRN high-pressure pump

Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 45-2	15	749	478	1227	320	197	350	159
CRN 45-3	18.5	829	518	1347	320	197	350	170
CRN 45-4	30	909	646	1555	415	300	400	309
CRN 45-5	30	989	646	1635	415	300	400	313
CRN 45-6 [1)]	37	1069	703	1772	415	300	400	350

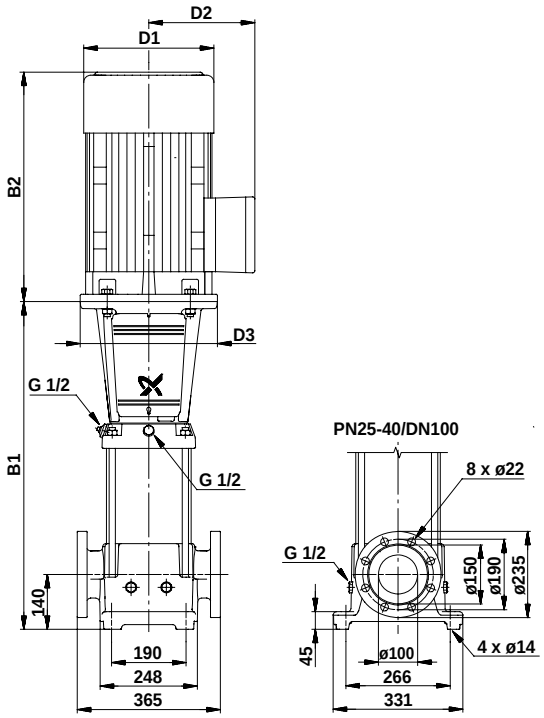
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 27 kg.

CR 64, 60 Hz


p [kPa]
H [m]
CR 64
60 Hz
ISO 9906 Annex A
CR 64-4 + CR 64-4
CR 64-4 + CR 65-3
CR 64-4 + CR 64-2
CR 64-4 + CR 64-1
CR 64-4
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
Q [m³/h]
TM02 1674 3605

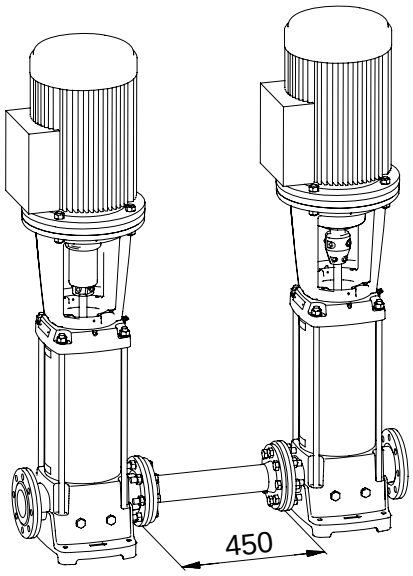
Technical data

Dimensional sketches



TM02 8836 0904

CR feed pump/CR high-pressure pump



TM02 1650 1801

CR feed pump, connecting pipe and CR high-pressure pump

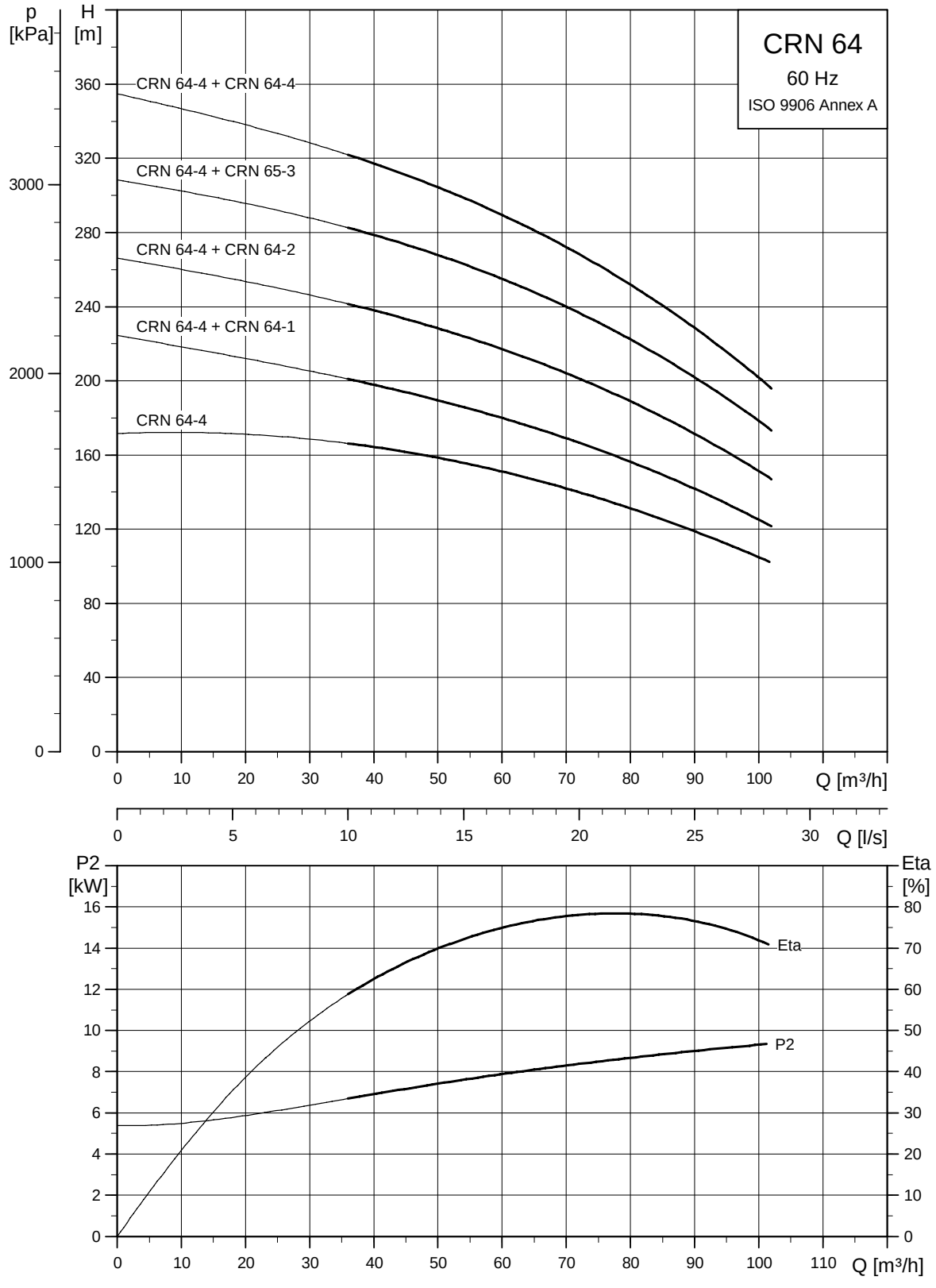
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 64-2	11	754	499	1253	260	172	350	143
CR 64-3	18.5	836	518	1354	320	197	350	173
CR 64-4	22	919	610	1529	363	262	350	263
CR 64-5	30	1001	646	1647	415	300	400	318
CR 64-6	37	1084	703	1787	415	300	400	354
CR 64-7 [1]	45	1166	709	1875	442	325	450	438

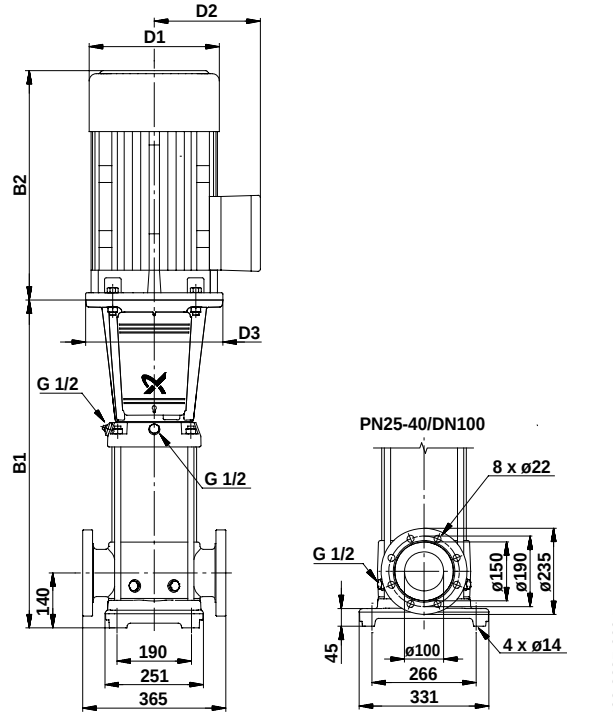
[1] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

Performance curves

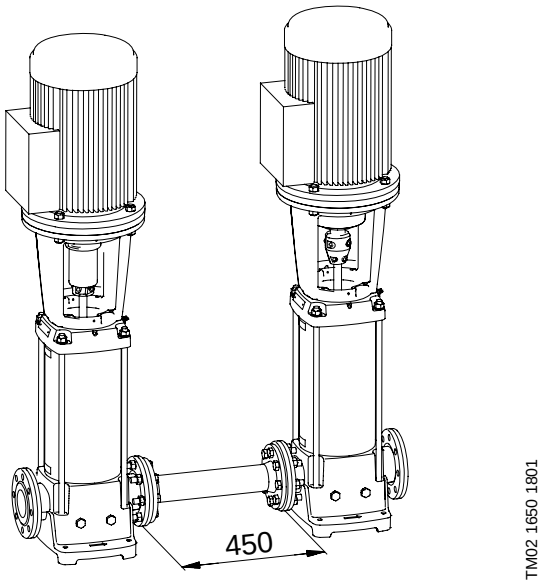
CRN 64, 60 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



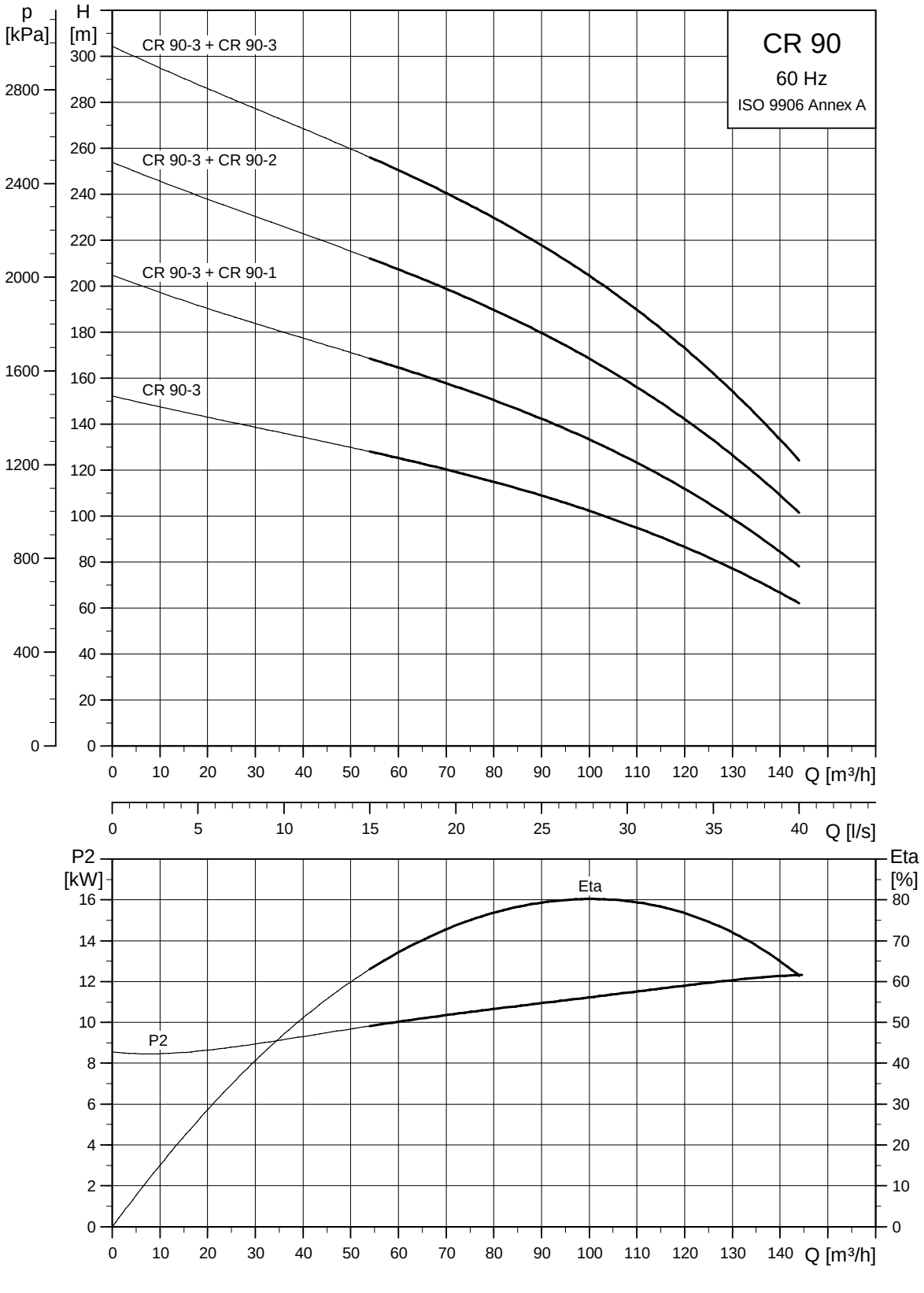
CRN feed pump, connecting pipe and CRN high-pressure pump

Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 64-1	11	671	499	1170	260	172	350	139
CRN 64-2	22	754	610	1364	636	262	350	254
CRN 64-3	30	836	646	1482	415	300	400	309
CRN 64-4	45	919	709	1628	442	325	450	425
CRN 64-4 [1)]	45	919	709	1628	442	325	450	425

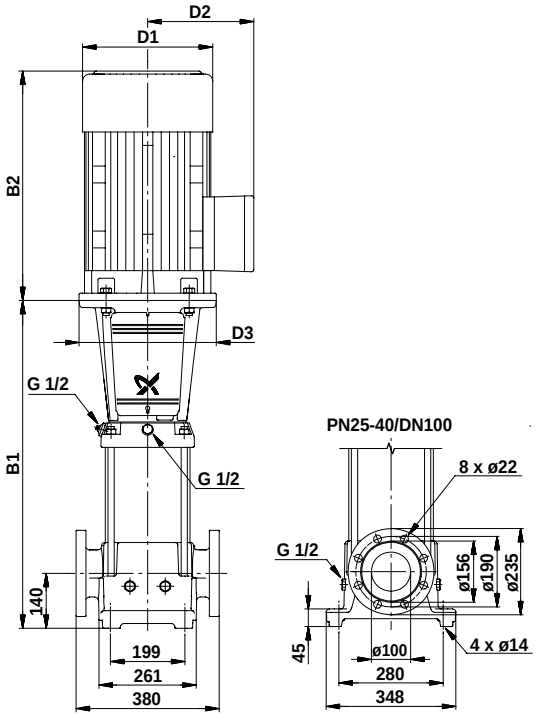
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

CR 90, 60 Hz



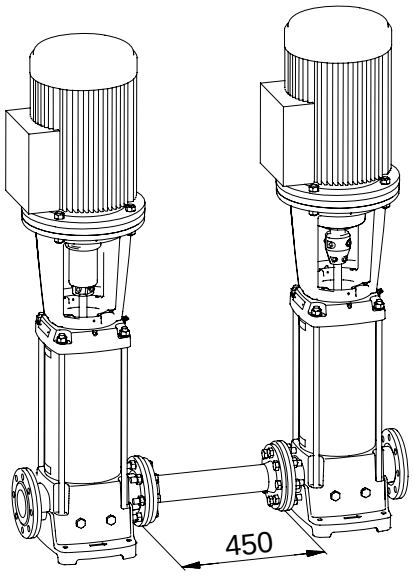
TM02 1675 3605

Dimensional sketches



TM02 8838 0904

CR feed pump/CR high-pressure pump



TM02 1650 1801

CR feed pump, connecting pipe and CR high-pressure pump

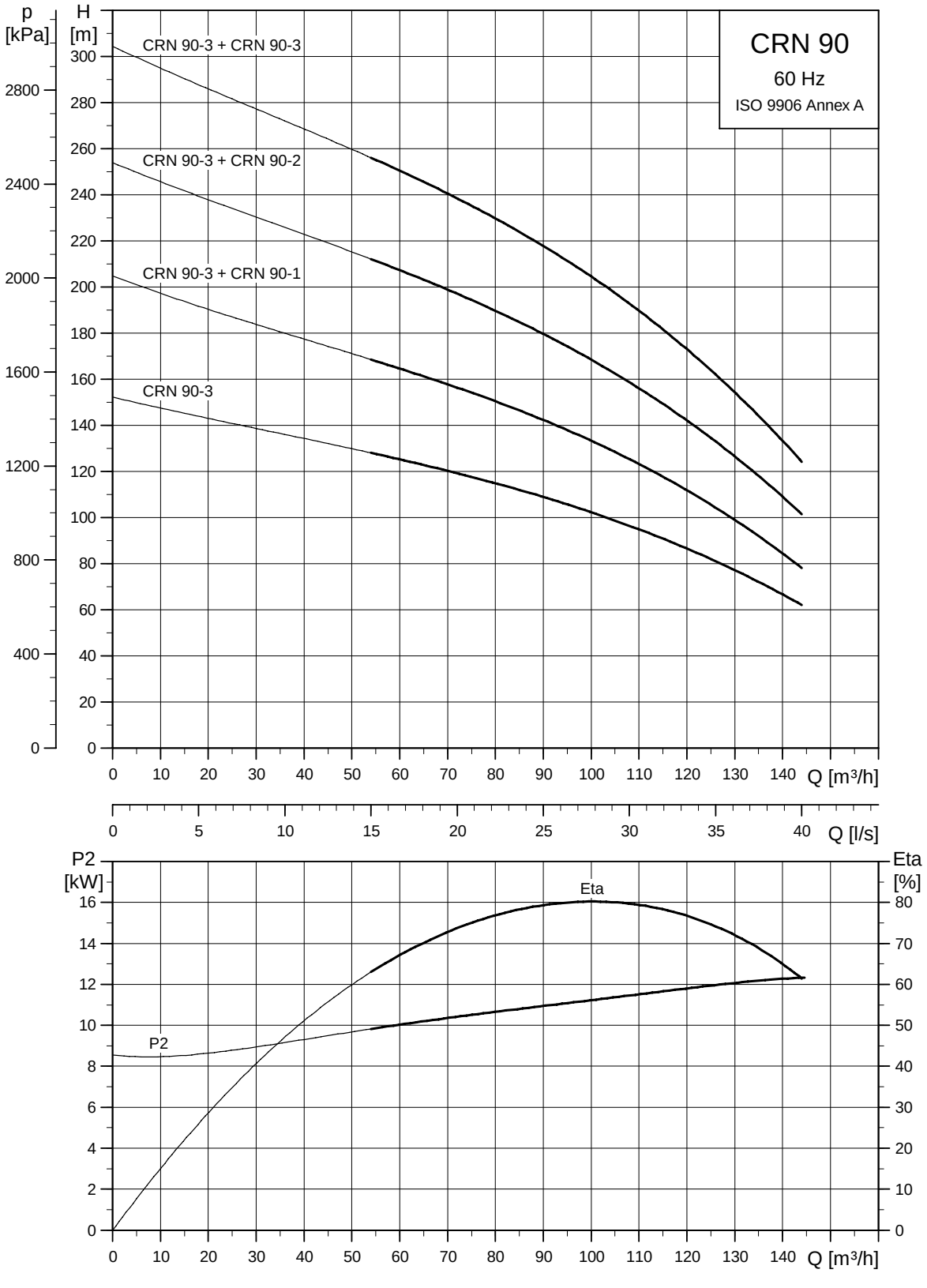
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 90-1	15	681	478	1159	320	197	350	162
CR 90-2	30	773	646	1419	415	300	400	309
CR 90-3	45	865	709	1574	442	325	450	424
CR 90-3 [1)]	45	865	709	1574	442	325	450	424

[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

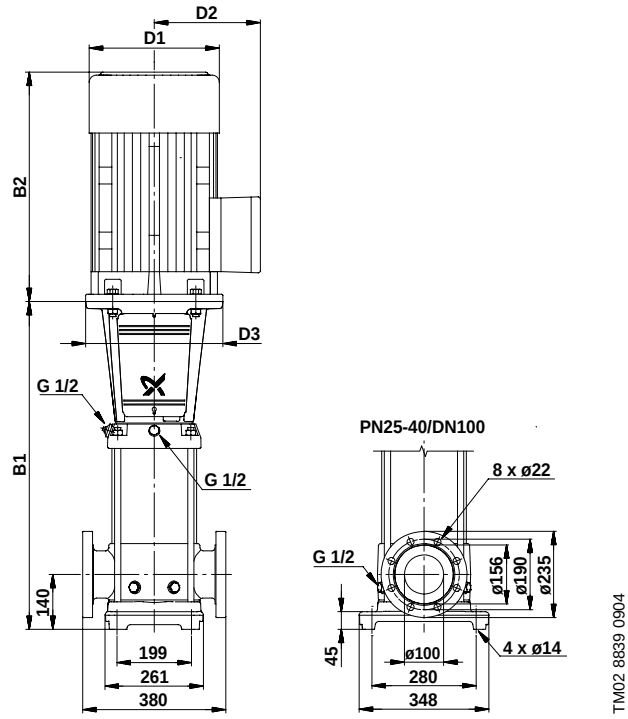
Performance curves

CRN 90, 60 Hz

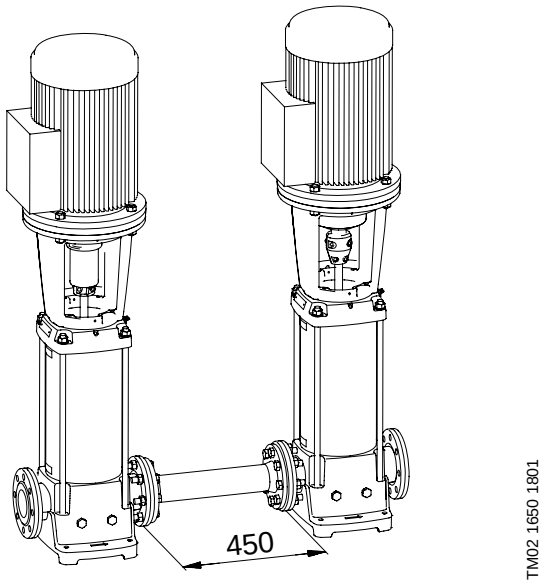


TM02 1686 3605

Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

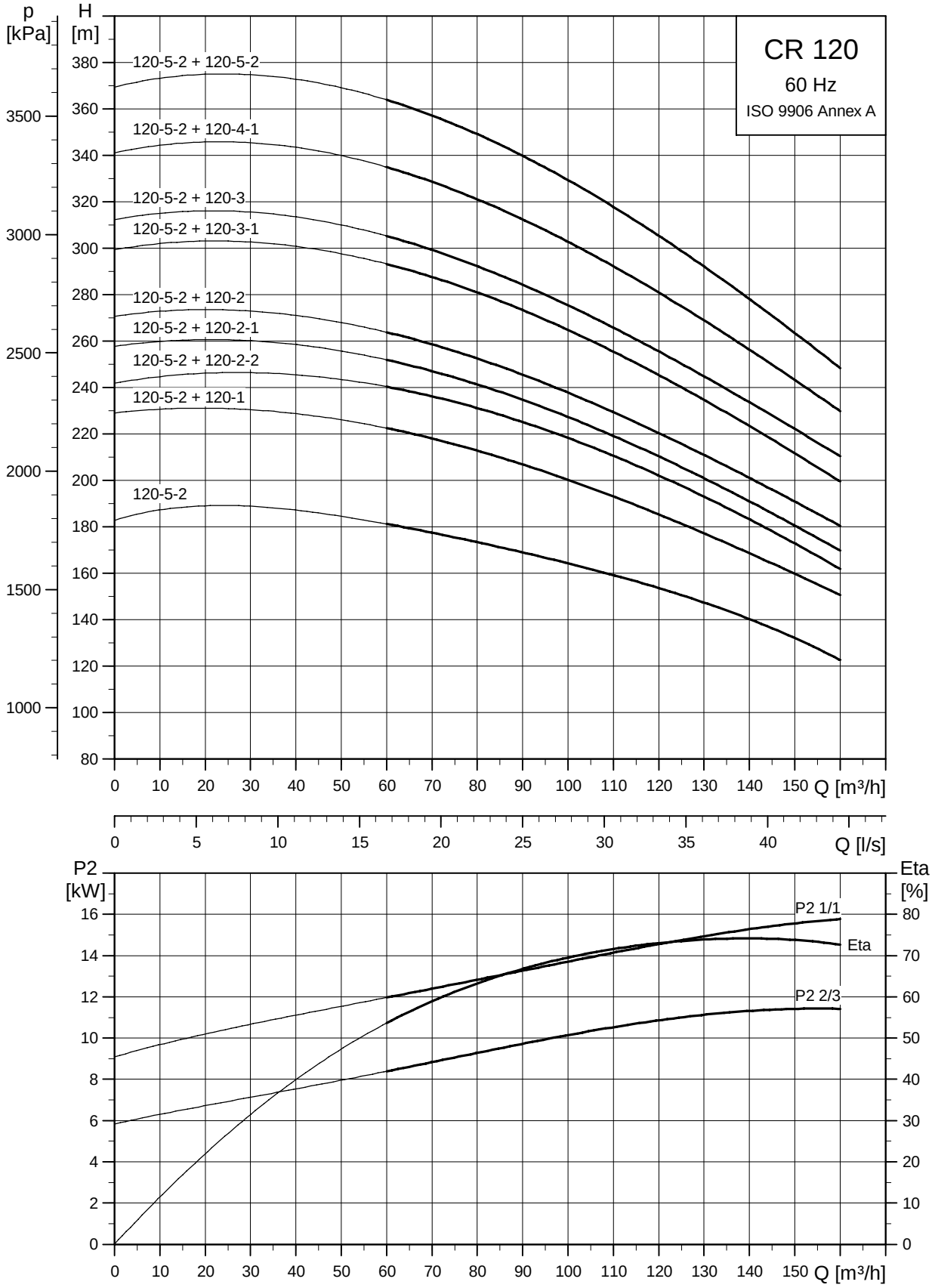
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 90-1	15	681	478	1159	320	197	350	163
CRN 90-2	30	773	646	1419	415	300	400	311
CRN 90-3	45	865	709	1574	442	325	450	426
CRN 90-3 [1)]	45	865	709	1574	442	325	450	426

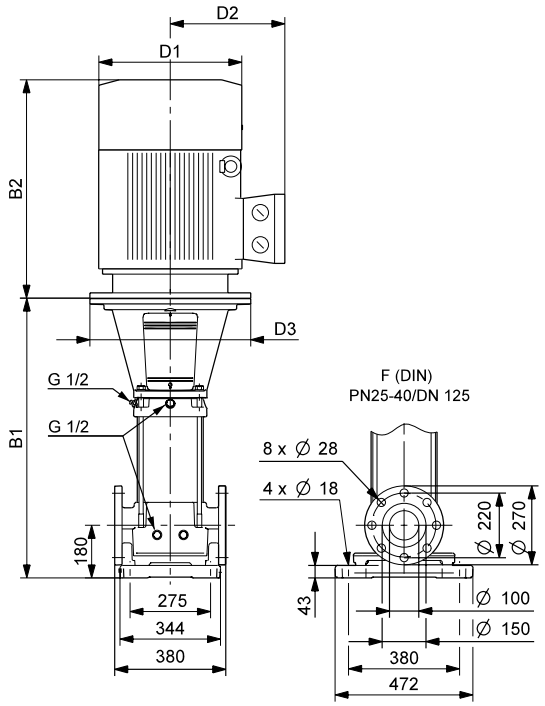
[1)] High-pressure pump. Additional height and weight for pump with bearing flange: 20 mm and 30 kg.

Performance curves

CR 120, 60 Hz

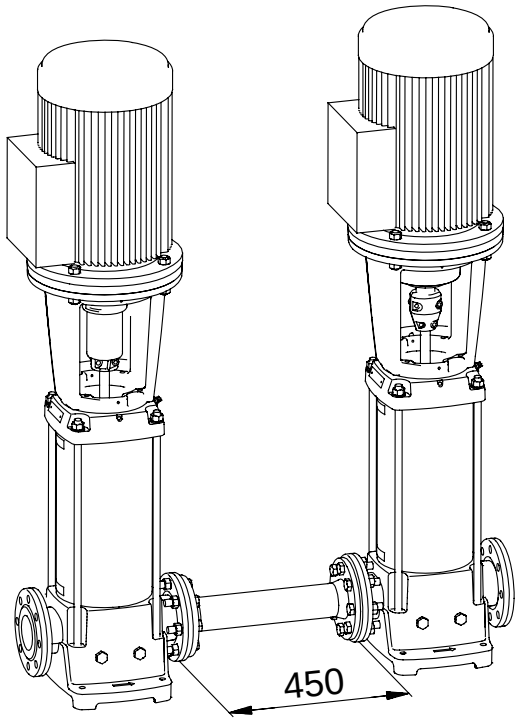


Dimensional sketches



TM03 9704 4407

CR feed pump/CR high-pressure pump



TM02 1650 0801

CR feed pump, connecting pipe and CR high-pressure pump

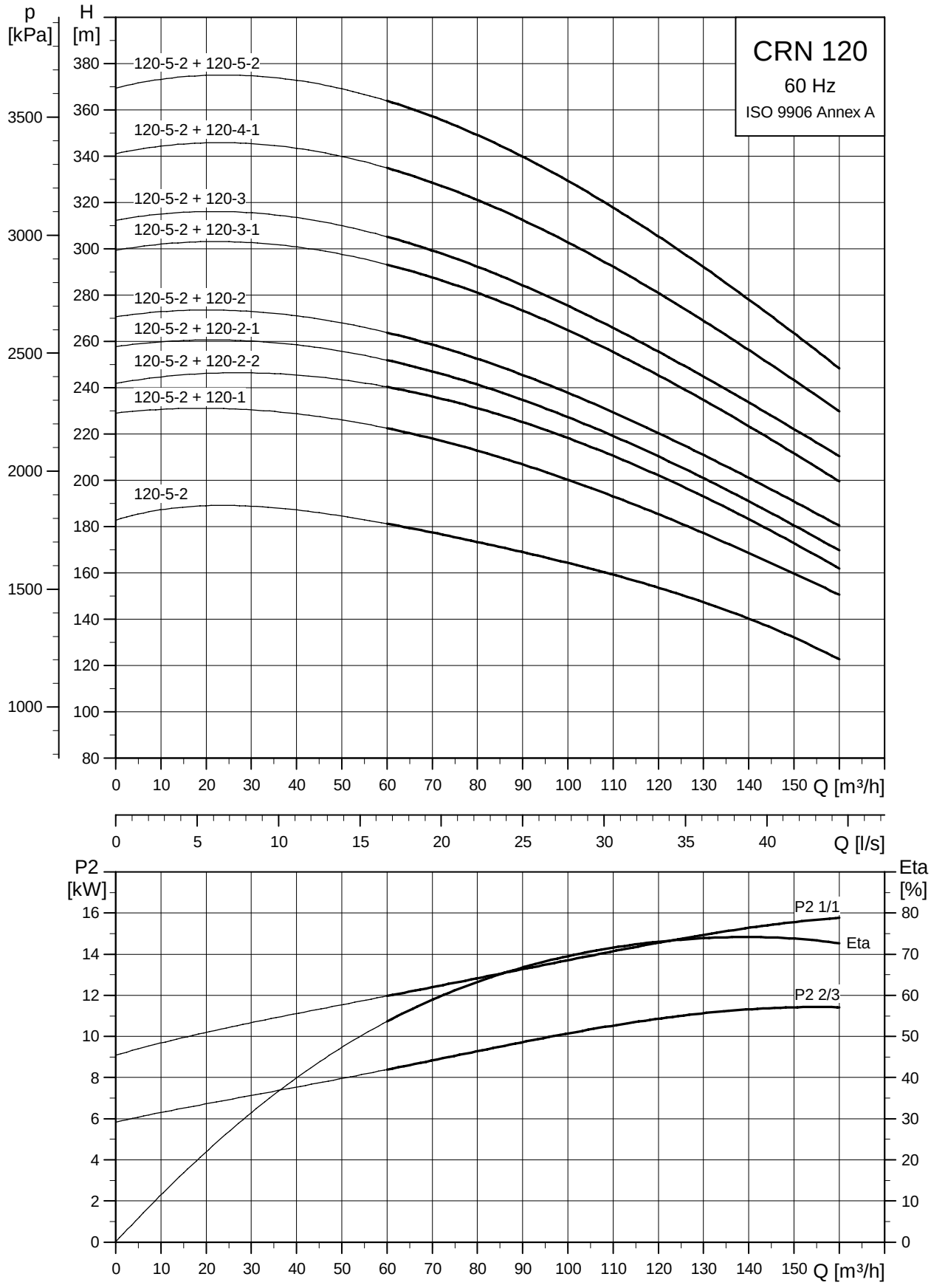
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 120-1	18.5	834	518	1352	320	197	350	197
CR 120-2-2	30	990	646	1636	415	300	400	343
CR 120-2-1	30	990	646	1636	415	300	400	343
CR 120-2	37	990	703	1693	415	300	400	373
CR 120-3-1	45	1145	709	1854	442	325	450	462
CR 120-3	55	1175	747	1922	495	392	550	597
CR 120-4-1	75	1331	820	2151	555	432	550	742
CR 120-5-2	75	1486	820	2306	555	432	550	752
CR 120-5-2 [1)]	75	1486	820	2306	555	432	550	752

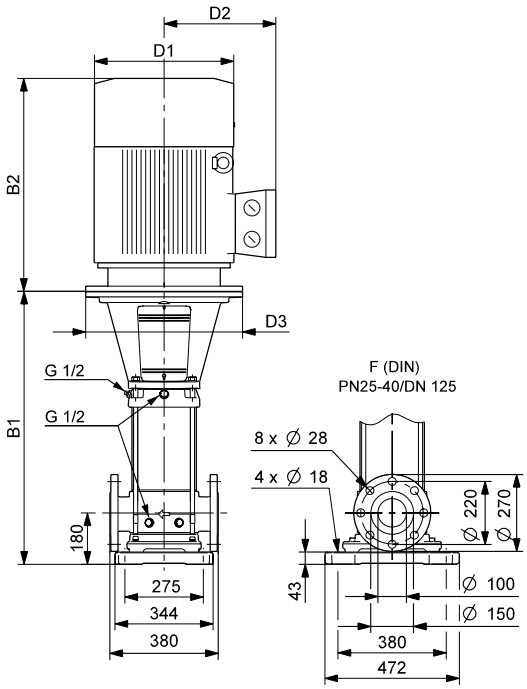
[1)] High-pressure pump

Performance curves

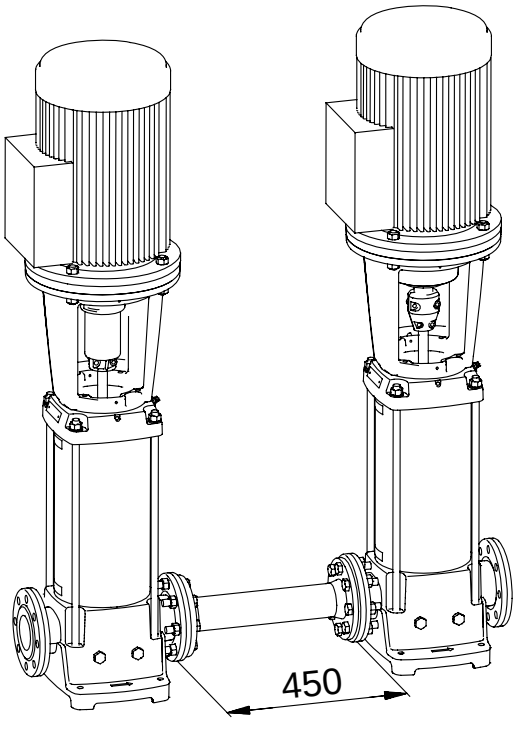
CRN 120, 60 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

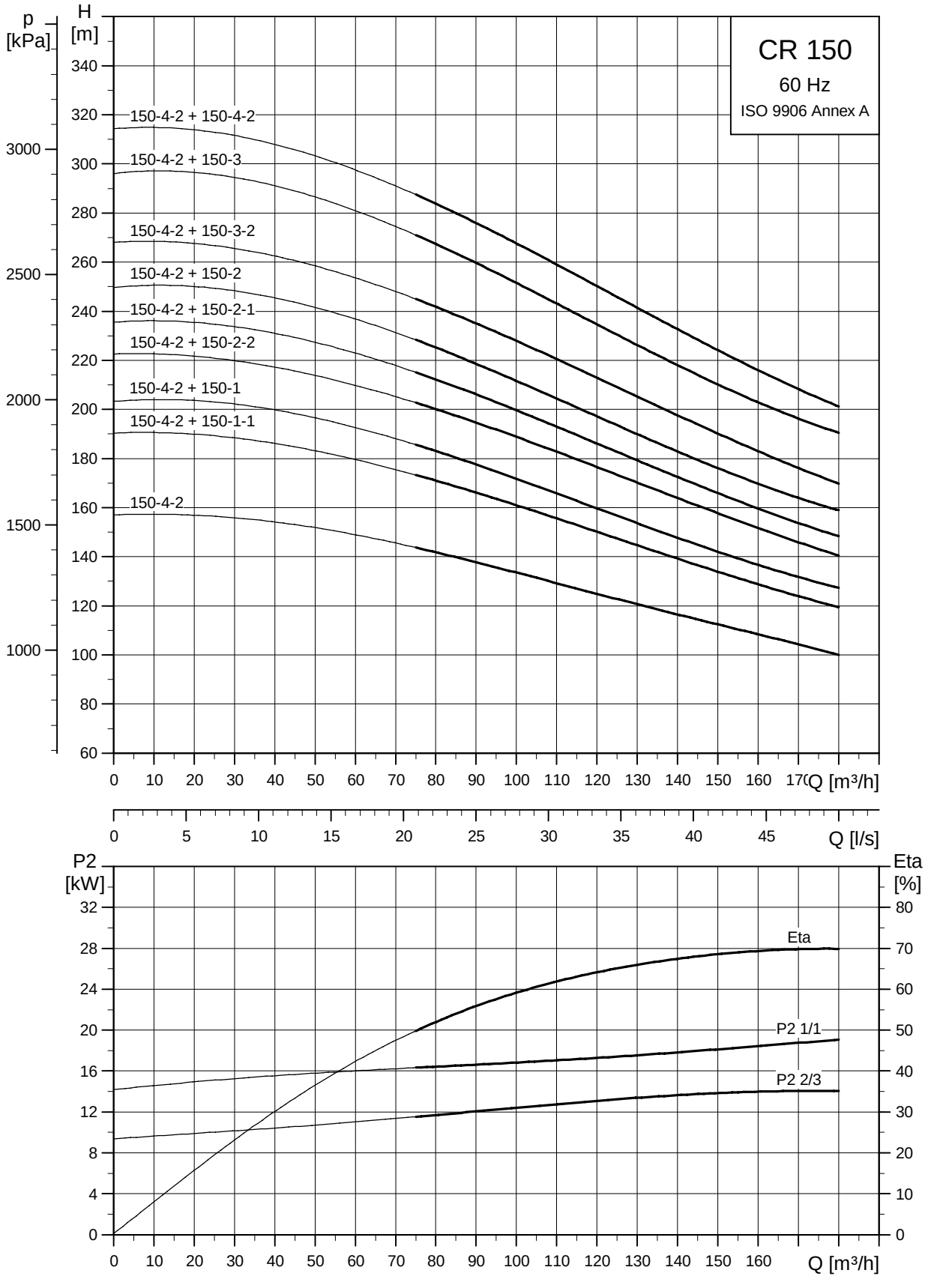
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 120-1	18.5	834	518	1352	320	197	350	200
CRN 120-2-2	30	990	646	1636	415	300	400	346
CRN 120-2-1	30	990	646	1636	415	300	400	346
CRN 120-2	37	990	703	1693	415	300	400	376
CRN 120-3-1	45	1145	709	1854	442	325	450	465
CRN 120-3	55	1175	747	1922	495	392	550	600
CRN 120-4-1	75	1331	820	2151	555	432	550	745
CRN 120-5-2	75	1486	820	2306	555	432	550	755
CRN 120-5-2 [1)]	75	1486	820	2306	555	432	550	755

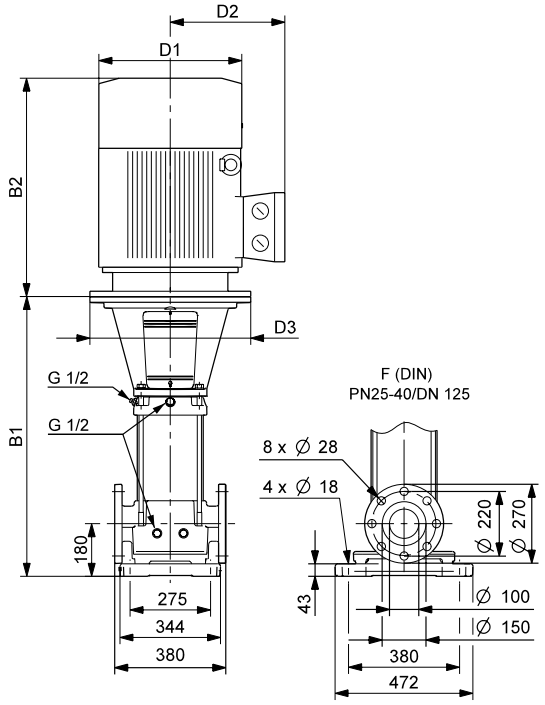
[1)] High-pressure pump

Performance curves

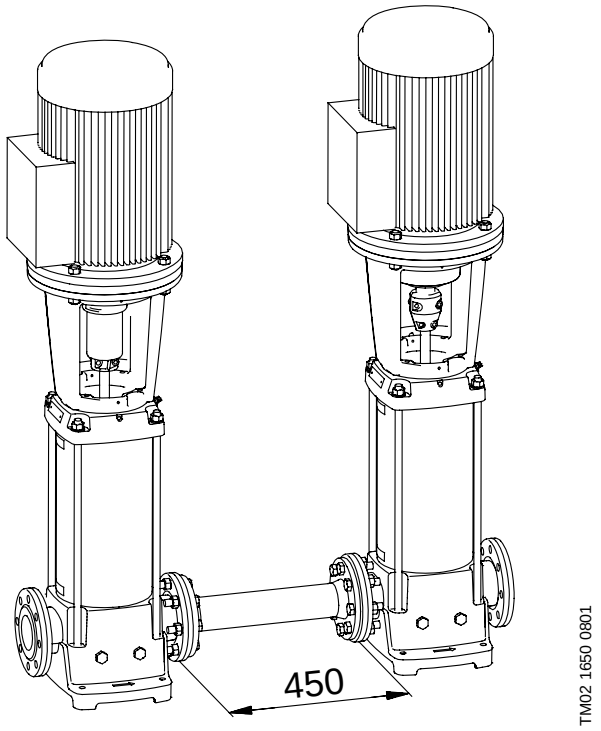
CR 150, 60 Hz



Dimensional sketches



CR feed pump/CR high-pressure pump



CR feed pump, connecting pipe and CR high-pressure pump

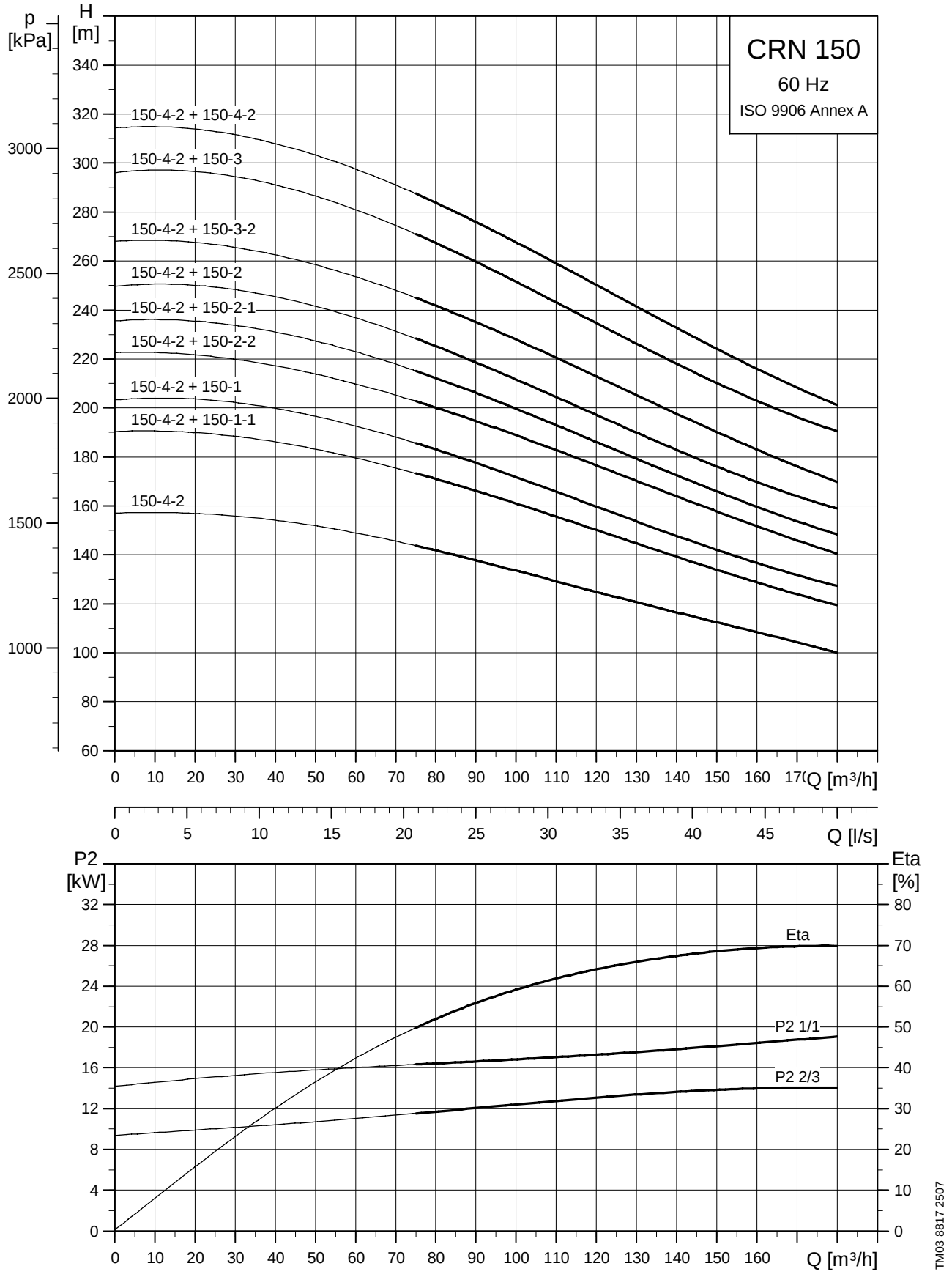
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CR 150-1-1	18.5	834	518	1352	320	197	350	197
CR 150-1	22	834	610	1444	636	262	350	283
CR 150-2-2	30	990	646	1636	415	300	400	343
CR 150-2-1	37	990	703	1693	415	300	400	373
CR 150-2	45	990	709	1699	442	325	450	452
CR 150-3-2	55	1175	747	1922	495	392	550	598
CR 150-3	75	1175	820	1995	555	432	550	732
CR 150-4-2	75	1331	820	2151	555	432	550	742
CR 150-4-2 [1)]	75	1331	820	2151	555	432	550	742

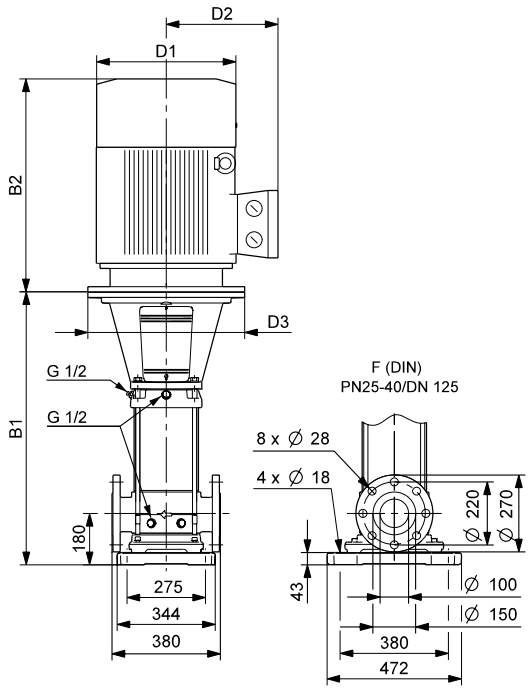
[1)] High-pressure pump

Performance curves

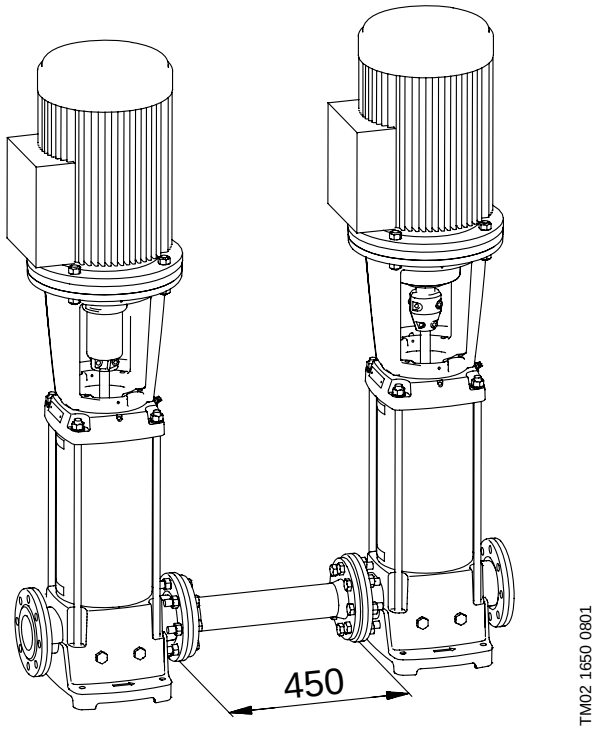
CRN 150, 60 Hz



Dimensional sketches



CRN feed pump/CRN high-pressure pump



CRN feed pump, connecting pipe and CRN high-pressure pump

Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B2	B1+B2	D1	D2	D3	
CRN 150-1-1	18.5	834	518	1352	320	197	350	200
CRN 150-1	22	834	610	1444	636	262	350	286
CRN 150-2-2	30	990	646	1636	415	300	400	346
CRN 150-2-1	37	990	703	1693	415	300	400	376
CRN 150-2	45	990	709	1699	442	325	450	456
CRN 150-3-2	55	1175	747	1922	495	392	550	601
CRN 150-3	75	1175	820	1995	555	432	550	735
CRN 150-4-2	75	1331	820	2151	555	432	550	745
CRN 150-4-2 [1)]	75	1331	820	2151	555	432	550	745

[1)] High-pressure pump

Standard motors for CR, CRN high pressure, 50 Hz

Motor P_2 [kW]	Frame size	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]	I_{start}	Speed [rpm]
0.37	71	220-240Δ/380-415Y	1.7/1	0.80-0.70	78.5	8.5-9.2/4.9-5.3	2850-2880
0.55	71	220-240Δ/380-415Y	2.5/1.4	0.80-0.70	80	12-13/6.9-7.5	2830-2850
0.75	80	220-240Δ/380-415Y	3.3/1.9	0.81-0.71	81	19.1-20.5/11.0-11.8	2840-2870
1.1	80	220-240Δ/380-415Y	4.5/2.6	0.84-0.76	82.8	28.5-31.5/16.3-17.9	2820-2860
1.5	90	220-240Δ/380-415Y	5.5/3.2	0.87-0.82	85.5	46.3-50.7/26.8-29.3	2890-2910
2.2	90	380-415Δ	4.5-4.5	0.89-0.87	87.5	37.8-42.3	2890-2910
3.0	100	380-415Δ	6.3-6.3	0.87-0.82	87.5	52.9-58.0	2900-2920
4.0	112	380-415Δ	8-8	0.88-0.84	89	89.6-98.4	2910-2930
5.5	132	380-415Δ	11.2-11.2	0.88-0.84	90	119.8-131.0	2910-2930
7.5	132	380-415Δ	15.2-15.2	0.87-0.80	89.5	152-168.7	2900-2920
11	160	380-415Δ	21.4-21.4	0.90-0.90	91.4	156.2-171.2	2920-2930

MG

TM03 1711 2805

Siemens

15	160	380-415Δ/660-690Y	26.5/15.2	0.90-0.90	91.5	185.5/106.4	2945
18.5	160	380-415Δ/660-690Y	31.5/18.4	0.92-0.92	92.5	220.5/128.8	2940
22	180	380-415Δ/660-690Y	38.5/22	0.88-0.88	94	277.2/158.4	2955
30	200	380-415Δ/660-690Y	53/30.5	0.88-0.88	93.5	371/213.5	2960
37	200	380-415Δ/660-690Y	64/37	0.89-0.89	94	460.8/266.4	2960
45	225	380-415Δ/660-690Y	77/44.5	0.89-0.89	95	562.1/324.9	2965
55	250	380-415Δ/660-690Y	93/54	0.90-0.90	95.5	632.4/367.2	2975
75	280	380-415Δ/660-690Y	128/74	0.89-0.89	95	896-832/518-481	2975

TM03 1710 2805

E-motors for CRNE-HS, 50 Hz

Motor P_2 [kW]	Frame size	Phases	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]	RPM CRNE 1-23	RPM CRNE 3-23
4.6	112	3	380-480	9.6-8.2	0.84	81	4800	4100
6.0	132	3	380-480	12.3-10.5	0.85	81	5200	4500
7.5	132	3	380-480	16.0-13.6	0.85	84	5500	4800

TM03 1712 2805

E-motors for CRNE-SF, 50 Hz

Motor P_2 [kW]	Frame size	Phase	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]
3.0	100	3	380-480	6.2-5.0	0.94-0.92	83
5.5	132	3	380-480	11-8.8	0.94-0.93	85.5
7.5	132	3	380-480	15-12	0.94-0.93	85
11	160	3	380-415	21.4	0.93	84
15	160	3	380-415	28	0.94	85.5
18.5	160	3	380-415	34	0.95	85.5

MGE

MMGE

TM03 1712 2805/
TM031713 2805

Motor data

Standard motors for CR, CRN high pressure, 60 Hz

Motor P_2 [kW]	Frame size	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]	I_{start}	Speed [RPM]
0.55	71	220-255Δ/380-440Y	2.2-2.1/1.3-1.2	0.85-0.76	81.5-83	10.8-12.3/6.3-7.2	3390-3460
0.75	80	220-255Δ/380-440Y	2.9-2.7/1.7-1.6	0.86-0.78	83-85	17.1-20.0/9.9-11.5	3400-3470
1.1	80	220-255Δ/380-440Y	4.2-3.9/2.5-2.2	0.88-0.82	82-84.5	25.6-30.4/14.9-17.5	3390-3460
1.5	90	220-277Δ/380-480Y	5.4-4.7/3.1-2.7	0.90-0.81	84-85	41.7-49.4/24.2-28.4	3470-3530
2.2	90	380-480Δ	4.5-3.7	0.91-0.85	84-87	34.7-40.7	3470-3530
3.0	100	380-480Δ	6.2-5.7	0.89-0.84	84-87.5	49.6-62.2	3430-3530
4.0	112	380-480Δ	7.8-6.8	0.90-0.82	88-89.5	79.6-102	3510-3540
5.5	132	380-480Δ	10.8-9.5	0.90-0.82	89-89	108-138	3510-3540
7.5	132	380-480Δ	14.8-13.4	0.90-0.79	89-89.5	137.6-174.2	3490-3530
11	160	380-480Δ	21.4-17.2	0.92-0.88	90-93	132.7-166.8	3490-3540

MG

TM03 1711 2805

15	160	380-480Δ/660-690Y	27.5-22/15.8-15.8	0.92-0.9	89.5-91	165-200.2/94.8-94.8	3520-3555
18.5	160	380-480Δ/660-690Y	34-26.5/19.6-19.6	0.93-0.92	89-91	197.2-233.2/113.7-113.7	3510-3550
22	180	380-480Δ/660-690Y	39.5-32.5/23-21.5	0.9-0.86	93.5-94.5	260.7-273/151.8-180.6	3535-3565
30	200	380-480Δ/660-690Y	55-45/31.5-30	0.9-0.86	92.5-93.5	357.5-360/252-240	3540-3565
37	200	380-480Δ/660-690Y	67-54/38.5-37	0.9-0.87	93-94	442.2-448.2/254.1-307.1	3540-3565
45	225	380-480Δ/660-690Y	81-65/46.5-44	0.9-0.87	94.5-95	542.7-559/311.6-378.4	3545-3570
55	250	380-480Δ/660-690Y	97-79/56-53	0.91-0.88	94.5-95	620.8-632/358.4-424	3565-3580
75	280	380-480Δ/660-690Y	134-108/77-73	0.9-0.87	95-95.5	871-864/500.5-584	3565-3580

Siemens

TM03 1710 2805

E-motors for CRNE-HS, 60 Hz

Motor P_2 [kW]	Frame size	Phases	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]	RPM CRNE 1-23	RPM CRNE 3-23
4.6	112	3	380-480	9.6-8.2	0.84	81	4800	4100
6.0	132	3	380-480	12.3-10.5	0.85	81	5200	4500
7.5	132	3	380-480	16.0-13.6	0.85	84	5500	4800

TM03 1712 2805

E-motors for CRNE-SF, 60 Hz

Motor P_2 [kW]	Frame size	Phase	Standard voltage [V]	$I_{1/1}$ [A]	Cos $\varphi_{1/1}$	η[%]
4.0	112	3	380-480	8.1-6.6	0.94-0.92	85
7.5	132	3	380-480	15.0-12.0	0.94-0.93	85
11	160	3	380-415	21.4	0.93	84
15	160	3	380-415	28	0.94	85.5
18.5	160	3	380-415	34	0.95	85.5

MGE

MMGE

TM03 1712 2805/
TM031713 2805

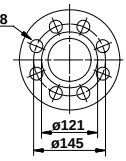
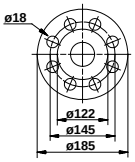
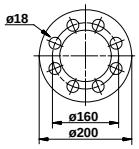
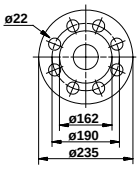
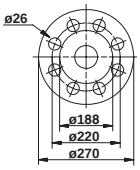
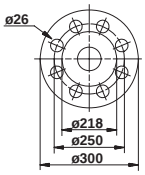
Pipe connection

For pipe connection, various sets of counter- flanges and couplings are available.

Counter-flanges

A counter-flange set consists of one counter-flange, one gasket, bolts and nuts.

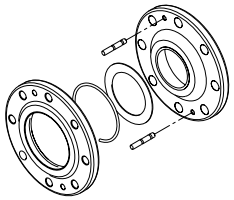
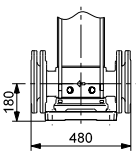
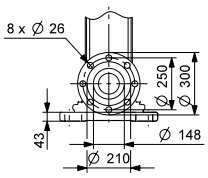
Counter-flanges for CRN pumps are made of stainless steel according to EN 1.4401 (AISI 316).

Counter-flange	Pump type	Description	Rated pressure	Pipe connection	Product number
CRN  CR  TM02 1774 2001 TM02 1776 2001	**CR 32**	For welding	40 bar, DIN 2635	65 mm, nominal	349905
	CRN 32	For welding	40 bar	65 mm, nominal	349908
 TM01 2162 3498	**CR 45**	For welding	40 bar	80 mm, nominal	350542
	CRN 45	For welding	40 bar	80 mm, nominal	350545
 TM02 1775 2001	**CR 64** **CR 90**	For welding	40 bar, DIN 2633	100 mm, nominal	369905
	CRN 64 **CRN 90**	For welding	40 bar	100 mm, nominal	369906
 TM03 8892 2707	**CR 120** **CR 150**	For welding	40 bar, EN 1092-2	125 mm, nominal	96750475
	CRN 120 **CRN 150**	For welding	40 bar, EN 1092-2	125 mm, nominal	96750477
 TM03 8891 2707	**CR 120** [1)] **CR 150** [1)]	For welding	40 bar, EN 1092-2	150 mm, nominal	96750476
	CR 120 [1)] **CR 150** [1)]	For welding	40 bar, EN 1092-2	150 mm, nominal	96750478

1) CR, CRN 120 and 150 pumps are supplied with DN 125 flanges as standard.

Adapter kit

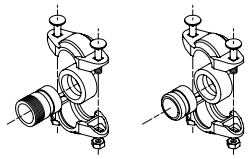
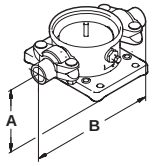
DN 150 flanges are available for CR, CRN 120 and 150 pumps. To use DN 150 flanges, two adapter kit must be ordered per pump.

Adapter kit	Pump type	Pipe connection	Number of flange kits needed	Product number
 TM04 0021 4807   TM04 0020 4807	**CR 120** **CR 150**	150 mm, nominal	2	96638169
	CRN 120 **CRN 150**	150 mm, nominal	2	96638180

PJE couplings with pipe stub

Materials in contact with the pumped liquid are made of stainless steel EN 1.4401 (AISI 316) and rubber.

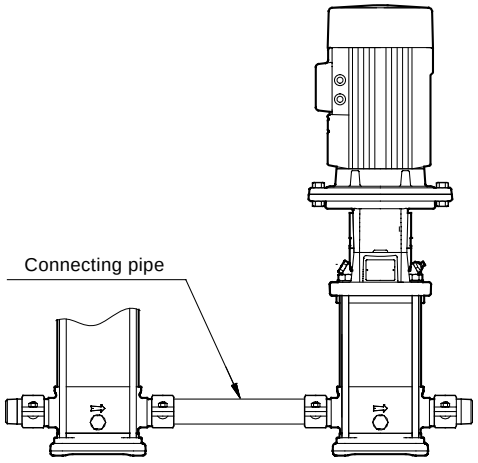
A set consists of two coupling halves (Victaulic type 77), one gasket, one pipe stud (for welding or threaded), bolts and nuts.

Coupling	Pump type	Pipe stub	PN	A	B	Pipe connection	Rubber parts	Number of coupling sets needed	Product number
 TM00 3808 1094	**CRNE-HS 1, CRNE-HS 3, CRN 3-SF CRN 5-SF**	Threaded	80 bar	50	320	R 1¼	EPDM	2	419911
							FKM	2	419905
		For welding	80 bar	50	280	DN 32	EPDM	2	419912
							FKM	2	419904
 TM03 8890 2707	**CRN 10-SF, CRN 15-SF, CRN 20-SF**	Threaded	70 bar	80	377	R 2	EPDM	2	339911
							FKM	2	339918
		For welding	70 bar	80	371	DN 50	EPDM	2	339910
							FKM	2	339917

Connecting pipe

Pump type	Pipe connection	Product number
CRN 3-SF, CRN 5 SF	DN 32	400132
CRN 10-SF, CRN 15 SF, CRN 20 SF	DN 50	420138
CR/CRN 32[1], CR/CRN 45	DN 80	350739
CR/CRN 64, CR/CRN 90	DN 100	370973

1) CR, CRN 32 is with DN 65 flanges as standard. This pump must be ordered with oversize DN 80 flanges.



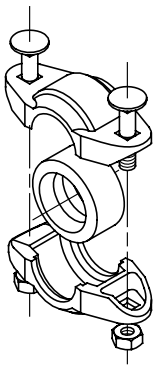
TM01 1984 1906

Fig. 15 Connecting pipe

PJE coupling without pipe stub

A set includes one coupling, one gasket and bolts and nuts.

Pump type	Pipe connection	Product number	
		EPDM	FKM
CRN 3-SF CRN 5-SF	DN 32	ID1781	ID6742
CRN 10-SF, CRN 15-SF, CRN 20-SF	DN 50	ID2643	ID6743



TM01 6505 2599

Fig. 16 PJE coupling

Pressure sensors for CRNE-HS

Danfoss pressure sensor kit, consisting of:

- Danfoss pressure transmitter, type MBS 3000, with 2 m screened cable
  Connection: G ½ A (DIN 16288 - B6kt)
- 5 cable clips (black)
- Instruction manual PT (00 40 02 12).

Pressure range	Temperature range	Product number
0 - 40 bar	–40 °C to +85 °C	96483573
0 - 60 bar		96483574

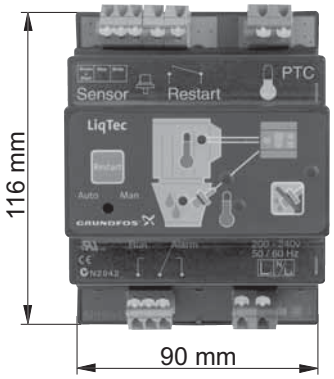
LiqTec

A dry-running protection device, the LiqTec protects pump and process against dry running and temperatures exceeding 130 °C ±5 °C.

Connected to the motor PTC sensor, LiqTec also monitors motor temperature.

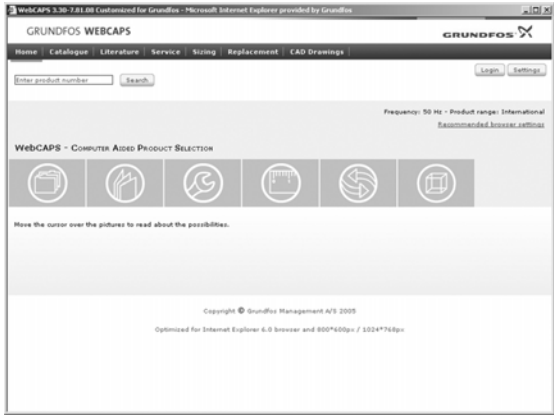
LiqTec is prepared for DIN rail mounting in control cabinet.

Enclosure class: IP X0.

Dry-running protection	Pump type	Voltage [V]	LiqTec	Sensor ½"	Cable 5 m	Extension cable 15 m	Product number
 TM03 2108 3705	CR CRN	200-240 V	●	●	●	-	96556429
		80-130 V	●	●	●	-	96556430
		-	-	-	-	●	96443676

Further product documentation

WebCAPS



WebCAPS is a **Web**-based **C**omputer **A**ided **P**roduct **S**election program available on www.grundfos.com.

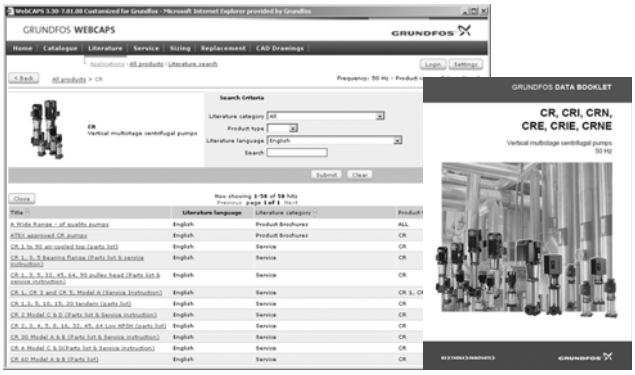
WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into 6 sections:

- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.

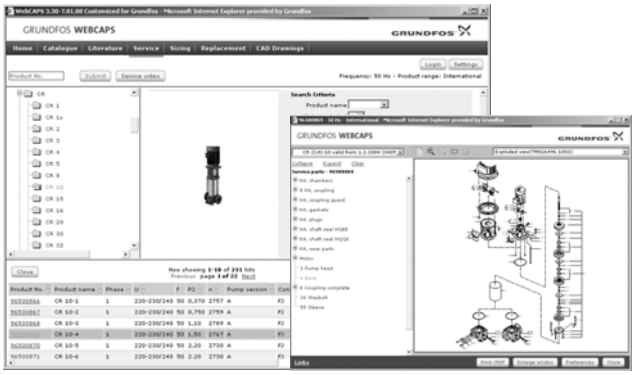
Catalogue

This section is based on fields of application and pump types, and contains
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

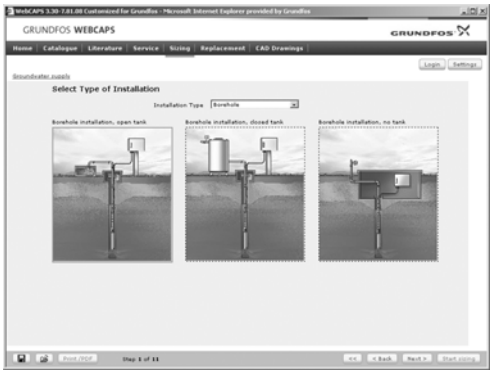
In this section you can access all the latest documents of a given pump, such as
- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.
Furthermore, this section contains service videos showing you how to replace service parts.

Further product documentation



Sizing

This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to
- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, life cycle costs, etc.
- analyse your selected pump via the built-in life cycle cost tool
- determine the flow velocity in wastewater applications, etc.

Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.
The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.

CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

2-dimensional drawings:
- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS

Fig. 17 WinCAPS CD-ROM

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election program containing detailed information on more than 185,000 Grundfos products in more than 20 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no Internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.

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Repl. V7174003 0606	

Subject to alterations.

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