CR, CRI, CRN

60 Hz IEC

Vertical multistage centrifugal pumps

GRUNDFOS

Table of contents

1. Introduction 3
Typical applications 3
Pumped liquids 4
ErP compliant 4

2. Performance range 5

3. Product range 6

4. Applications 8

5. Features and benefits 9
Pump 9
Motor 9
Terminal box positions 10
Ambient temperature 10
Viscosity 10

6. Construction 11
CR 1s, 1, 3, 5, 10, 15, 20 11
CRI 1s, 1, 3, 5, 10, 15, 20 12
CRN 1s, 1, 3, 5, 10, 15, 20 13
CR 32, 45, 64 14
CRN 32, 45, 64 15
CR 95, 125, 155, 185, 215, 255 16
CRN 95, 125, 155, 185, 215, 255 17

7. Identification 18
Type key 18

8. Operating conditions 20
Maximum operating pressure and liquid temperature 20
Operating range of the shaft seal 22
Maximum inlet pressure 23

9. Selection 24
Selection of pumps 24
How to read the curve charts 28
Guidelines to performance curves 29

10. Performance curves and technical data . . . 30
CR 1s 30
CRI, CRN 1s 32
CR 1 34
CRI, CRN 1 36
CR 3 38
CRI, CRN 3 40
CR 5 42
CRI, CRN 5 44
CR 10 46
CRI, CRN 10 48
CR 15 50
CRI, CRN 15 52
CR 20 54
CRI, CRN 20 56
CR 32 58
CRN 32 60
CR 45 62
CRN 45 64
CR 64 66
CRN 64 68
CR 95 70
CRN 95 72
CR 125 74
CRN 125 76
CR 155 78
CRN 155 80
CR 185 82
CRN 185 84
CR 215 86
CRN 215 88
CR 255 90
CRN 255 92

11. Motordata 94
2-pole motors for CR, CRI, CRN, 60 Hz 94

12. List of pumped liquids 95

13. Accessories 97
Pipe connection 97
LiqTec 107
GRUNDFOS iSOLUTIONS MONITOR 107
Sensors 108

14. Variants 109

15. Grundfos Product Center 110

1. Introduction

This data booklet deals with Grundfos CR, CRI and CRN pumps.

GR5381

CR, CRI and CRN 1s-64

TM069062

CR, CRN 95-255

CR pumps are vertical multistage, centrifugal pumps. The in-line design of the pumps enables installation in a horizontal one-pipe system where the inlet and outlet ports are in the same horizontal level and have the same pipe dimensions. This design provides a more compact pump design.

The pumps are available in various sizes and various numbers of stages to deliver the flow rate and pressure required.

CR pumps are designed for a variety of applications ranging from the pumping of potable water to the pumping of chemicals. The pumps are therefore suitable for a wide diversity of pumping systems where the performance and material of the pump meet specific demands.

A CR pump consists of two main components: the motor and the pump unit.

The motor is a Grundfos or Siemens motor designed to EN standards.

The pump unit consists of optimized hydraulics, various types of connections, a sleeve, a pump head and various other parts.

CR pumps are available in various material versions according to the pumped liquid.

Typical applications

The pumps are suitable for numerous applications. The following applications are some typical examples.

Water supply:

- Filtration and transport waterworks
- Distribution from waterworks
- Pressure boosting of mains.

Industrial:

- Pressure boosting
- Process water transfer
- Boiler feed
- Cooling and air conditioning
- Firefighting systems
- Special liquids transfer.

Water treatment:

- Filtration
- Brackish water reverse osmosis.

Commercial building services:

- Chilled-water systems
- Hot-water systems
- Pressure boosting
- Boiler feed
- Firefighting systems
- District energy systems.

Related information

4. Applications

Pumped liquids

CR, CRI and CRN pumps are suitable for pumping liquids which are thin, clean, non-flammable, non-combustible or non-explosive liquids, not containing solid particles or fibres.

When pumping liquids with a density and/or viscosity higher than that of water, use motors with correspondingly higher outputs, if required.

Whether a pump is suitable for a particular liquid depends on a number of factors of which the most important are chloride content, pH value, temperature, content of chemicals and oils. Please consult Grundfos for information about which pump types are suitable for a specific liquid.

CR and CRI

CR and CRI pumps are suitable for non-corrosive liquids.

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

CRN

CRN pumps are suitable for industrial liquids.

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

CRT

For saline or chloride-containing liquids such as sea water or for oxidising agents such as hypochlorites, we offer CRT pumps made of titanium.

- See the separate data booklet on CRT, CRTE available on Grundfos Product Center (http://product-selection.grundfos.com/).

Related information

12. List of pumped liquids

ErP compliant

The product is energy-optimized and complies with the ecodesign requirements for water pumps specified in the ErP Directive (Commission Regulation (EC) No 547/2012), which became effective on 1 January 2013. As from this date, all pumps are classified and graduated in the Minimum Efficiency Index (MEI).

Minimum efficiency index

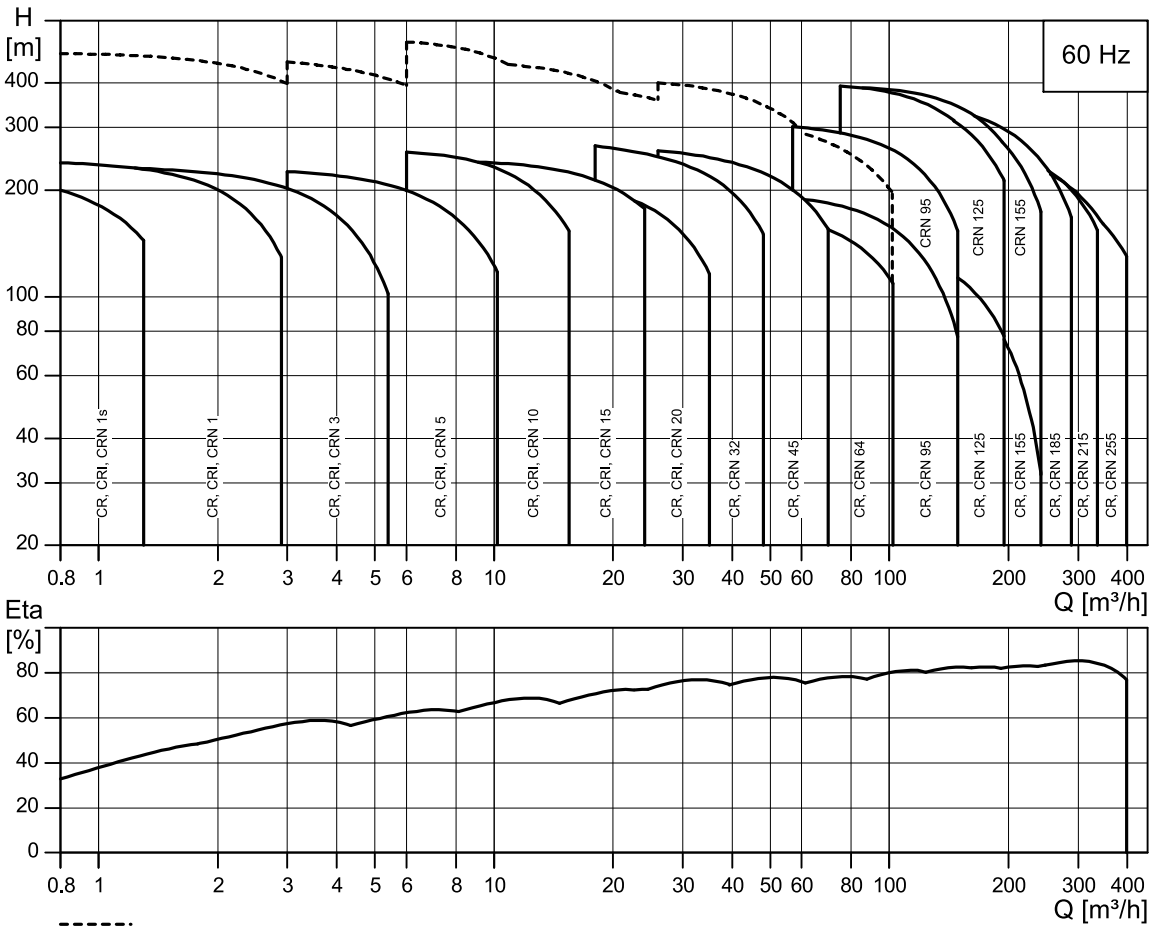
Minimum efficiency index (MEI) means the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load (PL) and overload (OL). The Commission Regulation (EU) sets efficiency requirements to MEI ≥ 0.10 as from 1 January 2013 and MEI ≥ 0.40 as from 1 January 2015. An indicative benchmark for best-performing water pump available on the market as from 1 January 2013 is determined in the Commission Regulation.

- The benchmark for most efficient water pumps is MEI ≥ 0.70.
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable-speed drive that matches the pump duty to the system.
- Information on benchmark efficiency is available at http://europump.eu/efficiencycharts.

MEI values for CR pumps

Pump type	MEI
CR 1s-3	0.54
CR 1-3	> 0.70
CR 3-3	> 0.70
CR 5-3	0.57
CR 10-3	> 0.70
CR 15-3	> 0.70
CR 20-3	> 0.70
CR 32-3	> 0.70
CR 45-3	> 0.70
CR 64-3	> 0.70
CR 95-3	> 0.70
CR 125-3	> 0.70
CR 155-3	> 0.70
CR 185-3	> 0.70
CR 215-3	≥ 0.70
CR 255-3	≥ 0.70

2. Performance range



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Performance range for CR, CRI, CRN 60 Hz

- - - - - High-pressure range

3. Product range

CR pumps size	CR 1s	CR 1	CR 3	CR 5	CR 10	CR 15	CR 20
Rated flow rate [m^3/h]	1	1.2	3.6	6	12	18	24
Flow rate [m^3/h]	0.4 - 1.3	0.8 - 2.9	1.4 - 5.4	3 - 10.2	6-16	10-29	13-35
Minimum liquid temperature [°C] [1]	-20	-20	-20	-20	-20	-20	-20
Maximum liquid temperature [°C] [1]	120	120	120	120	120	120	120
Maximum pump efficiency [%]	35	49	59	67	70	72	72
Flow rate [m^3/h]	0.4 - 1.3	0.8 - 2.9	1.4 - 5.4	3 - 10.2	6-16	10-29	13-35
Maximum pressure [bar]	23	24	24	24	25	24	21
High pressure [bar], on request (CRN)	-	48	42	48	47	47	47
Motor power [kW]	0.37 - 1.1	0.37 - 3.0	0.37 - 4.0	0.55 - 7.5	0.75 - 11	1.5 - 18.5	2.2 - 18.5
Standard versions							
CR: Cast iron and stainless steel EN 1.4301 / AISI 304	•	•	•	•	•	•	•
CRI: Stainless steel EN 1.4301 / AISI 304	•	•	•	•	•	•	•
CRN: Stainless steel EN 1.4401 / AISI 316	•	•	•	•	•	•	•
CRT: Titanium	See the CRT, CRTE data booklet available in Grundfos Product Center at http://product-selection.grundfos.com or http://net.grundfos.com/qr/i/V7149894						
CR pipe connection							
Oval flange (BSP)	Rp 1	Rp 1	Rp 1	Rp 1 1/4	Rp 1 1/2	Rp 2	Rp 2
Oval flange (BSP), on request	Rp 1 1/4	Rp 1 1/4	Rp 1 1/4	Rp 1	Rp 1 1/4 Rp 2	Rp 2 1/2	Rp 2 1/2
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50
Flange, on request	-	-	-	-	DN 50	-	-
CRI pipe connection							
Oval flange (BSP)	Rp 1	Rp 1	Rp 1 1/4	Rp 1 1/4	Rp 1 1/2	Rp 2	Rp 2
Oval flange (BSP), on request	Rp 1 1/4	Rp 1 1/4	Rp 1	Rp 1	Rp 2	-	-
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50
Flange, on request	-	-	-	-	DN 50	-	-
PJE coupling (Victaulic)	R 1 1/4 DN 32	R 1 1/4 DN 32	R 1 1/4 DN 32	R 1 1/4 DN 32	R 2 DN 50	R 2 DN 50	R 2 DN 50
Clamp coupling (L-coupling)	∅42.2	∅48.3	∅48.3	∅48.3	∅60.3	∅60.3	∅60.3
Union (+GF+)	G 2	G 2	G 2	G 2	G 2 3/4	G 2 3/4	G 2 3/4
CRN pipe connection							
Oval flange (BSP)	Rp 1	Rp 1	Rp 1 1/4	Rp 1 1/4	Rp 1 1/2	Rp 2	Rp 2
Oval flange (BSP), on request	Rp 1 1/4	Rp 1 1/4	Rp 1	Rp 1	Rp 2	-	-
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50
Flange, on request	-	-	-	-	DN 50	-	-
PJE coupling (Victaulic)	R 1 1/4 DN 32	R 1 1/4 DN 32	R 1 1/4 DN 32	R 1 1/4 DN 32	R 2 DN 50	R 2 DN 50	R 2 DN 50
Clamp coupling (L-coupling)	∅48.3	∅48.3	∅48.3	∅48.3	∅60.3	∅60.3	∅60.3
Union (+GF+)	G 2	G 2	G 2	G 2	G 2 3/4	G 2 3/4	G 2 3/4

[1] Liquid temperature -40 to +180 °C (oils up to +240 °C) is available on request.

● Standard.

Range	CR 32	CR 45	CR 64	CR 95	CR 125	CR 155	CR 185	CR 215	CR 255
Rated flow rate [m^3/h]	38	54	77	115	150	185	222	258	306
Flow rate [m^3/h]	18-48	26-70	36-102	58-150	75-190	90-230	110-280	129-336	153–400
Minimum liquid temperature [°C] [1]	-30	-30	-30	-20	-20	-20	-20	-20	-20
Maximum liquid temperature [°C] [2]	120	120	120	120	120	120	120	120	120
Maximum pump efficiency [%]	76	78	79	81	82	82	82	84	85
Maximum pressure [bar]	27	26	18	31 [3]	39 [3]	39 [3]	36	25	25
High pressure [bar], on request (CRN)	49	49	34	-	-	-	-	-	-
Motor power [kW]	2.2 - 30	5.5 - 45	7.5 - 45	11-90	15-160	18.5 - 200	37-200	45-200	55-200
Standard versions									
CR: Cast iron and stainless steel EN 1.4301 / AISI 304	●	●	●	●	●	●	●	●	●
CRN: Stainless steel EN 1.4401 / AISI 316	●	●	●	●	●	●	●	●	●
CR pipe connection									
Oval flange (BSP)	-	-	-	-	-	-	-	-	-
Oval flange (BSP), on request	-	-	-	-	-	-	-	-	-
Flange	DN 65	DN 80	DN 100	DN 100	DN 150	DN 150	DN 200	DN 200	DN 200
Flange, on request	DN 80	DN 100	DN 125	-	-	-	-	-	-
CRN pipe connection									
Oval flange (BSP)	-	-	-	-	-	-	-	-	-
Oval flange (BSP), on request	-	-	-	-	-	-	-	-	-
Flange	DN 65	DN 80	DN 100	DN 100	DN 150	DN 150	DN 200	DN 200	DN 200
Flange, on request	DN 80	DN 100	DN 125	-	-	-	-	-	-
PJE coupling (Victaulic)	3"	4"	4"	4"	6"	6"	8"	8"	8"
Clamp coupling (L-coupling)	88.9	114.3	-	114.3	168.3	168.3	219.1	219.1	219.1
Union (+GF+)	-	-	-	-	-	-	-	-	-

1 Minimum liquid temperature down to -40 °C is available on request.

2 CR, CRN 32-155: Maximum liquid temperature up to +180 °C (oils up to 240 °C) is available on request.

3 CR 95-155: Maximum operating pressure is 25 bar. CRN 95-155: Maximum operating pressure is 40 bar. Note that CRN 95 pumps with motors above 55 kW and CRN 125-155 pumps with motors above 110 kW require a soft starter or frequency converter.

● Standard.

4. Applications

Water supply

	CR, CRI	CRN
Filtration and transfer at waterworks	●	❍
Distribution from waterworks	●	❍
Pressure boosting in mains	●	❍
Pressure boosting in, for example, high-rise buildings, hotels	●	❍
Pressure boosting for industrial water supply	●	❍

Industry

	CR, CRI	CRN
Pressure boosting		
Process-water systems	●	●
Washing and cleaning systems	●	●
Vehicle-washing tunnels	●	❍
Firefighting systems	●	-
Liquid transfer		
Cooling and air-conditioning systems (refrigerants)	●	❍
Boiler feed and condensate systems	●	❍
Machine tools (cooling lubricants)	●	●
Aquafarming	●	❍
Special transfer duties		
Oils and alcohols	●	●
Acids and alkalis	-	●
Glycol and coolants	●	-

Water treatment

	CR, CRI	CRN
Ultra-filtration systems	-	●
Reverse osmosis systems	-	●
Softening, ionising, demineralising systems	-	●
Distillation systems	-	●
Separators	●	●
Swimming baths	-	●

Irrigation

	CR, CRI	CRN
Field irrigation (flooding)	●	❍
Sprinkler irrigation	●	❍
Drip-feed irrigation	●	❍

● Recommended version.

❍ Alternative version.

Note that for applications involving CIP (clean-in-place) and CR, CRN 95-255 pumps with motors above 55 kW, you must use a bearing flange and a base without thrust handling device.

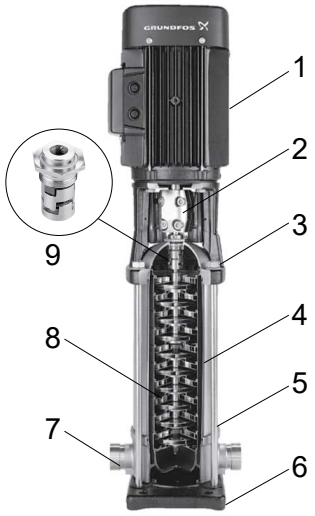
5. Features and benefits

Pump

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

The pumps are available with a Grundfos or Siemens standard motor.

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



CR pump

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

Motor

Grundfos MG and Siemens motors

CR, CRI and CRN pumps are fitted with totally enclosed, fan-cooled, 2-pole standard motors with principal dimensions to EN standards.

Electrical tolerances according to EN 60034.

CR, CRI, CRN pumps are fitted with three-phase MG motors as standard up to 22 kW and Siemens motors from 30 to 200 kW.

CR, CRI, CRN pumps from 0.37 to 2.2 kW are also available with single-phase motors (1 x 220-230/240 V). See Grundfos Product Center (http://product-selection.grundfos.com/).

Electrical data

	Standard motors CR, CRI, CRN	
Mounting designation	Up to 4 kW: B14/V18 tapped-hole flange From 5.5 kW: B5/V1 free-hole flange	
Insulation class	F	
Efficiency class	IE3	
Enclosure class	IP55 [1]	
Supply voltage **Tolerance: +/- 10 %**	3 x 220-255/380-440 V 3 x 230-255/400-440 V 3 x 230-277/400-480 V 3 x 400-480 V 3 x 380-480 V 3 x 400-480/690 V 3 x 380-480/660-690 V 3 x 440-480 V 3 x 400 V	P2: 0.37 - 0.75 kW P2: 1.1 kW P2: 1.5 kW P2: 2.2 - 3 kW P2: 4 - 5.5 kW P2: 7.5 - 18.5 kW P2: 22 kW P2: 30-132 kW P2: 160-200 kW
Supply frequency	60 Hz	

1 IP44 and IP54 are available on request.

Grundfos E-motors

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

See the CRE, CRIE, CRNE data booklet available on Grundfos Product Center (http://product-selection.grundfos.com/).

Optional motors

The Grundfos standard range of motors covers a wide variety of application demands. However, for special applications or operating conditions, custom-built motor solutions can be provided, such as the following:

- ATEX-approved motors
- MG motors with anti-condensation heating unit
- motors with thermal protection.

Motor protection of MG and Siemens motors

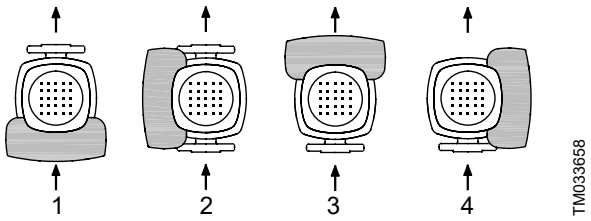
Single-phase Grundfos motors have a built-in thermal overload switch (TP 211 according to IEC 34-11).

Three-phase motors must be connected to a motor-protective circuit breaker according to local regulations.

Three-phase Grundfos motors as from 3 kW have a built-in thermistor (PTC) according to DIN 44082 (TP 211 according to IEC 34-11).

Terminal box positions

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



Terminal box positions

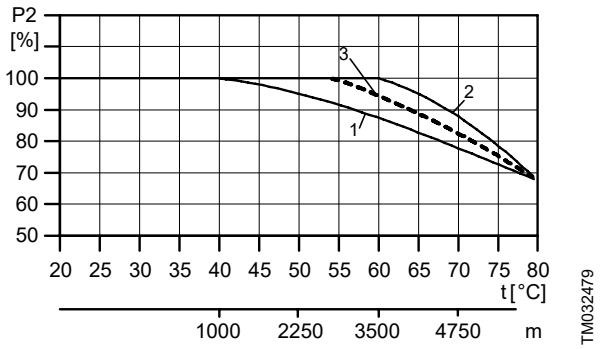
Pos.	Description
1	6 o'clock position (standard)
2	9 o'clock position
3	12 o'clock position
4	3 o'clock position

Ambient temperature

Motor power [kW]	Motor make	Motor efficiency class	Maximum ambient temperature [°C]	Maximum altitude above sea level [m]
0.37 - 0.55	MG	-	40	1000
0.75 - 22	MG	IE3	60	3500
30-200	Siemens	IE3	55	2750

If the ambient temperature exceeds the above maximum temperatures 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.



Motor output in relation to temperature and altitude

Pos.	Motor power [kW]	Motor make
1	0.37 - 0.55	MG
2	0.75 - 22	MG
3	30-200	Siemens

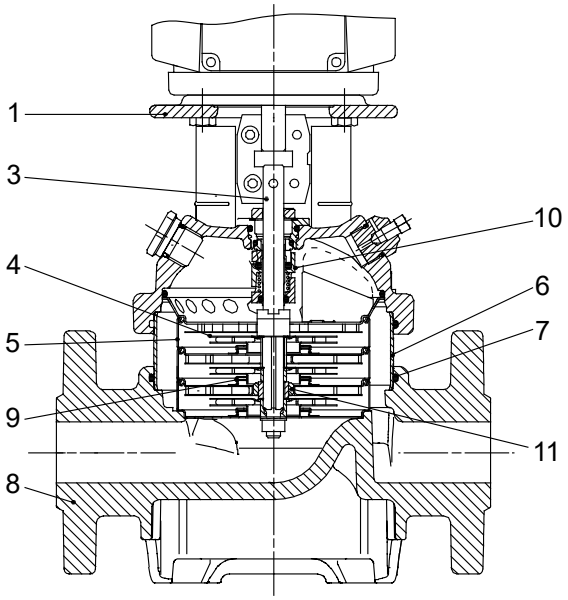
Viscosity

Pumping 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 must be fitted with a larger motor. If in doubt, contact Grundfos.

6. Construction

CR 1s, 1, 3, 5, 10, 15, 20



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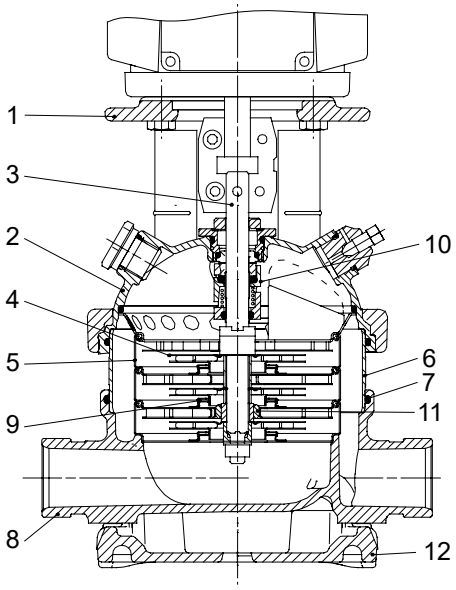
Materials, CR

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Pump head	Grey cast iron	EN 1561 EN-GJL-200	ASTM 25B
3	Shaft	Stainless steel	EN 10088 1.4401 [1] EN 10088 1.4057 [2]	AISI 316 [1] AISI 431 [2]
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Grey cast iron	EN 1561 EN-GJL-250	ASTM 25B
9	Neck ring	PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
	Staybolts	Bright steel	EN 10277-2 1.0533	-

1 CR 1s, 1, 3, 5.

2 CR 10, 15, 20.

CRI 1s, 1, 3, 5, 10, 15, 20



TM021195

Materials, CRI

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Grey cast iron [1]	EN 1563 EN-GJS-450-10	ASTM A536 65-45-12
2	Pump head	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
3	Shaft	Stainless steel	EN 10088 1.4401 [2] EN 10088 1.4057 [3]	AISI 316 [2] AISI 431 [3]
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Stainless steel	EN 10283 1.4408	CF 8M equal to AISI 316
9	Neck ring	PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Base plate	Grey cast iron [1]	EN 1561 EN-GJL-200 [3+4] EN 1563 EN-GJS-500-7 [5]	ASTM 25B [3+4] ASTM A536 65-45-12 [5]
	Staybolts	Bright steel	EN 10277-2 1.0533	-

1 Stainless steel available on request.

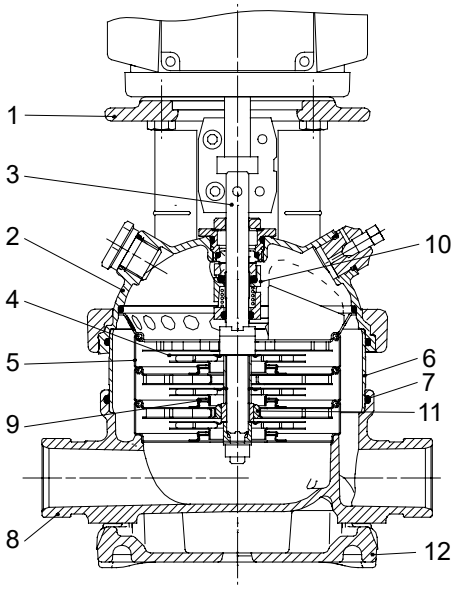
2 CRI, 1s, 1, 3, 5.

3 CRI, 10, 15, 20.

4 CRI 1s, 1, 3, 5 with FGJ flange connection.

5 CRI 1s, 1, 3, 5 with clamp connections (such as PJE, CA).

CRN 1s, 1, 3, 5, 10, 15, 20



TM021195

Materials, CRN

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

1 Stainless steel available on request.

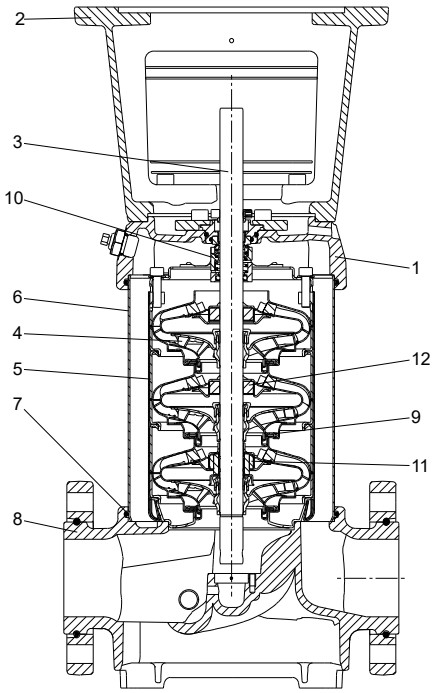
2 CRN 1s, 1, 3, 5.

3 CRN 10, 15, 20.

4 CRN 1s, 1, 3, 5 with FGJ flange connection.

5 CRN 1s, 1, 3, 5 with clamp connections (such as PJE, CA).

CR 32, 45, 64

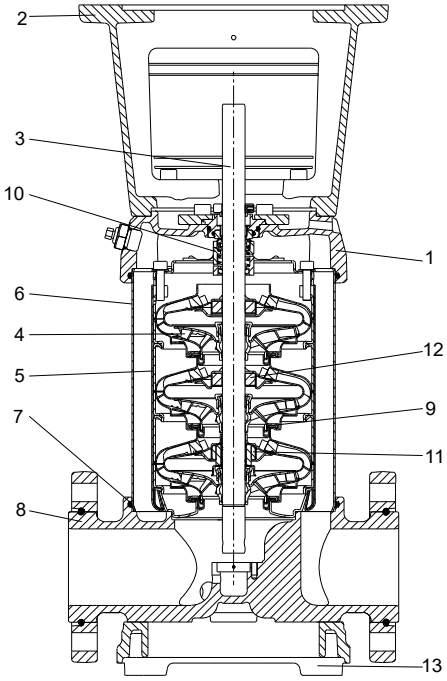


TM060711

Materials, CR

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Pump head	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
2	Motor stool	Grey cast iron	EN 1561 EN-GJL-200	ASTM 25B
3	Shaft	Stainless steel	EN 10088 1.4057	AISI 431
4	Impeller	Stainless steel	EN 10088 1.4301	AISI 304
5	Chamber	Stainless steel	EN 10088 1.4301	AISI 304
6	Sleeve	Stainless steel	EN 10088 1.4301	AISI 304
7	O-ring for sleeve	EPDM or FKM	-	-
8	Base	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
9	Neck ring	Carbon-graphite-filled PTFE	-	-
10	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
11	Bearing ring	Silicon carbide/silicon carbide	-	-
12	Support bearing	Carbon-graphite-filled PTFE	-	-
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536 65-45-12
	Staybolts	Bright steel	EN 10277-2 1.0533	-

CRN 32, 45, 64



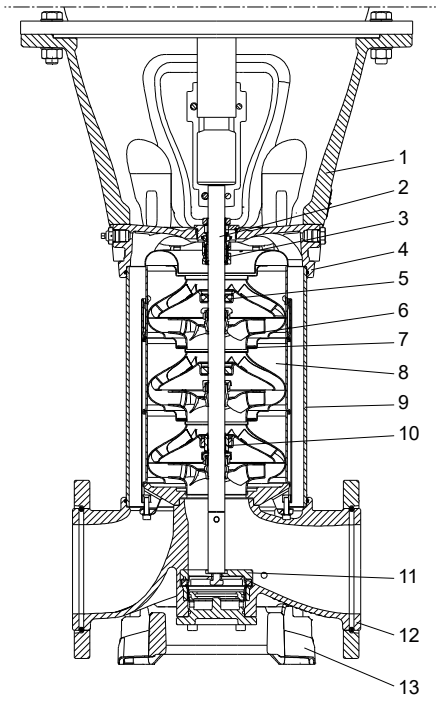
TM060712

Materials, CRN

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

1 Stainless steel available on request.

CR 95, 125, 155, 185, 215, 255



TM065161

Materials, CR

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
2	Shaft	Stainless steel	EN 10088 1.4057 [1] EN 10088 1.4462 [2]	AISI 431 [1] AISI 318 LN [2]
3	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
4	Pump head	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
5	Support bearing (bush)	Carbon-graphite-filled PTFE		
6	Impeller	Stainless steel	EN 10088 1.4301 EN 10088 1.4401 [3]	AISI 304 AISI 316 [3]
7	Neck ring	PEEK	-	-
8	Chamber	Stainless steel	EN 10088 1.4301 EN 10088 1.4401 [3]	AISI 304 AISI 316 [3]
9	Sleeve	Stainless steel	EN 10088 1.4301 [1] EN 10088 1.4404 [2]	AISI 304 [1] AISI 316 L [2]
10	Bearing ring	Tungsten carbide/tungsten carbide	-	-
11	Thrust handling device [4]	Stainless steel	EN 10088 1.4401 EN 10283 1.4408	AISI 316 CF 8M equal to AISI 316
		Silicon carbide/tungsten carbide	-	-
12	Base	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
	Staybolts	Stainless steel	EN10088 1.4057	AISI 431

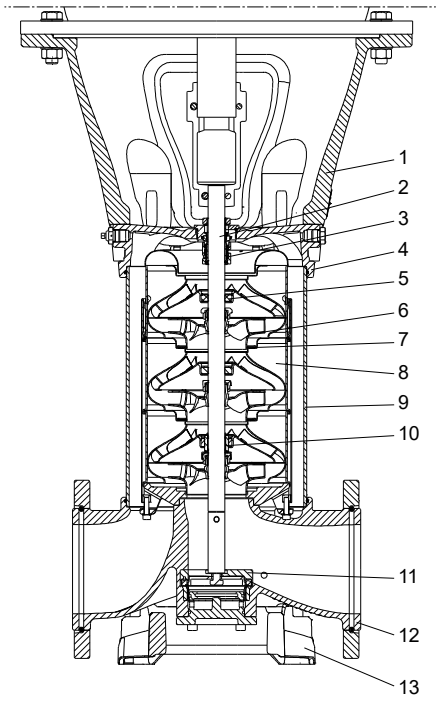
1 CR 95.

2 CR 125, 155, 185, 215, 255. Shaft is made of duplex stainless steel.

3 CR 185, 215, 255.

4 If fitted.

CRN 95, 125, 155, 185, 215, 255



TM065161

Materials, CRN

Pos.	Designation	Materials	DIN/EN	≈ AISI/ASTM
1	Motor stool	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
2	Shaft	Stainless steel	EN 10088 1.4462 [1]	318 LN
3	Shaft seal (seal faces)	Silicon carbide/silicon carbide	-	-
4	Pump head	Stainless steel	EN 10283 1.4408	CF 8M
5	Support bearing (bush)	Carbon-graphite-filled PTFE	-	-
6	Impeller	Stainless steel	EN 10088 1.4401	AISI 316
7	Neck ring	PEEK	-	-
8	Chamber	Stainless steel	EN 10088 1.4401	AISI 316
9	Sleeve	Stainless steel	EN 10088 1.4404	AISI 316 L
10	Bearing ring	Tungsten carbide/tungsten carbide	-	-
11	Thrust handling device [2]	Stainless steel	EN 10088 1.4401 EN 10283 1.4408	AISI 316 CF 8M equal to AISI 316
		Silicon carbide/tungsten carbide	-	-
12	Base	Stainless steel	EN 10283 1.4408	CF 8M
13	Base plate	Ductile cast iron	EN 1563 EN-GJS-500-7	ASTM A536-84 65-45-12
	Staybolts	Stainless steel	EN10088 1.4057	AISI 431

1 Duplex stainless steel

2 If fitted.

7. Identification

Type key

Example: CRE 32-3-2 A-F-A-E-HQQE

Code	Explanation
CR	Type range: CR, CRI, CRN, CRT
E	Pump with integrated frequency converter
32	Flow rate [m^3/h]
3	Number of impellers
2	Number of reduced-diameter impellers
A	Code for pump version
F	Code for pipe connection
A	Code for materials
E	Code for rubber parts
	Code for shaft seal:
H	Shaft seal type designation
Q	Seal face material (rotating seal face)
Q	Seal face material (stationary seal face)
E	Secondary seal material (rubber parts)

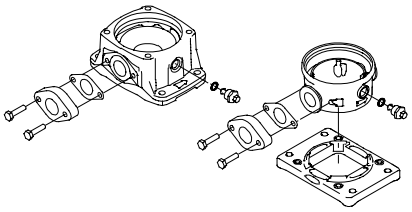
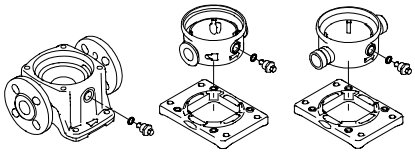
Key to codes

Code	Description
Pump version	
A	Basic version
B	Oversize motor
C	CR compact
D	Pump with pressure intensifier
E	Pump with certificate
F	Pump for high temperatures (with air-cooled top)
G	E-pump without operating panel
H	Horizontal version
I	Different pressure rating
J	E-pump with a different maximum speed
K	Pump with low NPSH
L	Pump including Grundfos CUE and certificate
M	Magnetic drive
N	With sensor
O	Cleaned and dried
P	Undersize motor
Q	High-pressure pump with high-speed MGE motor
R	Belt-driven pump
S	High-pressure pump
T	Thrust handling device
U	ATEX-approved pump
V	Cascade function
W	Deep-well pump with ejector
X	Special version
Y	Electropolished
Z	Pumps with bearing flange
Pipe connection	
A	Oval flange
B	NPT thread
CA	FlexiClamp
CX	TriClamp
F	DIN flange
FC	DIN 11853-2 flange (collar flange)
FE	EN 1092-1, type E
G	ANSI flange
J	JIS flange
N	Changed diameter of ports
P	PJE coupling (Victaulic type)
X	Special version
Materials	
A	Basic version
C	Carbon-free pump
D	Carbon-graphite-filled PTFE (bearings)/tungsten carbide
E	Pickled and passivated (Only Japan)
H	Flanges and base plate EN 1.4408
K	Bronze (bearings)/tungsten carbide
L	Motor stool, base plate and flanges EN 1.4408
M	Motor stool, base plate, coupling and flanges EN 1.4408 and coupling guards in cobber. Bolts, nuts and spacing pipes EN 1.4401 or higher grade
N	Flanges EN 1.4408
P	PEEK neck ring
Q	Silicon carbide/silicon carbide bearing in pump and silicon carbide/silicon carbide seal faces in thrust handling device
R	Silicon carbide/silicon carbide bearing
S	PTFE neck rings
T	Base plate EN 1.4408
U	Silicon carbide/silicon carbide bearing in pump and silicon carbide/tungsten carbide seal faces in thrust handling device
W	Tungsten carbide/tungsten carbide
X	Special version
Rubber parts in pump	
E	EPDM
F	FXM (Fluoraz®)
K	FFKM (Kalrez®)
N	CR (Neoprene)
V	FKM (Viton®)
Shaft seal type designation	
A	O-ring seal with fixed driver
H	Balanced cartridge seal with O-ring
O	Double seal, back-to-back
P	Double seal, tandem
X	Special version
Seal face material (rotating and stationary seal face)	
B	Carbon, synthetic resin-impregnated
U	Cemented tungsten carbide
Q	Silicon carbide
X	Other ceramics
Secondary seal material (rubber parts)	

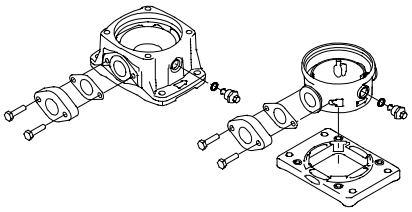
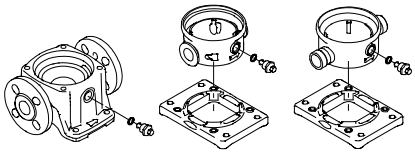
Code	Description
E	EPDM
F	FXM (Fluoraz®)
K	FFKM (Kalrez®)
V	FKM (Viton®)

8. Operating conditions

Maximum operating pressure and liquid temperature

	Oval flange		PJE, clamp, union, DIN	
Flange type	 TM021379		 TM021383	
Pump type	**Maximum permissible operating pressure [1]**	**Liquid temperature**	**Maximum permissible operating pressure [1]**	**Liquid temperature**
	[bar]	**[°C]**	**[bar]**	**[°C]**
CR, CRI, CRN 1s	16	-20 - +120	25	-20 - +120
CR, CRI, CRN 1	16		25	
CR, CRI, CRN 3	16		25	
CR, CRI, CRN 5	16		25	
CR, CRI 10-1 →10-10	16		16	
CR, CRI 10-12 → 10-17	-	-	25	
CRN 10	16	-20 - +120	25	
CR, CRI 15-1 → 15-5	10		-	-
CR, CRI 15-1 →15-8	-	-	16	-20 - +120
CR, CRI 15-9 → 15-12	-	-	25	
CRN 15	10	-20 - +120	25	
CR, CRI 20-1 → 20-5	10		-	-
CR, CRI 20-1 → 20-7	-	-	16	-20 - +120
CR, CRI 20-8 → 20-10	-	-	25	
CRN 20	10	-20 - +120	25	
CR, CRN 32-1-1 → 32-5	-	-	16	-30 - +120
CR, CRN 32-6-2 → 32-10-2	-	-	30	
CR, CRN 45-1-1 → 45-4	-	-	16	
CR, CRN 45-5-2 → 45-7	-	-	30	
CR, CRN 64-1-1 → 64-3	-	-	16	
CR, CRN 64-4-2 → 64-5-2	-	-	30	

1) In standard configurations. For operating conditions outside the standard, contact Grundfos.

	Oval flange		PJE, clamp, union, DIN	
Flange type	 TM021379		 TM021383	
Pump type	**Maximum permissible operating pressure [1]**	**Liquid temperature**	**Maximum permissible operating pressure [1]**	**Liquid temperature**
	[bar]	**[°C]**	**[bar]**	**[°C]**
CR, CRN 95-1-1 → 95-4-2	-	-	16	-20 to +120 [2]
CR, CRN 95-4 → 95-5	-	-	25	
CRN 95-6-1 → 95-7	-	-	40	
CR, CRN 125-1-1 → 125-3-1	-	-	16	
CRN 125-4 → 125-5	-	-	25	
CRN 125-6-1 → 125-9-3	-	-	40	
CR, CRN 155-1-1 → 155-3-1	-	-	16	
CRN 155-3 → 155-5-3	-	-	25	
CRN 155-5 → 155-8-3	-	-	40	
CR, CRN 185-1-1 → 185-2	-	-	16	
CR, CRN 185-3-1 → 185-4-3	-	-	25	
CR, CRN 185-4 → 185-6-4	-	-	40	
CR, CRN 215-1-1 → 215-2	-	-	15	
CR, CRN 215-3-3 → 215-4-3	-	-	25	
CR, CRN 215-4-1	-	-	40	
CR, CRN 255-1-1 → 255-2-1	-	-	16	
CR, CRN 255-2 → 255-3	-	-	25	
CR, CRN 255-4-3	-	-	40	

1 In standard configurations. For operating conditions outside the standard, contact Grundfos.

2 For operating pressures above 25 bar, see section about operating range of the shaft seal.

Operating range of the shaft seal

All pumps will be delivered with an HQQE/V cartridge shaft seal as standard.

The operating range of the shaft seal depends on operating pressure, pump type, type of shaft seal and liquid temperature. The range of standard shaft seals applies to clean water and water with anti-freeze liquids. For selection of the right shaft seal, see section with list of pumped liquids. If the operating range is exceeded, the life of the shaft seal may be reduced.

Note that if you pump demineralized water with a conductivity below 2 µS/cm with a pump equipped with a silicon carbide/silicon carbide shaft seal, there is an increased risk of electrochemical corrosion. We recommend that you use a silicon carbide/carbon or silicon carbide/tungsten carbide shaft seal instead.

Related information

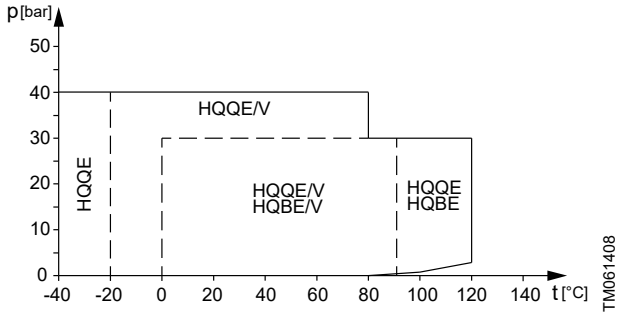
Shaft seals for CR, CRI, CRN 1s-255

12. List of pumped liquids

14. Variants

Shaft seals for CR, CRI, CRN 1s-255

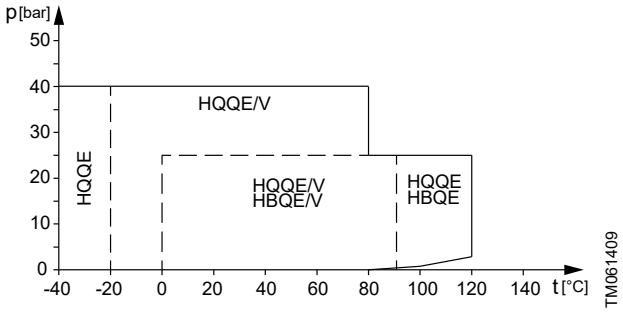
Ø12, Ø16 and Ø22 shaft seals (0.37-55 kW)



Operating range of standard shaft seals for CR, CRI, CRN 1-255

Standard shaft seal	Motor size [kW]	Description	Liquid temperature [°C]
HQQE	0.37 - 55	O-ring (cartridge) (balanced seal), silicon carbide/silicon carbide, EPDM	-40 to +120
HQQV		O-ring (cartridge) (balanced seal), silicon carbide/silicon carbide, FKM	-20 to +90
HQBE		O-ring (cartridge) (balanced seal), silicon carbide/carbon, EPDM	0 to 120
HQBV		O-ring (cartridge) (balanced seal), silicon carbide/carbon, FKM	0 to 90

Ø28 and Ø36 shaft seals (75-200 kW)



Operating range of standard shaft seals for CR, CRN 125-255

Standard shaft seal	Motor size [kW]	Description	Liquid temperature [°C]
HQQE	75-200	O-ring (cartridge) (balanced seal), silicon carbide/silicon carbide, EPDM	-40 to +120
HQQV		O-ring (cartridge) (balanced seal), silicon carbide/silicon carbide, FKM	-20 to +90
HQBE		O-ring (cartridge) (balanced seal), silicon carbide/carbon, EPDM	0 to 120
HQBV		O-ring (cartridge) (balanced seal), silicon carbide/carbon, FKM	0 to 90

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the outlet pressure, which is the actual inlet pressure plus the pressure delivered by the pump must always be lower than the maximum permissible operating pressure.

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

Pump type and stages	Maximum inlet pressure [bar]
CR, CRI, CRN 1s	
1s-2 → 1s-27	10
CR, CRI, CRN 1	
1-2 → 1-25	10
1-27	15
CR, CRI, CRN 3	
3-2 → 3-17	10
3-19 → 3-25	15
CR, CRI, CRN 5	
5-2 → 5-9	10
5-10 → 5-24	15
CR, CRI, CRN 10	
10-1 → 10-5	8
10-6 → 10-17	10
CR, CRI, CRN 15	
15-1 → 15-2	8
15-3 → 15-12	10
CR, CRI, CRN 20	
20-1	8
20-2 → 20-10	10
CR, CRN 32	
32-1-1 → 32-2	4
32-3-2 → 32-6	10
32-7-2 → 32-10-2	15
CR, CRN 45	
45-1-1 → 45-1	4
45-2-2 → 45-3	10
45-4-2 → 45-7	15
CR, CRN 64	
64-1-1	4
64-1 → 64-2-1	10
64-2 → 64-5-2	15
CR, CRN 95	
95-1-1 → 95-2-2	10
95-2-1 → 95-4-2	15
95-4 → 95-7	20
CR, CRN 125	
125-1-1	10
125-1 → 125-3-2	15
125-3-1 → 125-9-3	20
CR, CRN 155	
155-1-1	10
155-1 → 155-2-1	15
155-2 → 155-8-3	20
CR, CRN 185	
185-1-1 → 185-1	15
185-2-1 → 185-6-4	20
CR, CRN 215	
215-1-1	15
215-1 → 215-4-1	20
CR, CRN 255	
255-1-1 → 255-4-3	20

Examples of operating and inlet pressures

The values for operating and inlet pressures must not be considered individually and must comply with the below statement.

The outlet pressure must be equal to or lower than the maximum operating pressure.

See the following definitions and examples.

Definitions

Pressure type	Definition
Maximum operating pressure	The maximum pressure is stated on the nameplate.
Pump differential pressure	The difference between the outlet pressure and inlet pressure.
Inlet pressure	The pressure measured at the pump inlet.
Outlet pressure	The inlet pressure added to the pump differential pressure.

Example 1

Pump, see CR 3 curve:	CR 3-10 A-A-A
Max. operating pressure:	16 bar
Max. inlet pressure:	10 bar
Pump differential pressure:	9.6 bar* * Flow = 0 m^3/h

This pump is not allowed to start at an inlet pressure of 10 bar, but at an inlet pressure of 16.0 - 9.6 = 6.4 bar.

Example 2

Pump, see CR 10 curve:	CR 10-2 A-A-A
Max. operating pressure:	16 bar
Max. inlet pressure:	8 bar
Pump differential pressure:	2.9 bar* * Flow = 0 m^3/h

This pump is allowed to start at an inlet pressure of 8 bar, as the outlet pressure is lower than the maximum operating pressure. This results in an operating pressure of 8.0 + 2.9 = 10.9 bar.

If the inlet or operating pressure exceeds the pressure permitted, Grundfos variants meeting your specific requirements may be available on request.

Related information

14. Variants

9. Selection

Selection of pumps

Base the selection of pumps on these parameters:

- Duty point of the pump. See section about duty point of the pump.
- Sizing data such as pressure loss as a result of height differences, friction loss in the pipes, pump efficiency. See section about sizing data.
- Pump materials. See section about pump material.
- Pump connections. See section about pump connections.
- Shaft seal. See section about shaft seal.

Duty point of the pump

From a duty point, you can select a pump on the basis of the performance curve charts.

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

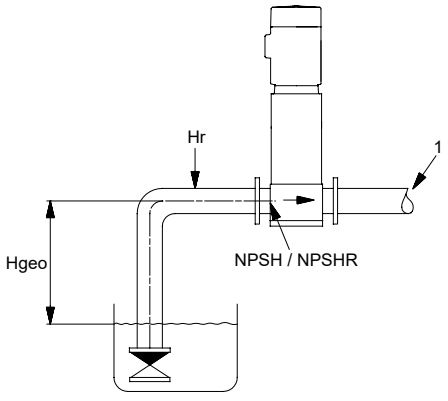
Grundfos Product Center

We recommend that you size your pump in Grundfos Product Center. Our easy-to-use virtual guide leads you through the selection of the pump for the application in question. For further information, see section about Grundfos Product Center.

Sizing data

When sizing a pump, take these parameters into account:

- Required flow rate and pressure at the draw-off point.
- Pressure loss as a result of height differences (H_{geo}).
- Friction loss in the pipes (H_f). It may be necessary to account for pressure loss in connection with long pipes, bends, valves or similar.
- Best efficiency at the estimated duty point.
- NPSH value. For calculation of the NPSH value, see section about minimum inlet pressure, NPSH.

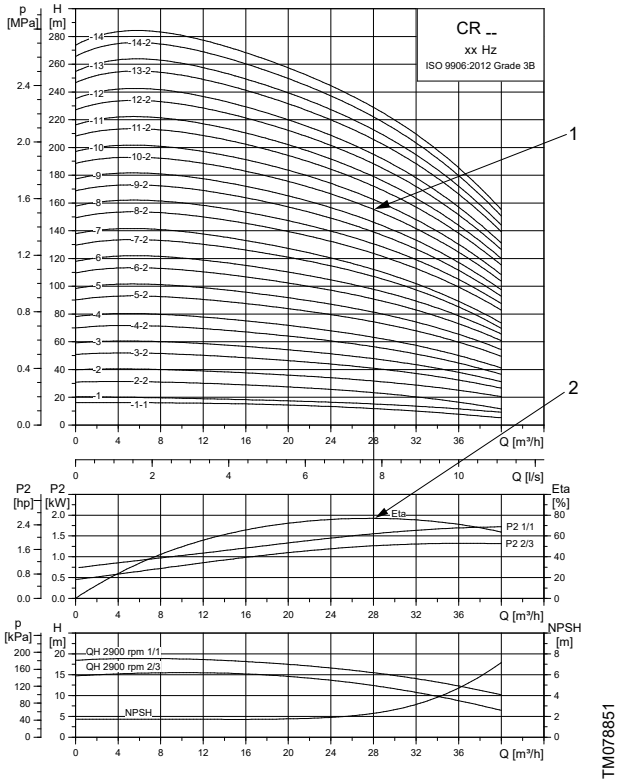


Sizing data

Pos.	Description
1	Required flow rate, required pressure

Pump efficiency

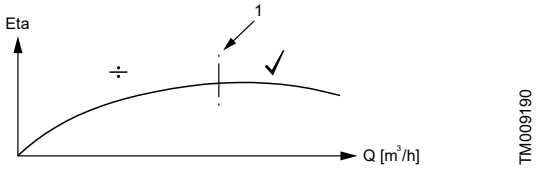
Before determining the best efficiency point, identify the operation pattern of the pump. If the pump is expected to always operate at the same duty point, select a pump which is operating at a duty point corresponding to the best efficiency of the pump.



Example of a CR pump's duty point

Pos.	Description
1	Duty point
2	Best efficiency

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



Best efficiency

Pos.	Description
1	Best efficiency point

Pump material

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

The product range covers the following basic types.

- CR, CRI: Use CR, CRI pumps for clean, non-aggressive liquids, such as potable water and oils.
- CRN: Use CRN pumps for industrial liquids and acids. See section about list of pumped liquids, or contact Grundfos.

For saline or chloride-containing liquids, such as sea water, CRT pumps of titanium are available.

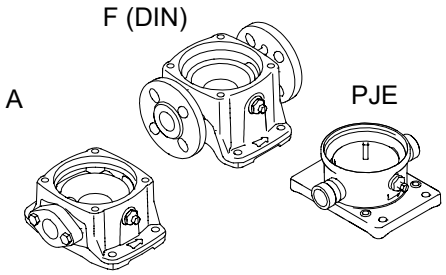
TM069206

CR pump

Pump connections

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

- oval flange A (BSP)
- DIN flange
- PJE coupling (Victaulic type)
- clamp coupling
- union (+GF+)
- other connections on request.



TM021201

Pump connections

Shaft seal

GR7386

Shaft seal (cartridge type)

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

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

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

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

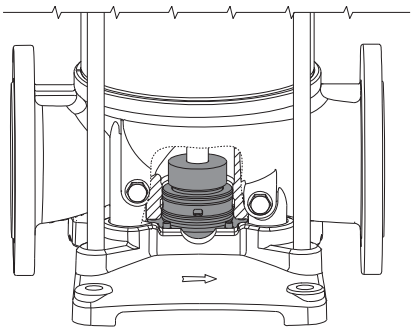
Servicing shaft seals

Replacement shaft seals are available as complete service kits*.

Shaft seals fitted on CR, CRN 125-255 pumps with ∅28 mm or ∅36 mm shaft ends are serviceable. This means that the wear parts in these shaft seals are available as service kits* and can be replaced without having to renew the complete shaft seal.

* All service kits include detailed instructions on how to carry out the replacement.

Thrust handling device



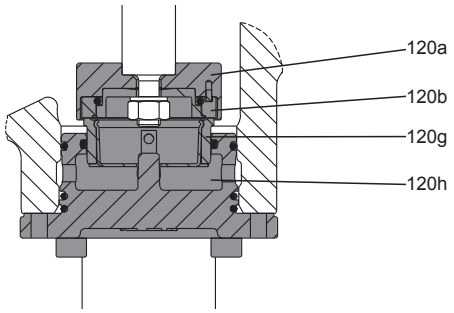
TM069669

Thrust handling device

A thrust handling device (THD) is factory-fitted on pumps with 75 kW motors or larger. The system consists of two parts. A rotating part mounted on the shaft end below the first impeller as well as a non-rotating part mounted in or on the pump base.

The THD absorbs the main part of the thrust force generated by the impellers and thereby reduces the resulting axial force the motor bearings must absorb. This enables the use of standard ball bearings in the motor instead of special angular contact ball bearings.

Note: For applications involving CIP (clean-in-place) and motors above 55 kW, use a bearing flange and a base without THD.



TM069670

Position numbers for THD parts

Pos.	Description	Material
120a	Thrust disc	Stainless steel
120b	Rotating ring	Silicon carbide
120g	Stationary ring	Silicon carbide * Tungsten carbide
120h	Lifting plate	Stainless steel
-	O-rings	EPDM FKM

* On request for CRN.

Operating pressure and inlet pressure

Do not exceed the limit values for these pressures:

- maximum operating pressure
- maximum inlet pressure.

Minimum inlet pressure, NPSH

We recommend that you calculate the inlet pressure "H" in these situations:

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

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

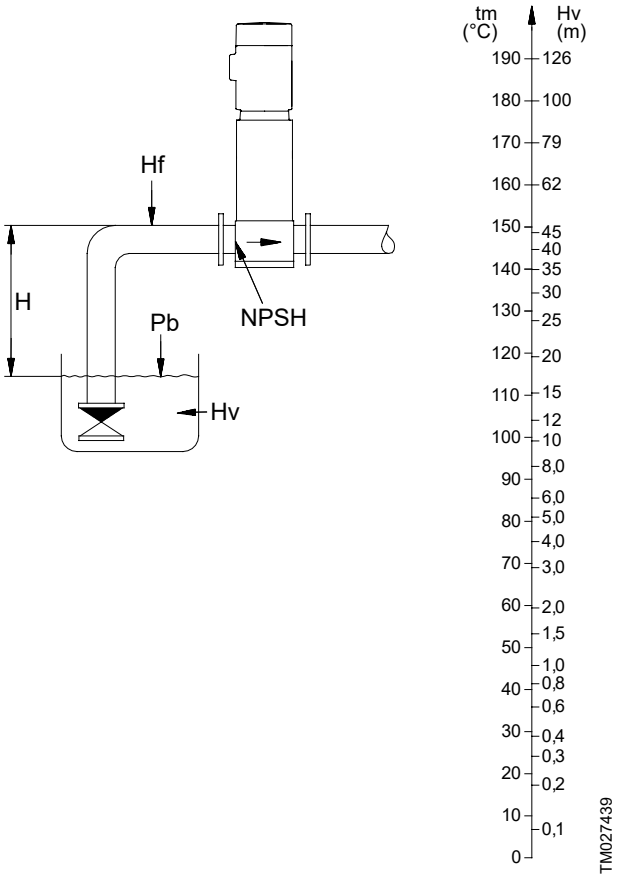
Calculate the maximum suction lift "H" in metres head as follows:

H	=	p_b x 10.2 - NPSH - H_f - H_v

p_b	=	Barometric pressure in bar. P_b can be set to 1 bar at sea level. 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 rate the pump will be delivering.
H_f	=	Friction loss in inlet pipe in metres head at the highest flow rate 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.

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

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



Minimum inlet pressure, NPSH

To avoid cavitation, do not select a pump with a duty point too far to the right on the NPSH curve.

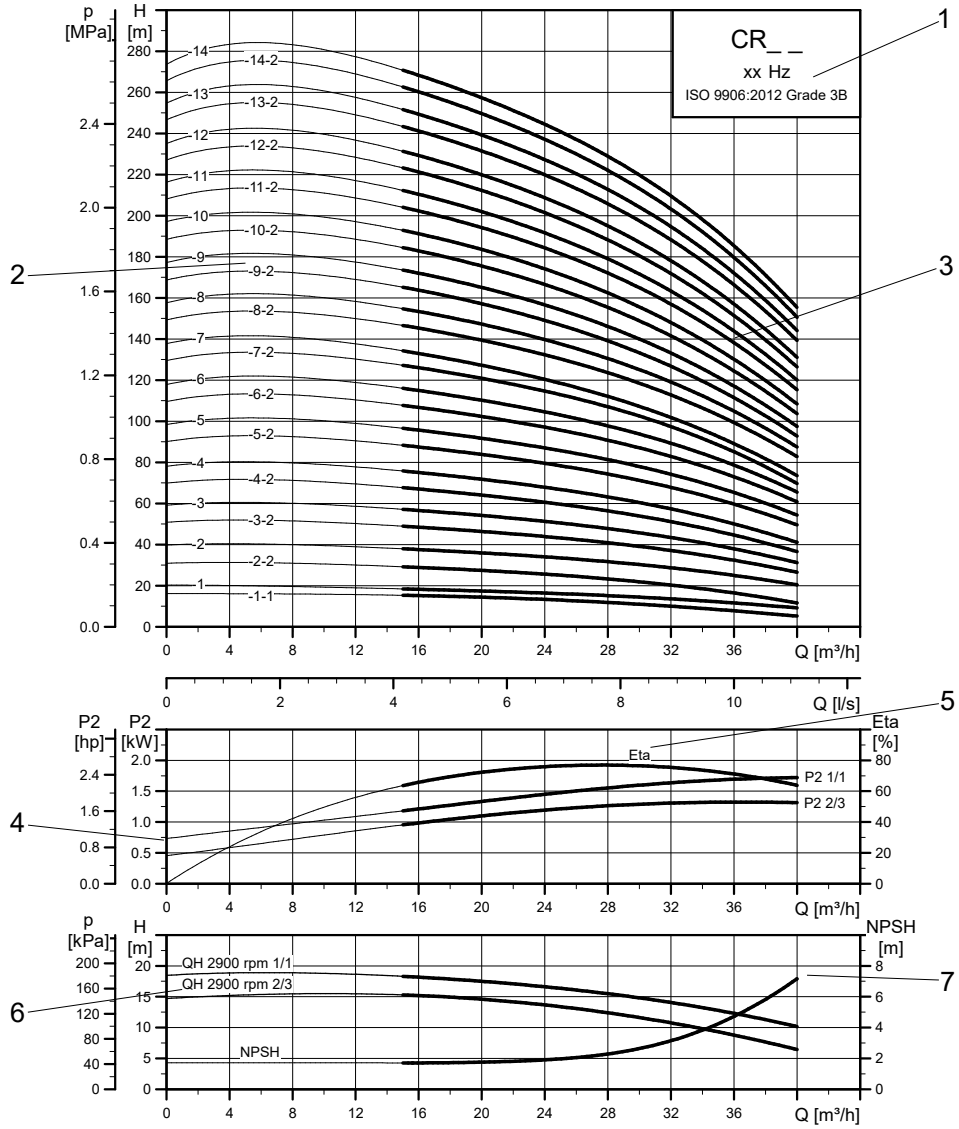
Always check the NPSH value of the pump at the highest possible flow rate.

Related information

12. List of pumped liquids

15. Grundfos Product Center

How to read the curve charts



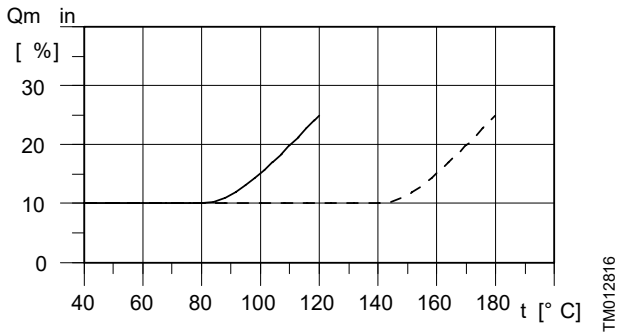
Pos.	Description
1	Pump type. Frequency, poles or speed. ISO or ANSI standard.
2	Number of stages. First figure: number of stages. Second figure: number of reduced-diameter impellers.
3	QH curve of the individual pump. The bold curves indicate the recommended duty range for best efficiency.
4	The power curves indicate pump input power **per stage**. Curves are shown for full (1/1) and for reduced-diameter (2/3) impellers.
5	The eta curve shows the efficiency of a pump with an average number of stages. The efficiency of pumps with reduced-diameter impellers is approximately 2 % lower than the eta curve shown in the chart.
6	QH curve for each individual impeller. Curves are shown for full (1/1) and for reduced-diameter (2/3) impellers.
7	The NPSH curve is a maximum curve for all the variants shown.

Guidelines to performance curves

The guidelines below apply to the performance curves:

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

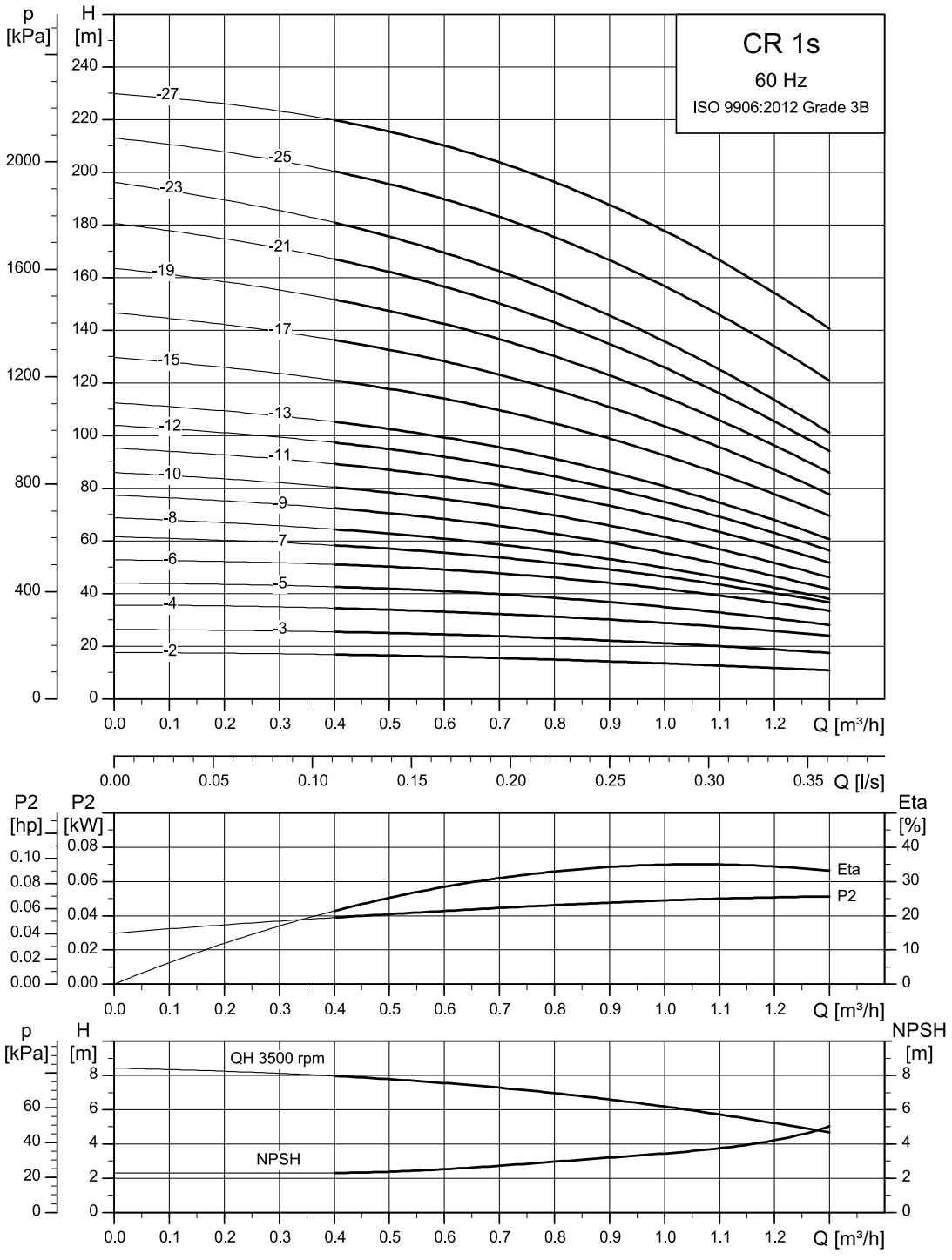
The curve below shows the minimum flow rate as a percentage of the rated flow rate in relation to the liquid temperature. The dotted line shows a CR pump fitted with an air-cooled top assembly.



Minimum flow rate

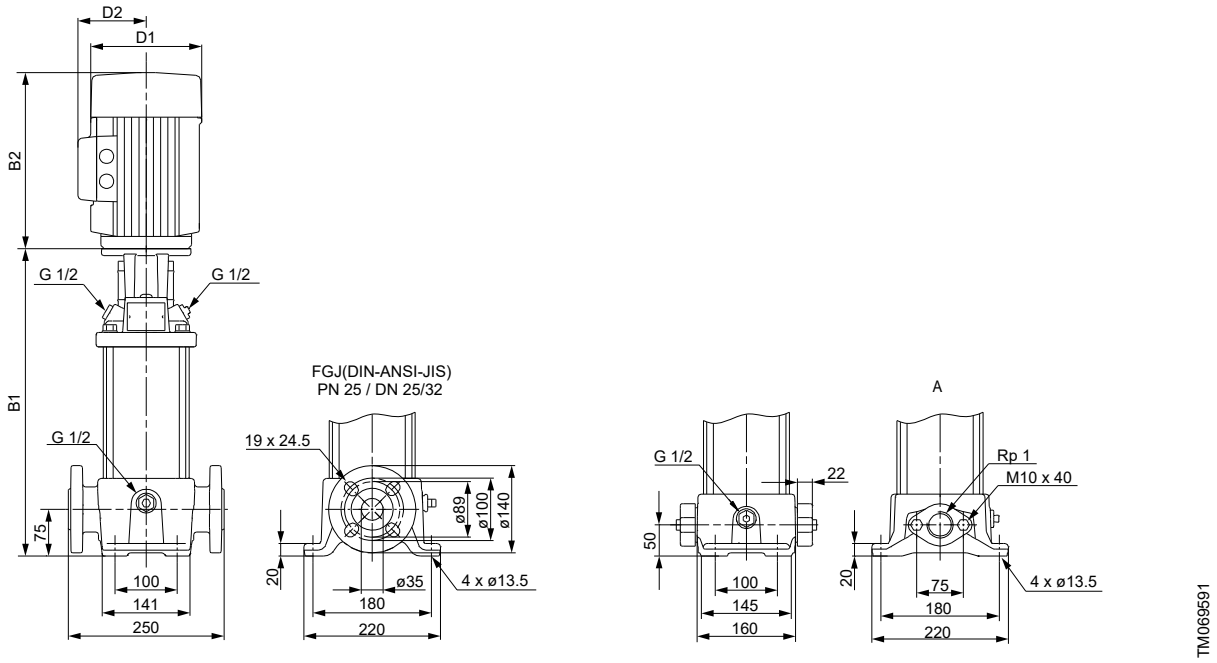
10. Performance curves and technical data

CR 1s



TM027422

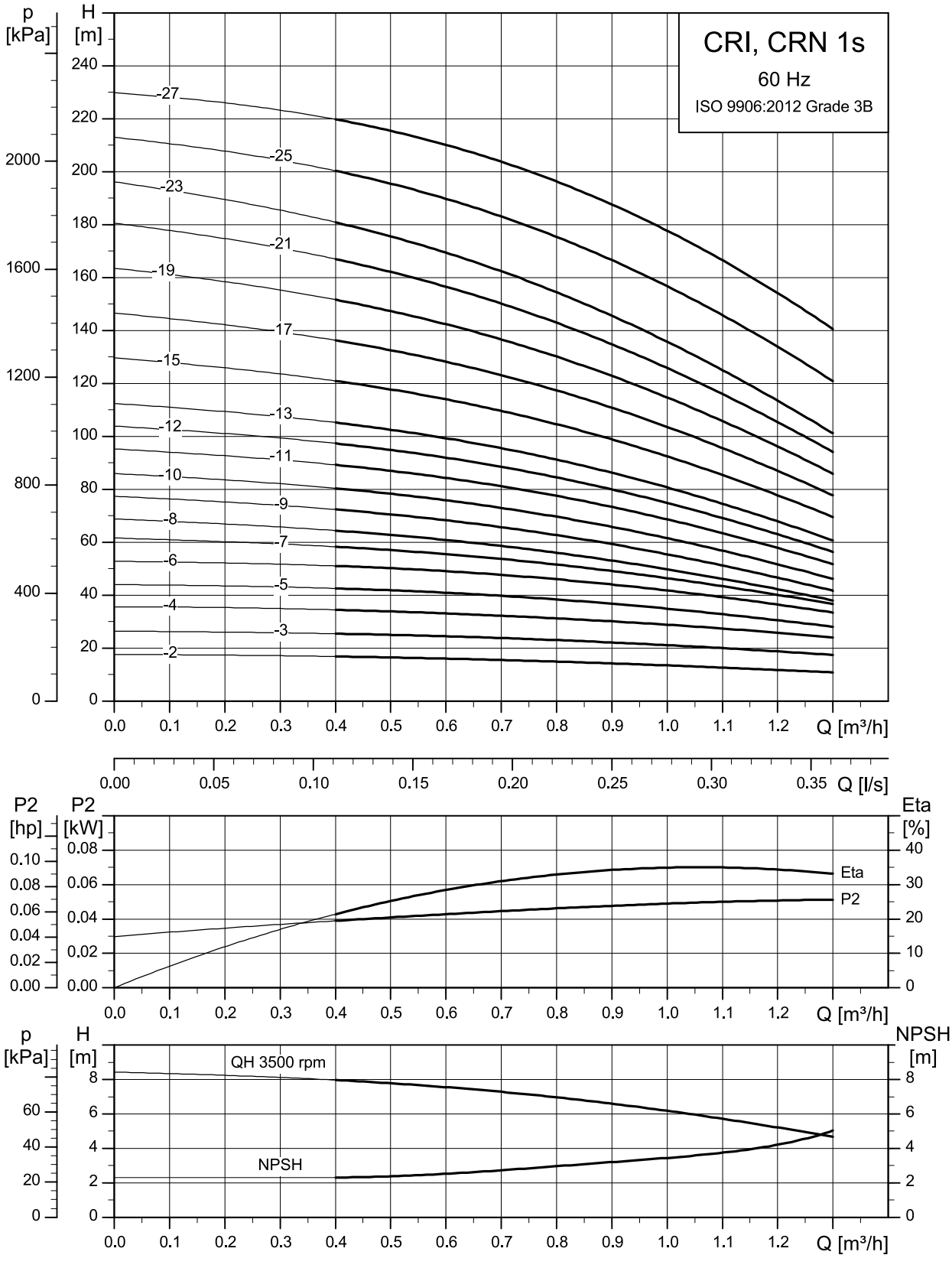
Dimensional sketch



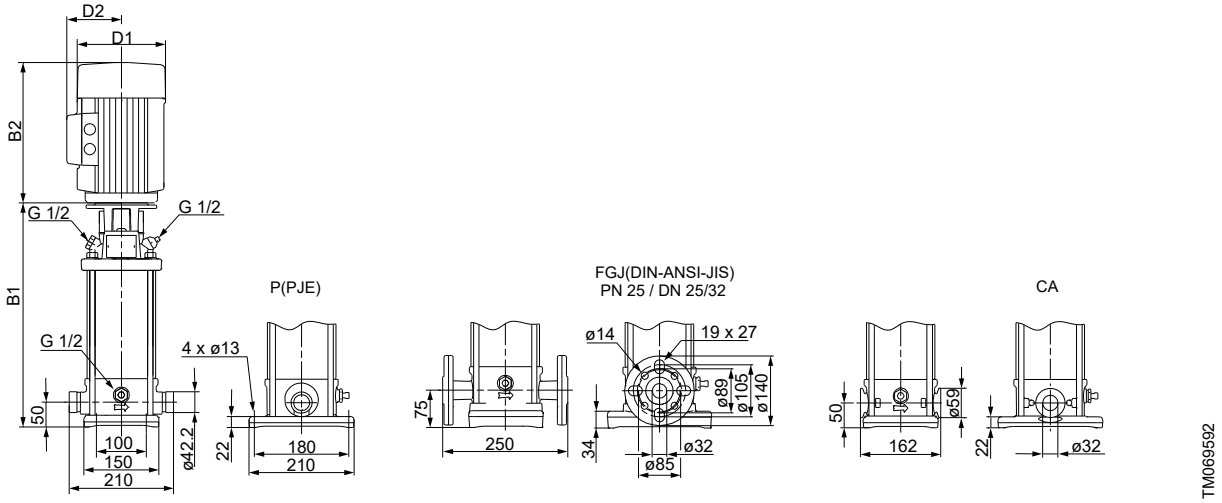
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2				
CR 1s-2	0.37	254	445	279	470	141	109	18	23
CR 1s-3	0.37	254	445	279	470	141	109	18	23
CR 1s-4	0.37	272	463	297	488	141	109	19	23
CR 1s-5	0.37	290	481	315	506	141	109	19	24
CR 1s-6	0.37	308	499	333	524	141	109	20	24
CR 1s-7	0.37	326	517	351	542	141	109	20	25
CR 1s-8	0.55	344	535	369	560	141	109	20	25
CR 1s-9	0.55	362	553	387	578	141	109	20	25
CR 1s-10	0.55	380	571	405	596	141	109	21	25
CR 1s-11	0.75	404	635	429	660	141	109	24	29
CR 1s-12	0.75	422	653	447	678	141	109	24	29
CR 1s-13	0.75	440	671	465	696	141	109	25	29
CR 1s-15	1.1	476	727	501	752	141	109	28	32
CR 1s-17	1.1	512	763	537	788	141	109	28	33
CR 1s-19	1.1	-	-	573	824	141	109	-	34
CR 1s-21	1.1	-	-	609	860	141	109	-	35
CR 1s-23	1.5	-	-	661	942	178	110	-	42
CR 1s-25	1.5	-	-	697	978	178	110	-	43
CR 1s-27	1.5	-	-	733	1014	178	110	-	43

CRI, CRN 1s


CRI, CRN 1s
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-27
-25
-23
-21
-19
-17
-15
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [hp]
P2 [kW]
Eta [%]
Eta
P2
QH 3500 rpm
NPSH
NPSH [m]
TM027423

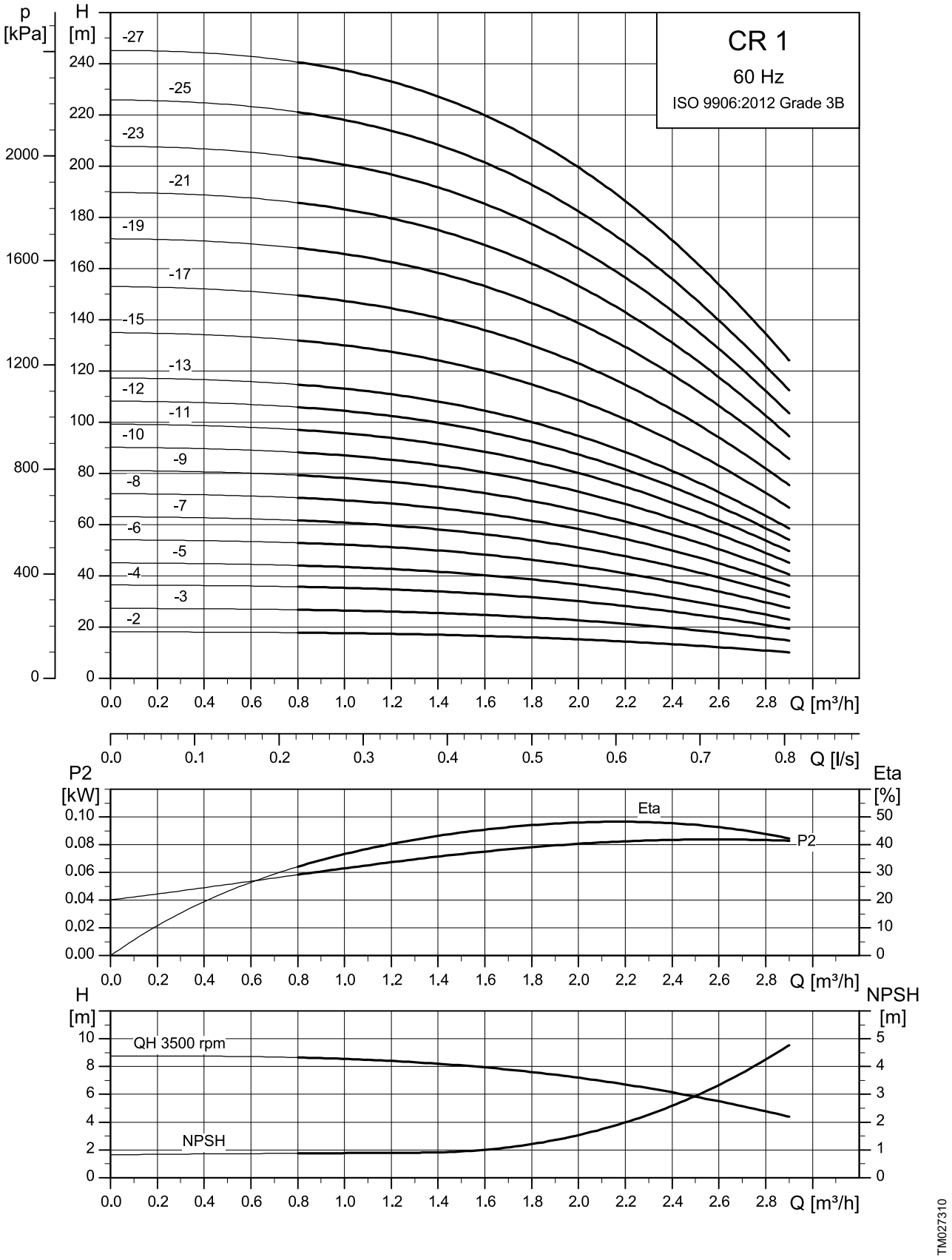
Dimensional sketch



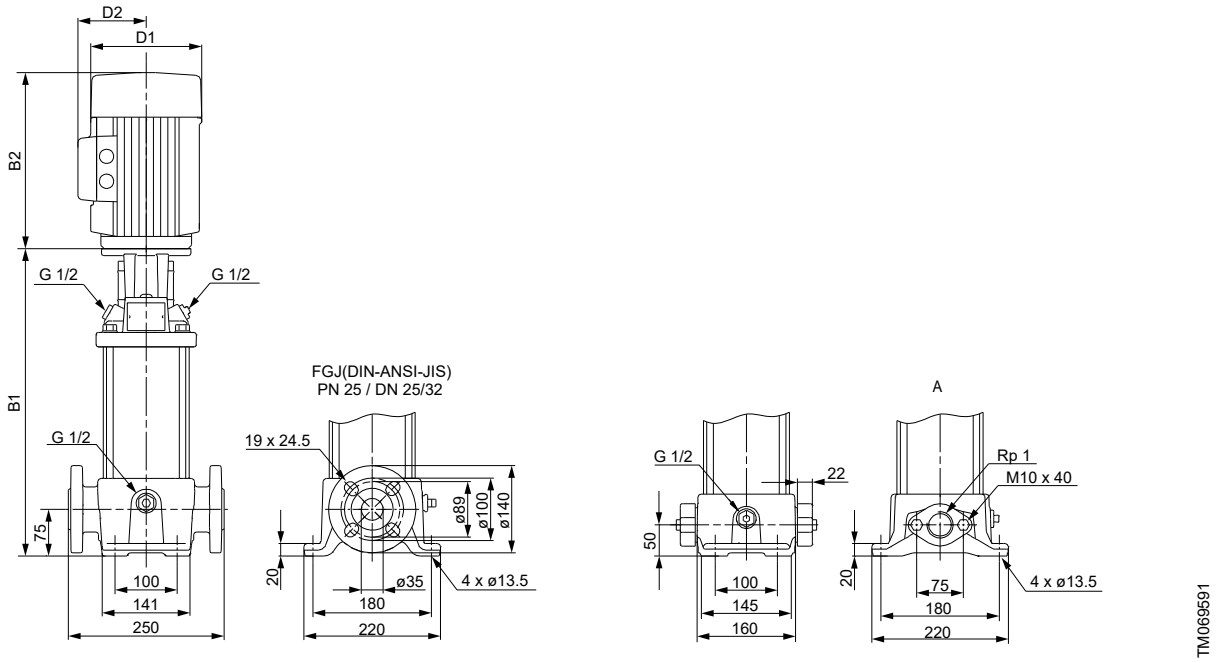
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2				
CRI/CRN 1s-2	0.37	257	448	282	473	141	109	16	20
CRI/CRN 1s-3	0.37	257	448	282	473	141	109	17	21
CRI/CRN 1s-4	0.37	275	466	300	491	141	109	17	21
CRI/CRN 1s-5	0.37	293	484	318	509	141	109	17	22
CRI/CRN 1s-6	0.37	311	502	336	527	141	109	18	22
CRI/CRN 1s-7	0.37	329	520	354	545	141	109	18	22
CRI/CRN 1s-8	0.55	347	538	372	563	141	109	18	22
CRI/CRN 1s-9	0.55	365	556	390	581	141	109	18	23
CRI/CRN 1s-10	0.55	383	574	408	599	141	109	19	23
CRI/CRN 1s-11	0.75	407	638	432	663	141	109	23	27
CRI/CRN 1s-12	0.75	425	656	450	681	141	109	23	27
CRI/CRN 1s-13	0.75	443	674	468	699	141	109	24	28
CRI/CRN 1s-15	1.1	479	730	504	755	141	109	26	30
CRI/CRN 1s-17	1.1	515	766	540	791	141	109	27	31
CRI/CRN 1s-19	1.1	551	802	576	827	141	109	28	32
CRI/CRN 1s-21	1.1	587	838	612	863	141	109	29	33
CRI/CRN 1s-23	1.5	639	920	664	945	178	110	35	39
CRI/CRN 1s-25	1.5	675	956	700	981	178	110	36	40
CRI/CRN 1s-27	1.5	711	992	736	1017	178	110	37	41

CR 1


CR 1
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-27
-25
-23
-21
-19
-17
-15
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027310

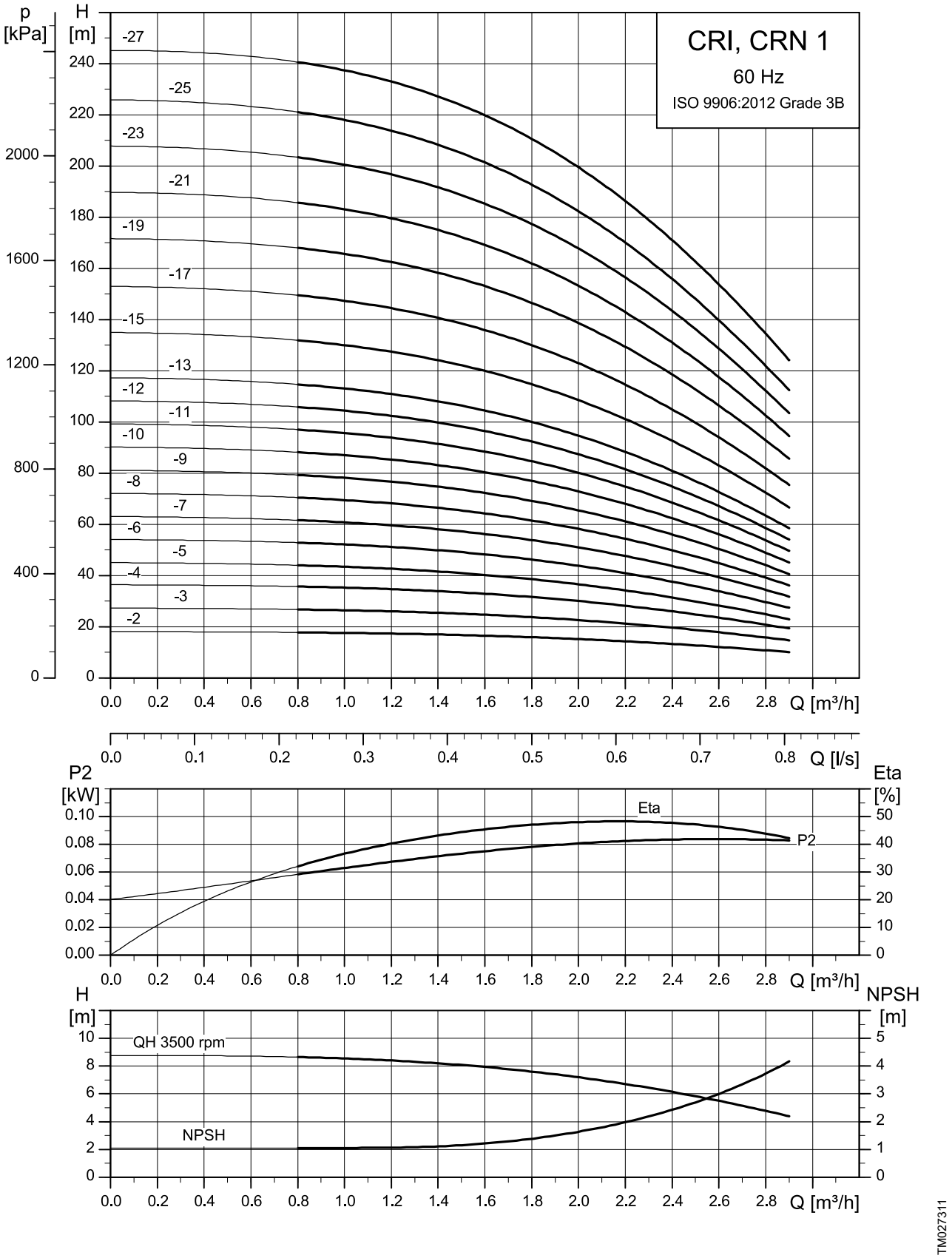
Dimensional sketch



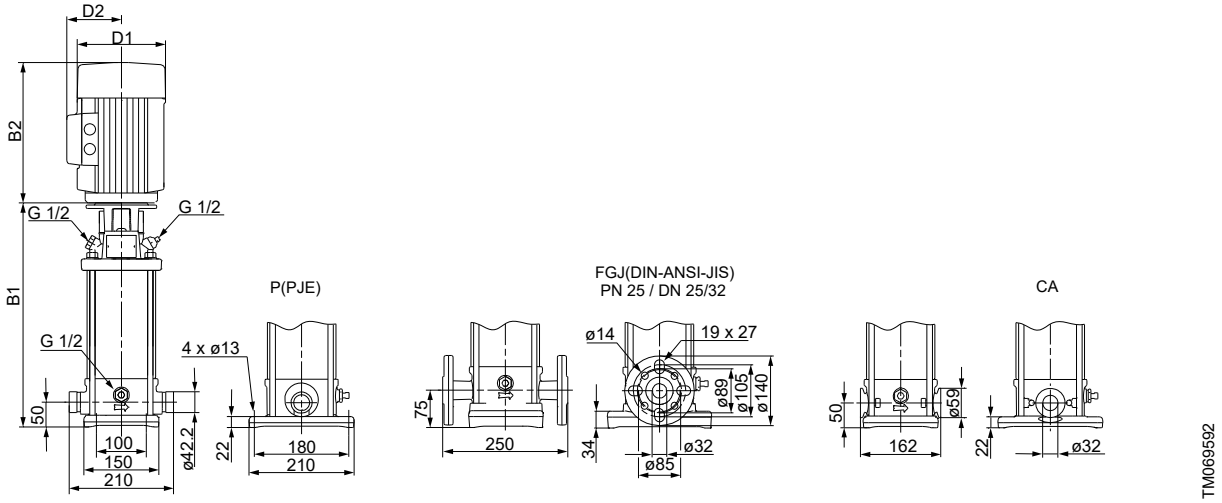
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2				
CR 1-2	0.37	254	445	279	470	141	109	18	23
CR 1-3	0.37	254	445	279	470	141	109	18	23
CR 1-4	0.37	272	463	297	488	141	109	19	23
CR 1-5	0.55	290	481	315	506	141	109	19	23
CR 1-6	0.55	308	499	333	524	141	109	19	24
CR 1-7	0.75	332	563	357	588	141	109	22	27
CR 1-8	0.75	350	581	375	606	141	109	23	27
CR 1-9	0.75	368	599	393	624	141	109	23	28
CR 1-10	1.1	386	637	411	662	141	109	26	30
CR 1-11	1.1	404	655	429	680	141	109	26	31
CR 1-12	1.1	422	673	447	698	141	109	27	31
CR 1-13	1.1	440	691	465	716	141	109	27	32
CR 1-15	1.5	492	773	517	798	178	110	34	39
CR 1-17	1.5	528	809	553	834	178	110	35	40
CR 1-19	2.2	-	-	589	910	178	110	-	44
CR 1-21	2.2	-	-	625	946	178	110	-	45
CR 1-23	2.2	-	-	661	982	178	110	-	46
CR 1-25	2.2	-	-	697	1018	178	110	-	47
CR 1-27	3	-	-	737	1072	198	120	-	53

CRI, CRN 1


CRI, CRN 1
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-27
-25
-23
-21
-19
-17
-15
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027311

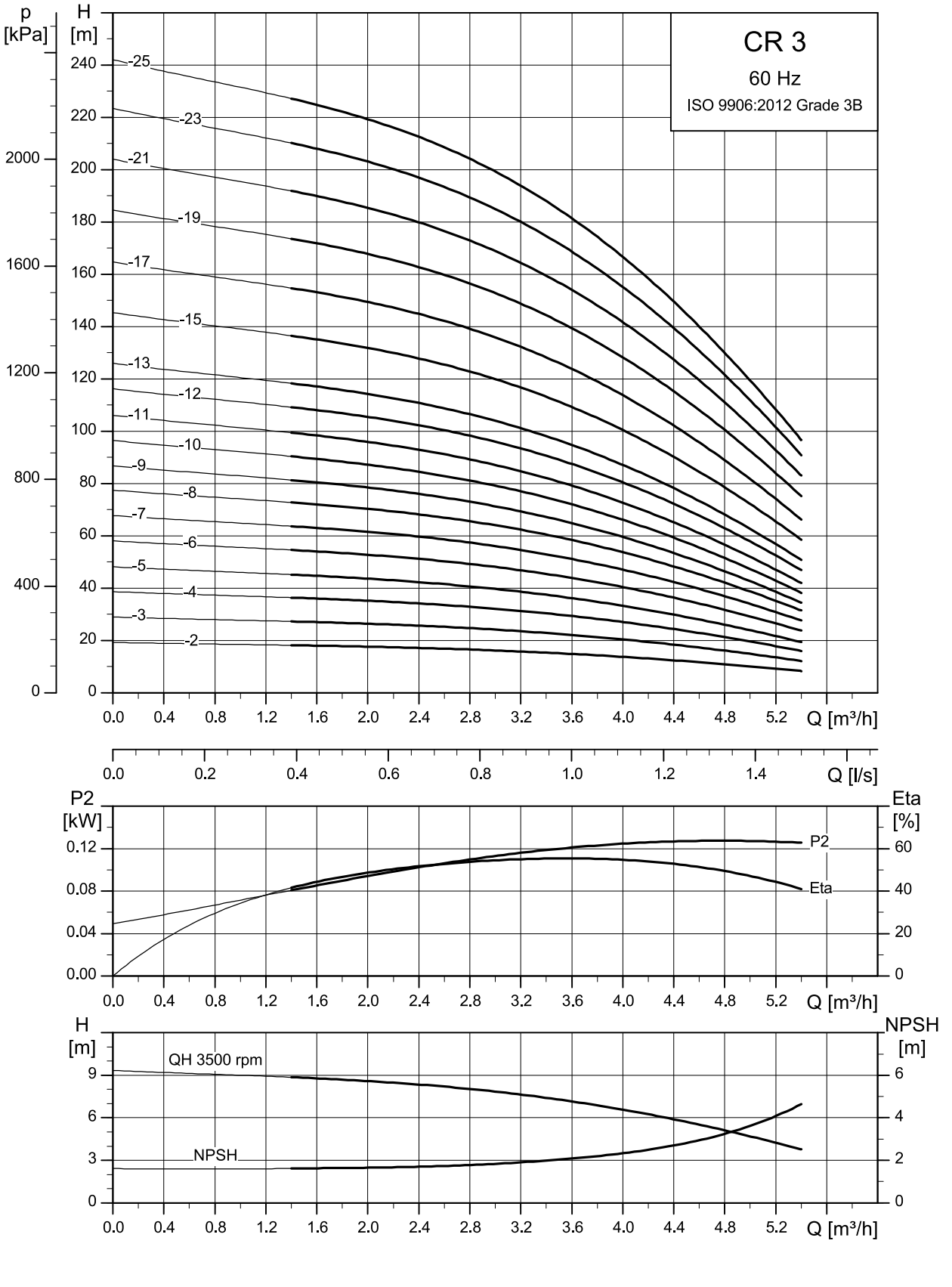
Dimensional sketch



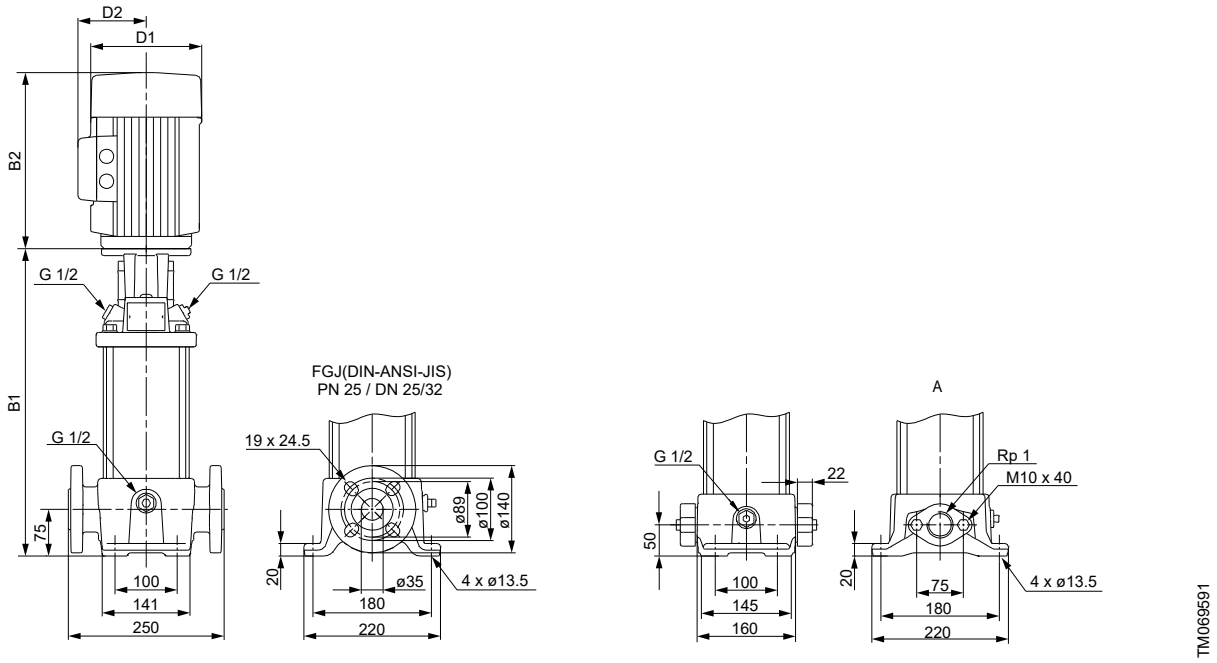
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2				
CRI/CRN 1-2	0.37	257	448	282	473	141	109	16	21
CRI/CRN 1-3	0.37	257	448	282	473	141	109	17	21
CRI/CRN 1-4	0.37	275	466	300	491	141	109	17	21
CRI/CRN 1-5	0.55	293	484	318	509	141	109	17	21
CRI/CRN 1-6	0.55	311	502	336	527	141	109	17	21
CRI/CRN 1-7	0.75	335	566	360	591	141	109	21	25
CRI/CRN 1-8	0.75	353	584	378	609	141	109	22	26
CRI/CRN 1-9	0.75	371	602	396	627	141	109	22	26
CRI/CRN 1-10	1.1	389	640	414	665	141	109	24	29
CRI/CRN 1-11	1.1	407	658	432	683	141	109	25	29
CRI/CRN 1-12	1.1	425	676	450	701	141	109	25	29
CRI/CRN 1-13	1.1	443	694	468	719	141	109	26	30
CRI/CRN 1-15	1.5	495	776	520	801	178	110	32	36
CRI/CRN 1-17	1.5	531	812	556	837	178	110	33	37
CRI/CRN 1-19	2.2	567	888	592	913	178	110	38	42
CRI/CRN 1-21	2.2	603	924	628	949	178	110	39	43
CRI/CRN 1-23	2.2	639	960	664	985	178	110	39	43
CRI/CRN 1-25	2.2	675	996	700	1021	178	110	40	44
CRI/CRN 1-27	3	716	1051	741	1076	198	120	46	51

CR 3


CR 3
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-25
-23
-21
-19
-17
-15
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027312

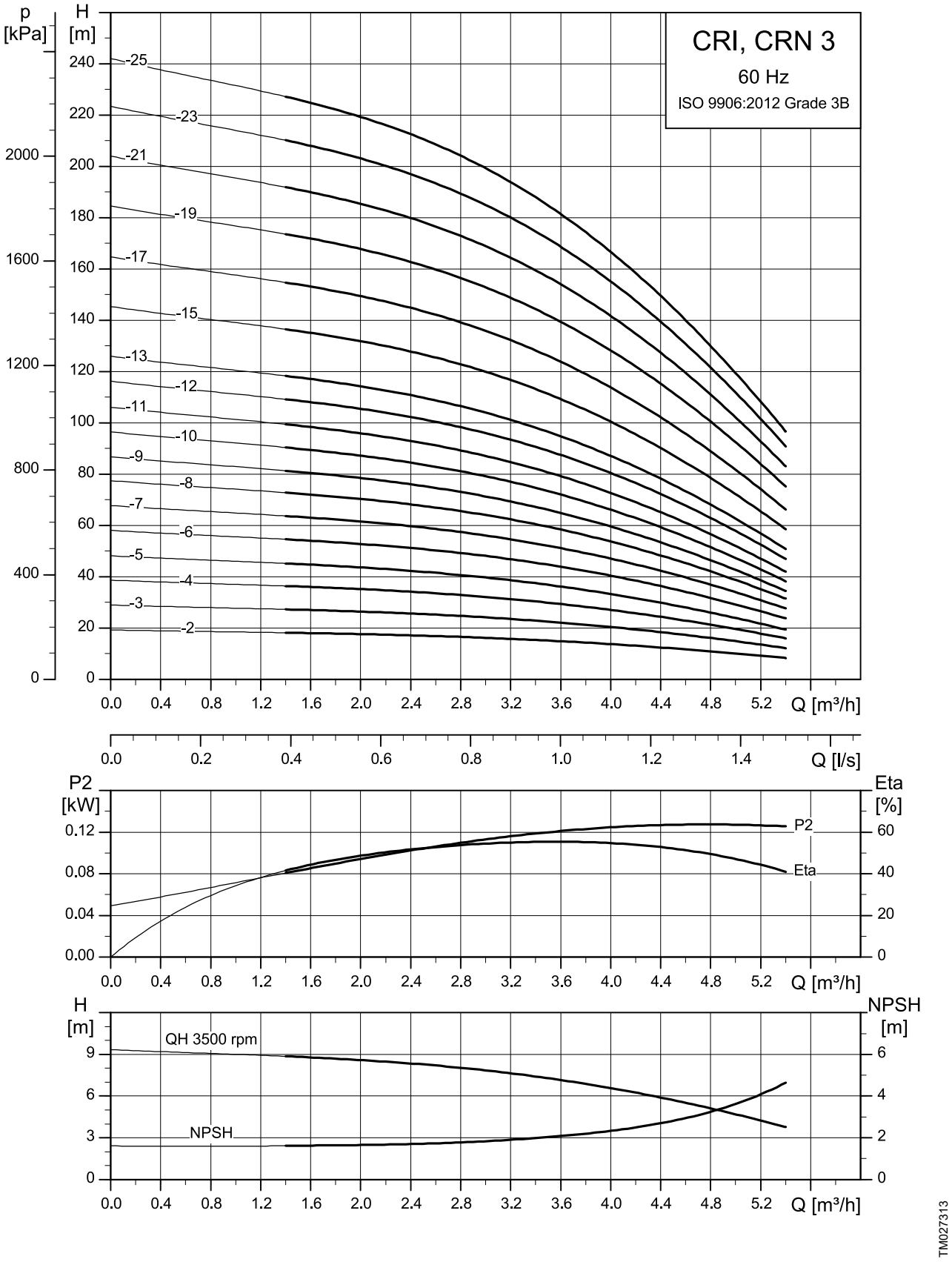
Dimensional sketch



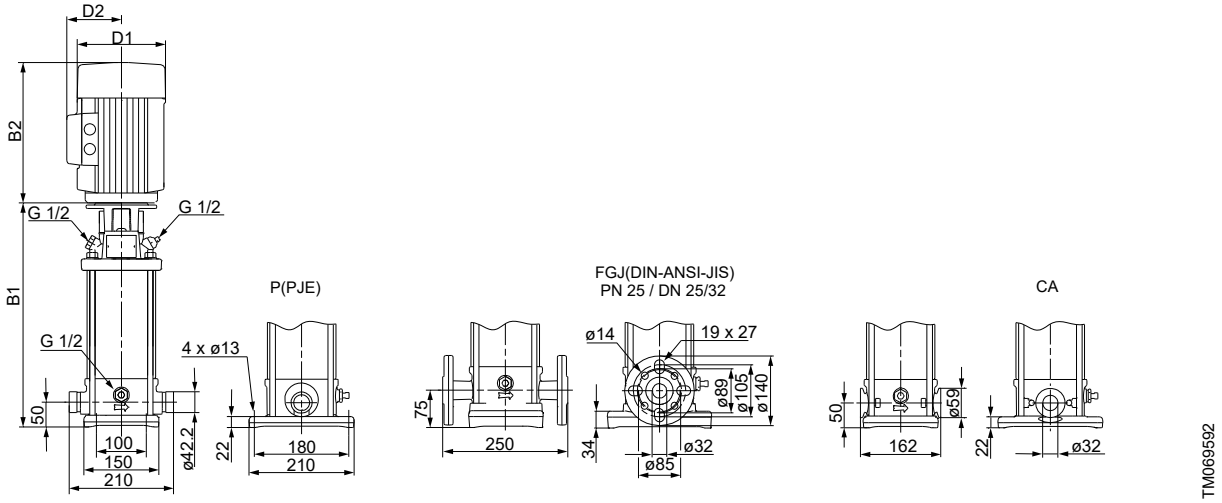
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2				
CR 3-2	0.37	254	445	279	470	141	109	18	23
CR 3-3	0.55	254	445	279	470	141	109	18	23
CR 3-4	0.55	272	463	297	488	141	109	18	23
CR 3-5	0.75	296	527	321	552	141	109	22	26
CR 3-6	1.1	314	565	339	590	141	109	24	29
CR 3-7	1.1	332	583	357	608	141	109	24	29
CR 3-8	1.1	350	601	375	626	141	109	25	30
CR 3-9	1.5	384	665	409	690	178	110	32	36
CR 3-10	1.5	402	683	427	708	178	110	32	37
CR 3-11	1.5	420	701	445	726	178	110	33	37
CR 3-12	2.2	438	759	463	784	178	110	37	41
CR 3-13	2.2	456	777	481	802	178	110	37	42
CR 3-15	2.2	492	813	517	838	178	110	38	43
CR 3-17	2.2	-	-	553	874	178	110	-	44
CR 3-19	3	-	-	593	928	198	120	-	50
CR 3-21	3	-	-	629	964	198	120	-	50
CR 3-23	3	-	-	665	1000	198	120	-	51
CR 3-25	4	-	-	701	1073	220	134	-	64

CRI, CRN 3


CRI, CRN 3
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-25
-23
-21
-19
-17
-15
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027313

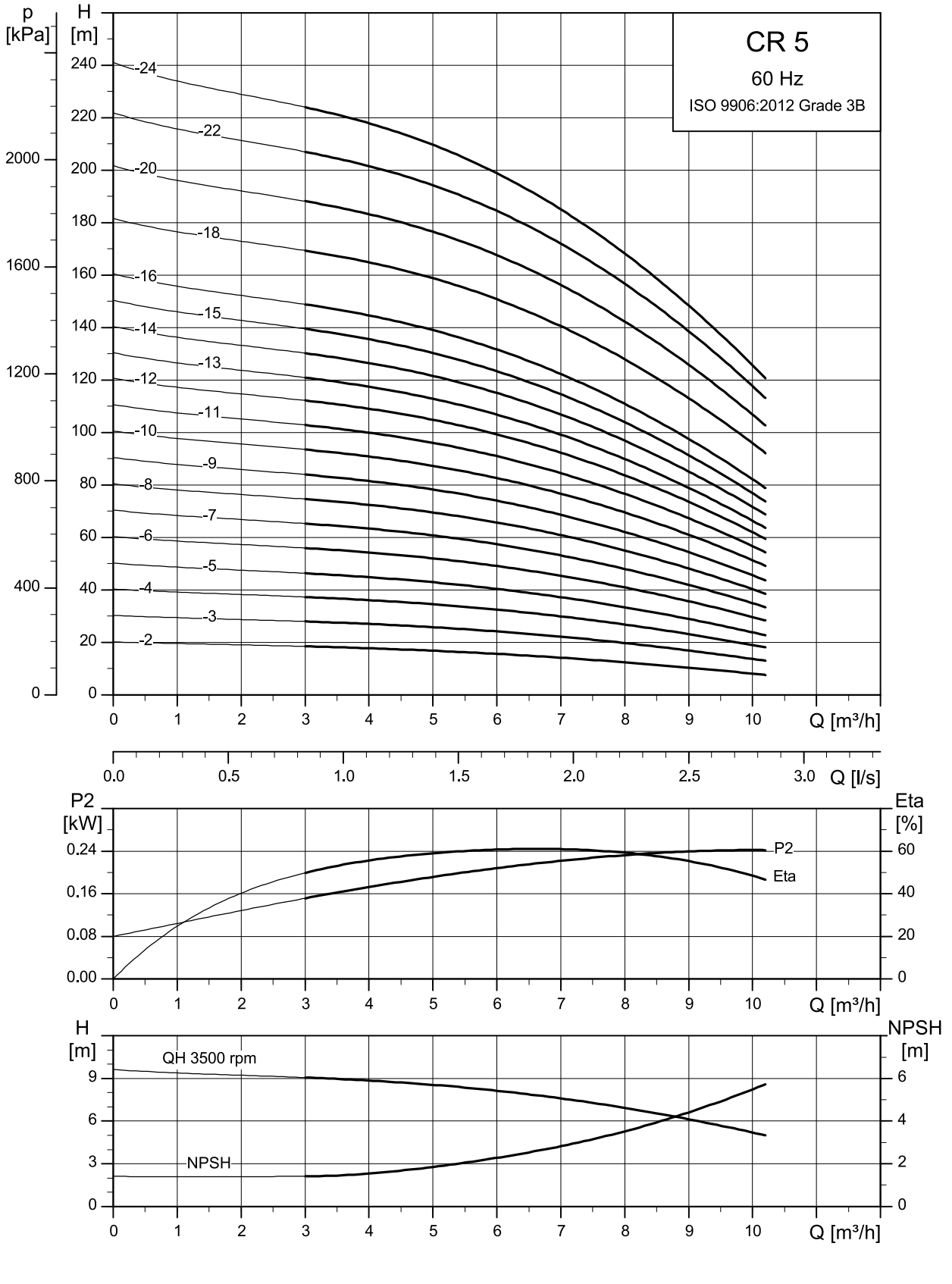
Dimensional sketch



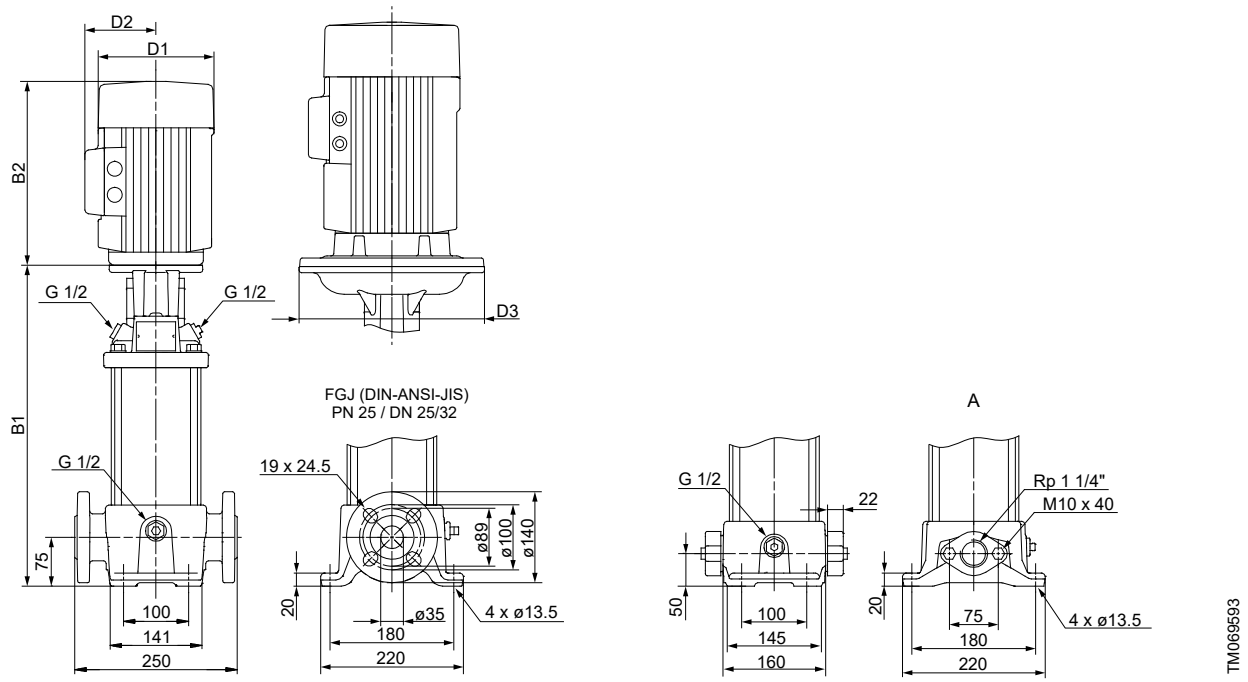
Dimensions and weights

Pump type	Motor P_2 [kW]	CRI/CRN							
		Dimension [mm]						Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2				
CRI/CRN 3-2	0.37	257	448	282	473	141	109	16	21
CRI/CRN 3-3	0.55	257	448	282	473	141	109	16	20
CRI/CRN 3-4	0.55	275	466	300	491	141	109	16	21
CRI/CRN 3-5	0.75	299	530	324	555	141	109	20	24
CRI/CRN 3-6	1.1	317	568	342	593	141	109	23	27
CRI/CRN 3-7	1.1	335	586	360	611	141	109	23	27
CRI/CRN 3-8	1.1	353	604	378	629	141	109	24	28
CRI/CRN 3-9	1.5	387	668	412	693	178	110	30	34
CRI/CRN 3-10	1.5	405	686	430	711	178	110	30	34
CRI/CRN 3-11	1.5	423	704	448	729	178	110	31	35
CRI/CRN 3-12	2.2	441	762	466	787	178	110	35	39
CRI/CRN 3-13	2.2	459	780	484	805	178	110	35	39
CRI/CRN 3-15	2.2	495	816	520	841	178	110	36	40
CRI/CRN 3-17	2.2	531	852	556	877	178	110	37	41
CRI/CRN 3-19	3	572	907	597	932	198	120	43	47
CRI/CRN 3-21	3	608	943	633	968	198	120	44	48
CRI/CRN 3-23	3	644	979	669	1004	198	120	45	49
CRI/CRN 3-25	4	680	1052	705	1077	220	134	57	61

CR 5


CR 5
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-24
-22
-20
-18
-16
-15
-14
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027314

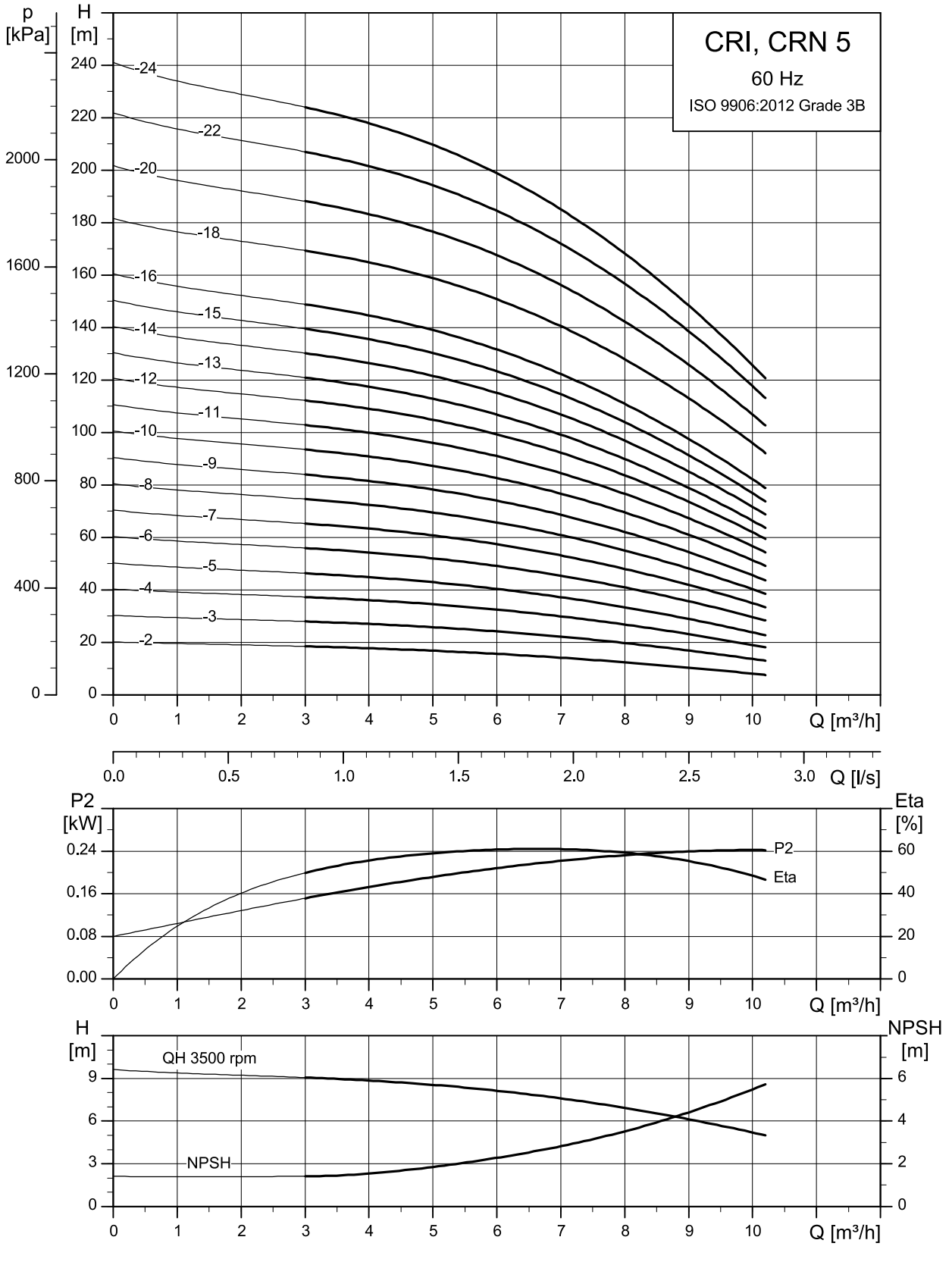
Dimensional sketch



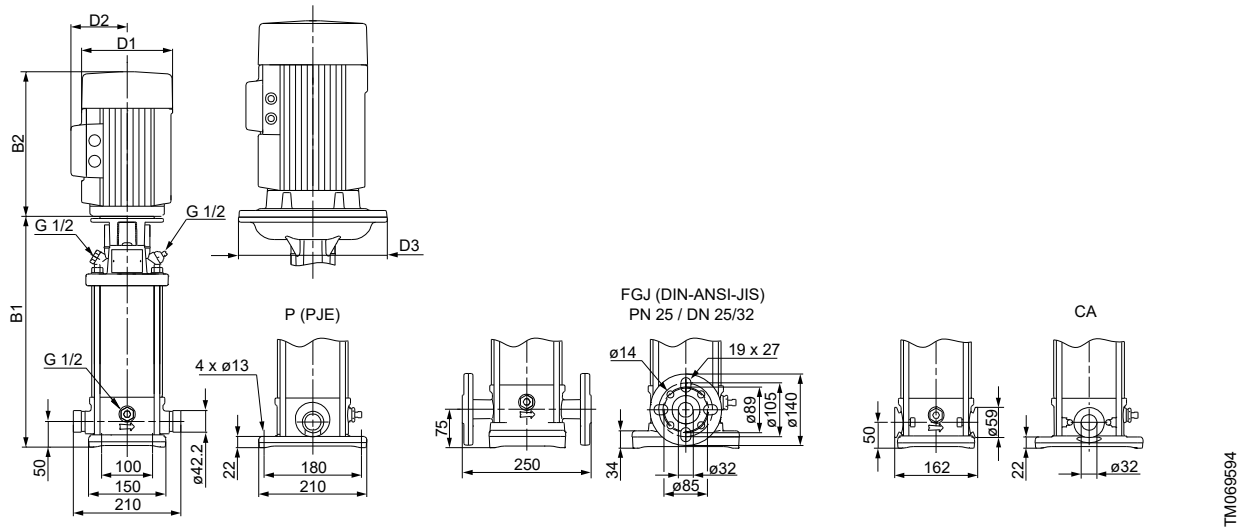
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	D3	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2					
CR 5-2	0.55	254	445	279	470	141	109	-	18	22
CR 5-3	1.1	287	538	312	563	141	109	-	23	28
CR 5-4	1.1	314	565	339	590	141	109	-	24	29
CR 5-5	1.5	357	638	382	663	178	110	-	31	36
CR 5-6	2.2	384	705	409	730	178	110	-	35	40
CR 5-7	2.2	411	732	436	757	178	110	-	36	41
CR 5-8	2.2	438	759	463	784	178	110	-	37	41
CR 5-9	2.2	465	786	490	811	178	110	-	37	42
CR 5-10	3	496	831	521	856	198	120	-	43	47
CR 5-11	3	523	858	548	883	198	120	-	43	48
CR 5-12	3	550	885	575	910	198	120	-	44	49
CR 5-13	4	577	949	602	974	220	134	-	56	61
CR 5-14	4	604	976	629	1001	220	134	-	57	62
CR 5-15	4	631	1003	656	1028	220	134	-	58	62
CR 5-16	4	658	1030	683	1055	220	134	-	58	63
CR 5-18	5.5	-	-	767	1158	220	134	300	-	74
CR 5-20	5.5	-	-	821	1212	220	134	300	-	76
CR 5-22	5.5	-	-	875	1266	220	134	300	-	77
CR 5-24	7.5	-	-	929	1308	260	159	300	-	88

CRI, CRN 5


CRI, CRN 5
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-24
-22
-20
-18
-16
-15
-14
-13
-12
-11
-10
-9
-8
-7
-6
-5
-4
-3
-2
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027315

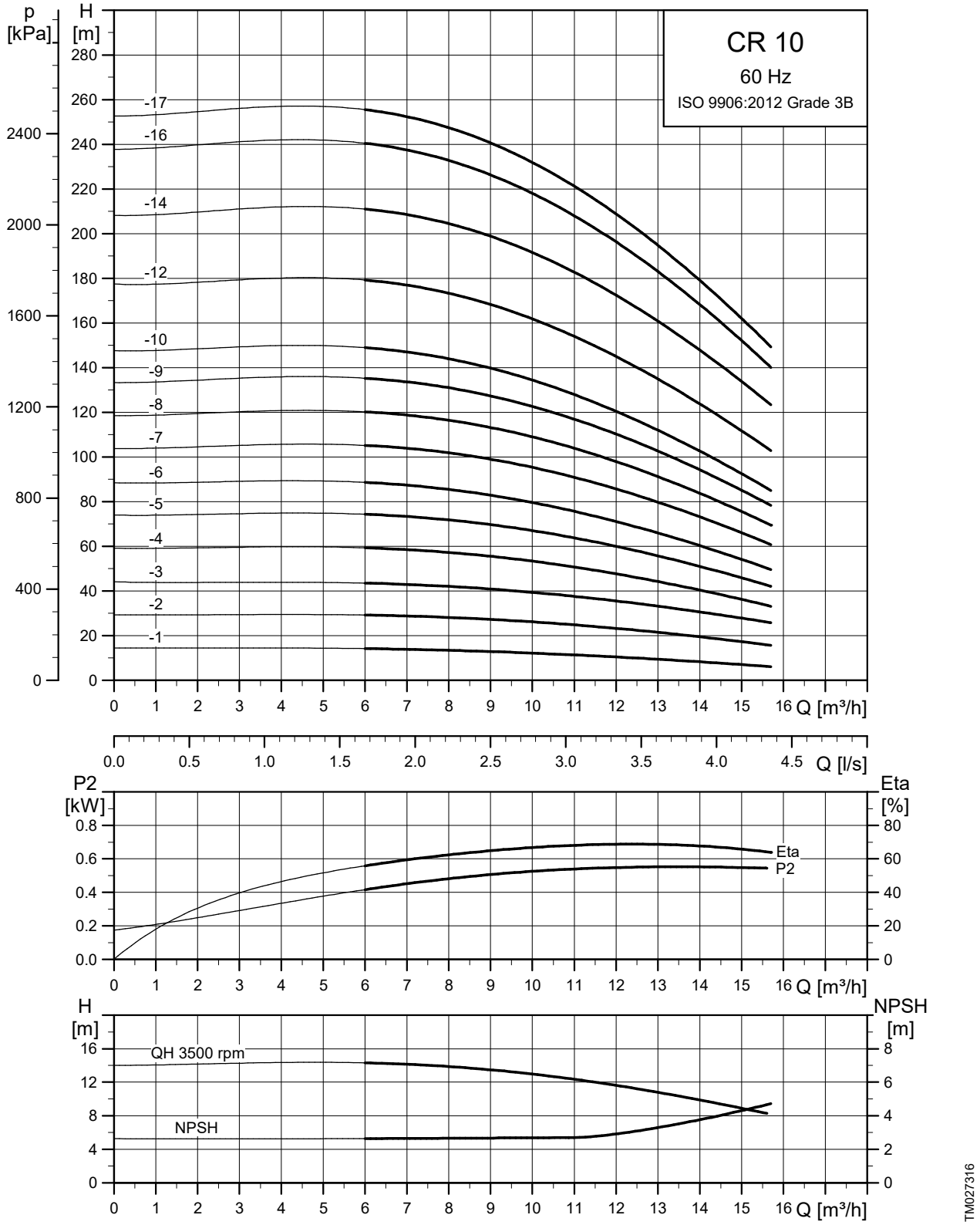
Dimensional sketch



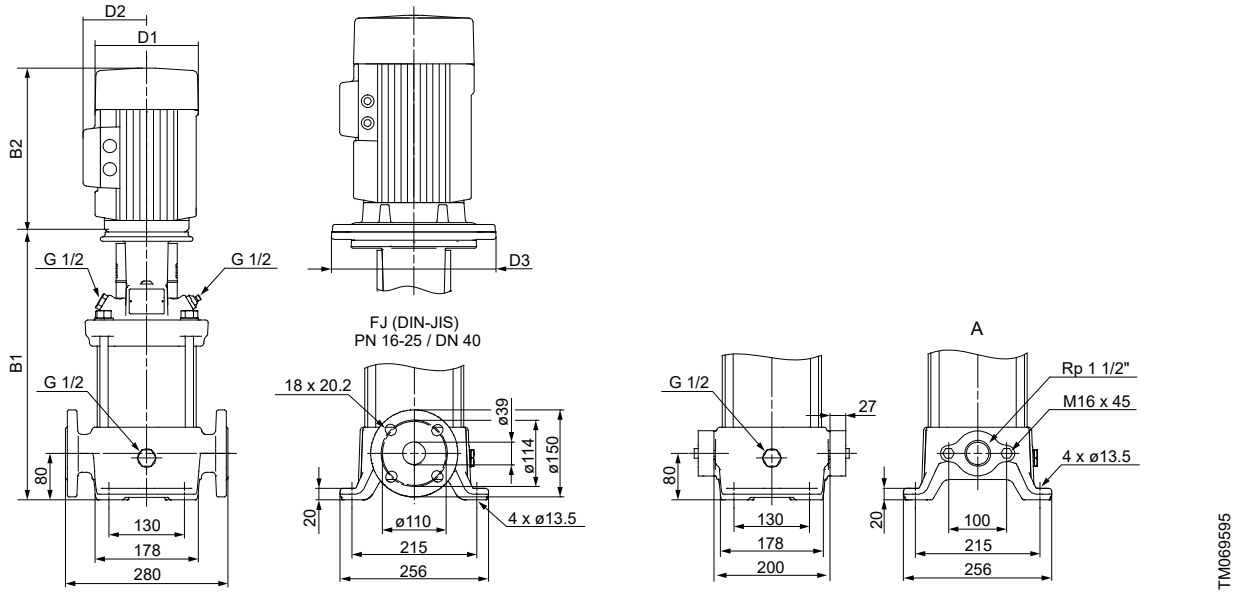
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	D3	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2					
CRI/CRN 5-2	0.55	257	448	282	473	141	109	-	16	20
CRI/CRN 5-3	1.1	290	541	315	566	141	109	-	22	26
CRI/CRN 5-4	1.1	317	568	342	593	141	109	-	23	27
CRI/CRN 5-5	1.5	360	641	385	666	178	110	-	29	33
CRI/CRN 5-6	2.2	387	708	412	733	178	110	-	33	38
CRI/CRN 5-7	2.2	414	735	439	760	178	110	-	34	38
CRI/CRN 5-8	2.2	441	762	466	787	178	110	-	35	39
CRI/CRN 5-9	2.2	468	789	493	814	178	110	-	35	39
CRI/CRN 5-10	3	500	835	525	860	198	120	-	41	45
CRI/CRN 5-11	3	527	862	552	887	198	120	-	42	46
CRI/CRN 5-12	3	554	889	579	914	198	120	-	42	47
CRI/CRN 5-13	4	581	953	606	978	220	134	-	55	59
CRI/CRN 5-14	4	608	980	633	1005	220	134	-	55	59
CRI/CRN 5-15	4	635	1007	660	1032	220	134	-	56	60
CRI/CRN 5-16	4	662	1034	687	1059	220	134	-	56	61
CRI/CRN 5-18	5.5	745	1136	770	1161	220	134	300	68	72
CRI/CRN 5-20	5.5	799	1190	824	1215	220	134	300	69	73
CRI/CRN 5-22	5.5	853	1244	878	1269	220	134	300	70	74
CRI/CRN 5-24	7.5	907	1286	932	1311	260	159	300	81	85

CR 10


CR 10
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-17
-16
-14
-12
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027316

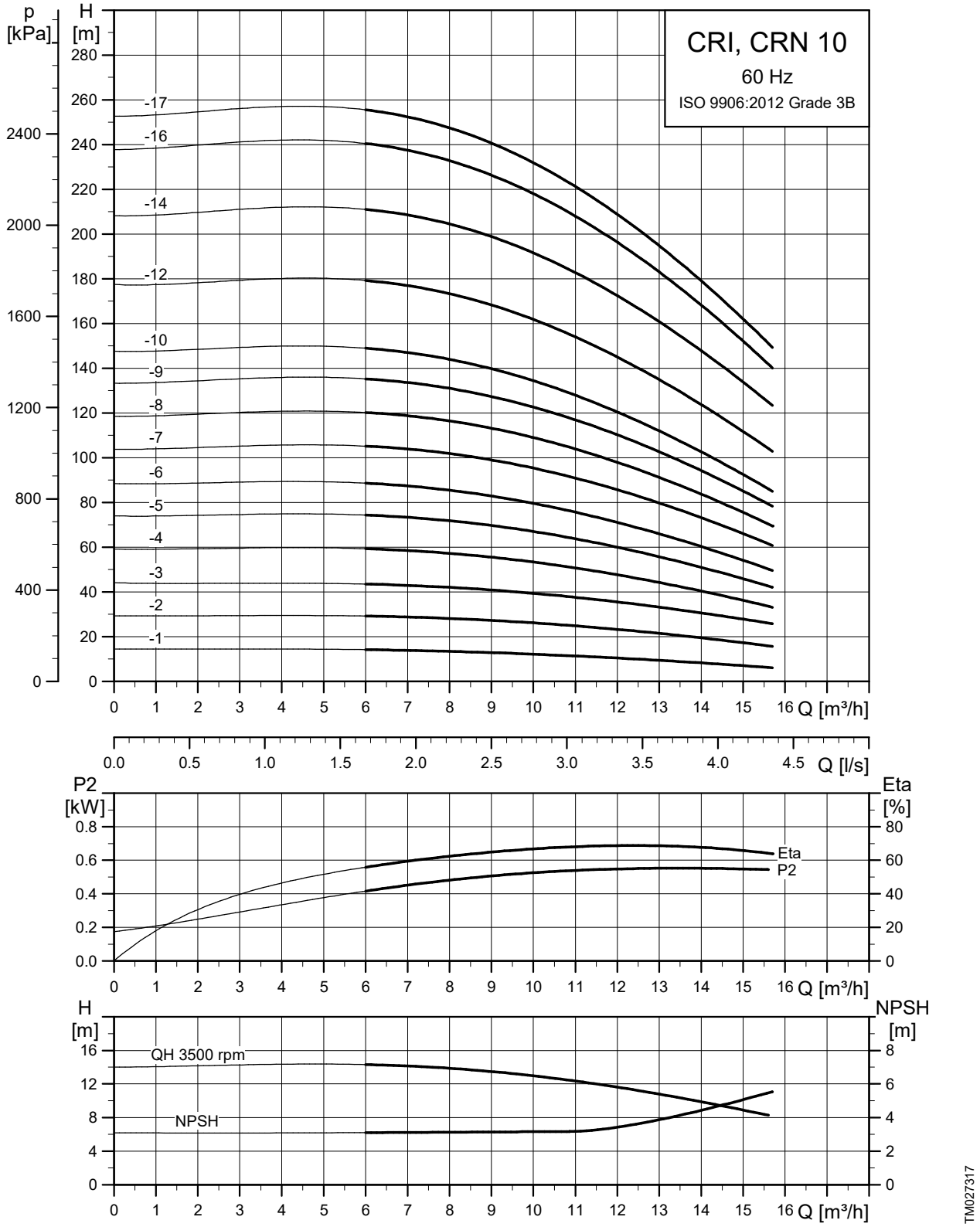
Dimensional sketch



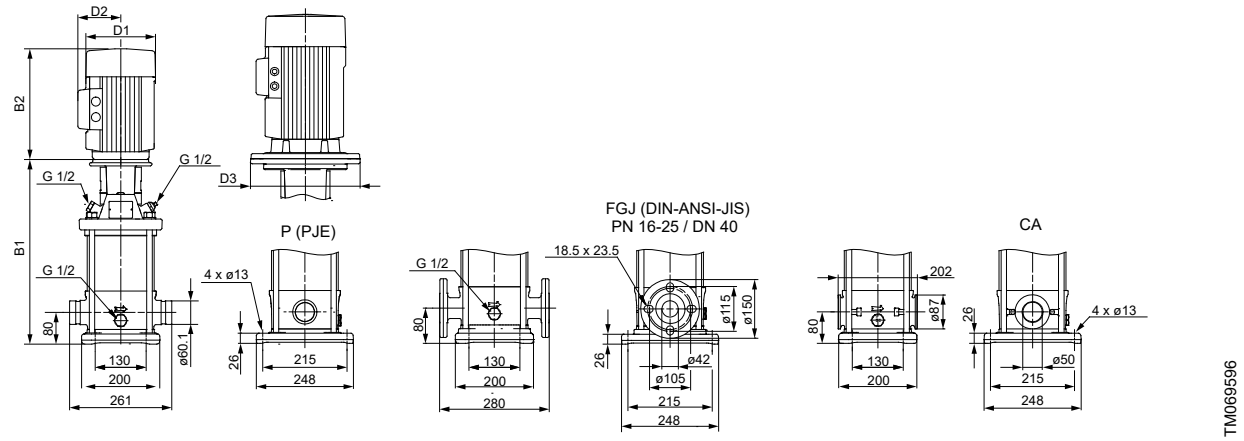
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	D3	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2					
CR 10-1	0.75	347	578	347	578	141	109	-	34	36
CR 10-2	1.5	363	644	363	644	178	110	-	42	45
CR 10-3	2.2	393	714	393	714	178	110	-	47	50
CR 10-4	3	428	763	428	763	198	120	-	53	56
CR 10-5	3	458	793	458	793	198	120	-	54	57
CR 10-6	4	488	860	488	860	220	134	-	67	69
CR 10-7	5.5	550	941	550	941	220	134	300	85	87
CR 10-8	5.5	580	971	580	971	220	134	300	86	88
CR 10-9	5.5	610	1001	610	1001	220	134	300	87	89
CR 10-10	7.5	640	1019	640	1019	260	159	300	98	100
CR 10-12	7.5	-	-	700	1079	260	159	300	-	103
CR 10-14	11	-	-	837	1319	318	204	350	-	146
CR 10-16	11	-	-	897	1379	318	204	350	-	148
CR 10-17	11	-	-	957	1439	318	204	350	-	150

CRI, CRN 10


CRI, CRN 10
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-17
-16
-14
-12
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027317

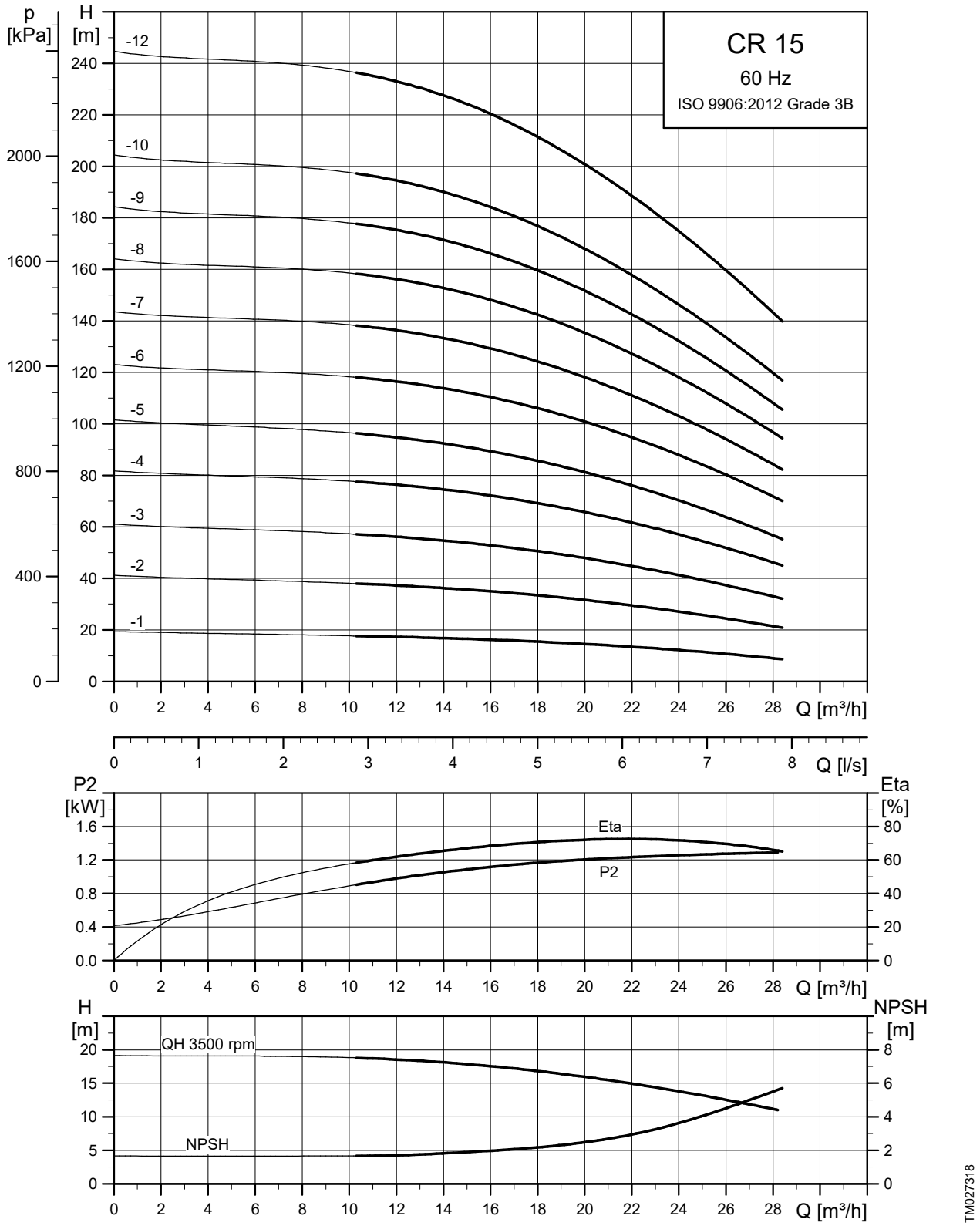
Dimensional sketch



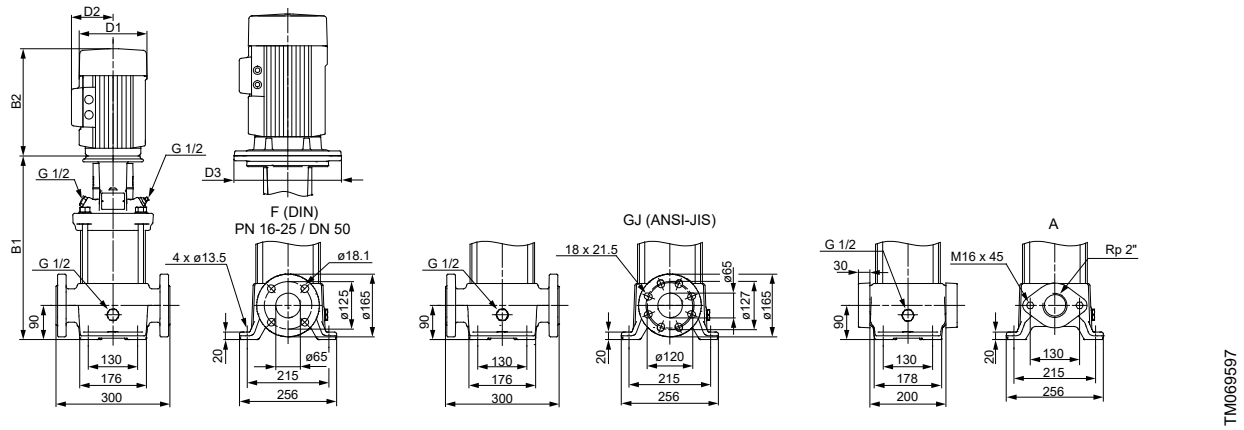
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	D3	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2					
CRI/CRN 10-1	0.75	357	588	357	588	141	109	-	31	34
CRI/CRN 10-2	1.5	373	654	373	654	178	110	-	40	43
CRI/CRN 10-3	2.2	403	724	403	724	178	110	-	45	48
CRI/CRN 10-4	3	438	773	438	773	198	120	-	51	54
CRI/CRN 10-5	3	468	803	468	803	198	120	-	52	56
CRI/CRN 10-6	4	498	870	498	870	220	134	-	65	68
CRI/CRN 10-7	5.5	560	951	560	951	220	134	300	82	86
CRI/CRN 10-8	5.5	590	981	590	981	220	134	300	84	87
CRI/CRN 10-9	5.5	620	1011	620	1011	220	134	300	85	88
CRI/CRN 10-10	7.5	650	1029	650	1029	260	159	300	95	99
CRI/CRN 10-12	7.5	710	1089	710	1089	260	159	300	98	101
CRI/CRN 10-14	11	847	1329	847	1329	318	204	350	140	144
CRI/CRN 10-16	11	907	1389	907	1389	318	204	350	143	146
CRI/CRN 10-17	11	967	1449	967	1449	318	204	350	145	148

CR 15


CR 15
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-12
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027318

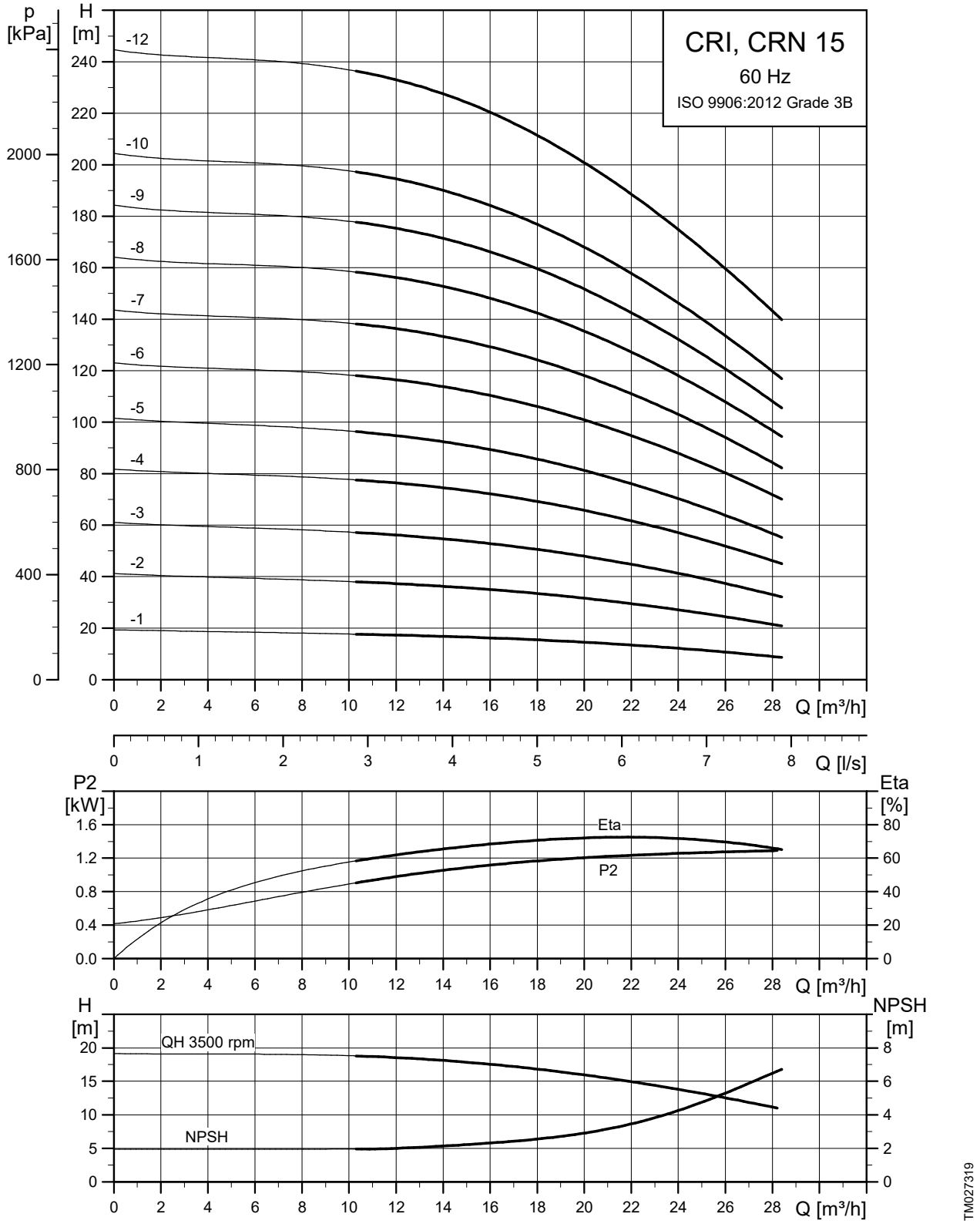
Dimensional sketch



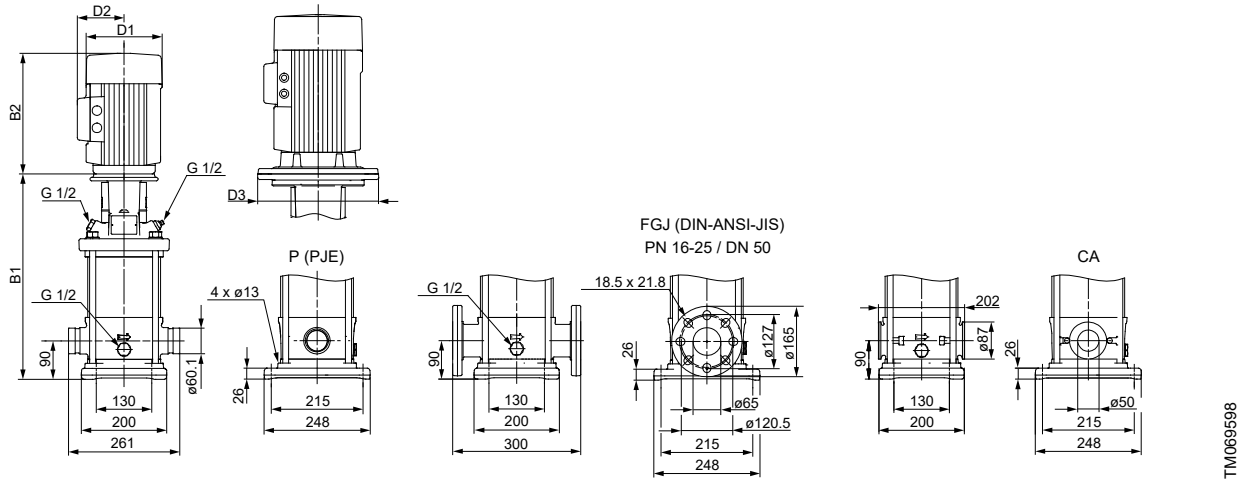
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	D3	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2					
CR 15-1	1.5	415	696	415	696	178	110	-	48	49
CR 15-2	3	420	755	420	755	198	120	-	57	58
CR 15-3	4	465	837	465	837	220	134	-	70	71
CR 15-4	5.5	542	933	542	933	220	134	300	88	89
CR 15-5	7.5	587	966	587	966	260	159	300	99	100
CR 15-6	11	-	-	709	1191	318	204	350	-	143
CR 15-7	11	-	-	754	1236	318	204	350	-	144
CR 15-8	11	-	-	799	1281	318	204	350	-	146
CR 15-9	15	-	-	844	1326	318	204	350	-	160
CR 15-10	15	-	-	889	1371	318	204	350	-	162
CR 15-12	18.5	-	-	979	1505	318	204	350	-	178

CRI, CRN 15


CRI, CRN 15
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-12
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
Eta
P2
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027319

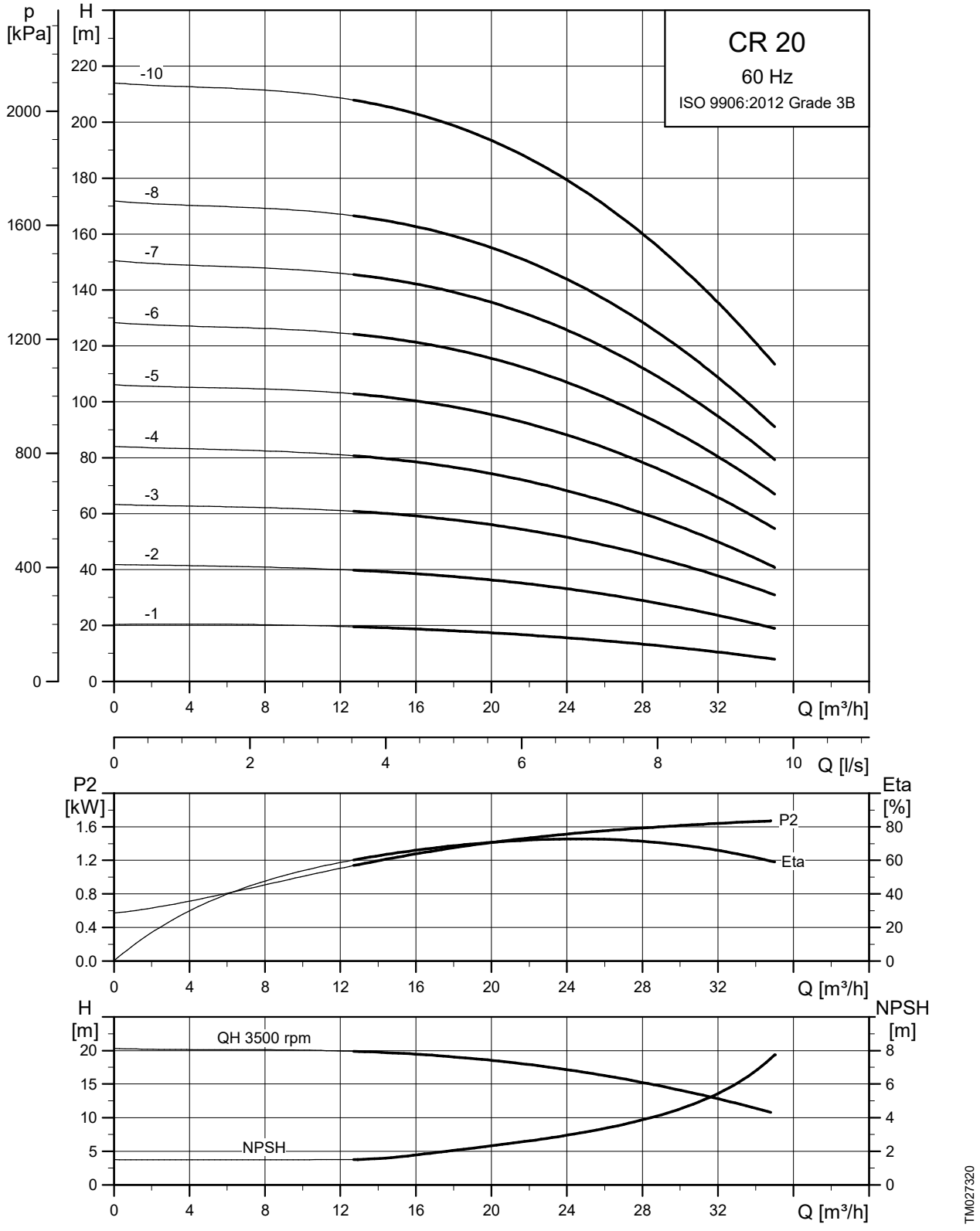
Dimensional sketch



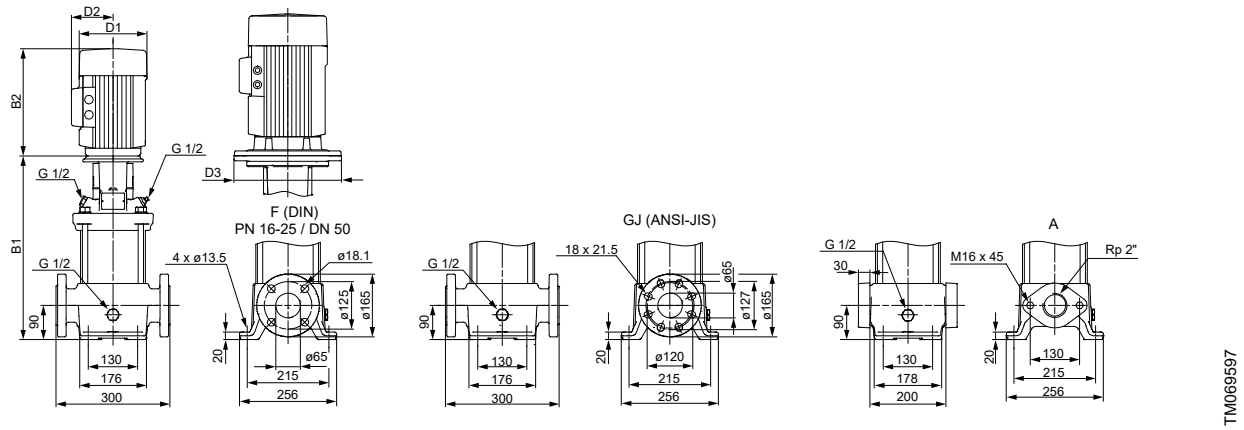
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	D3	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2					
CRI/CRN 15-1	1.5	413	694	413	694	178	110	-	41	45
CRI/CRN 15-2	3	418	753	418	753	198	120	-	50	55
CRI/CRN 15-3	4	463	835	463	835	220	134	-	63	68
CRI/CRN 15-4	5.5	540	931	540	931	220	134	300	82	86
CRI/CRN 15-5	7.5	585	964	585	964	260	159	300	93	98
CRI/CRN 15-6	11	707	1189	707	1189	318	204	350	135	140
CRI/CRN 15-7	11	752	1234	752	1234	318	204	350	137	142
CRI/CRN 15-8	11	797	1279	797	1279	318	204	350	138	143
CRI/CRN 15-9	15	842	1324	842	1324	318	204	350	152	157
CRI/CRN 15-10	15	887	1369	887	1369	318	204	350	154	159
CRI/CRN 15-12	18.5	977	1503	977	1503	318	204	350	170	175

CR 20


CR 20
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-10
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027320

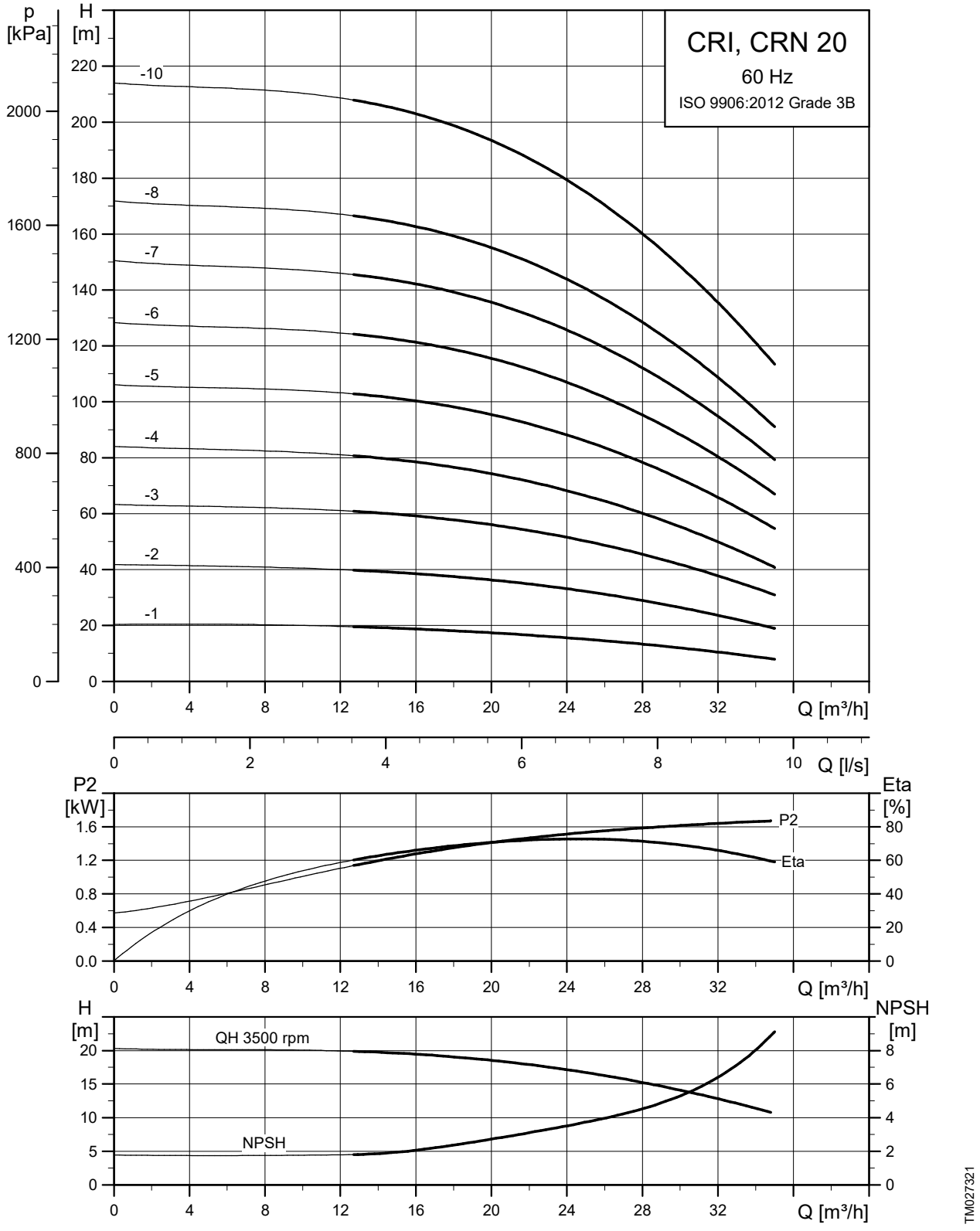
Dimensional sketch



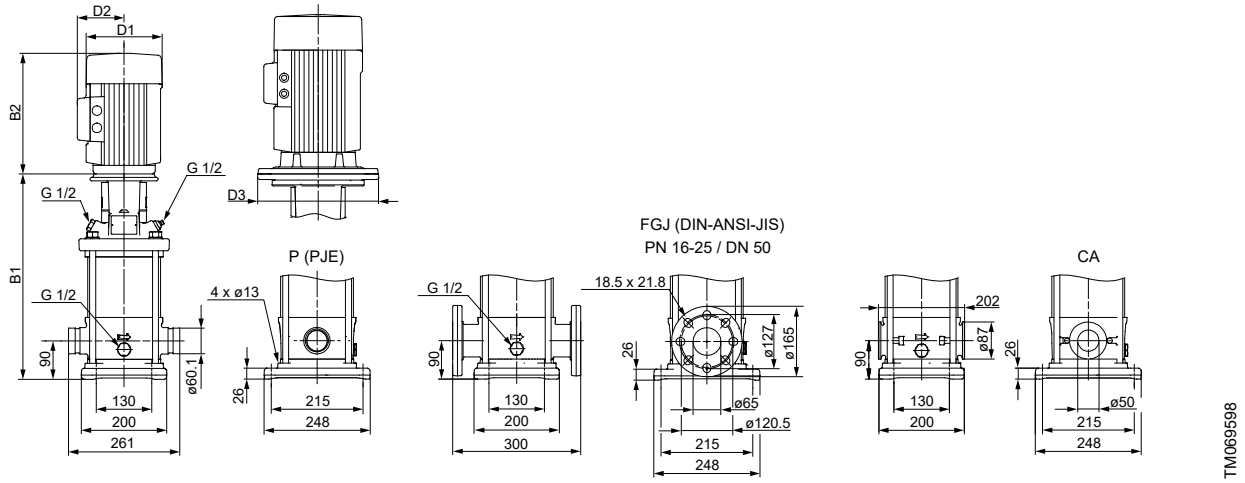
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		Oval flange (A)		DIN flange		D1	D2	D3	Oval flange	DIN flange
		B1	B1+B2	B1	B1+B2					
CR 20-1	2.2	415	736	415	736	178	110	-	51	52
CR 20-2	4	420	792	420	792	220	134	-	69	69
CR 20-3	5.5	497	888	497	888	220	134	300	87	88
CR 20-4	7.5	542	921	542	921	260	159	300	98	99
CR 20-5	11	664	1146	664	1146	318	204	350	140	141
CR 20-6	11	-	-	709	1191	318	204	350	-	143
CR 20-7	15	-	-	754	1236	318	204	350	-	156
CR 20-8	15	-	-	799	1281	318	204	350	-	158
CR 20-10	18.5	-	-	889	1415	318	204	350	-	175

CRI, CRN 20


CRI, CRN 20
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-10
-8
-7
-6
-5
-4
-3
-2
-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2
Eta
H [m]
NPSH [m]
QH 3500 rpm
NPSH
TM027321

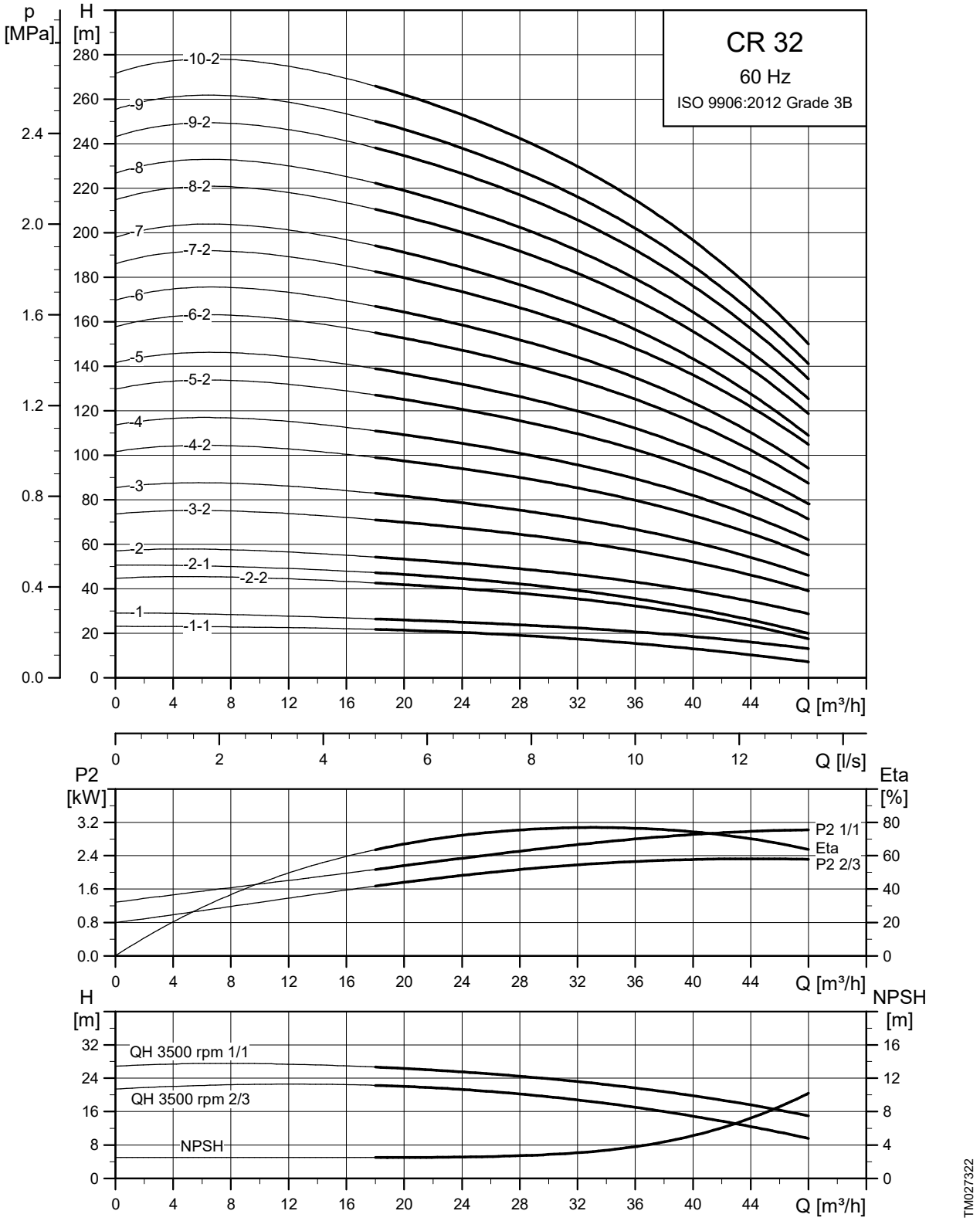
Dimensional sketch



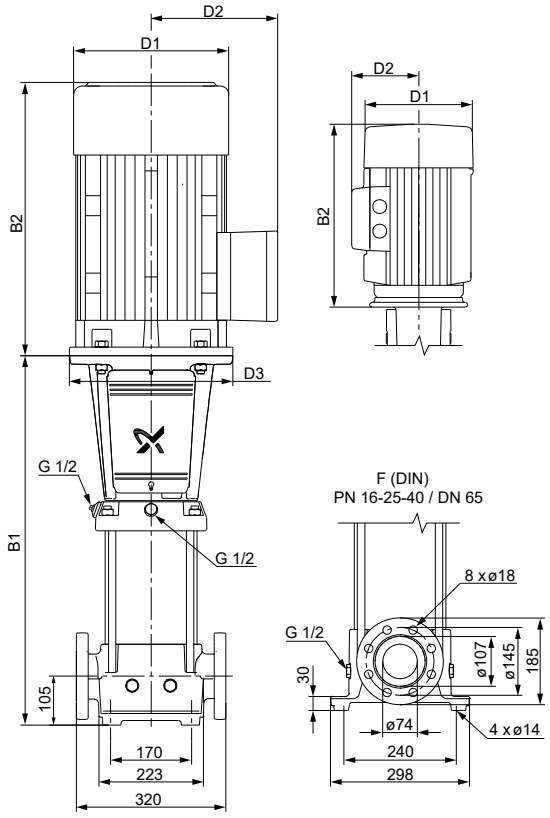
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]							Net weight [kg]	
		PJE/CA		DIN flange		D1	D2	D3	PJE/CA	DIN flange
		B1	B1+B2	B1	B1+B2					
CRI/CRN 20-1	2.2	413	734	413	734	178	110	-	45	49
CRI/CRN 20-2	4	418	790	418	790	220	134	-	62	67
CRI/CRN 20-3	5.5	495	886	495	886	220	134	300	80	85
CRI/CRN 20-4	7.5	540	919	540	919	260	159	300	91	96
CRI/CRN 20-5	11	662	1144	662	1144	318	204	350	133	138
CRI/CRN 20-6	11	707	1189	707	1189	318	204	350	135	140
CRI/CRN 20-7	15	752	1234	752	1234	318	204	350	149	153
CRI/CRN 20-8	15	797	1279	797	1279	318	204	350	150	155
CRI/CRN 20-10	18.5	887	1413	887	1413	318	204	350	167	171

CR 32


CR 32
60 Hz
ISO 9906:2012 Grade 3B
p [MPa]
H [m]
-10-2
-9
-9-2
-8
-8-2
-7
-7-2
-6
-6-2
-5
-5-2
-4
-4-2
-3
-3-2
-2
-2-1
-2-2
-1
-1-1
Q [m³/h]
Q [l/s]
P2 [kW]
Eta [%]
P2 1/1
Eta
P2 2/3
H [m]
NPSH [m]
QH 3500 rpm 1/1
QH 3500 rpm 2/3
NPSH
TM027322

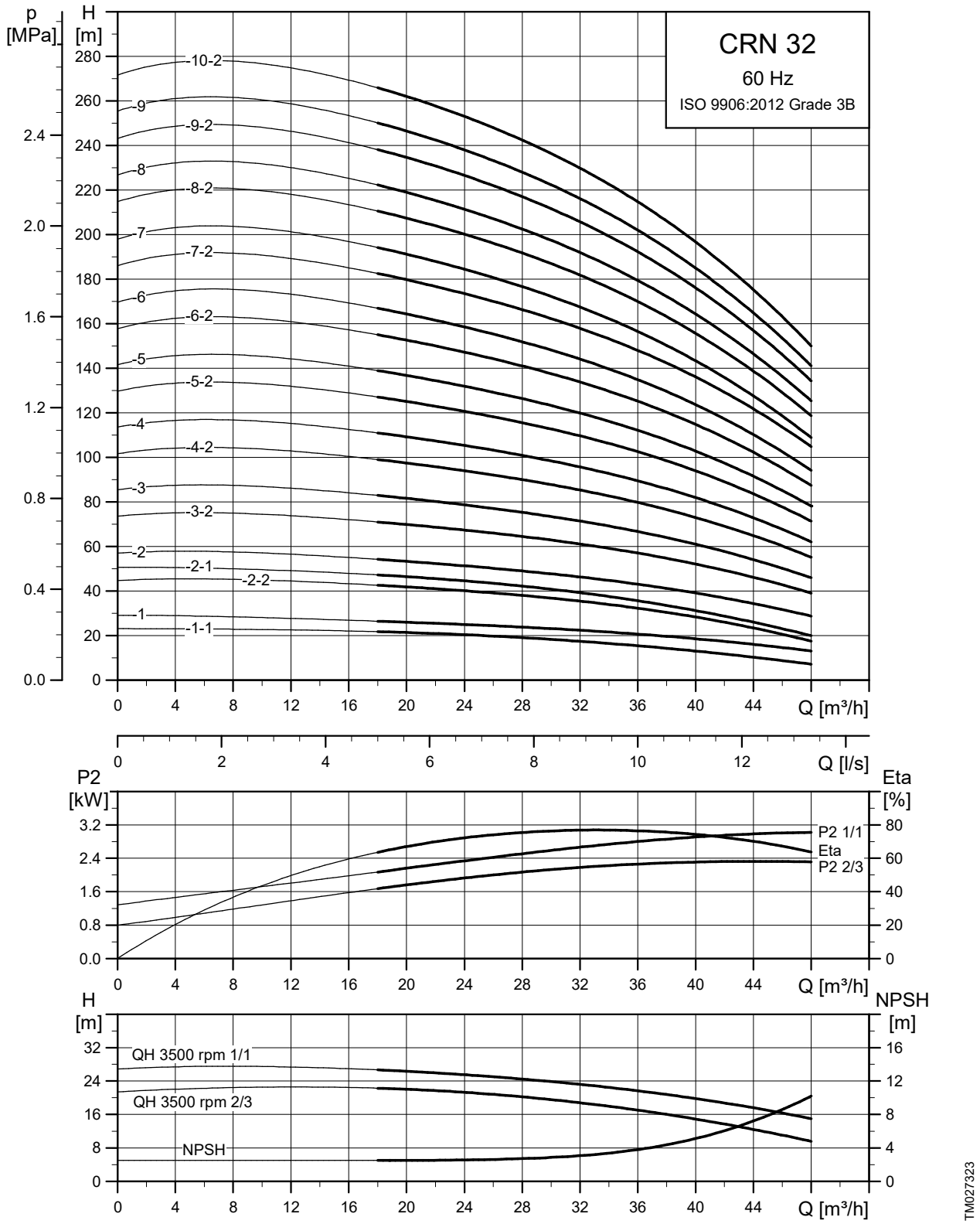
Dimensional sketch



Dimensions and weights

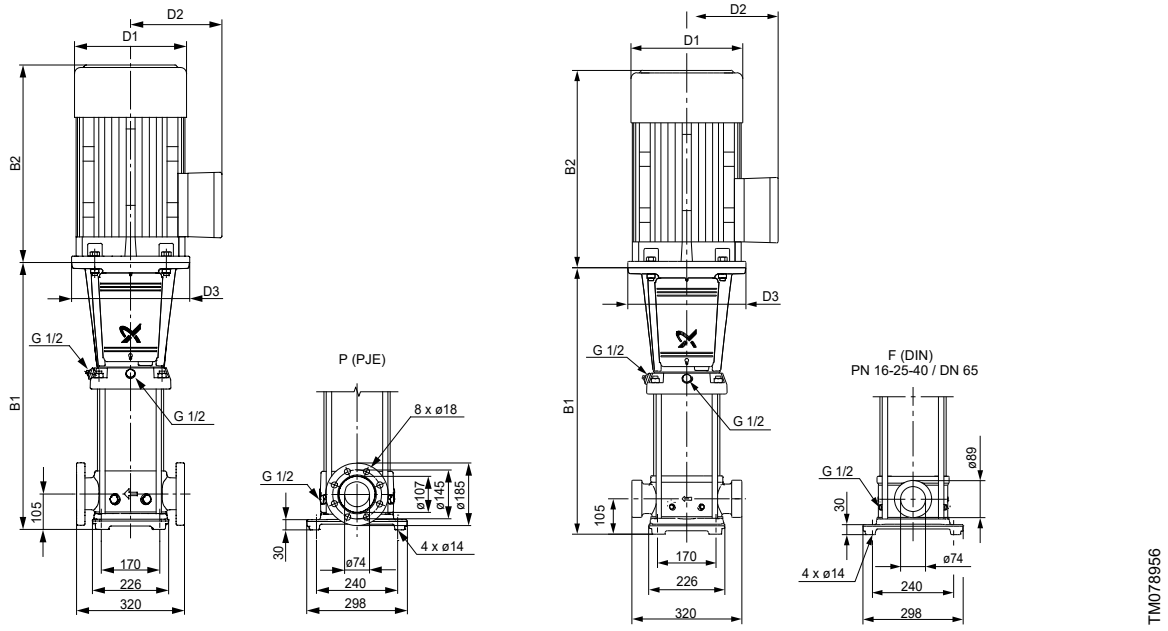
Pump type	Motor P_2 [kW]	Dimension [mm]					Net weight [kg]
		B1	B1+B2	D1	D2	D3	
CR 32-1-1	2.2	505	826	178	110	-	67
CR 32-1	3	505	840	198	120	-	72
CR 32-2-2	5.5	575	966	220	134	300	94
CR 32-2-1	5.5	575	966	220	134	300	94
CR 32-2	7.5	575	954	260	159	300	104
CR 32-3-2	11	755	1237	318	204	350	152
CR 32-3	11	755	1237	318	204	350	152
CR 32-4-2	11	825	1307	318	204	350	155
CR 32-4	15	825	1307	318	204	350	167
CR 32-5-2	15	895	1377	318	204	350	170
CR 32-5	18.5	895	1421	318	204	350	183
CR 32-6-2	18.5	965	1491	318	204	350	186
CR 32-6	18.5	965	1491	318	204	350	186
CR 32-7-2	22	1035	1587	318	204	350	204
CR 32-7	22	1035	1587	318	204	350	204
CR 32-8-2	30	1105	1716	396	315	400	312
CR 32-8	30	1105	1716	396	315	400	312
CR 32-9-2	30	1175	1786	396	315	400	315
CR 32-9-2	30	1175	1786	396	315	400	315
CR 32-10-2	30	1245	1856	396	315	400	319

CRN 32



TM027323

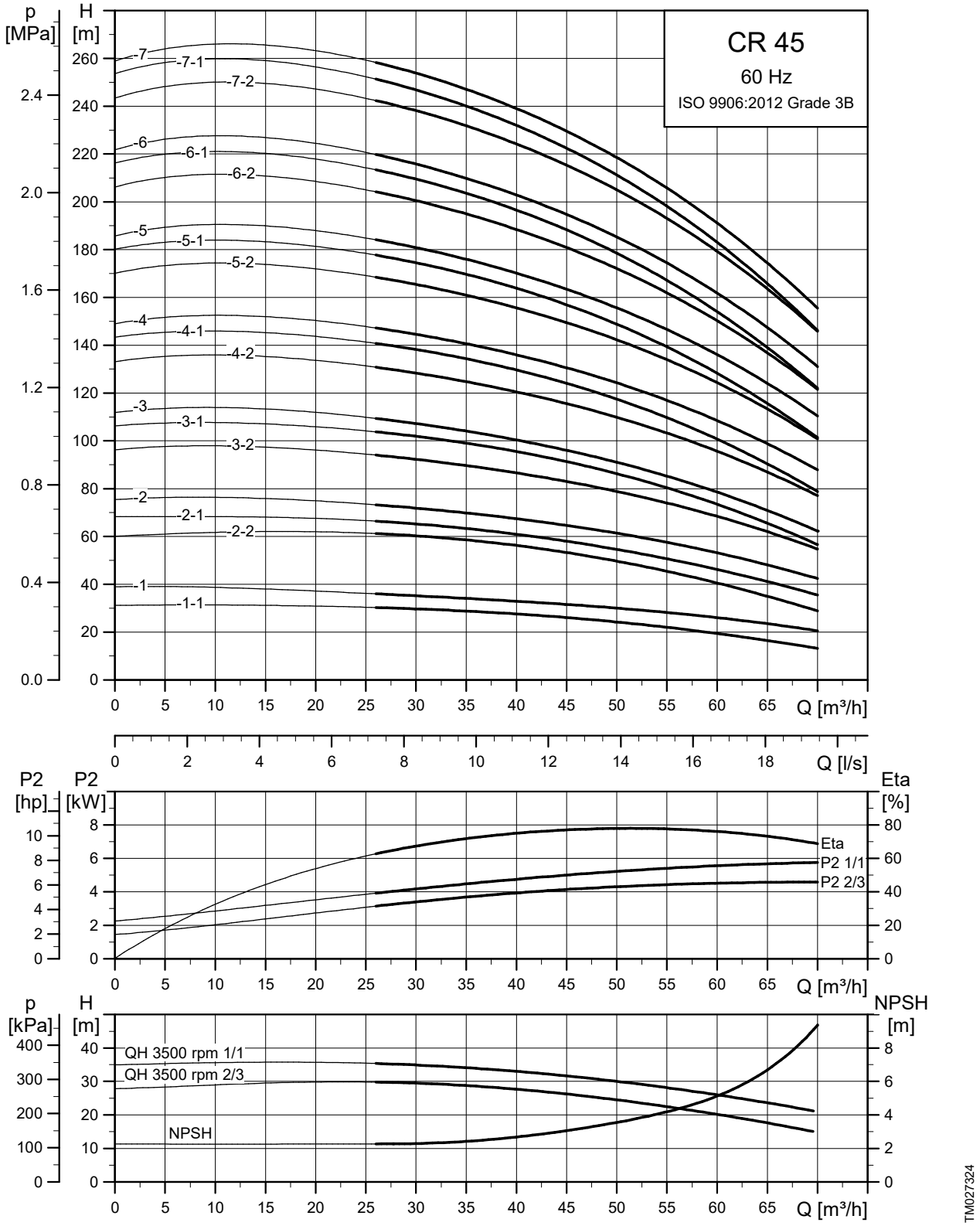
Dimensional sketch



Dimensions and weights

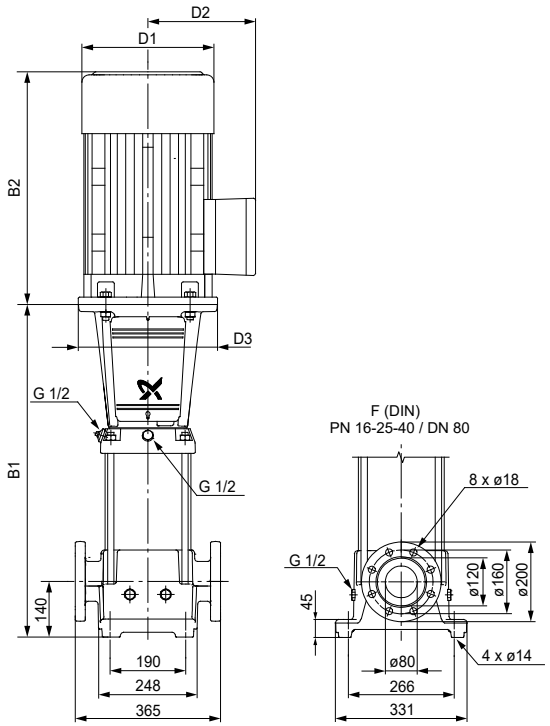
Pump type	Motor P_2	Dimension [mm]					Net weight
	[kW]	B1	B1+B2	D1	D2	D3	[kg]
CRN 32-1-1	2.2	505	826	178	110	-	69
CRN 32-1	3	505	840	198	120	-	74
CRN 32-2-2	5.5	575	966	220	134	300	96
CRN 32-2-1	5.5	575	966	220	134	300	96
CRN 32-2	7.5	575	954	260	159	300	106
CRN 32-3-2	11	755	1237	318	204	350	154
CRN 32-3	11	755	1237	318	204	350	154
CRN 32-4-2	11	825	1307	318	204	350	157
CRN 32-4	15	825	1307	318	204	350	169
CRN 32-5-2	15	895	1377	318	204	350	172
CRN 32-5	18.5	895	1421	318	204	350	185
CRN 32-6-2	18.5	965	1491	318	204	350	188
CRN 32-6	18.5	965	1491	318	204	350	188
CRN 32-7-2	22	1035	1587	318	204	350	206
CRN 32-7-2	22	1035	1587	318	204	350	206
CRN 32-8-2	30	1105	1716	396	315	400	314
CRN 32-8	30	1105	1716	396	315	400	314
CRN 32-9-2	30	1175	1786	396	315	400	318
CRN 32-9-2	30	1175	1786	396	315	400	318
CRN 32-10-2	30	1245	1856	396	315	400	321

CR 45



TM027324

Dimensional sketch

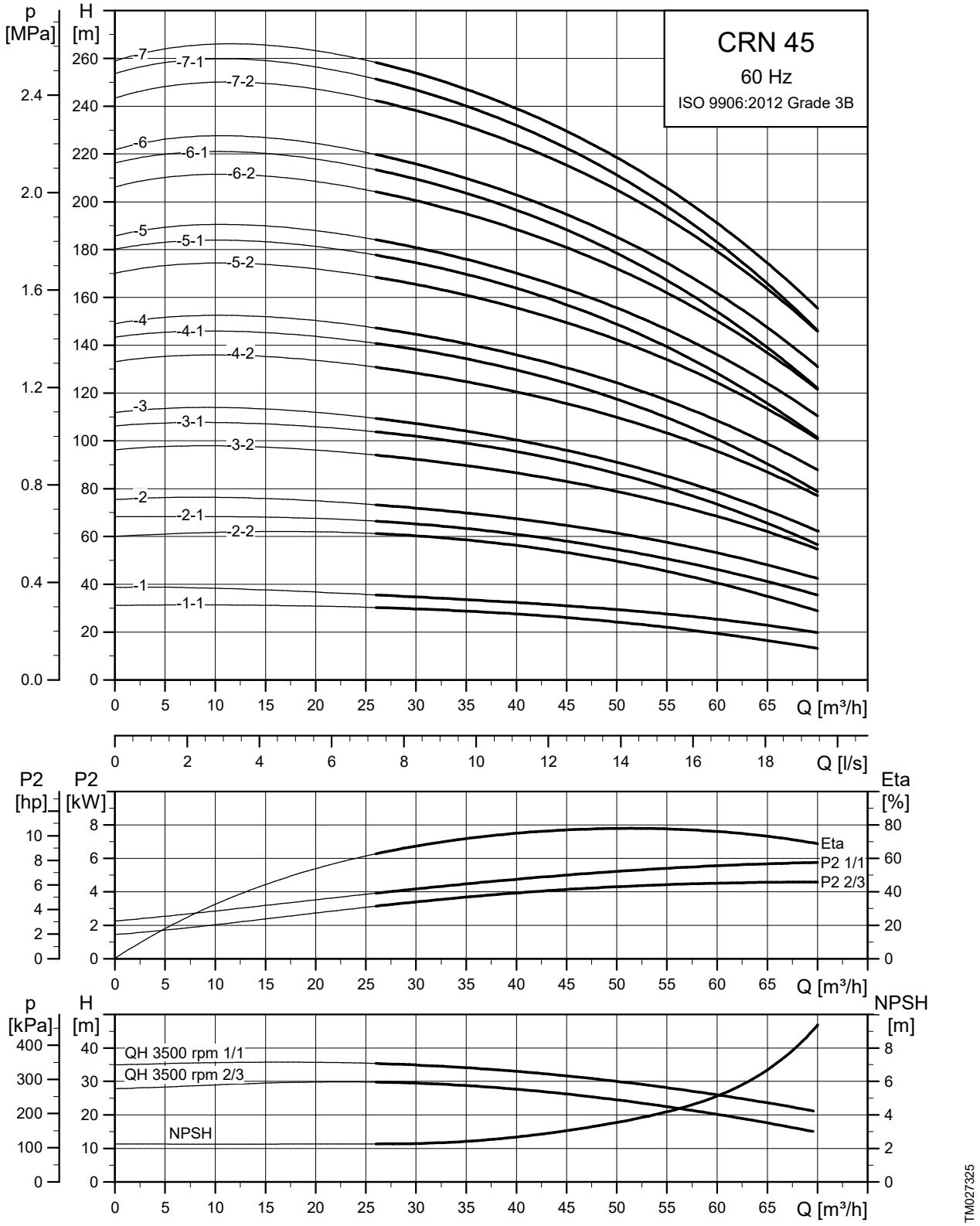


TM069600

Dimensions and weights

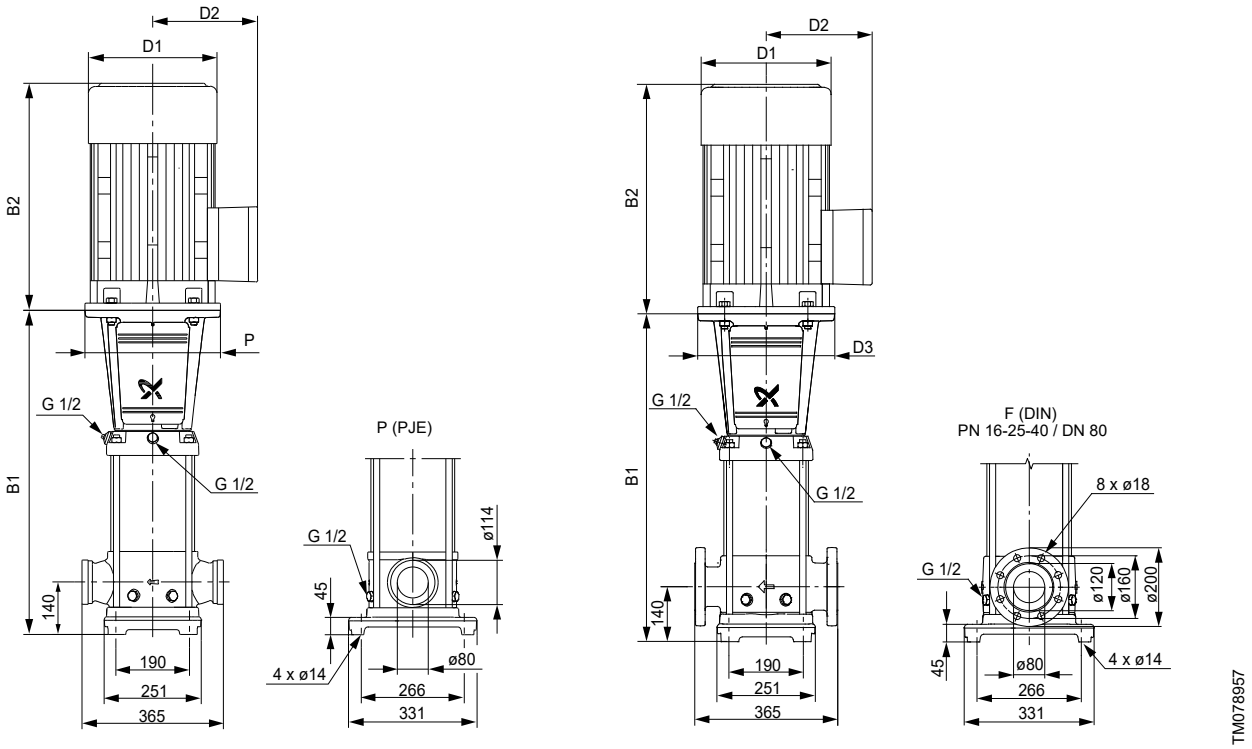
Pump type	Motor P_2 [kW]	Dimension [mm]					Net weight [kg]
		B1	B1+B2	D1	D2	D3	
CR 45-1-1	5.5	559	950	220	134	300	101
CR 45-1	7.5	559	938	260	159	300	111
CR 45-2-2	11	749	1231	318	204	350	159
CR 45-2-1	11	749	1231	318	204	350	159
CR 45-2	15	749	1231	318	204	350	171
CR 45-3-2	18.5	829	1355	318	204	350	188
CR 45-3-1	18.5	829	1355	318	204	350	188
CR 45-3	18.5	829	1355	318	204	350	188
CR 45-4-2	22	909	1461	318	204	350	207
CR 45-4-1	30	909	1520	396	315	400	309
CR 45-4	30	909	1520	396	315	400	309
CR 45-5-2	30	989	1600	396	315	400	313
CR 45-5-1	30	989	1600	396	315	400	313
CR 45-5	30	989	1600	396	315	400	313
CR 45-6-2	37	1069	1705	396	315	400	344
CR 45-6-1	37	1069	1705	396	315	400	344
CR 45-6	37	1069	1705	396	315	400	344
CR 45-7-2	45	1149	1857	449	338	450	438
CR 45-7-1	45	1149	1857	449	338	450	438
CR 45-7	45	1149	1857	449	338	450	438

CRN 45



TM027325

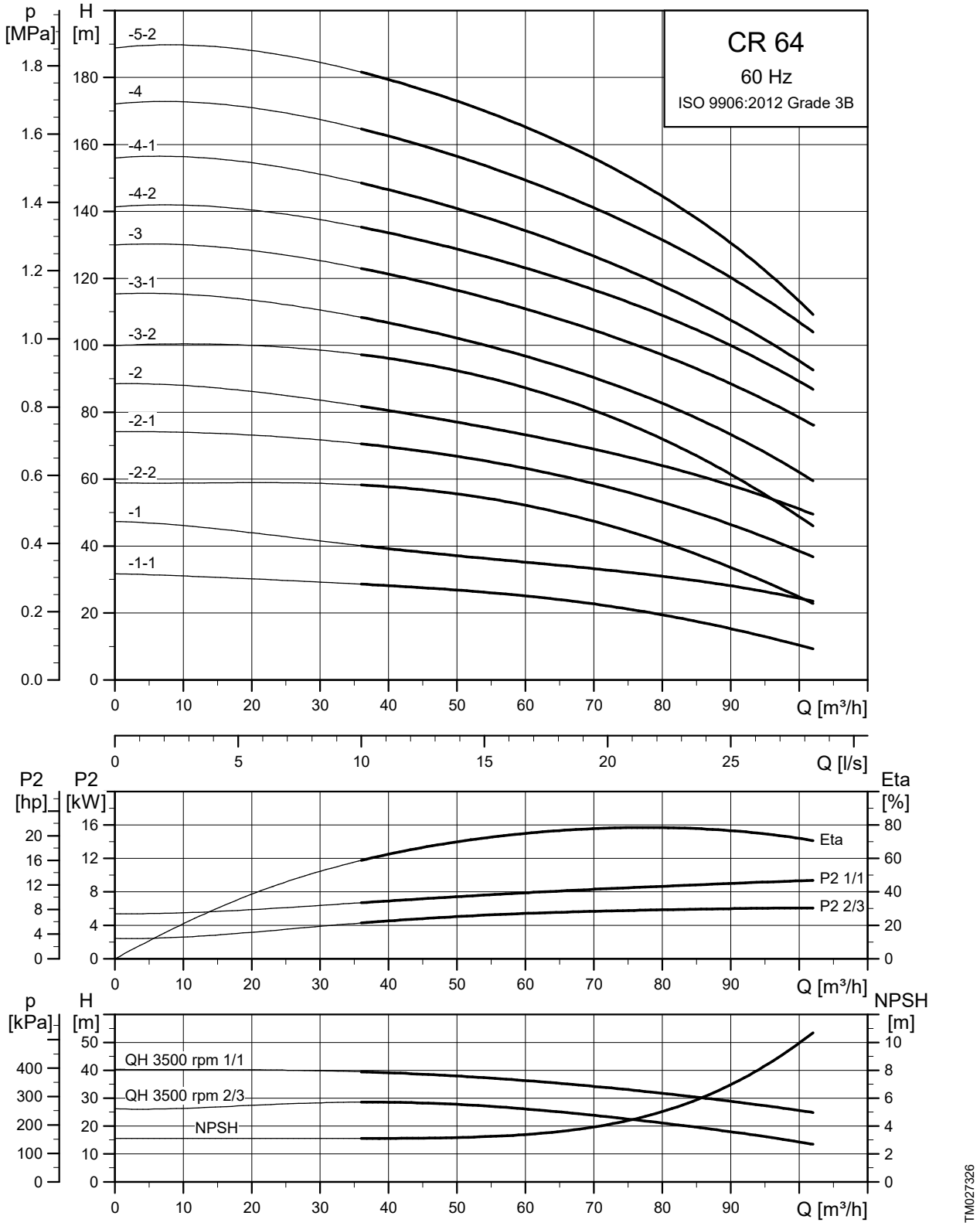
Dimensional sketch



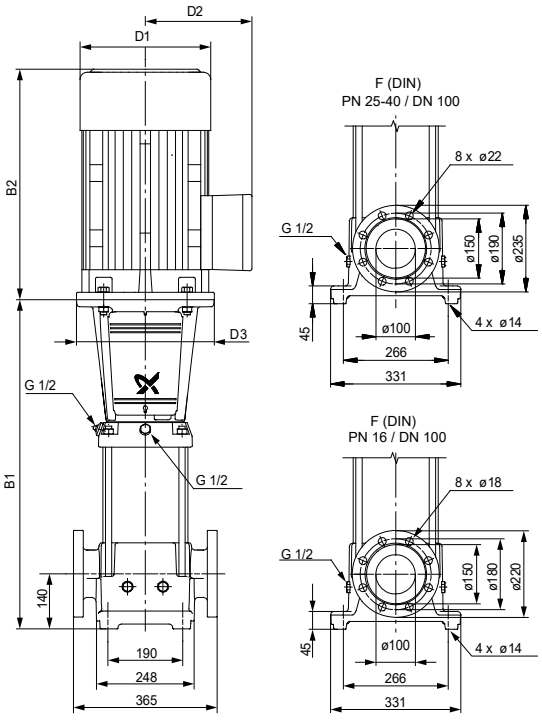
Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]					Net weight [kg]
		B1	B1+B2	D1	D2	D3	
CRN 45-1-1	5.5	559	950	220	134	300	101
CRN 45-1	7.5	559	938	260	159	300	111
CRN 45-2-2	11	749	1231	318	204	350	160
CRN 45-2-1	11	749	1231	318	204	350	160
CRN 45-2	15	749	1231	318	204	350	171
CRN 45-3-2	18.5	829	1355	318	204	350	188
CRN 45-3-1	18.5	829	1355	318	204	350	188
CRN 45-3	18.5	829	1355	318	204	350	188
CRN 45-4-2	22	909	1461	318	204	350	207
CRN 45-4-1	30	909	1520	396	315	400	309
CRN 45-4	30	909	1520	396	315	400	309
CRN 45-5-2	30	989	1600	396	315	400	313
CRN 45-5-1	30	989	1600	396	315	400	313
CRN 45-5	30	989	1600	396	315	400	313
CRN 45-6-2	37	1069	1705	396	315	400	345
CRN 45-6-1	37	1069	1705	396	315	400	345
CRN 45-6	37	1069	1705	396	315	400	345
CRN 45-7-2	45	1149	1857	449	338	450	438
CRN 45-7-1	45	1149	1857	449	338	450	438
CRN 45-7	45	1149	1857	449	338	450	438

CR 64


CR 64
60 Hz
ISO 9906:2012 Grade 3B
p [MPa]
H [m]
-5-2
-4
-4-1
-4-2
-3
-3-1
-3-2
-2
-2-1
-2-2
-1
-1-1
Q [m³/h]
Q [l/s]
P2 [hp]
P2 [kW]
Eta [%]
Eta
P2 1/1
P2 2/3
p [kPa]
H [m]
NPSH [m]
QH 3500 rpm 1/1
QH 3500 rpm 2/3
NPSH
TM027326

Dimensional sketch

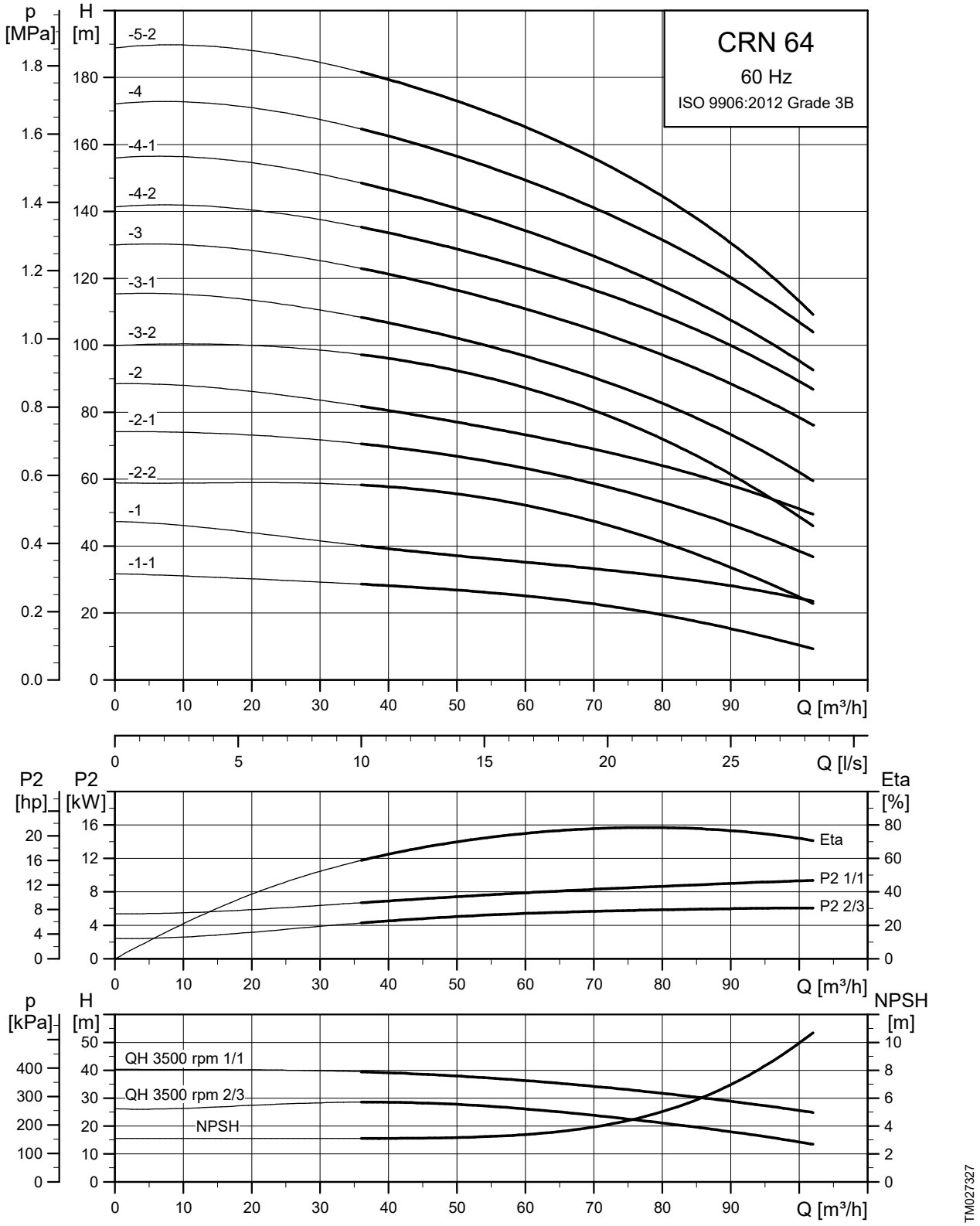


TM069606

Dimensions and weights

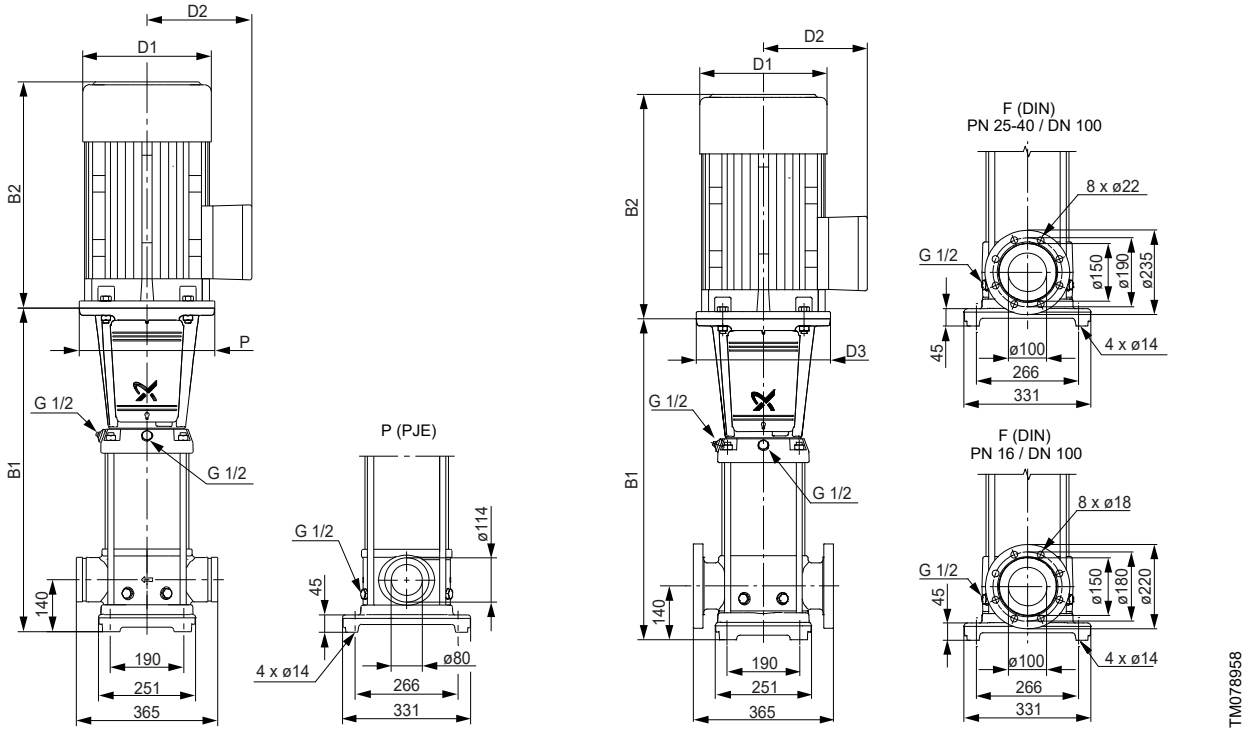
Pump type	Motor P_2 [kW]	CR					
		Dimension [mm]					Net weight [kg]
		B1	B1+B2	D1	D2	D3	
CR 64-1-1	7.5	561	940	260	159	300	113
CR 64-1	11	671	1153	318	204	350	158
CR 64-2-2	15	754	1236	318	204	350	174
CR 64-2-1	18.5	754	1280	318	204	350	187
CR 64-2	22	754	1306	318	204	350	202
CR 64-3-2	22	836	1388	318	204	350	206
CR 64-3-1	30	836	1447	396	315	400	309
CR 64-3	30	836	1447	396	315	400	309
CR 64-4-2	37	919	1555	396	315	400	340
CR 64-4-1	37	919	1555	396	315	400	340
CR 64-4	45	919	1627	449	338	450	429
CR 64-5-2	45	1001	1709	449	338	450	434

CRN 64



TM027327

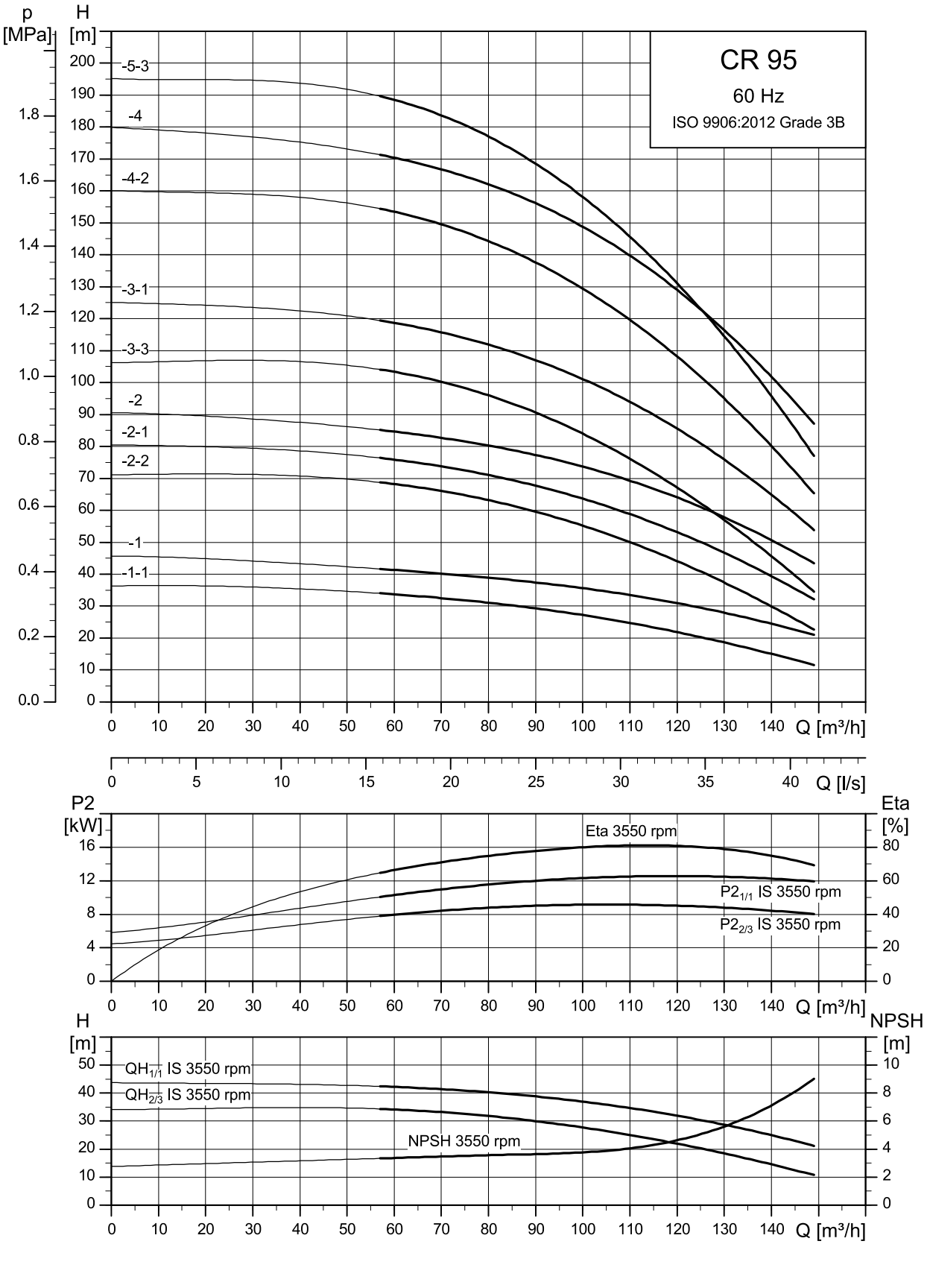
Dimensional sketch



Dimensions and weights

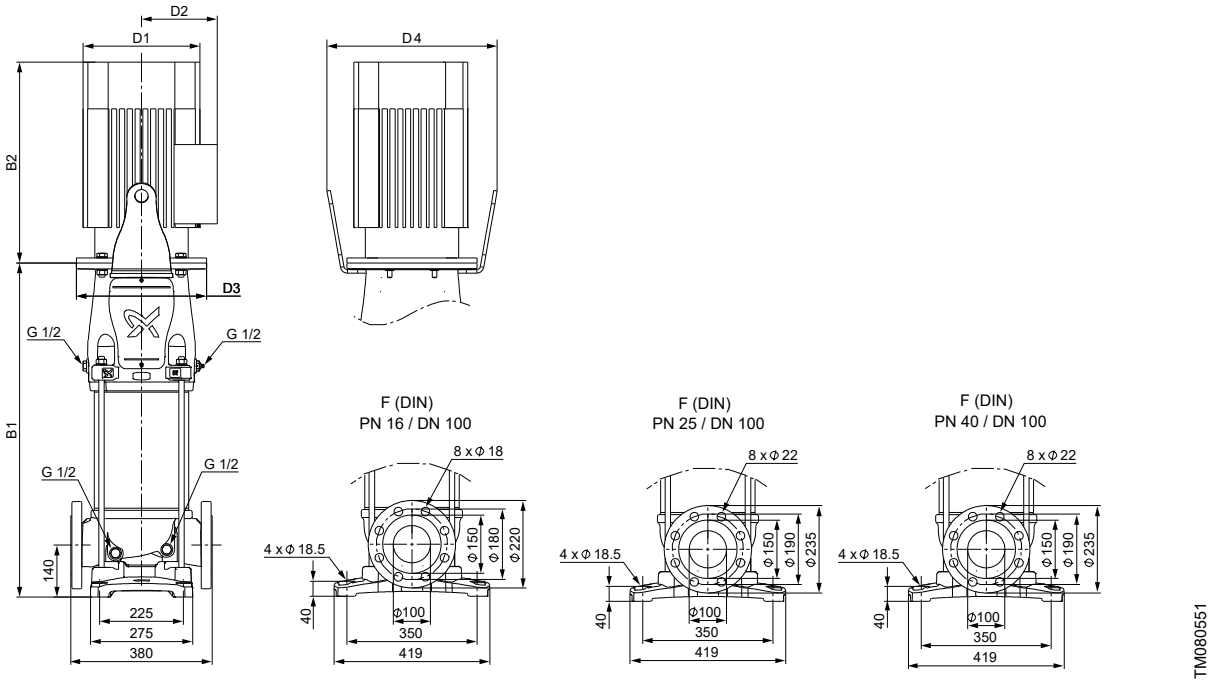
Pump type	Motor P_2 [kW]	Dimension [mm]					Net weight [kg]
		B1	B1+B2	D1	D2	D3	
CRN 64-1-1	7.5	561	940	260	159	300	113
CRN 64-1	11	671	1153	318	204	350	158
CRN 64-2-2	15	754	1236	318	204	350	174
CRN 64-2-1	18.5	754	1280	318	204	350	187
CRN 64-2	22	754	1306	318	204	350	202
CRN 64-3-2	22	836	1388	318	204	350	206
CRN 64-3-1	30	836	1447	396	315	400	309
CRN 64-3	30	836	1447	396	315	400	309
CRN 64-4-2	37	919	1555	396	315	400	341
CRN 64-4-1	37	919	1555	396	315	400	341
CRN 64-4	45	919	1627	449	338	450	430
CRN 64-5-2	45	1001	1709	449	338	450	435

CR 95



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

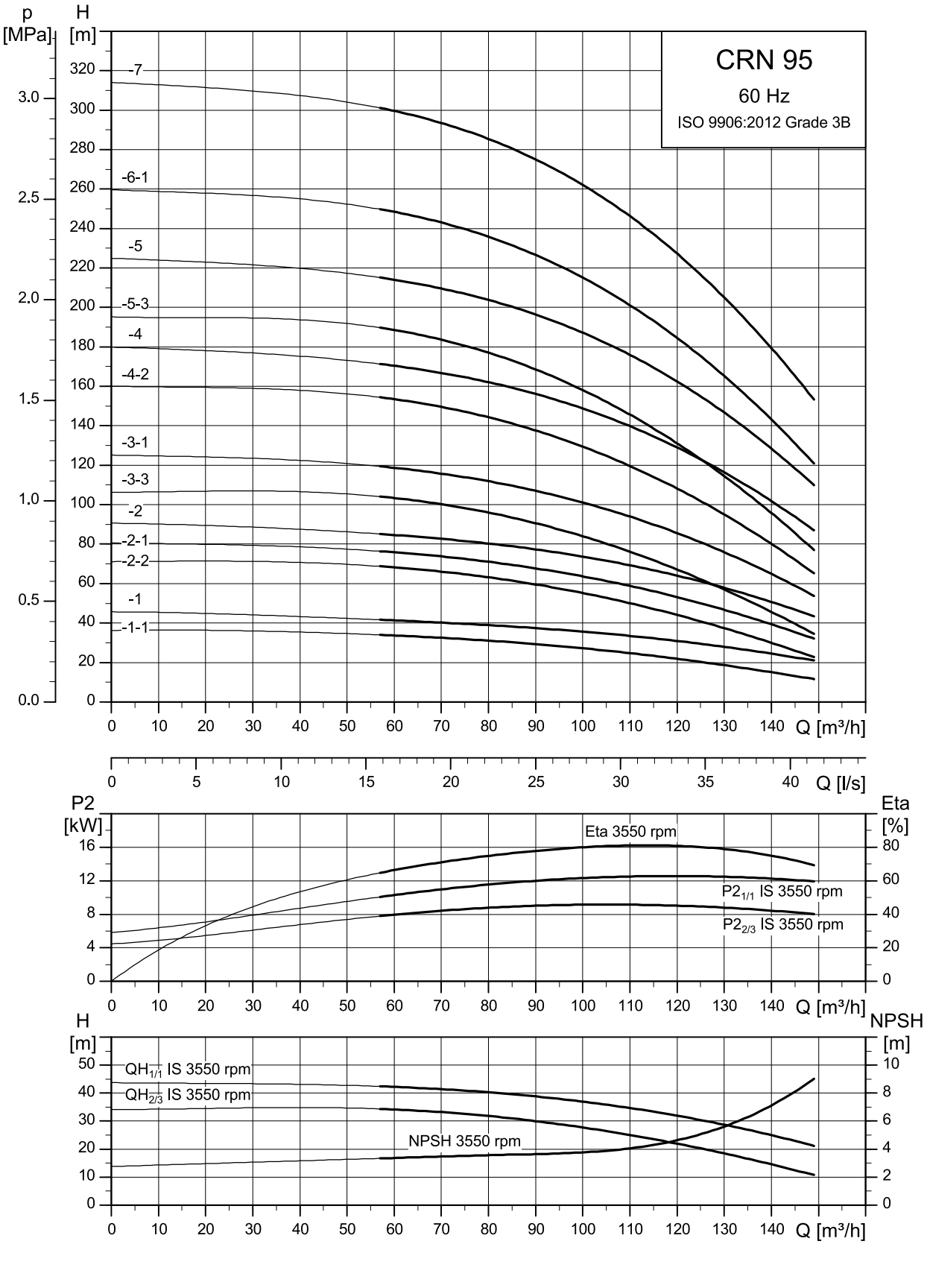
Dimensional sketch



Dimensions and weights

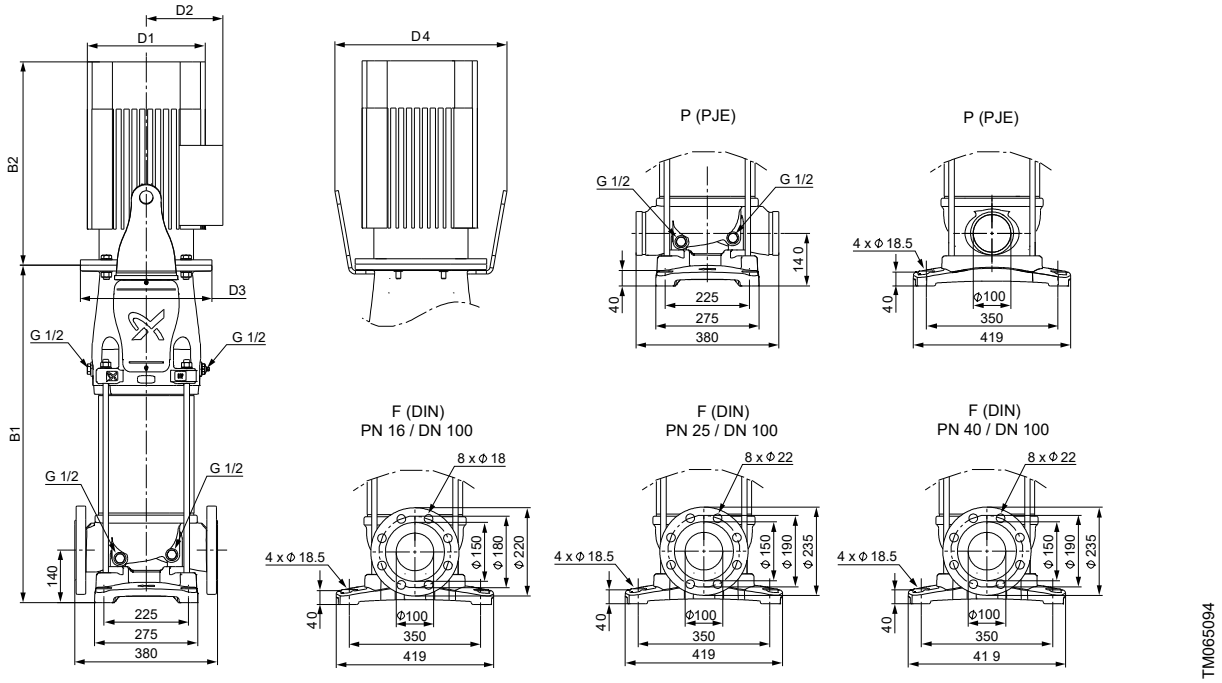
Pump type	Motor P_2 [kW]	CR						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CR 95-1-1	11	691	1173	318	204	350	-	188
CR 95-1	15	691	1173	318	204	350	-	200
CR 95-2-2	18.5	795	1321	318	204	350	-	218
CR 95-2-1	22	795	1347	318	204	350	-	233
CR 95-2	30	800	1411	396	315	400	532	337
CR 95-3-3	30	905	1516	396	315	400	532	343
CR 95-3-1	37	905	1541	396	315	400	532	368
CR 95-4-2	45	1029	1737	449	338	450	573	467
CR 95-4	55	1028	1775	497	410	550	732	581
CR 95-5-3	55	1133	1880	497	410	550	732	587

CRN 95



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

Dimensional sketch

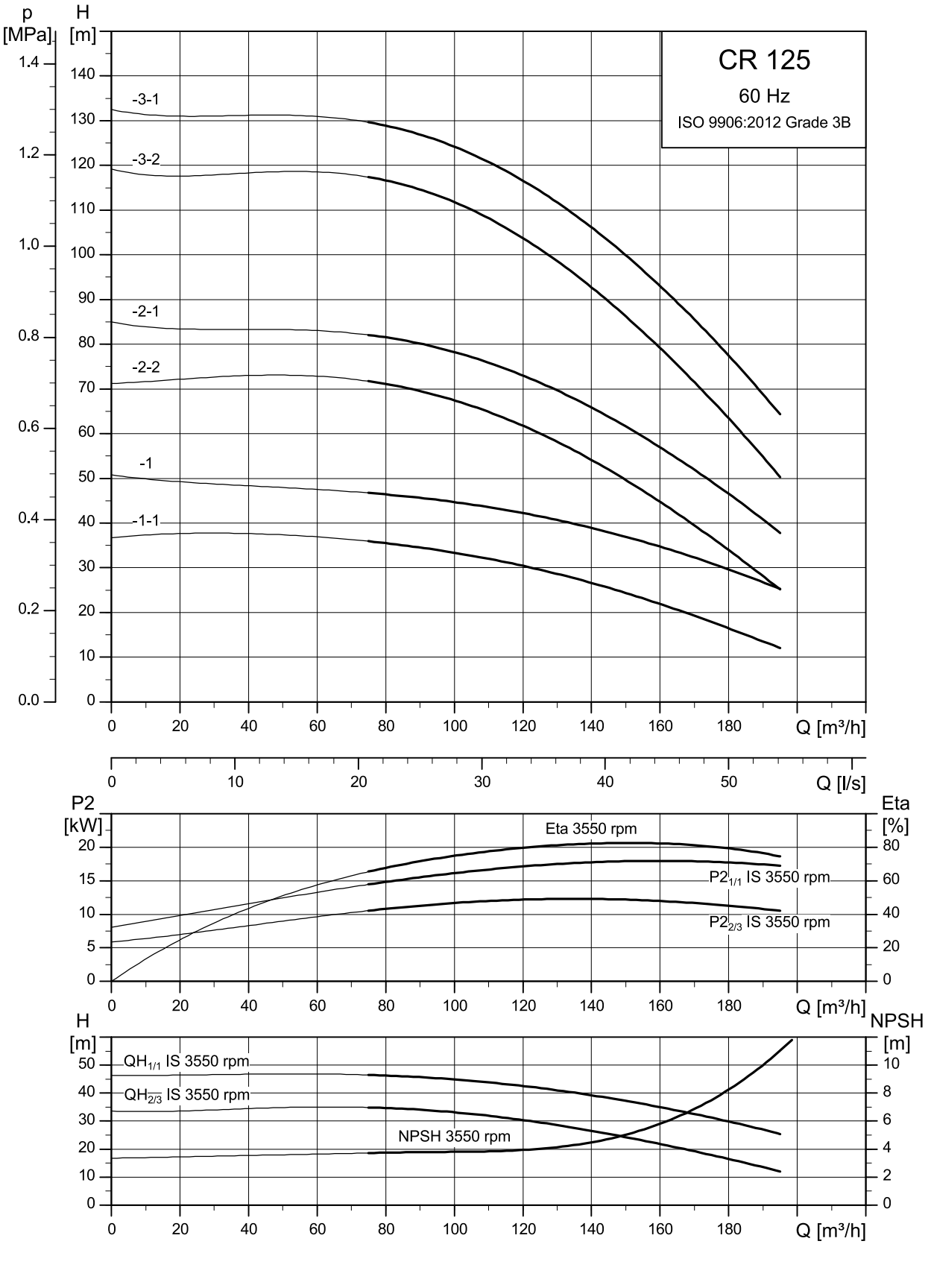


Dimensions and weights

Pump type	Motor P_2 [kW]	CRN						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 95-1-1	11	691	1173	318	204	350	-	188
CRN 95-1	15	691	1173	318	204	350	-	200
CRN 95-2-2	18.5	795	1321	318	204	350	-	218
CRN 95-2-1	22	795	1347	318	204	350	-	233
CRN 95-2	30	800	1411	396	315	400	532	337
CRN 95-3-3	30	905	1516	396	315	400	532	343
CRN 95-3-1	37	905	1541	396	315	400	532	368
CRN 95-4-2	45	1029	1737	449	338	450	573	467
CRN 95-4	55	1028	1775	497	410	550	732	581
CRN 95-5-3	55	1133	1880	497	410	550	732	587
CRN 95-5*	75	1133	1953	551	433	550	732	701
CRN 95-6-1*	75	1237	2057	551	433	550	732	707
CRN 95-7*	90	1342	2272	551	433	550	732	793

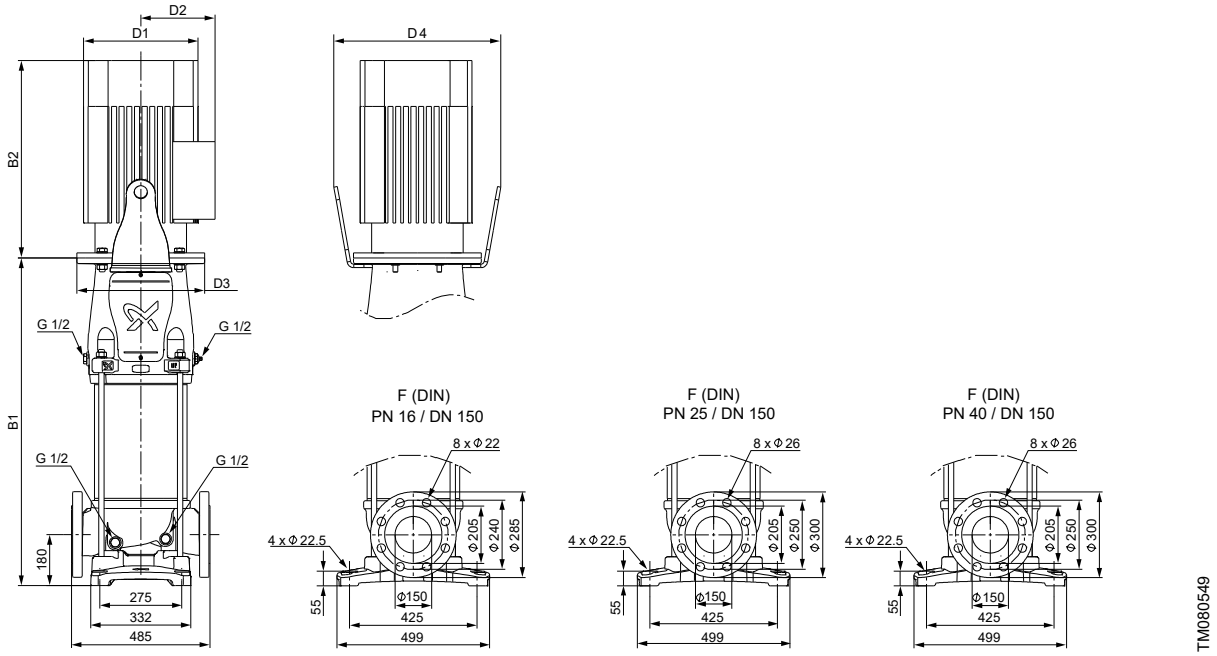
* Only to be used with soft starter or frequency converter.

CR 125



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

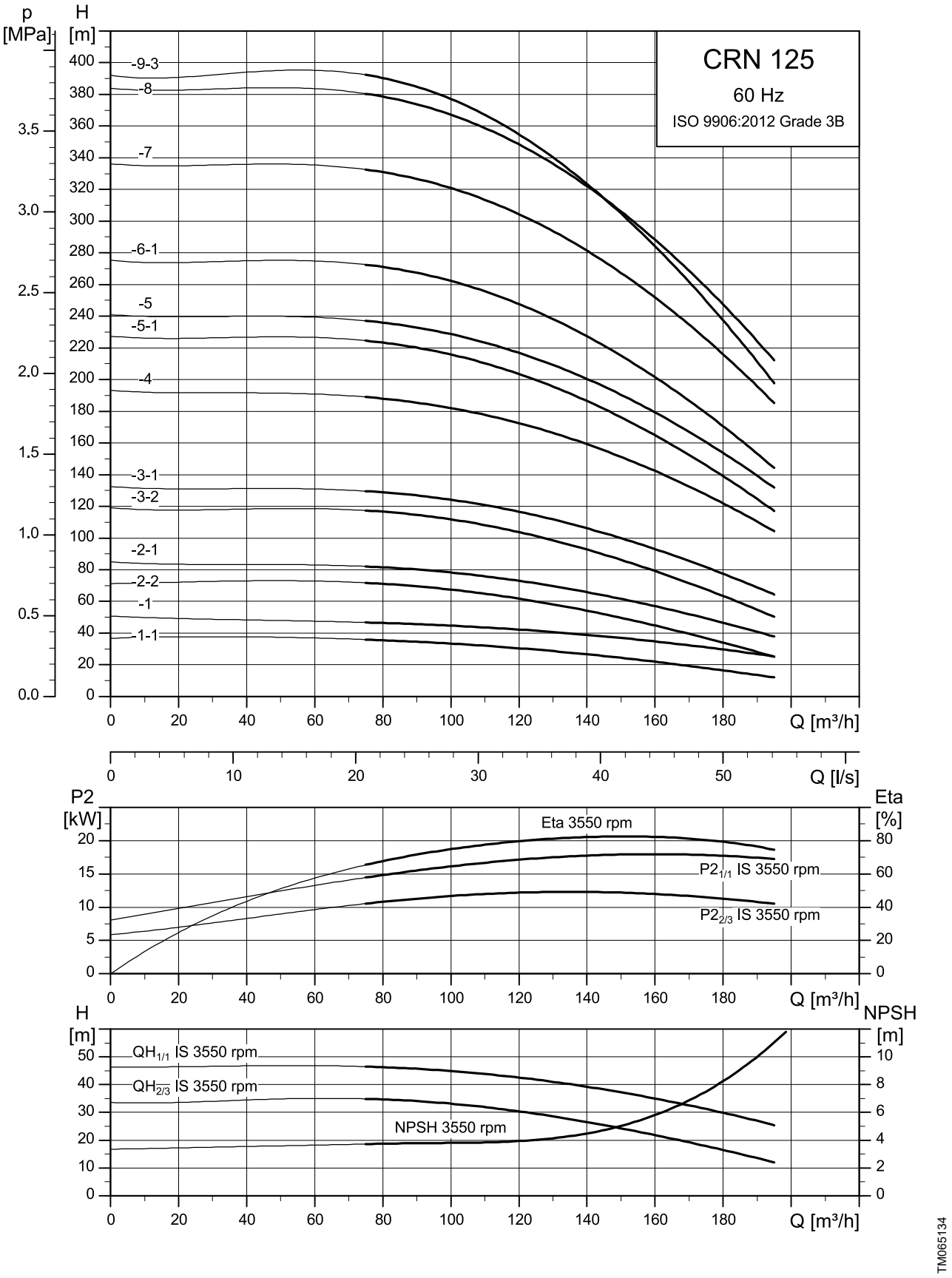
Dimensional sketch



Dimensions and weights

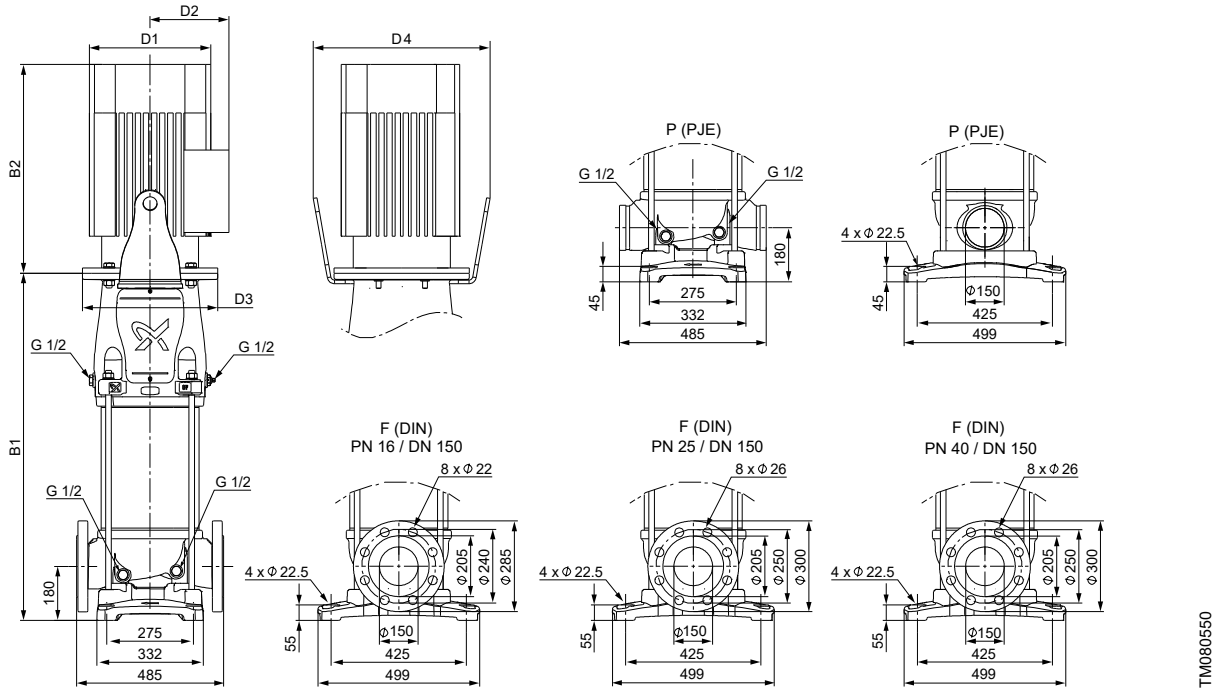
Pump type	Motor P_2 [kW]	CR						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CR 125-1-1	15	783	1265	318	204	350	-	245
CR 125-1	22	783	1335	318	204	350	-	273
CR 125-2-2	30	907	1518	396	315	400	492	386
CR 125-2-1	37	907	1543	396	315	400	492	411
CR 125-3-2	45	1052	1760	449	338	450	573	515
CR 125-3-1	55	1051	1798	497	410	550	732	625

CRN 125



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

Dimensional sketch

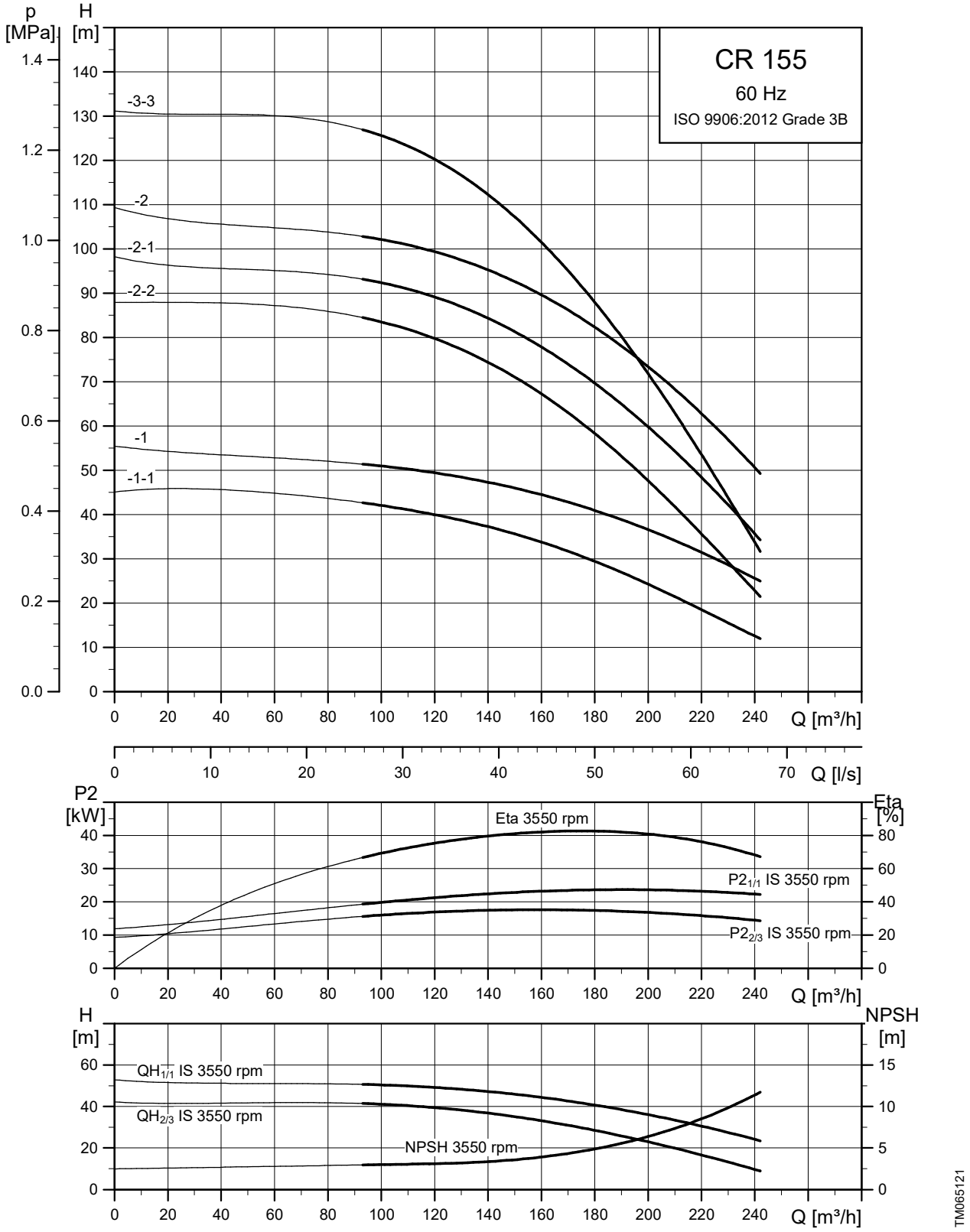


Dimensions and weights

Pump type	Motor P_2 [kW]	CRN						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 125-1-1	15	783	1265	318	204	350	-	245
CRN 125-1	22	783	1335	318	204	350	-	273
CRN 125-2-2	30	907	1518	396	315	400	492	386
CRN 125-2-1	37	907	1543	396	315	400	492	411
CRN 125-3-2	45	1052	1760	449	338	450	573	515
CRN 125-3-1	55	1051	1798	497	410	550	732	625
CRN 125-4	75	1173	1993	551	433	550	732	751
CRN 125-5-1	90	1295	2225	551	433	550	732	841
CRN 125-5	110	1325	2237	616	515	660	848	1034
CRN 125-6-1	110	1447	2359	616	515	660	848	1044
CRN 125-7 *	132	1569	2646	616	515	660	848	1184
CRN 125-8 *	160	1691	2768	616	515	660	848	1294
CRN 125-9-3 *	160	1813	2890	616	515	660	848	1305

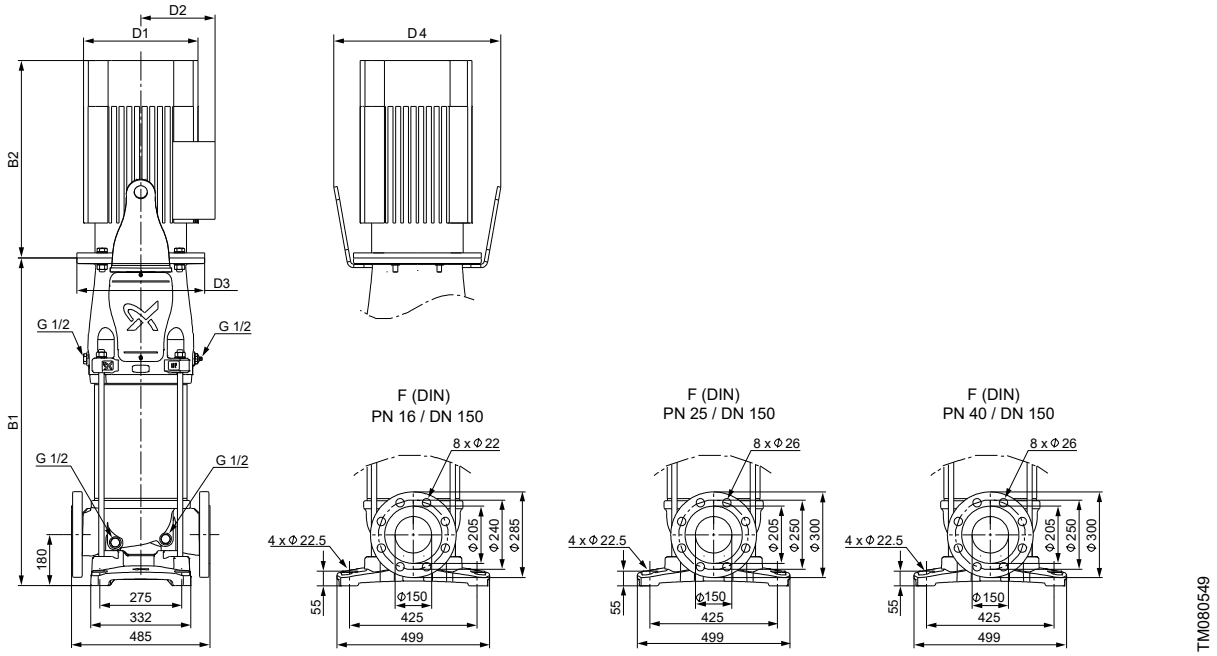
* Only to be used with soft starter or frequency converter.

CR 155



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

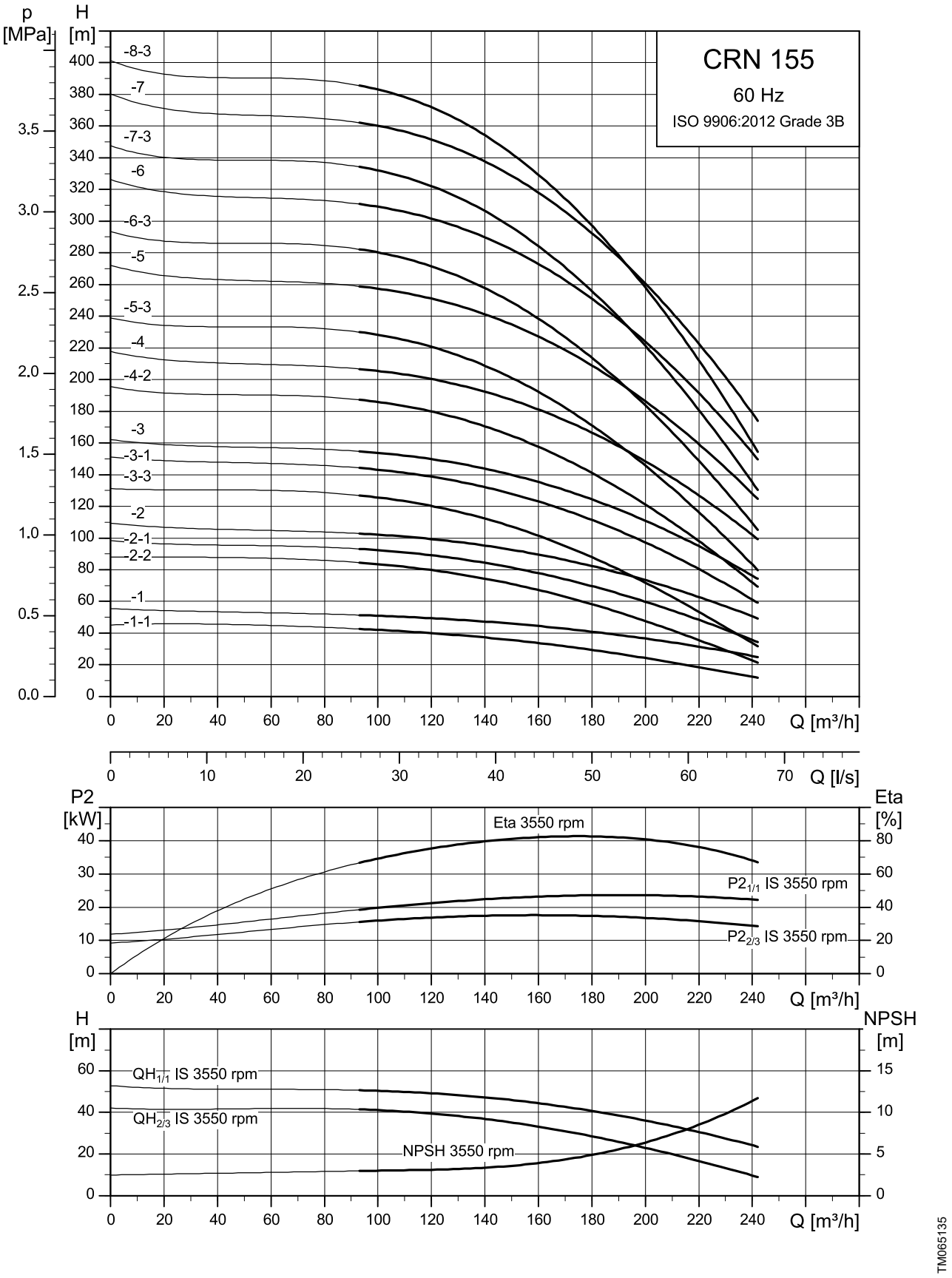
Dimensional sketch



Dimensions and weights

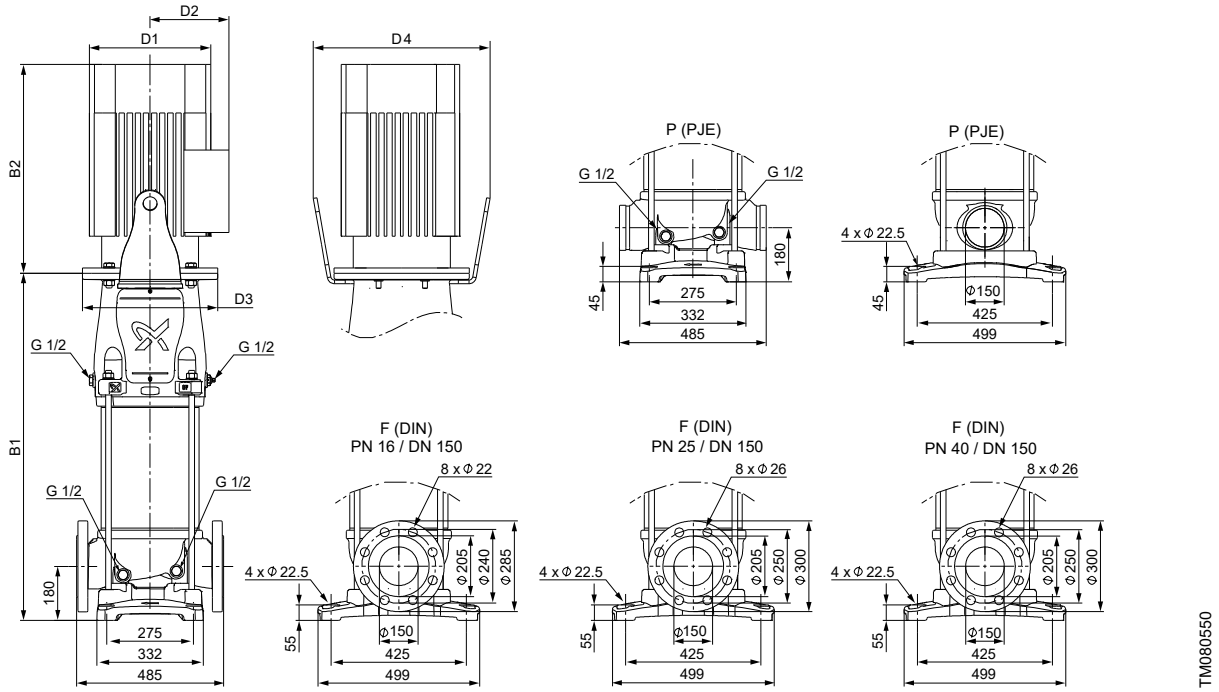
Pump type	Motor P_2 [kW]	CR						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CR 155-1-1	18.5	783	1309	318	204	350	-	258
CR 155-1	30	785	1396	396	315	400	492	376
CR 155-2-2	37	907	1543	396	315	400	492	412
CR 155-2-1	45	930	1638	449	338	450	573	506
CR 155-2	55	929	1676	497	410	550	732	616
CR 155-3-3	55	1051	1798	497	410	550	732	626

CRN 155



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

Dimensional sketch

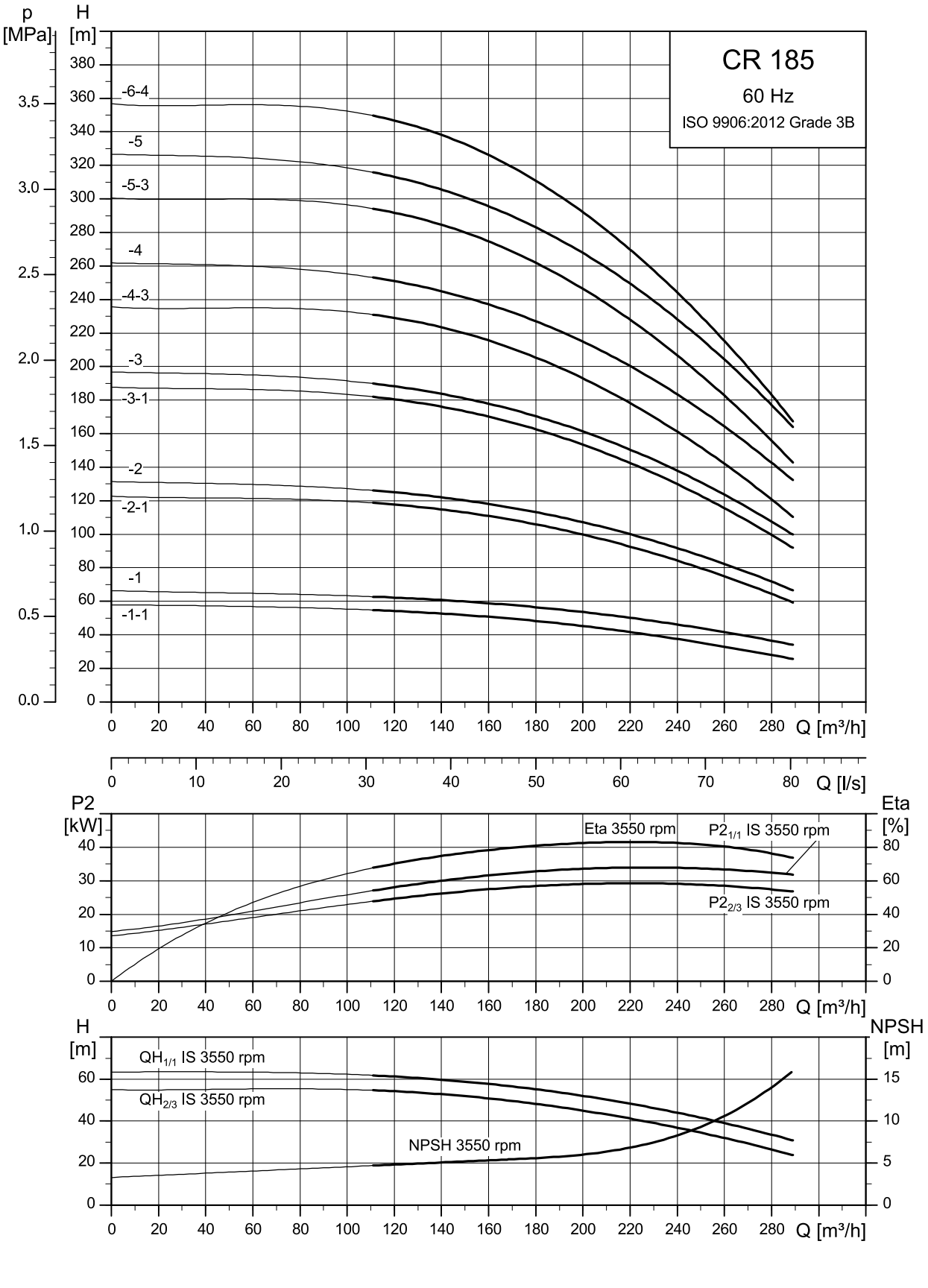


Dimensions and weights

Pump type	Motor P_2 [kW]	CRN						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 155-1-1	18.5	783	1309	318	204	350	-	258
CRN 155-1	30	785	1396	396	315	400	492	376
CRN 155-2-2	37	907	1543	396	315	400	492	412
CRN 155-2-1	45	930	1638	449	338	450	573	506
CRN 155-2	55	929	1676	497	410	550	732	616
CRN 155-3-3	55	1051	1798	497	410	550	732	626
CRN 155-3-1	75	1051	1871	551	433	550	732	740
CRN 155-3	90	1051	1981	551	433	550	732	822
CRN 155-4-2	90	1173	2103	551	433	550	732	833
CRN 155-4	110	1203	2115	616	515	660	848	1025
CRN 155-5-3	110	1325	2237	616	515	660	848	1036
CRN 155-5*	132	1325	2402	616	515	660	848	1166
CRN 155-6-3*	132	1447	2524	616	515	660	848	1177
CRN 155-6*	160	1447	2524	616	515	660	848	1177
CRN 155-7-3*	160	1569	2646	616	515	660	848	1288
CRN 155-7*	200	1569	2801	616	515	660	918	1470
CRN 155-8-3*	200	1691	2923	616	515	660	918	1481

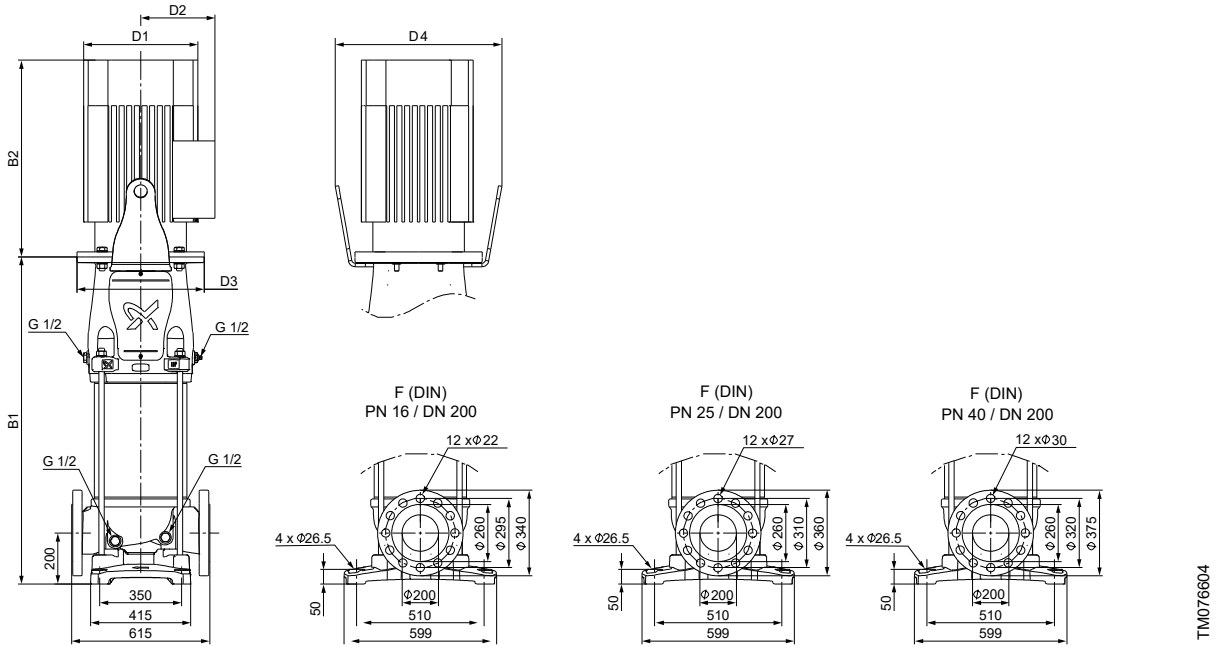
* Only to be used with soft starter or frequency converter.

CR 185



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

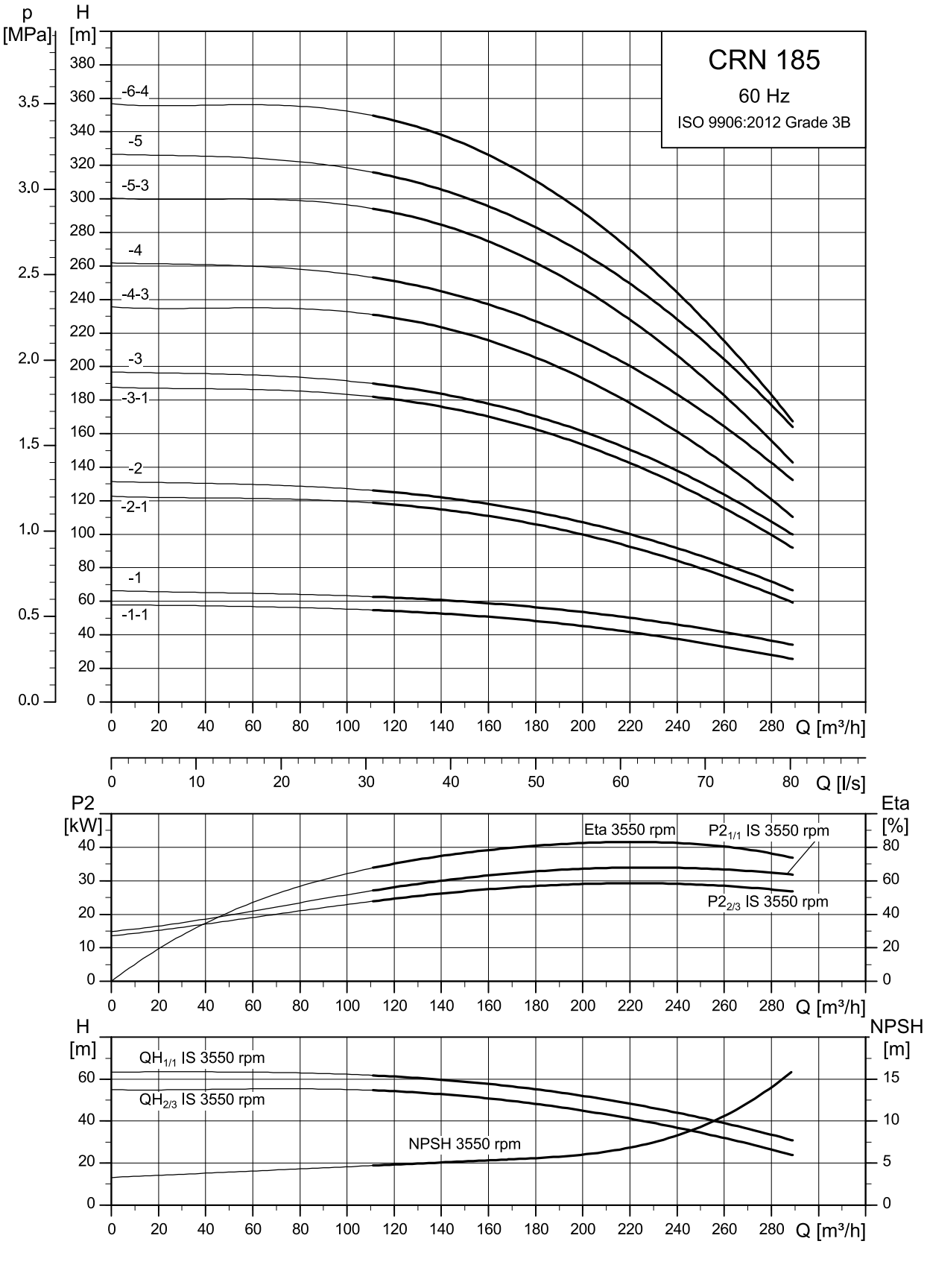
Dimensional sketch



Dimensions and weights

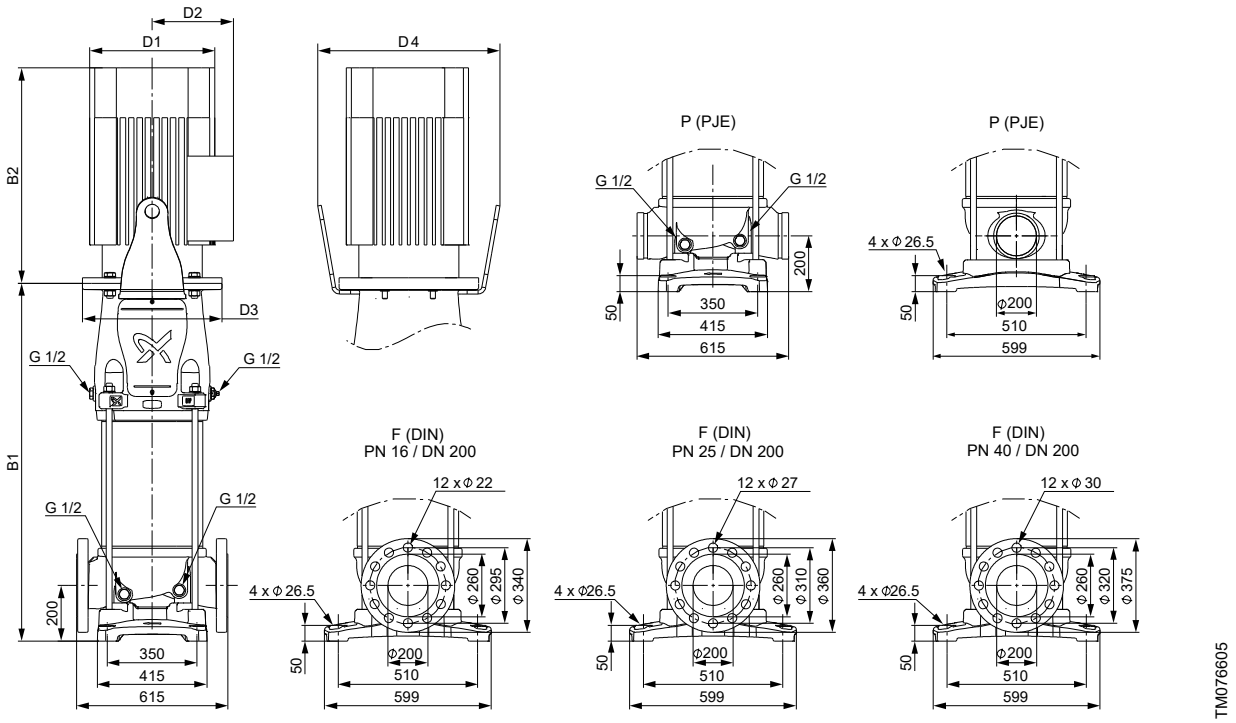
Pump type	Motor P_2 [kW]	CR						
		Dimension [mm]						Net weight
		B1	B1+B2	D1	D2	D3	D4	[kg]
CR 185-1-1	37	858	1494	396	315	400	492	487
CR 185-1	45	878	1586	449	338	450	573	581
CR 185-2-1	75	1012	1832	551	433	550	732	822
CR 185-2	90	1012	1942	551	433	550	732	902
CR 185-3-1	110	1164	2076	616	515	660	848	1106
CR 185-3	132	1164	2241	616	515	660	848	1236
CR 185-4-3	132	1292	2369	616	515	660	848	1251
CR 185-4	160	1292	2369	616	515	660	848	1334
CR 185-5-3	200	1420	2652	616	515	660	848	1519
CR 185-5	200	1420	2652	616	515	660	848	1519
CR 185-6-4	200	1548	2780	616	515	660	848	1533

CRN 185



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

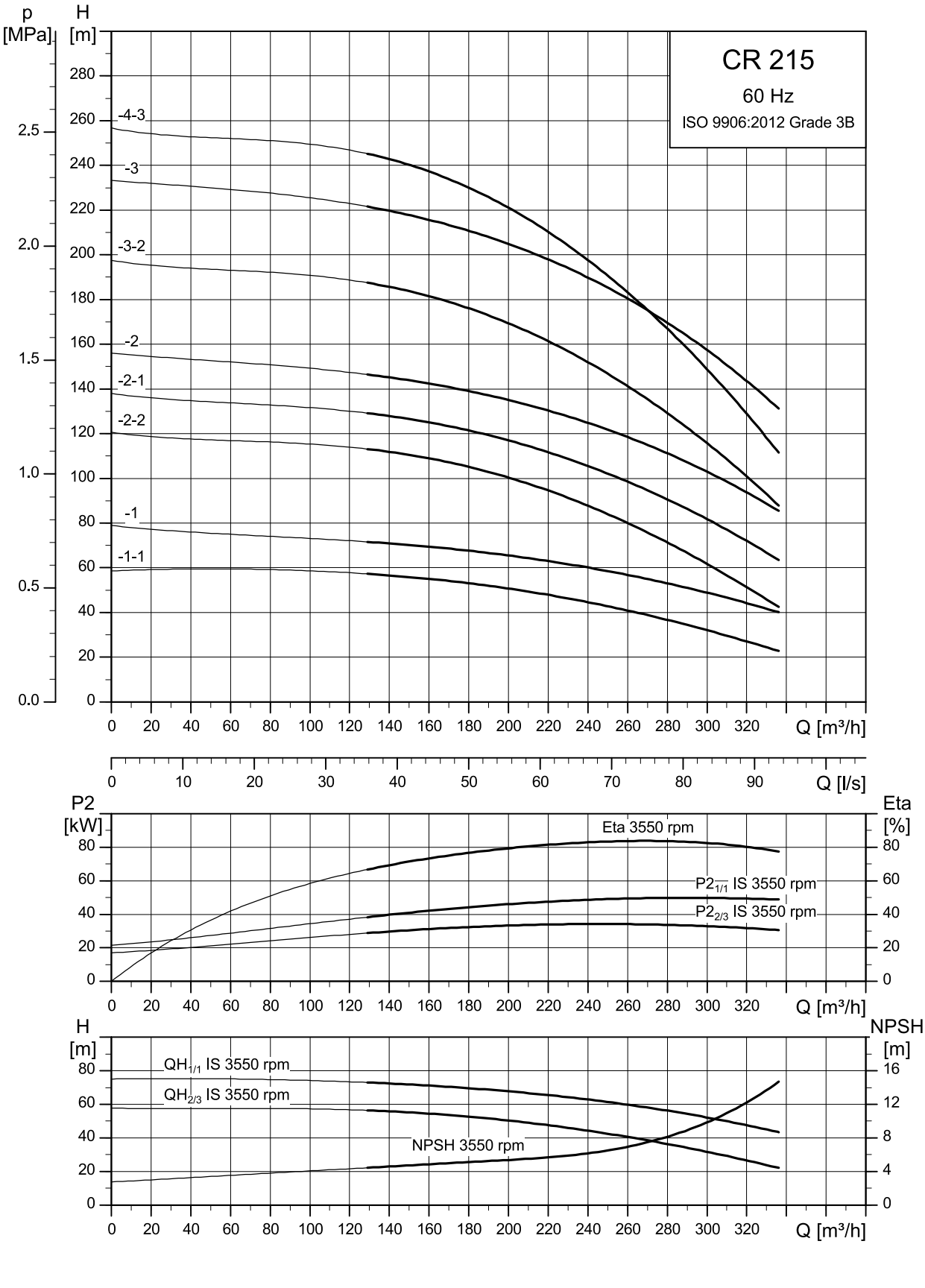
Dimensional sketch



Dimensions and weights

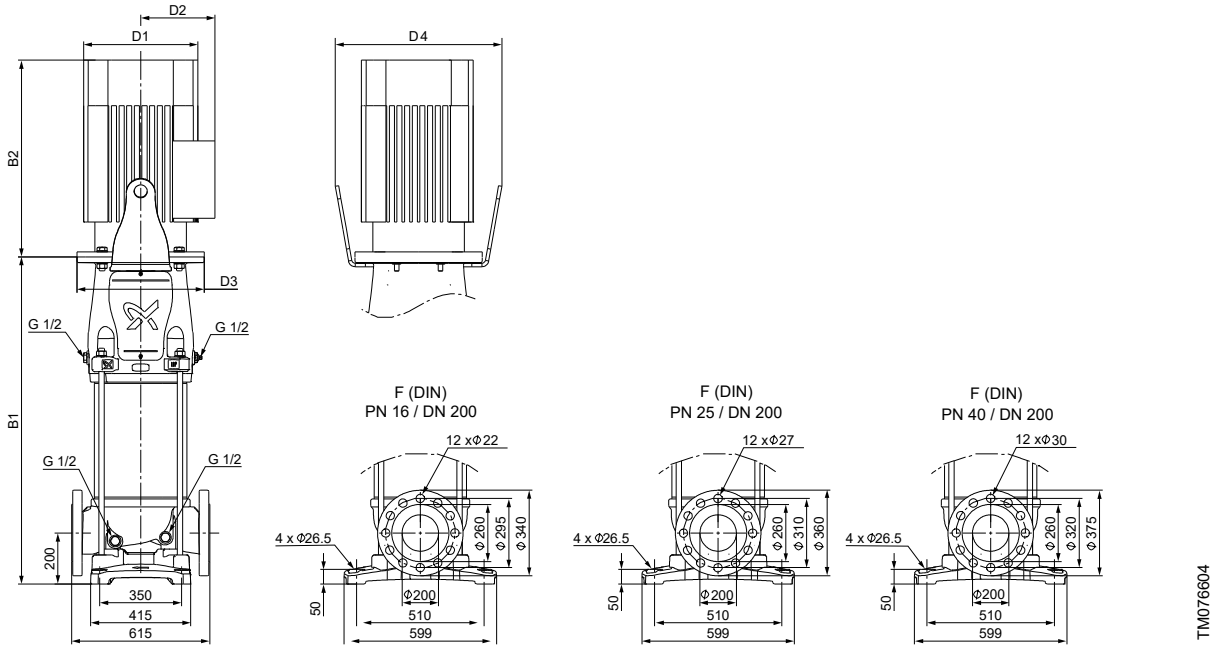
Pump type	Motor P_2 [kW]	CRN						
		Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 185-1-1	37	858	1494	396	315	400	492	487
CRN 185-1	45	878	1586	449	338	450	573	581
CRN 185-2-1	75	1012	1832	551	433	550	732	822
CRN 185-2	90	1012	1942	551	433	550	732	902
CRN 185-3-1	110	1164	2076	616	515	660	848	1106
CRN 185-3	132	1164	2241	616	515	660	848	1236
CRN 185-4-3	132	1292	2369	616	515	660	848	1251
CRN 185-4	160	1292	2369	616	515	660	848	1334
CRN 185-5-3	200	1420	2652	616	515	660	848	1519
CRN 185-5	200	1420	2652	616	515	660	848	1519
CRN 185-6-4	200	1548	2780	616	515	660	848	1533

CR 215



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

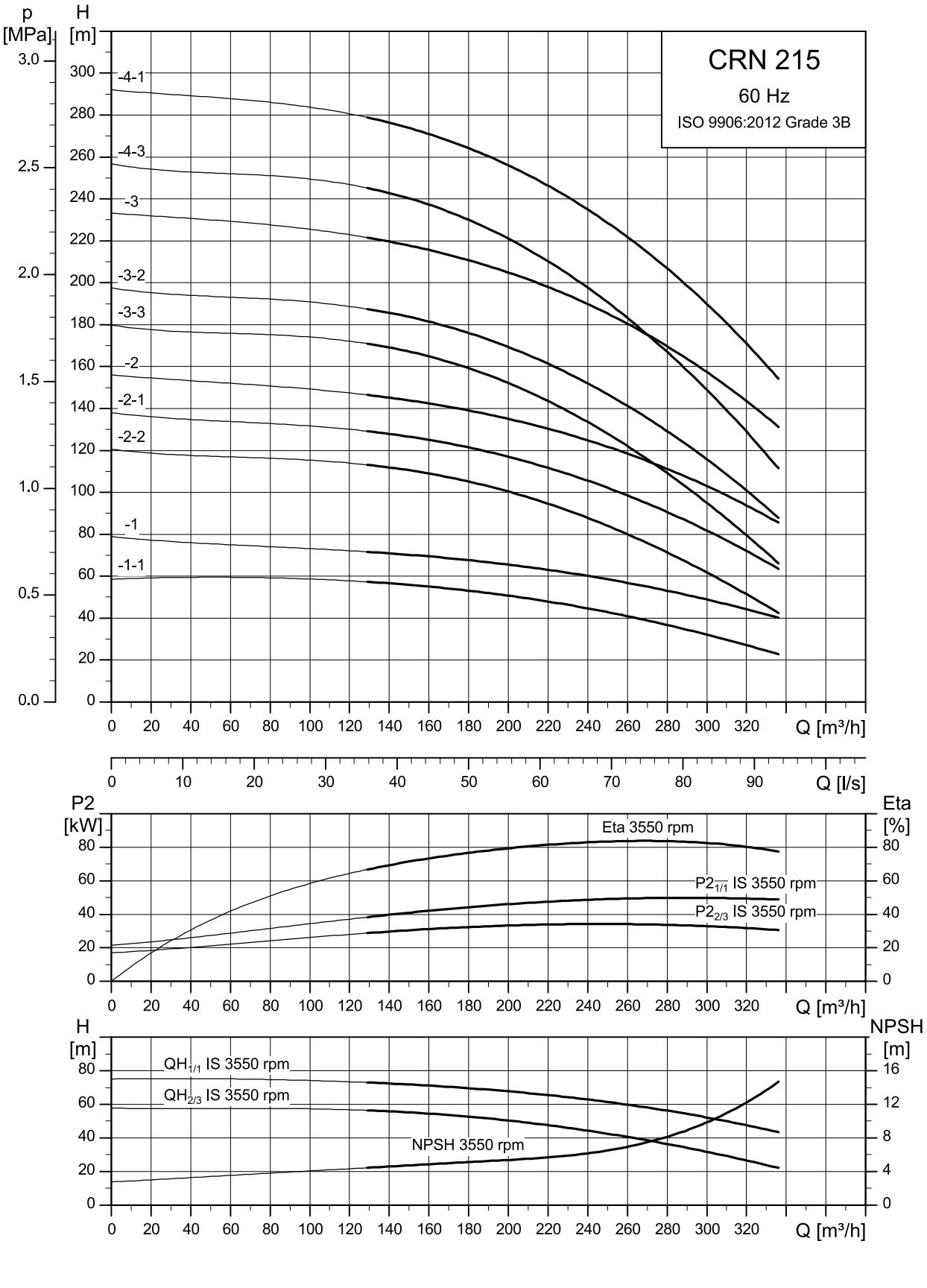
Dimensional sketch



Dimensions and weights

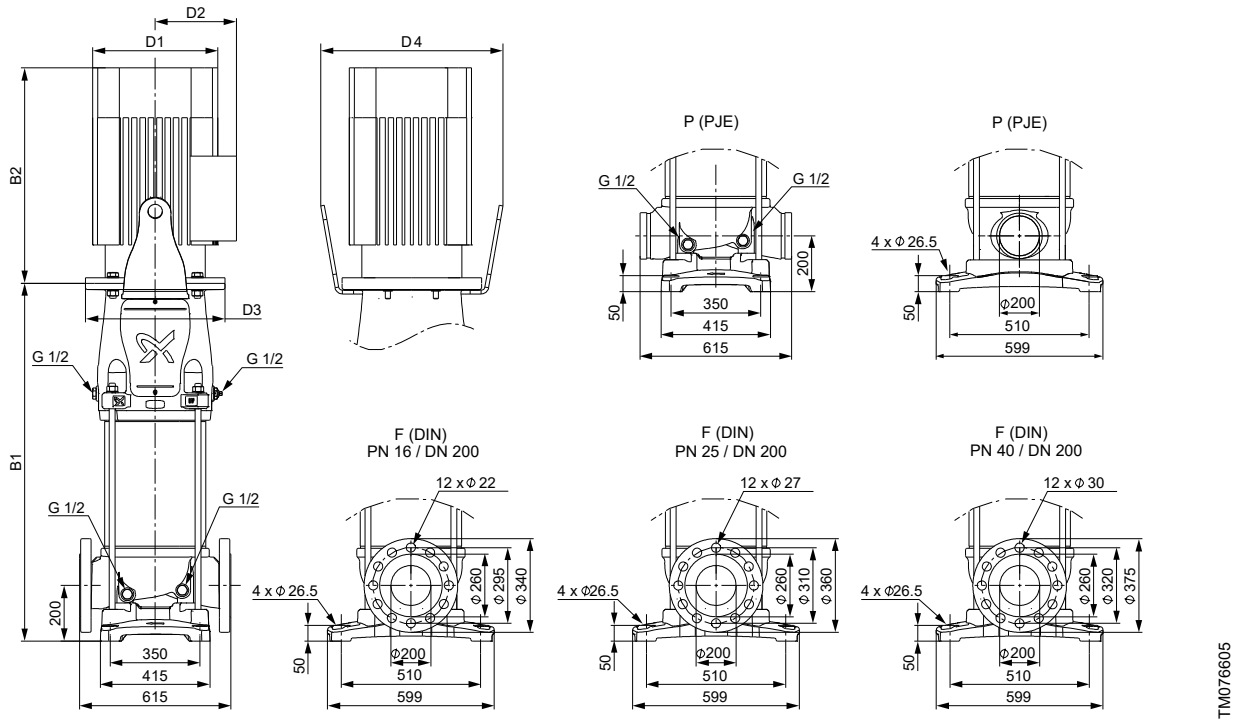
Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CR 215-1-1	45	878	1586	449	338	450	573	582
CR 215-1	55	884	1631	497	410	550	732	694
CR 215-2-2	75	1012	1832	551	433	550	732	823
CR 215-2-1	90	1012	1942	551	433	550	732	903
CR 215-2	110	1036	1948	616	515	660	848	1089
CR 215-3-3	110	1164	2076	616	515	660	848	1108
CR 215-3-2	132	1164	2241	616	515	660	848	1238
CR 215-3	160	1164	2241	616	515	660	848	1318
CR 215-4-3	160	1292	2369	616	515	660	848	1334
CR 215-4-1	200	1292	2524	616	515	660	918	1520

CRN 215



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

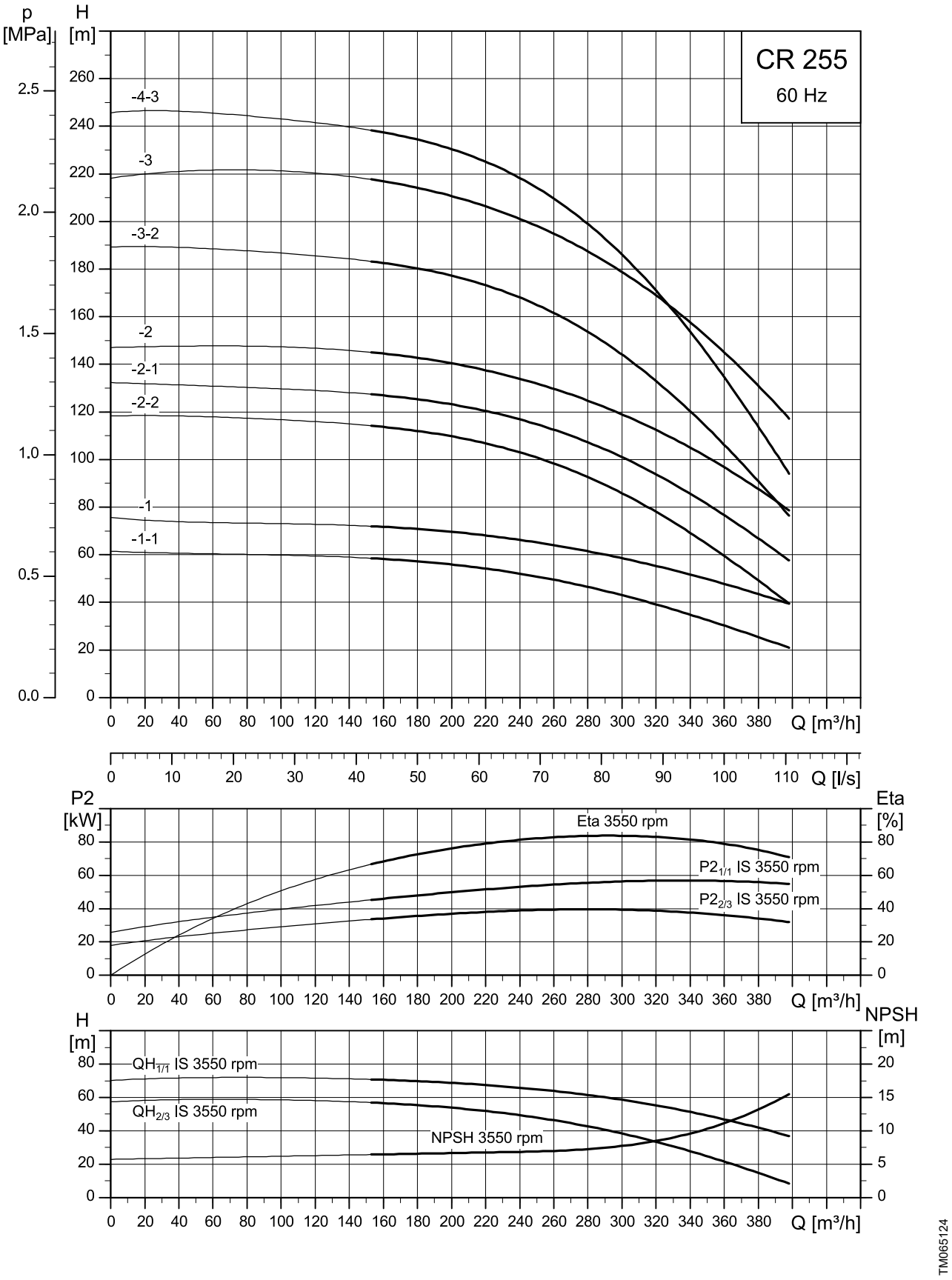
Dimensional sketch



Dimensions and weights

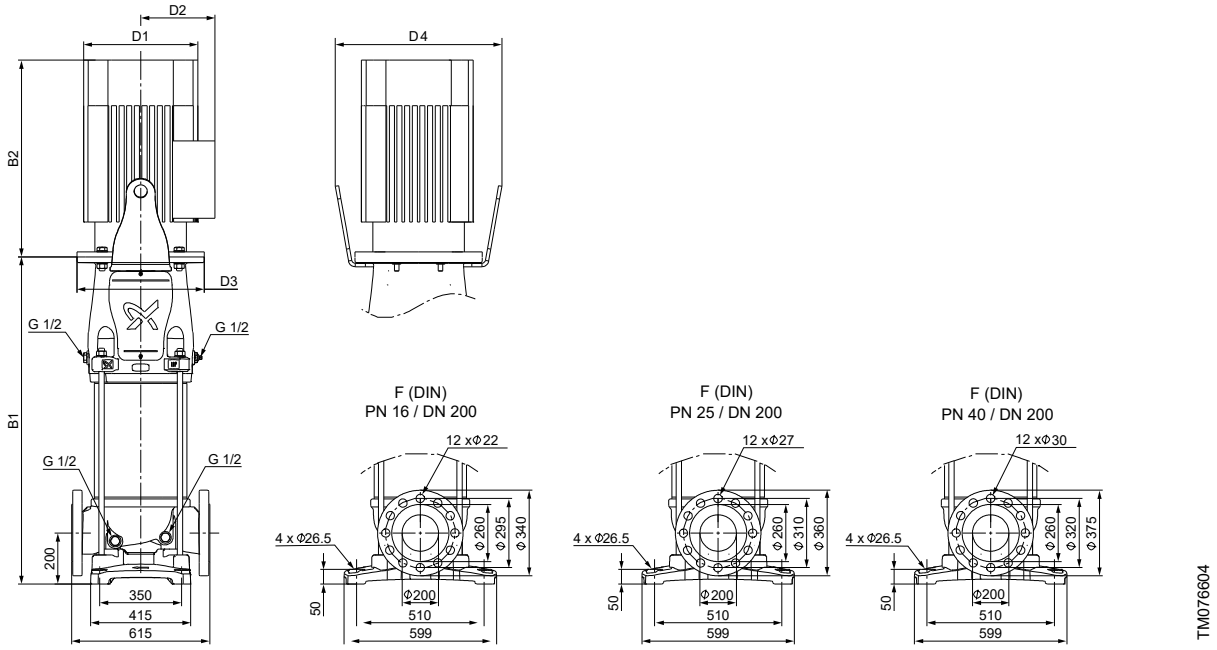
Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 215-1-1	45	878	1586	449	338	450	573	582
CRN 215-1	55	884	1631	497	410	550	732	694
CRN 215-2-2	75	1012	1832	551	433	550	732	823
CRN 215-2-1	90	1012	1942	551	433	550	732	903
CRN 215-2	110	1036	1948	616	515	660	848	1089
CRN 215-3-3	110	1164	2076	616	515	660	848	1108
CRN 215-3-2	132	1164	2241	616	515	660	848	1238
CRN 215-3	160	1164	2241	616	515	660	848	1318
CRN 215-4-3	160	1292	2369	616	515	660	848	1334
CRN 215-4-1	200	1292	2524	616	515	660	918	1520

CR 255



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

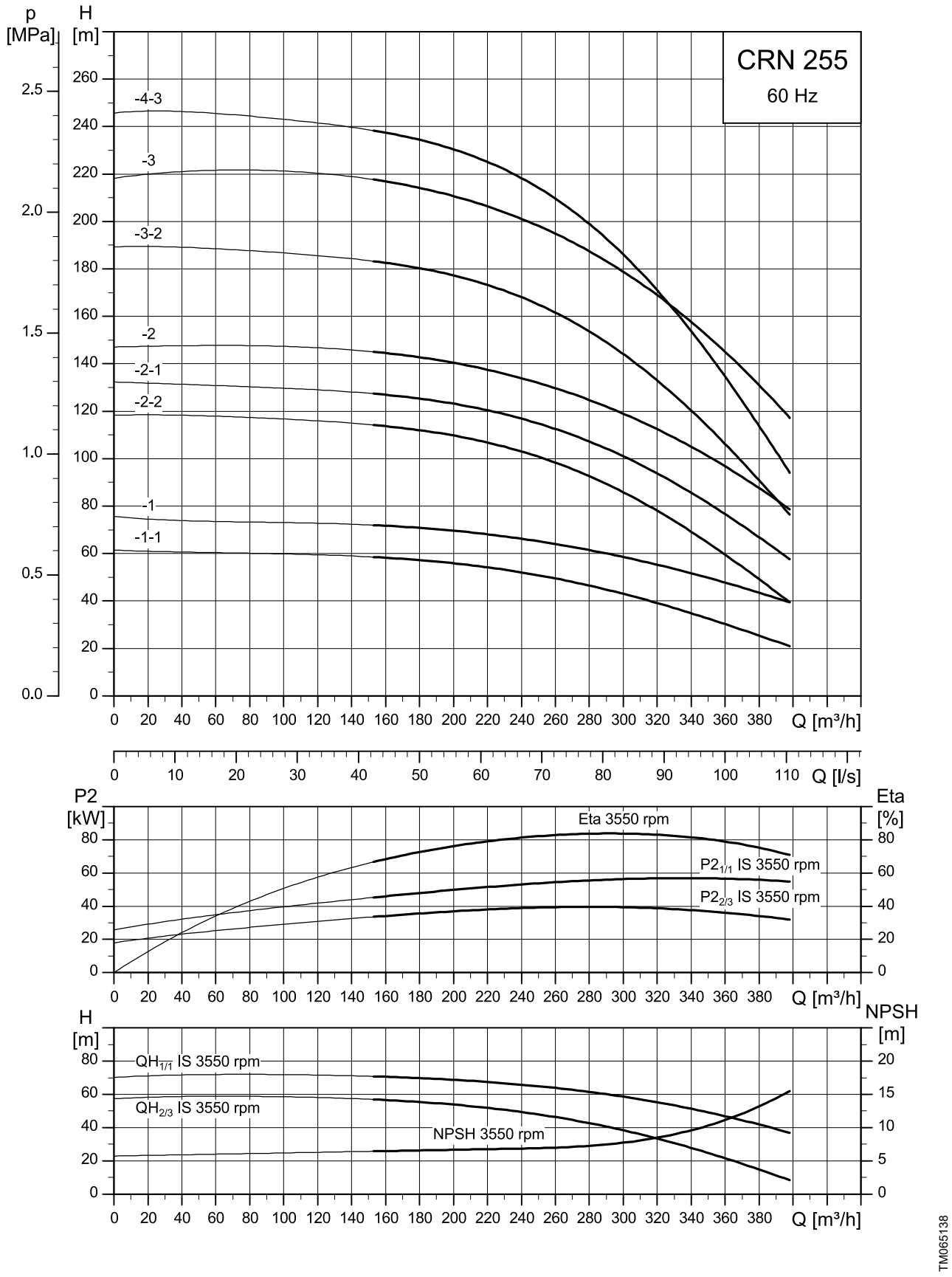
Dimensional sketch



Dimensions and weights

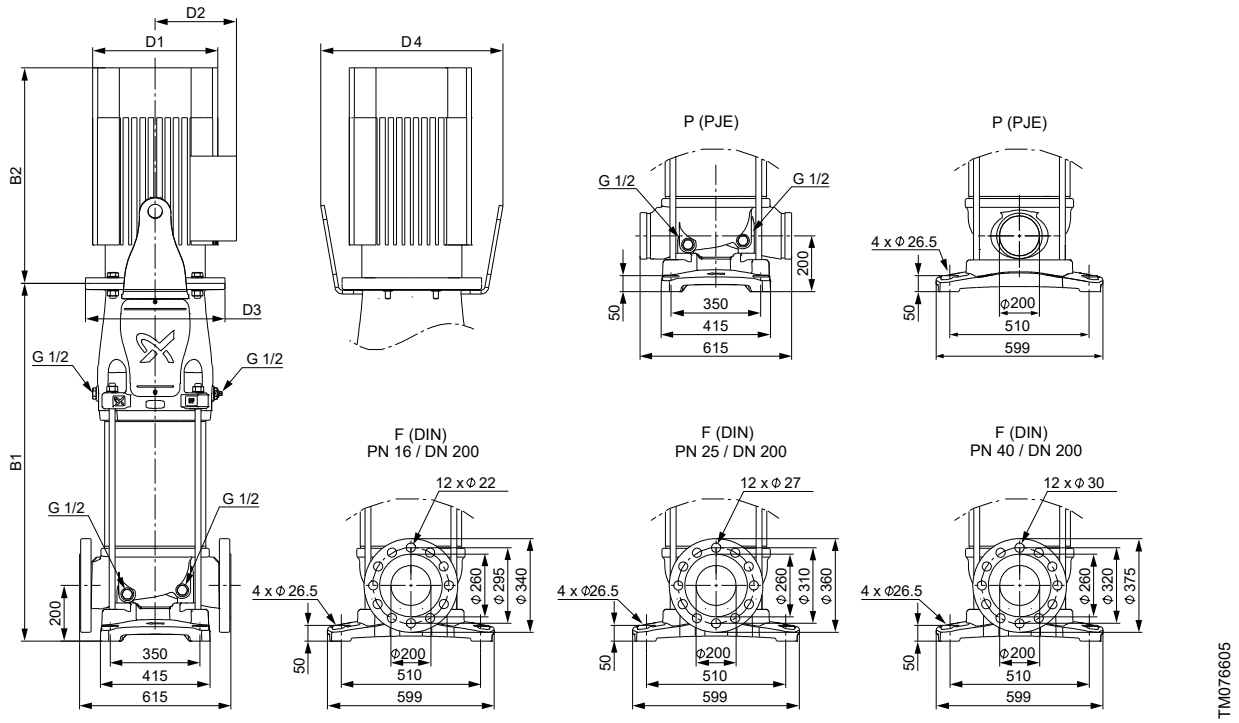
Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CR 255-1-1	55	884	1631	497	410	550	732	694
CR 255-1	75	884	1704	551	433	550	732	808
CR 255-2-2	90	1012	1942	551	433	550	732	1089
CR 255-2-1	110	1036	1948	616	515	660	848	1089
CR 255-2	132	1036	2113	616	515	660	848	1223
CR 255-3-2	160	1164	2241	616	515	660	848	1318
CR 255-3	200	1164	2396	616	515	660	918	1501
CR 255-4-3	200	1292	2524	616	515	660	918	1520

CRN 255



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

Dimensional sketch



Dimensions and weights

Pump type	Motor P_2 [kW]	Dimension [mm]						Net weight [kg]
		B1	B1+B2	D1	D2	D3	D4	
CRN 255-1-1	55	884	1631	497	410	550	732	694
CRN 255-1	75	884	1704	551	433	550	732	808
CRN 255-2-2	90	1012	1942	551	433	550	732	1089
CRN 255-2-1	110	1036	1948	616	515	660	848	1089
CRN 255-2	132	1036	2113	616	515	660	848	1223
CRN 255-3-2	160	1164	2241	616	515	660	848	1318
CRN 255-3	200	1164	2396	616	515	660	918	1501
CRN 255-4-3	200	1292	2524	616	515	660	918	1520

11. Motor data

2-pole motors for CR, CRI, CRN, 60 Hz

MG

TM031711

Motor P2 [kW]	Frame size	Standard voltage [V]	Full-load current $I_{1/1}$ [A]	Power factor Cos $\varphi_{1/1}$	Efficiency class	Motor eff. η [%]	Starting current I_{start} [%]	Speed [rpm]
0.37	71A	220-255Δ/380-440Y	1.50 - 1.44 / 0.87 - 0.83	0.85 - 0.76	IE3	73.4	550-650	3410-3470
0.55	71B	220-255Δ/380-440Y	2.15 - 2.05 / 1.25 - 1.20	0.85 - 0.76	IE3	76.8	500-600	3390-3460
0.75	80A	220-255Δ/380-440Y	2.95 - 2.75 / 1.70 - 1.60	0.86 - 0.77	IE3	77.0	600-740	3410-3470
1.1	80C	230-255Δ/400-440Y	4.10 - 4.00 / 2.38 - 2.30	0.86 - 0.80	IE3	84.0 - 84.0	440-500	3430-3470
1.5	90SD	230-277Δ/400-480Y	5.30 - 5.00 / 3.05 - 2.90	0.85 - 0.75	IE3	85.5	780-980	3480-3530
2.2	90LE	400-480Δ	4.30 - 4.00	0.88 - 0.80	IE3	86.5	730-1050	3480-3530
3	100LC	400-480Δ	6.00 - 5.40	0.90 - 0.84	IE3	88.5 - 88.5	910-1100	3490-3530
4	112MC	380-480Δ	7.80 - 6.80	0.91 - 0.82	IE3	88.5	1000-1470	3510-3540
5.5	132SC	380-480Δ	10.6 - 9.30	0.90 - 0.80	IE3	89.5	1020-1480	3510-3550
7.5	132SB	400-480Δ/690Y	13.8 - 12 / 8.1	0.88 - 0.82	IE3	90.2 - 90.2	750-1050	3500-3530
11	160MB	400-480Δ/690Y	20.1 - 17.2 / 11.6	0.88 - 0.83	IE3	91.0 - 91.0	640-890	3530-3550
15	160MD	400-480Δ/690Y	26.9 - 22.4 / 15.6	0.89 - 0.86	IE3	91.0 - 91.0	640-890	3530-3550
18.5	160LB	400-480Δ/690Y	33.2 - 28 / 16.6	0.88 - 0.84	IE3	91.7 - 91.7	760-1100	3530-3560
22	180MB	380-480Δ/660-690Y	40 - 32.5 / 23 - 22.2	0.91	IE3	91.7	650	3520-3560

Siemens

TM031710

30*	200L	440-480Δ	47-29	0.87	IE3	92.4	850	3560
37*	200L	440-480Δ	57-35	0.88	IE3	93.0	760	3560
45*	225M	440-480Δ	69-43	0.88	IE3	93.6	760	3570
55*	250M	440-480Δ	83-52	0.89	IE3	93.6	730	3578
75*	280S	440-480Δ	112-70	0.89	IE3	94.1	760	3578
90*	280M	440-480Δ	132-84	0.90	IE3	95.0	810	3578
110*	315S	440-480Δ	160-101	0.91	IE3	95.0	800	3585
132*	315M	440-480Δ	191-121	0.91	IE3	95.4	800	3585
160	315L	400Δ	265	0.91	IE3	95.4	880	3588
200	315L	400Δ	330	0.92	IE3	95.8	830	3586

* Siemens motors operating at 440-480Δ voltage may be loaded with a service factor of 1.15.

12. List of pumped liquids

A number of typical liquids are listed below.

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

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

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

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

Take safety precautions when pumping dangerous liquids.

Notes

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

Pumped liquid	Chemical formula	Note	Liquid concentration, liquid temperature	CR	CRN
Acetic acid	CH_3COOH	-	5 %, 20 °C	-	HQQE
Acetone	CH_3COCH_3	1, F	100 %, 20 °C	-	HQQE
Alkaline degreasing agent		D, F	-	HQQE	-
Ammonium bicarbonate	NH_4HCO_3	E	20 %, 30 °C	-	HQQE
Ammonium hydroxide	NH_4OH	-	20 %, 40 °C	HQQE	-
Aviation fuel		1, 3, 4, F	100 %, 20 °C	HQBV	-
Benzoic acid	C_6H_5COOH	H	0.5 %, 20 °C	-	HQQV
Boiler water		-	< 120 °C	HQQE	-
		F	120-180 °C	-	-
Calcareous water		-	< 90 °C	HQQE	-
Calcium acetate (as coolant with inhibitor)	$Ca(CH_3COO)_2$	D, E	30 %, 50 °C	HQQE	-
Calcium hydroxide	$Ca(OH)_2$	E	Saturated solution, 50 °C	HQQE	-
Chloride-containing water		F	< 30 °C, maximum 500 ppm	-	HQQE
Chromic acid	H_2CrO_4	H	1 %, 20 °C	-	HQQV
Citric acid	$HOC(CH_2CO_2H)_2COOH$	H	5 %, 40 °C	-	HQQE
Completely desalinated water (demineralised water)		-	120 °C	-	HQQE
Condensate		-	120 °C	HQQE	-
Copper sulphate	$CuSO_4$	E	10 %, 50 °C	-	HQQE
Corn oil		D, E, 3	100 %, 80 °C	HQQV	-
Diesel oil		2, 3, 4, F	100 %, 20 °C	HQBV	-
Domestic hot water (potable water)		-	< 120 °C	HQQE	-
Ethanol (ethyl alcohol)	C_2H_5OH	1, F	100 %, 20 °C	HQQE	-
Ethylene glycol	$HOCH_2CH_2OH$	D, E	50 %, 50 °C	HQQE	-
Formic acid	$HCOOH$	-	5 %, 20 °C	-	HQQE
Glycerine (glycerol)	$OHCH_2CH(OH)CH_2OH$	D, E	50 %, 50 °C	HQQE	-
Hydraulic oil (mineral)		E, 2, 3	100 %, 100 °C	HQQV	-
Hydraulic oil (synthetic)		E, 2, 3	100 %, 100 °C	HQQV	-
Isopropyl alcohol	$CH_3CHOHCH_3$	1, F	100 %, 20 °C	HQQE	-
Lactic acid	$CH_3CH(OH)COOH$	E, H	10 %, 20 °C	-	HQQV
Linoleic acid	$C_{17}H_{31}COOH$	E, 3	100 %, 20 °C	HQQV	-
Methanol (methyl alcohol)	CH_3OH	1, F	100 %, 20 °C	HQQE	-
Motor oil		E, 2, 3	100 %, 80 °C	HQQV	-
Naphthalene	$C_{10}H_8$	E, H	100 %, 80 °C	HQQV	-
Nitric acid	HNO_3	F	1 %, 20 °C	-	HQQE
Oil-containing water		-	< 100 °C	HQQV	-

Pumped liquid	Chemical formula	Note	Liquid concentration, liquid temperature	CR	CRN
Olive oil		D, E, 3	100 %, 80 °C	HQQV	-
Oxalic acid	$(COOH)_2$	H	1 %, 20 °C	-	HQQE
Ozone-containing water	(O_3)	-	< 100 °C	-	HQQE
Peanut oil		D, E, 3	100 %, 80 °C	HQQV	-
Petrol		1, 3, 4, F	100 %, 20 °C	HQBV	-
Phosphoric acid	H_3PO_4	E	20 %, 20 °C	-	HQQE
Propanol	C_3H_7OH	1, F	100 %, 20 °C	HQQE	-
Propylene glycol	$CH_3CH(OH)CH_2OH$	D, E	50 %, 90 °C	HQQE	-
Potassium carbonate	K_2CO_3	E	20 %, 50 °C	HQQE	-
Potassium formate (as coolant with inhibitor)	KOOCH	D, E	30 %, 50 °C	HQQE	-
Potassium hydroxide	KOH	E	20 %, 50 °C	-	HQQE
Potassium permanganate	$KMnO_4$	-	5 %, 20 °C	-	HQQE
Rape seed oil		D, E, 3	100 %, 80 °C	HQQV	-
Salicylic acid	$C_6H_4(OH)COOH$	H	0.1 %, 20 °C	-	HQQE
Silicone oil		E, 3	100 %	HQQV	-
Sodium bicarbonate	$NaHCO_3$	E	10 %, 60 °C	-	HQQE
Sodium chloride (as coolant)	NaCl	D, E	30 %, < 5 °C, pH > 8	HQQE	-
Sodium hydroxide	NaOH	E	20 %, 50 °C	-	HQQE
Sodium hypochlorite	NaOCl	F	0.1 %, 20 °C	-	HQQV
Sodium nitrate	$NaNO_3$	E	10 %, 60 °C	-	HQQE
Sodium phosphate	Na_3PO_4	E, H	10 %, 60 °C	-	HQQE
Sodium sulphate	Na_2SO_4	E, H	10 %, 60 °C	-	HQQE
Softened water		-	< 120 °C	-	HQQE
Soya oil		D, E, 3	100 %, 80 °C	HQQV	-
Sulphuric acid	H_2SO_4	F	1 %, 20 °C	-	HQQV
Sulphurous acid	H_2SO_3	-	1 %, 20 °C	-	HQQE
Unsalted swimming-pool water		-	Approx. 2 ppm free chlorine (Cl_2)	HQQE	-

Related information

Pumped liquids

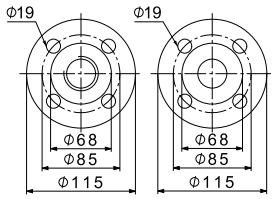
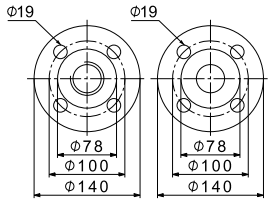
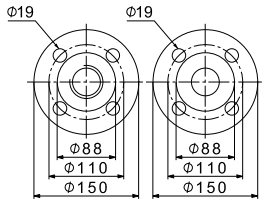
13. Accessories

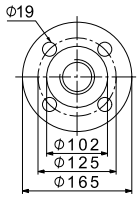
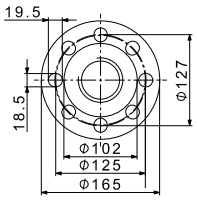
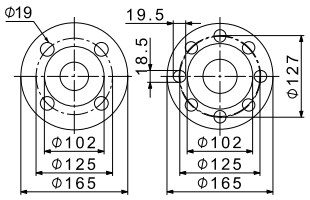
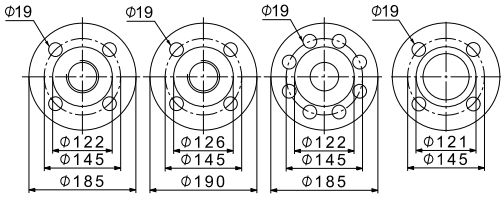
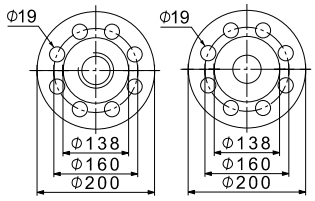
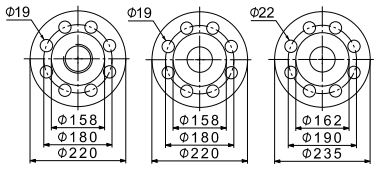
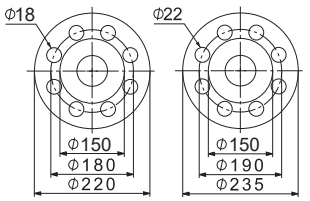
Pipe connection

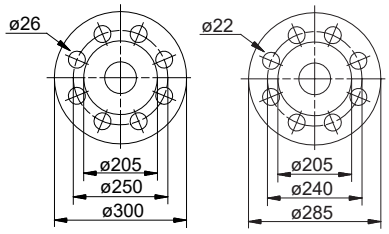
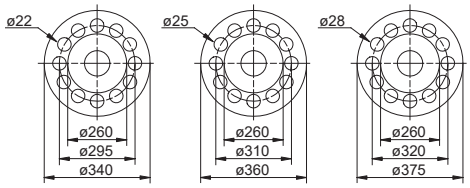
Various sets of counterflanges and couplings are available for pipe connection.

Counterflanges for CR

A set consists of one counterflange, one gasket, bolts and nuts.

Counterflange		Pump type	Description	Rated pressure	Pipe connection	Product number
 16 bar 25 bar	TM050998	CR 1s CR 1 CR 3 CR 5	Threaded	16 bar, EN 1092-2	Rp 1	409901
			For welding	25 bar, EN 1092-2	25 mm, nominal	409902
 16 bar 25 bar	TM051003	CR 1s CR 1 CR 3 CR 5	Threaded	16 bar, EN 1092-2	Rp 1 1/4	419901
			For welding	25 bar, EN 1092-2	32 mm, nominal	419902
 16 bar 25/40 bar	TM051002	CR 10	Threaded	16 bar, EN 1092-2	Rp 1 1/2	429902
			Threaded	16 bar, EN 1092-2	Rp 2	429904
			For welding	25 bar, EN 1092-2	40 mm, nominal	429901
			For welding	40 bar, special flange	50 mm, nominal	429903

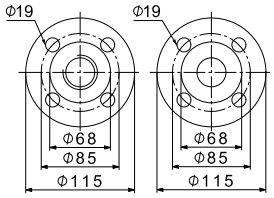
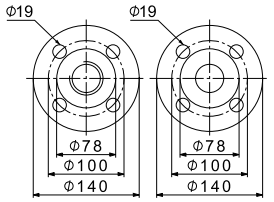
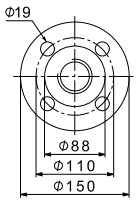
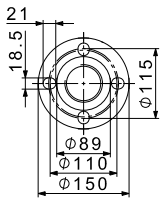
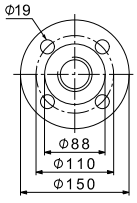
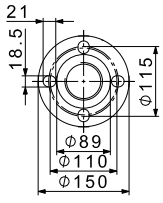
Counterflange	Pump type	Description	Rated pressure	Pipe connection	Product number
 TM050999		Threaded	16 bar, EN 1092-2	Rp 2	339903
		Threaded	16 bar, special flange	Rp 2 1/2	339904
 TM051005	CR 15 CR 20	Threaded	16 bar, special flange	Rp 2 1/2*	96509578
		For welding	25 bar, EN 1092-2	50 mm, nominal	339901
 TM051000		For welding	40 bar, special flange	65 mm, nominal	339902
 16 bar 16 bar 16/40 bar 16 bar	CR 32	Threaded	16 bar, EN 1092-2	Rp 2 1/2	349902
		Threaded	16 bar, special flange	Rp 3	349901
		For welding	16 bar, EN 1092-2	65 mm, nominal	349904
		For welding	40 bar, DIN 2635	65 mm, nominal	349905
		For welding	16 bar, special flange	80 mm, nominal	349903
 TM050996 16 bar 16/40 bar	CR 45	Threaded	16 bar	Rp 3	350540
		For welding	16 bar	80 mm, nominal	350541
		For welding	40 bar	80 mm, nominal	350542
 TM050995 16 bar 16 bar 25 bar	CR 64	Threaded	16 bar, EN 1092-2	Rp 4	369901
		For welding	16 bar, EN 1092-2	100 mm, nominal	369902
		For welding	25 bar, EN 1092-2	100 mm, nominal	369905
 TM065157 16 bar 25/40 bar	CR 95	For welding	16 bar, EN 1092-2	100 mm, nominal	99432754
		For welding	25/40 bar, EN 1092-2	100 mm, nominal	99432755

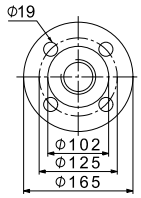
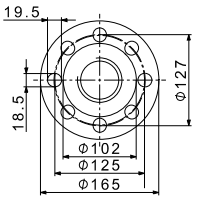
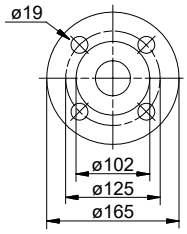
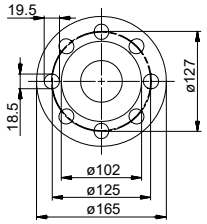
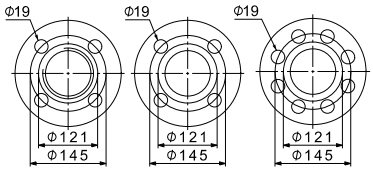
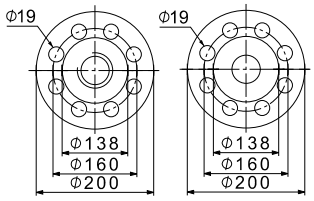
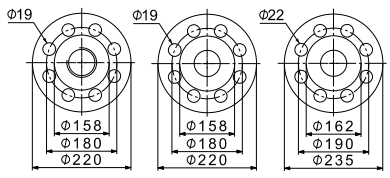
Counterflange	Pump type	Description	Rated pressure	Pipe connection	Product number
 16 bar 25/40 bar	CR 125 CR 155	For welding	16 bar, EN 1563	150 mm, nominal	99432761
		For welding	25/40 bar, EN 1563	150 mm, nominal	99432760
 16 bar 25 bar 40 bar	CR 185 CR 215 CR 255	For welding	16 bar, EN 1563	200 mm, nominal	97521270
		For welding	25 bar, EN 1563	200 mm, nominal	97739724
		For welding	40 bar, EN 1563	200 mm, nominal	97521269

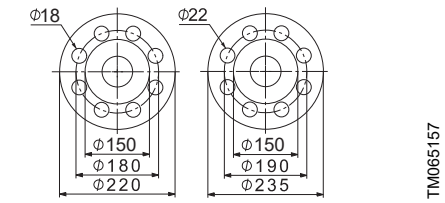
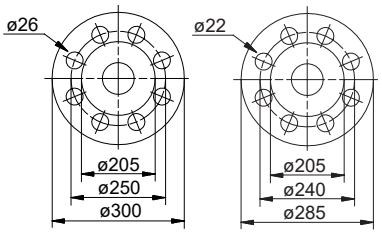
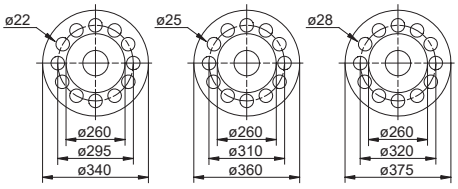
* Flange with 20 mm higher collar. With this collar, the installation dimensions of a CR 20 will be identical to those of a CR 32. If a CR 32 is replaced by a CR 20, the base must be raised by 15 mm.

Counterflanges for CRN

Counterflanges for CRN pumps are made of stainless steel EN 1.4401 (≈AISI 316).
A set consists of one counterflange, one gasket, bolts and nuts.

Counterflange		Pump type	Description	Rated pressure	Pipe connection	Product number
 16 bar 25 bar	TM050998	CRN 1s CRN 1 CRN 3 CRN 5	Threaded	16 bar, EN 1092-1	Rp 1	405284
			For welding	25 bar, EN 1092-1	25 mm, nominal	405285
 16 bar 25 bar	TM051003	CRN 1s CRN 1 CRN 3 CRN 5	Threaded	16 bar, EN 1092-1	Rp 1 1/4	415304
			For welding	25 bar, EN 1092-1	32 mm, nominal	415305
	TM051001	CRN 10	Threaded	16 bar, EN 1092-1	Rp 1 1/2	425245
	TM051006		Threaded	16 bar, EN 1092-1	Rp 2	96509570
	TM051001		For welding	25 bar, EN 1092-1	40 mm, nominal	425246
	TM051006		For welding	25 bar, special flange	50 mm, nominal	96509571

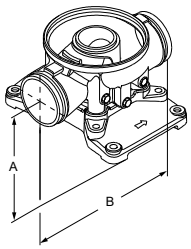
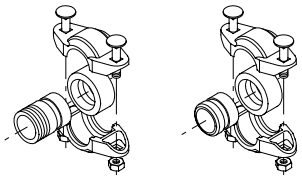
Counterflange	Pump type	Description	Rated pressure	Pipe connection	Product number
 TM050999	CRN 15 CRN 20	Threaded	16 bar, EN 1092-1	Rp 2	335254
		Threaded	16 bar, special flange	Rp 2 1/2	96509575
 TM051005					
 TM030402		For welding	25 bar, EN 1092-1	50 mm, nominal	335255
 TM027203		For welding	25 bar, special flange	65 mm, nominal	96509573
 TM050994	CRN 32	Threaded	16 bar	Rp 2 1/2	349910
		Threaded	16 bar, special flange	Rp 3	349911
		For welding	16 bar	65 mm, nominal	349906
		For welding	40 bar	65 mm, nominal	349908
16 bar 16/40 bar 16/25 bar					
 TM050996	CRN 45	Threaded	16 bar	Rp 3	350543
		For welding	16 bar	80 mm, nominal	350544
		For welding	40 bar	80 mm, nominal	350545
16 bar 16/40 bar					
 TM050995	CRN 64	Threaded	16 bar	Rp 4	369904
		For welding	16 bar	100 mm, nominal	369903
		For welding	40 bar	100 mm, nominal	369906
16 bar 16 bar 40 bar					

Counterflange	Pump type	Description	Rated pressure	Pipe connection	Product number
 16 bar 25/40 bar	CRN 95	For welding	16 bar, EN 1.4408	100 mm, nominal	99432731
		For welding	25/40 bar, EN 1.4408	100 mm, nominal	99432732
 16 bar 25/40 bar	CRN 125 CRN 155	For welding	16 bar, EN 1.4408	150 mm, nominal	99432733
		For welding	25/40 bar, EN 1.4408	150 mm, nominal	99432734
 16 bar 25 bar 40 bar	CRN 185 CRN 215 CRN 255	For welding	16 bar, EN 1.4408	200 mm, nominal	99432735
		For welding	25 bar, EN 1.4408	200 mm, nominal	99432736
		For welding	40 bar, EN 1.4408	200 mm, nominal	99432737

PJE couplings for CRN

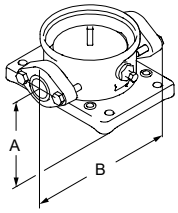
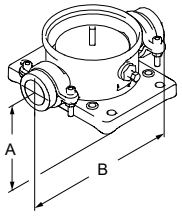
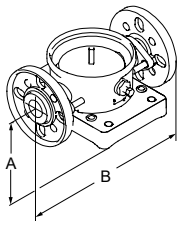
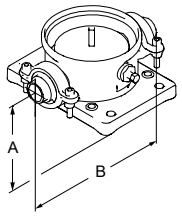
Materials in contact with the pumped liquid are made of stainless steel EN 1.4401 (≈AISI 316) and rubber.

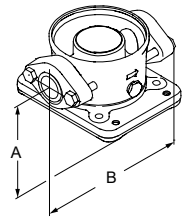
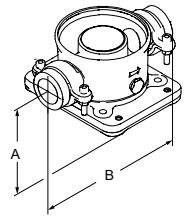
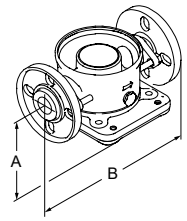
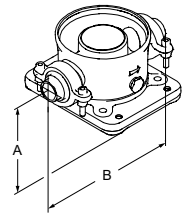
A set consists of two coupling halves (Victaulic type 77), one gasket, one pipe stub (for welding or threaded), bolts and nuts.

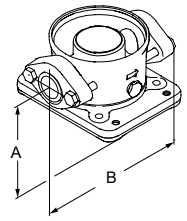
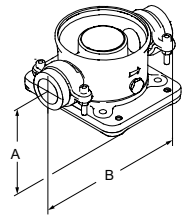
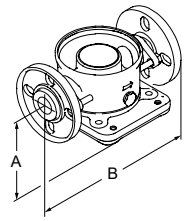
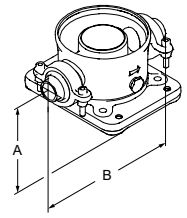
Coupling	Pump type	Pipe stub	Maximum pressure [bar]	A	B	Pipe connection	Rubber parts	Number of coupling sets required	Product number
	**CRN 1s** **CRN 1**	Threaded	69	50	320	R 1 1/4	EPDM	2	419911
							FKM	2	419905
	CRN 3 **CRN 5**	For welding	69	50	280	DN 32	EPDM	2	419912
							FKM	2	419904
	CRN 10 **CRN 15** **CRN 20**	Threaded	69	80	377	R 2	EPDM	2	339911
							FKM	2	339918
		For welding	69	80	371	DN 50	EPDM	2	339910
							FKM	2	339917
	**CRN 32**	For welding	69	105	420	DN 80	EPDM	2	98144746
							FKM	2	98144749
	CRN 45 **CRN 64**	For welding	69	140	465	DN 100	EPDM	2	98144752
							FKM	2	98144755
	CRN 95	For welding	69	140	465	DN 100	EPDM	2	98144752
							FKM		98144755

FlexiClamp base connections

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

Base connection	Pump type	Connection	Pipe connection	PN	A	B	Rubber parts	Number of coupling sets required	Product number
	CRI CRN 1s, 1, 3, 5	Oval (cast iron)	Rp 1	16	50	210	Klingersil	1	96449748
			Rp 1 1/4					1	96449749
		Oval (stainless steel)	Rp 1					2	96449746
			Rp 1 1/4					2	96449747
	CRI CRN 1s, 1, 3, 5	Union	G 2	25	50	228	EPDM	2	96449743
							FKM	2	96449744
	CRI CRN 1s, 1, 3, 5	DIN (stainless steel)	DN 25 DN 32	16	75	250	EPDM	2	96449745
							FKM	2	96449900
	CRI CRN 1s, 1, 3, 5	Clamp, threaded pipe stub	Rp 1	25	50	208	EPDM	2	405280
							FKM	2	405281
			Rp 1 1/4				EPDM	2	415296
							FKM	2	415297
			1" NPT				EPDM	2	405291
							FKM	2	405292
			1 1/4" NPT				EPDM	2	415311
							FKM	2	415312
		Clamp, pipe stub for welding	28.5			-	EPDM	2	405282
							FKM	2	405283
			37.2				EPDM	2	415300
							FKM	2	415301

Base connection	Pump type	Connection	Pipe connection	PN	A	B	Rubber parts	Number of coupling sets required	Product number
	CRI 10 CRN 10	Oval (cast iron)	Rp 1 1/4	16	80	260	Klingersil	2	96498775
			Rp 1 1/2					2	96498727
			Rp 2					2	96498836
		Oval (stainless steel)	Rp 1 1/4					2	96498776
			Rp 1 1/2					2	96498728
			Rp 2					2	96498835
	CRI 10 CRN 10	Union	G 2 3/4	25	80	288	EPDM	2	96500275
							FKM	2	96500276
	CRI 10 CRN 10	FGJ (cast iron)	DN 40	16	80	316	EPDM	2	96498840
							FKM	2	96500119
		FGJ (stainless steel)					EPDM	2	96500263
							FKM	2	96500264
		FGJ (cast iron)	DN 50				EPDM	2	96500265
							FKM	2	96500266
		FGJ (stainless steel)					EPDM	2	96500267
							FKM	2	96500269
	CRI 10 CRN 10	Clamp, threaded pipe stub	Rp 1 1/2	25	80	259	EPDM	2	425238
							FKM	2	425239
			Rp 2				EPDM	2	335241
							FKM	2	335242
			Rp 2 1/2			346	EPDM	2	96508600
							FKM	2	96508601
		Clamp, pipe stub for welding	48.3 (DN 40)			-	EPDM	2	425242
							FKM	2	425243
			60.3 (DN 50)				EPDM	2	335251
							FKM	2	335252

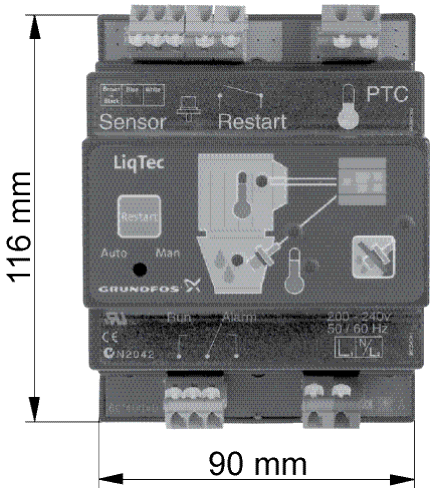
Base connection	Pump type	Connection	Pipe connection	PN	A	B	Rubber parts	Number of coupling sets required	Product number
	CRI 15, 20 CRN 15, 20	Oval (cast iron)	Rp 1 1/4	10	90	260	Klingersil	2	96498775
			Rp 1 1/2					2	96498727
			Rp 2					2	96498836
		Oval (stainless steel)	Rp 1 1/4					2	96498776
			Rp 1 1/2					2	96498728
			Rp 2					2	96498835
	CRI 15, 20 CRN 15, 20	Union	G 2 3/4	25	90	288	EPDM	2	96500275
							FKM	2	96500276
	CRI 15, 20 CRN 15, 20	FGJ (cast iron)	DN 40	10	90	334	EPDM	2	96498840
							FKM	2	96500119
		FGJ (stainless steel)					EPDM	2	96500263
							FKM	2	96500264
		FGJ (cast iron)	DN 50				EPDM	2	96500265
							FKM	2	96500266
		FGJ (stainless steel)					EPDM	2	96500267
							FKM	2	96500269
	CRI 15, 20 CRN 15, 20	Clamp, threaded pipe stub	Rp 1 1/2	25	90	259	EPDM	2	425238
							FKM	2	425239
			Rp 2				EPDM	2	335241
							FKM	2	335242
			Rp 2 1/2			346	EPDM	2	96508600
							FKM	2	96508601
		Clamp, pipe stub for welding	48.3 (DN 40)			-	EPDM	2	425242
							FKM	2	425243
			60.3 (DN 50)				EPDM	2	335251
							FKM	2	335252

LiqTec

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

LiqTec is prepared for DIN rail mounting in control cabinets.

Enclosure class: IPX0.

LiqTec unit	Pump type	Voltage [V]	LiqTec	Sensor 1/2"	Cable 5 m	Extension cable 15 m	Product number
	CR CRI CRN	200-240	•	•	•	-	96556429
		80-130	•	•	•	-	96556430
		-	-	-	-	•	96443676

GRUNDFOS iSOLUTIONS MONITOR

GRUNDFOS iSOLUTIONS MONITOR is a condition-monitoring solution for Grundfos CR and CRE pumps that monitors your pumps and applications for possible failures or deviation from normal (baseline) operation. The integration of condition monitoring into daily maintenance processes helps reducing unscheduled downtime and improves planning of maintenance. It also improves the overall health level of your equipment. The condition-monitoring solution provides operators with increased insights within their installation enabling more solid decisions on coming faults and consumption.

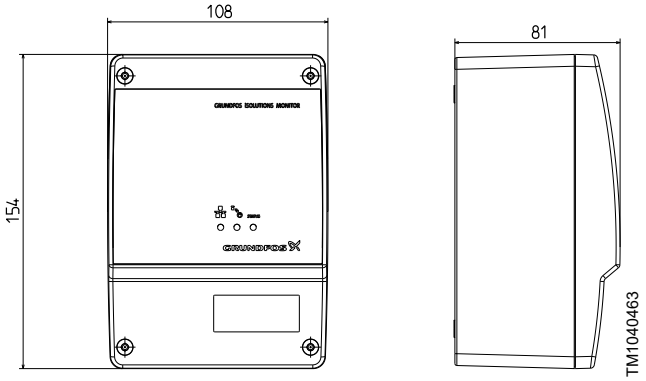
The GRUNDFOS iSOLUTIONS MONITOR solution contains the following items:

- Hardware: unit and antenna for 3G/4G
- VTU sensor with built-in ultrasonic dry-running detection, thermometer and accelerometer
- Cloud subscription based on customer needs
- Installation and commissioning services

The sensor can be integrated with a local PLC system via Modbus RTU and connected to Grundfos iSOLUTIONS CLOUD, including service and support, at the same time.

Description	Product number
GiM - Basic No CIM	99818535
GiM - CIM 500 Ethernet GIC	99818540
GiM - CIM 280 EU GSM GIC	99818537
GiM - CIM 280 US GSM GIC	99818538

CIU - Communication Interface Unit



Front view (left), side view (right)

Sensor

For further information, see the *GRUNDFOS iSOLUTIONS MONITOR* data booklet available in Grundfos Product Center.

Sensors

Sensor	Type	Supplier	Measuring range	Product number
Flowmeter	SITRANS FM MAGFLO MAG 5100 W	Siemens	1-5 m^3 (DN 25)	ID8285
	SITRANS FM MAGFLO MAG 5100 W		3-10 m^3 (DN 40)	ID8286
	SITRANS FM MAGFLO MAG 5100 W		6-30 m^3 (DN 65)	ID8287
	SITRANS FM MAGFLO MAG 5100 W		20-75 m^3 (DN 100)	ID8288
Temperature sensor	TTA (0) 25	Carlo Gavazzi	0-25 °C	96432591
	TTA (-25) 25		-25 to +25 °C	96430194
	TTA (50) 100		50-100 °C	96432592
	TTA (0) 150		0-150 °C	96430195
Accessory for temperature sensor. All with 1/2 RG connection	Protecting tube ∅9 x 50 mm			96430201
	Protecting tube ∅9 x 100 mm			96430202
	Cutting ring bush			96430203
Temperature sensor, ambient temperature	WR 52	tmg (DK: Plesner)	-50 to +50 °C	ID8295
Differential-temperature sensor	ETSD	Honsberg	0-20 °C	96409362
	ETSD		0-50 °C	96409363

Note: All sensors have 4-20 mA signal output.

Danfoss pressure sensor kits

Content	Liquid temperature	Pressure [bar]	Product number
Danfoss pressure transmitter, type MBS 3000, with 2 m screened cable. Connection: G 1/2 A (DIN 16288 - B6kt) 5 cable clips (black) Instructions PT (400212)	-40 to +85 °C	0-4	96428014
		0-6	96428015
		0-10	96428016
		0-16	96428017
		0-25	96428018

DPI differential-pressure sensor kit

Content	Pressure [bar]	Product number
1 sensor incl. 0.9 m screened cable (7/16" connections)	0 - 0.6	96611522
1 original DPI bracket for wall mounting	0 - 1.0	96611523
1 Grundfos bracket for mounting on motor	0 - 1.6	96611524
2 M4 screws for mounting of sensor on bracket	0 - 2.5	96611525
1 M6 screw (self-cutting) for mounting on MGE 90/100	0 - 4.0	96611526
1 M8 screw (self-cutting) for mounting on MGE 112/132	0 - 6.0	96611527
3 capillary tubes (short/long) 2 fittings (1/4" - 7/16") 5 cable clips (black) Installation and operating instructions (00480675) Service kit instructions.	0-10	96611550

Adapter kit for sensor [1]

Content	Type	Product number
Adapter for sensor	G 1/2 EPDM	99352712
	G 1/2 FKM	99352737

1 Applies to CRN 95.

14. Variants

The variants are available on request.

Although the Grundfos CR, CRI, CRN product range offers a number of pumps for different applications, customers require specific pump solutions to satisfy their needs. See the following documents:

- Grundfos CR "Custom-built pumps" data booklet
- Grundfos "CR, CRN high pressure" data booklet.

Below please find the range of options available for customising the CR pumps to meet the customers' demands.

Contact Grundfos for further information or for requests other than the ones mentioned below.

Motors

Variant	Description
ATEX-approved motor	For operation in hazardous atmospheres, explosion-proof or dust-ignition-proof motors may be required.
Motor with anti-condensation heating unit	For operation in humid environments motors with built-in anti-condensation heating unit may be required.
Motor with thermal protection	We offer motors with built-in bimetallic thermal switches or temperature-controlled PTC sensors (thermistors) incorporated in the motor windings.
Oversize motor	Ambient temperatures above 40 °C or installation at altitudes of more than 1000 metres above sea level require the use of an oversize motor (that is derating).
4-pole motor	We offer 4-pole standard motors.

Shaft seals

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

Pumps

Variant	Description
Horizontally mounted pump	For safety or height reasons, certain applications, for instance on ships, require the pump to be mounted in horizontal position. For easy installation, the pump is fitted with brackets that support motor and pump.
Low-temperature pump	Exposed to temperatures down to -40 °C, coolant pumps may require neck rings with a different diameter in order to prevent impeller drag.
High-pressure pump up to 47 bar	For high-pressure applications, we offer a unique double pump system capable of generating a pressure of up to 47 bar.
Low-NPSH pump (improved suction)	We recommend this for boiler-feed applications where cavitation may occur due to poor inlet conditions.
Pump with bearing flange	The bearing flange is suitable for applications where the inlet pressure is higher than the maximum pressure recommended. The bearing flange increases the life of motor bearings. We recommend this for standard motors.
Belt-driven pump	Belt-driven pumps are designed to operate in places with limited space or where no electrical power is available.
Pump for pharmaceutical and biotechnological applications	CRN pumps are designed for applications requiring the sterilisation and CIP capability of pipes, valves and pumps. (CIP = clean-in-place.)

Connections and other variants

Variant	Description
Pipe connections	In addition to the wide range of standard flange connections, a 16-bar DIN standard clamping flange is available. Customised flanges are available according to specifications.
TriClamp connection	TriClamp connections are of a hygienic design with a sanitary coupling for use in the pharmaceutical and food industry.
Electropolished pump	To substantially reduce the risk of corrosion of the materials, we offer electropolished pumps. We recommend this for applications in the pharmaceutical and food industry.

15. Grundfos Product Center

Online search and sizing tool to help you make the right choice.
From the international view, you can select your specific country to view the product range available to you.
International view: *https://product-selection.grundfos.com*

All the information you need in one place

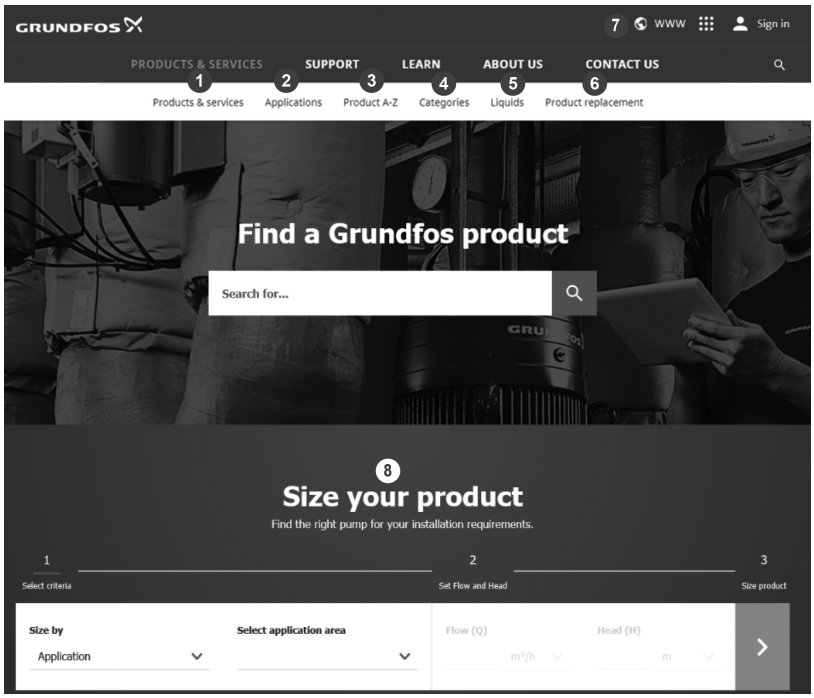
Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.

When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.

Example: *https://product-selection.grundfos.com/uk*



Pos.	Description
1	**Products & services** enables you to find products and documents by typing a product number or name into the search field.
2	**Applications** enables you to choose an application to see how Grundfos can help you design and optimise your system.
3	**Products A-Z** enables you to look through a list of all the Grundfos products.
4	**Categories** enables you to look for a product category.
5	**Liquids** enables you to find pumps designed for aggressive, flammable or other special liquids.
6	**Product replacement** enables you to find a suitable replacement.
7	**WWW** enables you to select the country, which changes the language, the available product range and the structure of the website.
8	**Sizing** enables you to size a product based on your application and operating conditions.

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ECM: 1341009

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