

CR, CRN

Vertical Multistage Centrifugal Pumps

50 Hz



TM01 2151 1298

GRUNDFOS®



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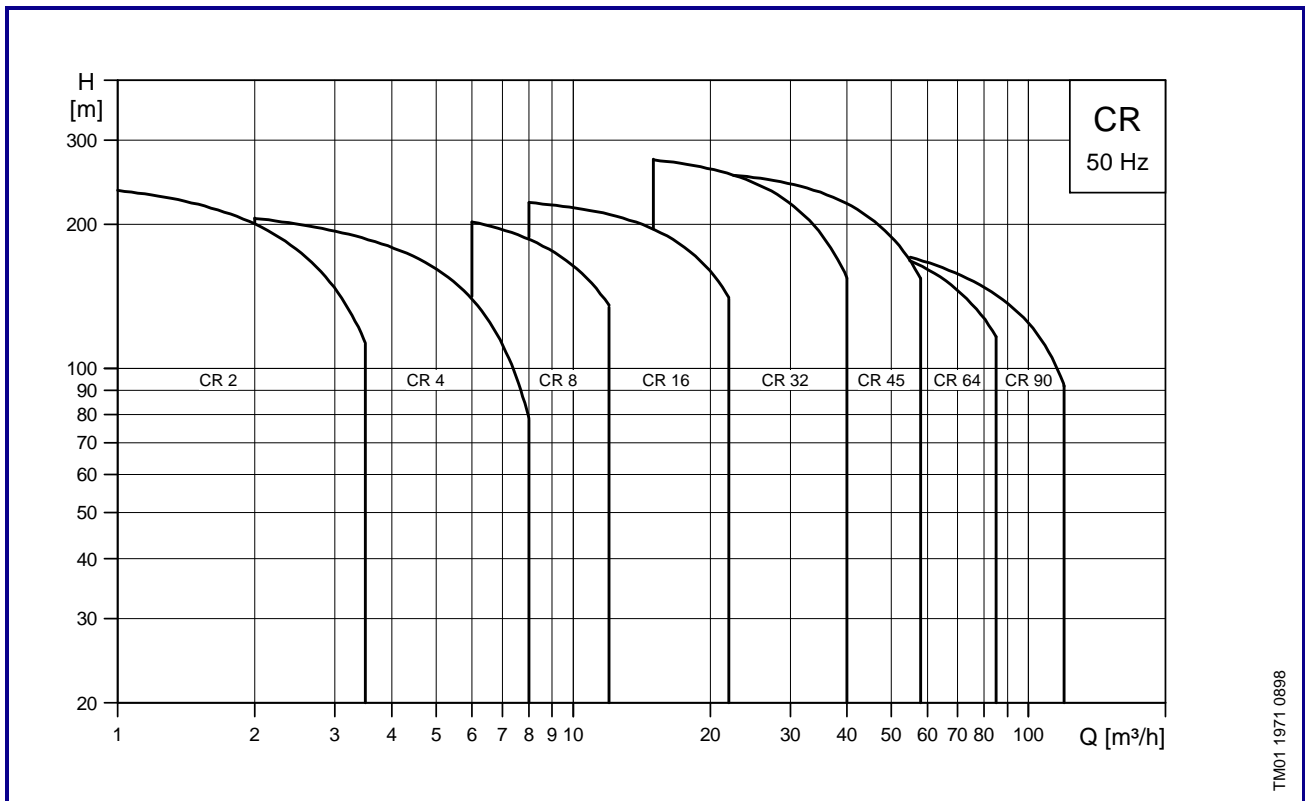
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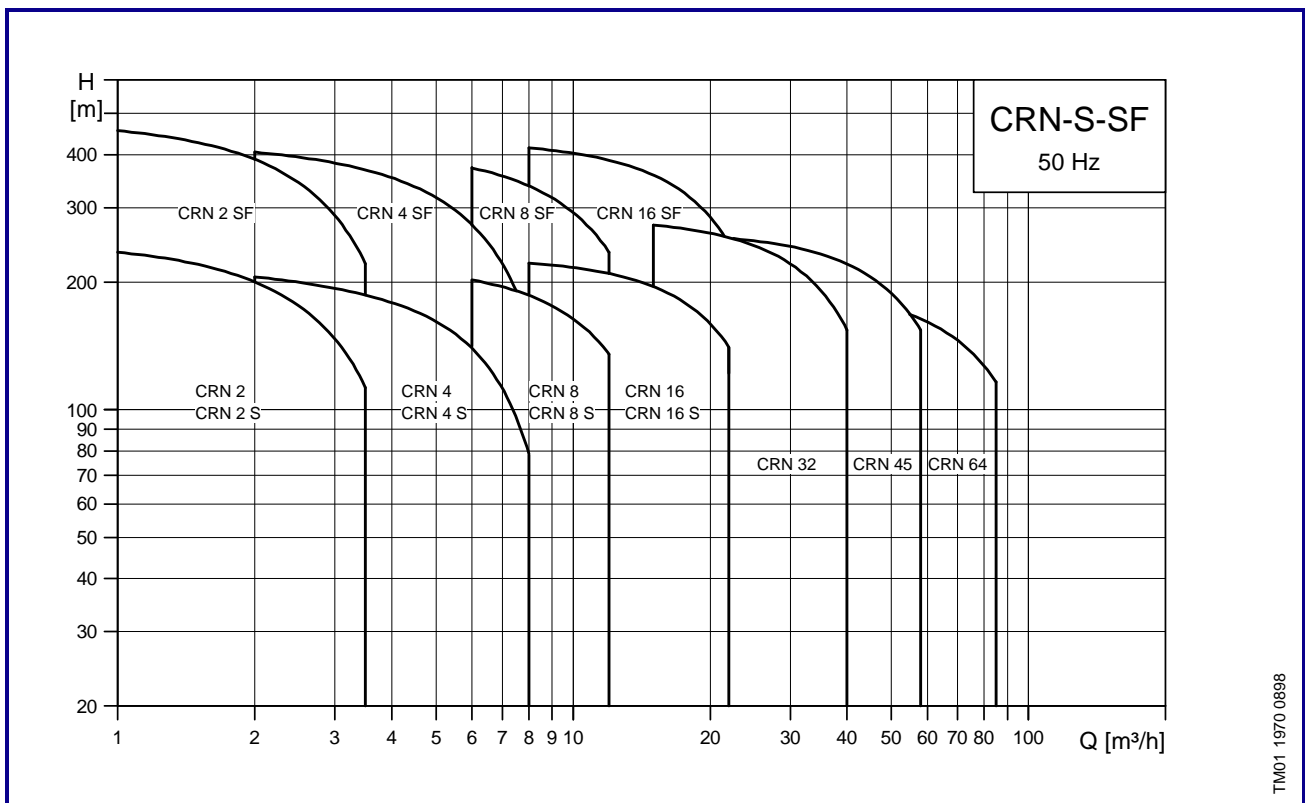
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CR Performance Range



CRN Performance Range



Product Range

								
Description	CR 2	CR 4	CR 8	CR 16	CR 32	CR 45	CR 64	CR 90
Range								
Nominal flow rate [m³/h]	2	4	8	16	32	45	64	90
Flow range [m³/h]	1 - 3.5	2 - 8	6 - 12	8 - 22	15 - 40	22 - 60	30 - 85	50 - 120
Max. pressure [bar] ★	45	44	42	44	28	26	20	19
Motor power [kW]	0.37 - 3	0.37 - 4	0.37 - 7.5	2.2 - 15	1.5 - 30	3 - 37	4 - 37	5.5 - 45
Temperature range [°C] ★★	-20 to +120	-20 to +120	-20 to +120	-20 to +120	-30 to +150	-30 to +150	-30 to +150	-30 to +150
Max. efficiency [%]	48	59	64	70	78	79	80	81
Version								
CR	●	●	●	●	●	●	●	●
CRN	●	●	●	●	●	●	●	
CRN-S	●	●	●	●				
CRN-SF	●	●	●	●				
Material Variant								
CR: Cast iron GG20/ Stainless Steel AISI 304/DIN 1.4301	●	●	●	●				
CR: Cast iron GGG50/ Stainless Steel AISI 304/DIN 1.4301					●	●	●	●
CRN: Stainless steel AISI 316/DIN 1.4401	●	●	●	●	●	●	●	
CR Pipe Connection								
BSP (Oval flange)	1"	1¼"	1½" and 2"					
DIN flange	DN25	DN32	DN40	DN50				
Flexible DIN flange					DN65	DN80	DN100	DN100
DIN flange on request					DN80	DN100	DN125	DN125
CRN Pipe Connection								
DIN flange	DN25	DN32	DN40	DN50				
Flexible DIN flange					DN65	DN80	DN100	
DIN flange on request					DN80	DN100	DN125	
PJE coupling	●	●	●	●				
Clamp coupling	●	●	●	●				
Union (+GF+)	●	●	●	●				
Shaft Seal								
DIN standard seal	●	●	●	●				
DIN Cartridge seal					●	●	●	●
Long coupling (>7,5 kW)					●	●	●	●
Hybrid seal surface ★★					●	●	●	●
Miscellaneous Features								
Prepared for sensors					●	●	●	●
Sleeve sealed by O-ring					●	●	●	●
Sleeve sealed by gasket	●	●	●	●				
Impeller locked by spline	●	●	●	●				
Impeller locked by split cone					●	●	●	●
Variable speed motor (≤ 7,5 kW)	●	●	●	●	●	●	●	●
Service by standard tools	●	●	●	●	●	●	●	●

★ depending on temperature, see page 13

★★ depending on shaft seal, see page 12

Overview of Applications

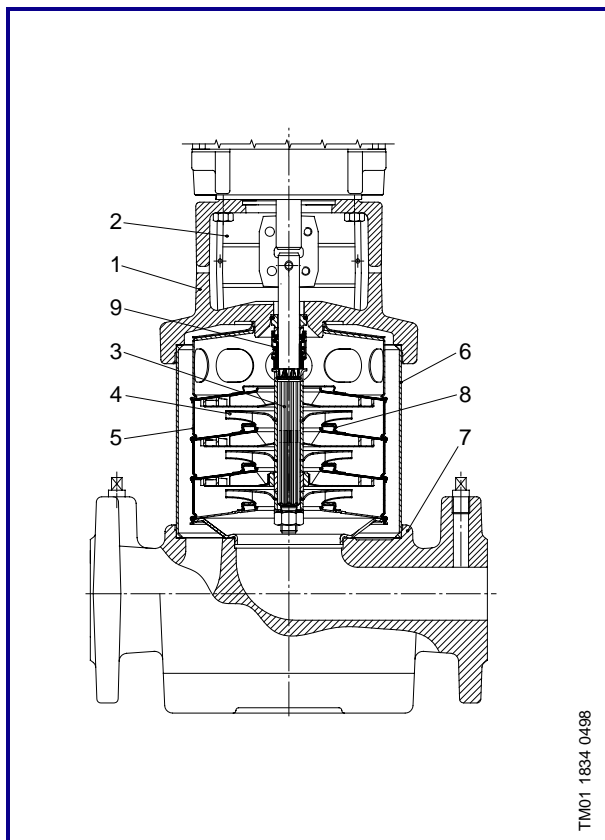
Typical applications	CR 2-16	CR 32-90	CRN 2-16	CRN 32-64	CRN-S 2-16	CRN-SF 2-16
Water supply						
Filter and transfer pumps for Waterworks	•	•				
Distribution from Waterworks	•	•				
Pressure boosting in mains	•	•				
Pressure boosting in high-rise buildings, hotels etc.	•	•				
Pressure boosting for industrial water supply	•	•				
Industry						
Pressure boosting in						
- process water systems	•	•	•	•		
- washing and cleaning systems (CIP)	•	•	•	•	•	•
- high-pressure wash-down systems					•	•
- vehicle washing tunnels	•	•				
- fire fighting systems	•	•				
Liquid transfer in						
- cooling and air-conditioning systems (refrigerants)	•	•				
- boiler feed and condensate systems	•	•				
- machine tools (cooling lubricants)	•	•	•	•		
- aquafarming	•	•				
Transfer of						
- oils and alcohols	•	•	•	•		
- Acids and alkalis			•	•		
Water treatment						
Ultra filtration systems			•	•	•	•
Reverse osmosis systems			•	•	•	•
Softening, ionising, demineralizing systems			•	•	•	•
Distillation systems			•	•		
Separators	•	•	•	•		
Swimming baths			•	•		
Irrigation						
Field irrigation (flooding)	•	•				
Sprinkler irrigation	•	•				
Drip-feed irrigation	•	•				

CR 2, CR 4, CR 8 and CR 16



TM00 3685 2496

Sectional Drawing



TM01 1834 0498

Pump

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

The pump consists of a base and a pump head. The pump body and the outer sleeve are fixed between the base and the pump head by means of staybolts. The base has in-line suction and discharge ports.

The pump has a maintenance-free mechanical shaft seal with dimensions to DIN 24960.

Pipework Connection

Pump Type	Oval Flange Max. 16 bar	DIN Flange Max. 25 bar
CR 2	Rp 1	DN 25
CR 4	Rp 1½	DN 32
CR 8	Rp 1½ & Rp 2	DN 40
CR 16		DN 50

Operating Conditions

Liquid Temperature: –20°C to +120°C, depending on shaft seal, see page 12.

Ambient Temperature: Maximum +40°C.

Minimum Inlet Pressure: According to the NPSH curve + a safety margin of minimum 0.5 metres head

Materials

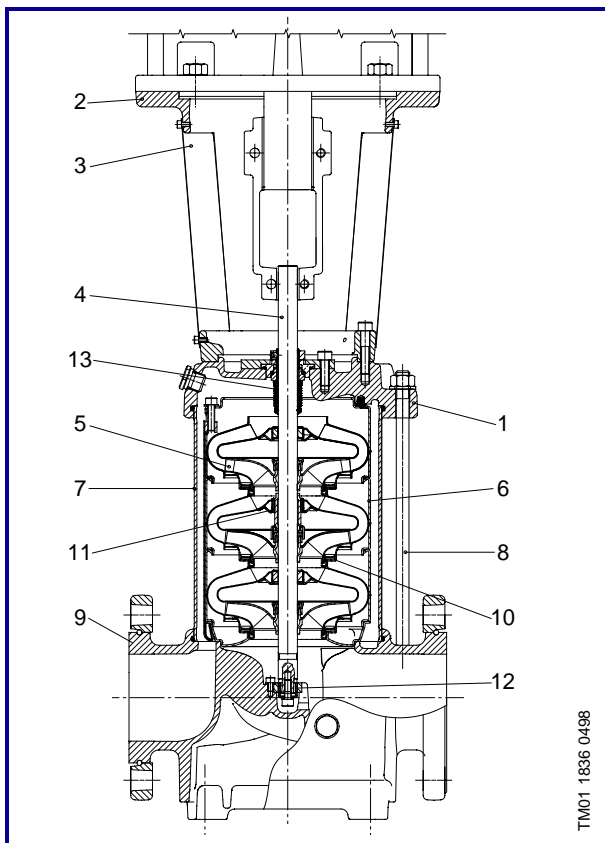
Pos. no.	Description	Materials	DIN W.-No.	AISI/ASTM
1	Pump head	Cast iron GG20	0.6020	ASTM 25B
2	Coupling guard	Stainless steel	1.4301	AISI 304
3	Shaft	Stainless steel	1.4401 1.4057	AISI 316 AISI 431
4	Impeller	Stainless steel	1.4301	AISI 304
5	Intermediate chamber	Stainless steel	1.4301	AISI 304
6	Outer sleeve	Stainless steel	1.4301	AISI 304
	Staybolts	Stainless steel or steel 50	1.4057 1.0531	AISI 431
7	Base	Cast iron GG 20	0.6020	ASTM 25B
8	Neck ring	Teflon		
9	Shaft seal	RUUE, RUUV, AUUE, AUUV, AUAE, BUBE, BUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

CR 32, CR 45, CR 64 and CR 90



TM01 2150 1298

Sectional Drawing



TM01 1836 0498

Pump

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

The pump consists of a base, a motor stool and a pump head. The chamber stack and the outer sleeve are secured between the pump head and the base by means of staybolts. The base has suction and discharge ports on the same level (in-line). The motor stool houses the pump-motor coupling.

The pump is equipped with a maintenance-free mechanical shaft seal of the cartridge type.

Pipework Connection

Pump Type	Flexible DIN flange	DIN Flange Option
CR 32	DN 65	DN 80
CR 45	DN 80	DN 100
CR 64	DN 100	DN 125
CR 90	DN 100	DN 125

Operating Conditions

Liquid Temperature: -30°C to $+150^{\circ}\text{C}$, depending on shaft seal, see page 12.

Ambient Temperature: Maximum $+40^{\circ}\text{C}$.

Minimum Inlet Pressure: According to the NPSH curve + a safety margin of minimum 0.5 metres head.

Materials

Pos. no.	Description	Materials	DIN W. -No.	AISI/ASTM
1	Pump head	Cast iron GGG50	0.7050	ASTM 80-55-06
2	Motor stool	Cast iron GG20	0.6020	ASTM 25B
3	Coupling guard	Stainless steel	1.4016	AISI 430
4	Shaft	Stainless steel	1.4057	AISI 431
5	Impeller	Stainless steel	1.4301	AISI 304
6	Intermediate chamber	Stainless steel	1.4301	AISI 304
7	Outer sleeve	Stainless steel	1.4301	AISI 304
8	Staybolts	Steel ETG 25		AISI 304
9	Base	Cast iron GGG50	0.7050	ASTM 80-55-06
10	Neckring	Acoflon 215		
11	Bearing	Bronze		
12	Bottom Bearing	TC/TC★		
13	Shaft seal	EUUE, EUUV, EUHE, EUHV, EUBV, EUBE, HUBE, HUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

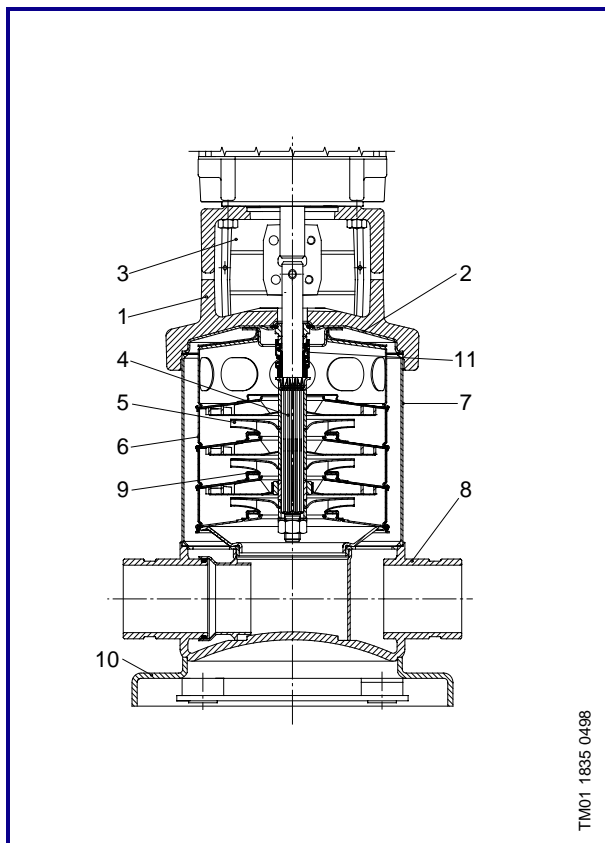
★ TC= Tungsten Carbide

CRN 2, CRN 4, CRN 8 and CRN 16



TM00 3686 2496

Sectional Drawing



TM01 1835 0498

Pump

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

The pump consists of a base and a pump head. The pump body and the outer sleeve are fixed between the base and the pump head by means of staybolts. The base, the pump head cover as well as vital pump components are made from stainless steel. The base has in-line suction and discharge ports.

The pump has a maintenance-free mechanical shaft seal with dimensions to DIN 24960.

Pipework Connection

Pump Type	PJE Coupling with Socket for Welding/Threaded Socket	CLAMP Coupling with Socket for Welding/Threaded Socket
CRN 2	ø32 mm/1¼"	ø28.5 mm/1"
CRN 4	ø32 mm/1¼"	ø37.2 mm/1½"
CRN 8	ø50 mm/2"	ø43.1 mm/1½"
CRN 16	ø50 mm/2"	ø54.5 mm/2"

Pump Type	DIN flange	Union
CRN 2	DN 25	G 2
CRN 4	DN 32	G 2
CRN 8	DN 40	G 2½
CRN 16	DN 50	G 2½

Operating Conditions

Liquid Temperature: –20°C to +120°C, depending on shaft seal, see page 12.

Ambient Temperature: Maximum +40°C.

Minimum Inlet Pressure: According to the NPSH curve + a safety margin of minimum 0.5 metres head.

Materials

Pos. no.	Description	Materials	DIN W.-No.	AISI/ASTM
1	Pump head	Cast iron GG20	0.6020	ASTM 25B
2	Pump head cover	Stainless steel	1.4401	AISI 316
3	Coupling guard	Stainless steel	1.4301	AISI 304
4	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
5	Impeller	Stainless steel	1.4401	AISI 316
6	Intermediate-chamber	Stainless steel	1.4401	AISI 316
7	Outer sleeve	Stainless steel	1.4401	AISI 316
	Staybolts	Stainless steel	1.4057	AISI 431
8	Base	Stainless steel	1.4401	AISI 316
9	Neckring	Teflon		
10	Baseplate	Cast iron GG20★	0.6020	ASTM 25B
11	Shaft seal	RUUE, RUUV, AUUE, AUUV, AUAE, BUBE, BUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

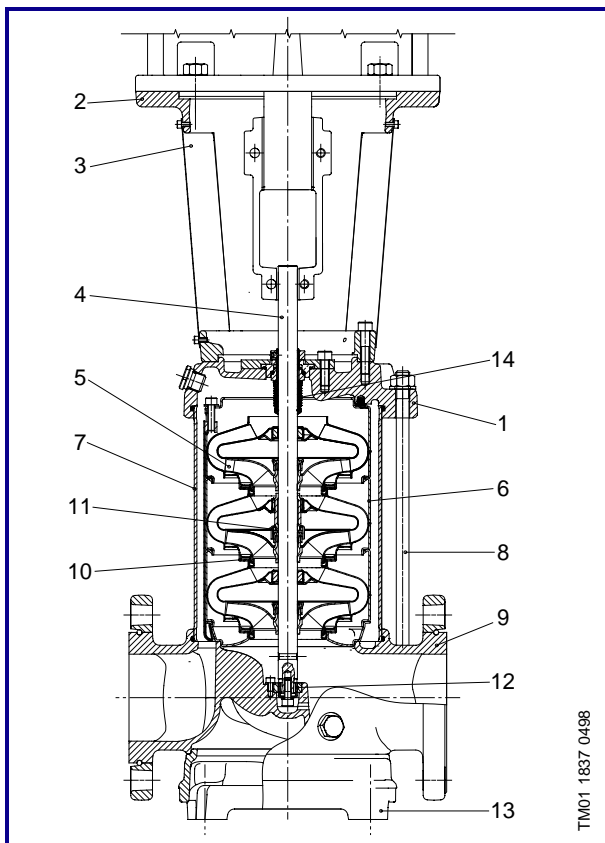
★ Stainless steel on request

CRN 32, CRN 45 and CRN 64



TM01 2149 1298

Sectional Drawing



TM01 1837 0498

Pump

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

The pump consists of a base, a motor stool and a pump head. The chamber stack and the outer sleeve are secured between the pump head and the base by means of staybolts. The base, the pump head cover and all components in contact with the pumped liquid are made of stainless steel. The base has suction and discharge ports on the same level (in-line). The motor stool houses the pump-motor coupling.

The pump is equipped with a maintenance-free mechanical shaft seal of the cartridge type.

Pipework Connection

Pump Type	Flexible DIN flange	DIN flange Option
CRN 32	DN 65	DN 80
CRN 45	DN 80	DN 100
CRN 64	DN 100	DN 125

Operating Conditions

Liquid Temperature: -30°C to $+150^{\circ}\text{C}$, depending on shaft seal, see page 12.

Ambient Temperature: Maximum $+40^{\circ}\text{C}$.

Minimum Inlet Pressure: According to the NPSH curve + a safety margin of minimum 0.5 metres head.

Materials

Pos. no.	Description	Materials	DIN W- No.	AISI/ASTM
1	Pump head	Stainless steel	1.4408	AISI 316 LN
2	Motor stool	Cast iron GG20	0.6020	ASTM 25B
3	Coupling guard	Stainless steel	1.4016	AISI 314
4	Shaft	Stainless steel	1.4462	
5	Impeller	Stainless steel	1.4401	AISI 316
6	Intermediate chamber	Stainless steel	1.4401	AISI 316
7	Outer sleeve	Stainless steel	1.4401	AISI 316
8	Staybolts	Stainless steel	1.4057	AISI 431
9	Base	Stainless steel	1.4401	AISI 316
10	Neckring	Acoflon 215		
11	Bearing	HY 49		
12	Bottom Bearing	TC/TC★		
13	Baseplate	Cast iron GGG50★	0.7050	ASTM 80-55-06
14	Shaft seal	EUUE, EUUV, EUHE, EUHV, EUBV, EUBE, HUBE, HUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

★ TC= Tungsten Carbide

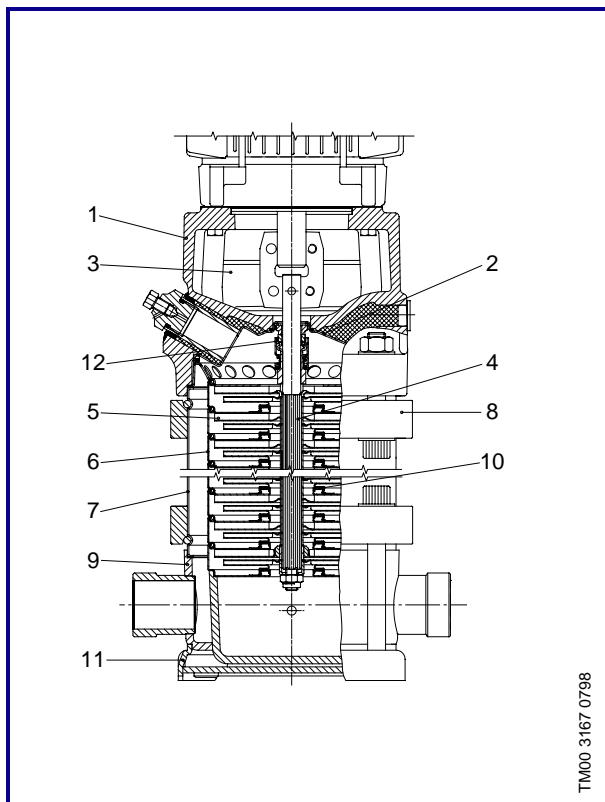
★★ Stainless steel on request

CRN-S



TM00 3687 2496

Sectional Drawing



TM00 3167 0798

Pump

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

The pump consists of a base and a pump head. The pump body and the outer sleeve are fixed between the base and the pump head by means of clamping plates. The base, the pump head cover as well as vital pump components are made from stainless steel. The base has in-line suction and discharge ports.

The pump has a maintenance-free mechanical shaft seal with dimensions to DIN 24960.

Pipework Connection

Pump Type	PJE Coupling with Socket for Welding/ Threaded Socket	DIN Flange
CRN 2-S	ø32 mm/1¼"	DN 25
CRN 4-S	ø32 mm/1¼"	DN 32
CRN 8-S	ø50 mm/2"	DN 40
CRN 16-S	ø50 mm/2"	DN 50

Operating Conditions

Liquid Temperature: –20°C to +120°C, depending on shaft seal, see page 12.

Ambient Temperature: Maximum +40°C.

Minimum Inlet Pressure: According to the NPSH curve + a safety margin of minimum 0.5 metres head.

Materials

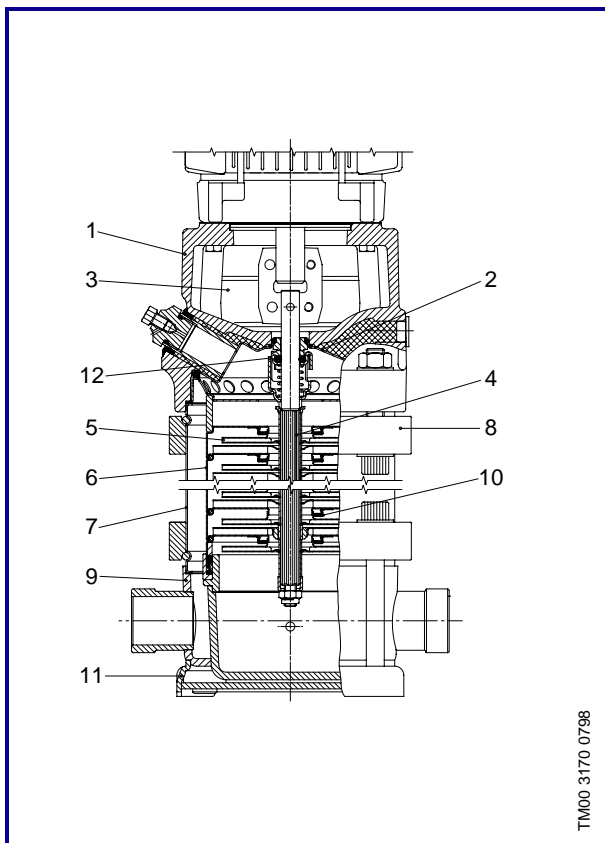
Pos. no.	Description	Materials	DIN W- No.	AISI/ASTM
1	Pump head	Cast iron GG20	0.6020	ASTM 25B
2	Pump head cover	Stainless steel	1.4401	AISI 316
3	Coupling guard	Stainless steel	1.4301	AISI 304
4	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
5	Impeller	Stainless steel	1.4401	AISI 316
6	Intermediate-chamber	Stainless steel	1.4401	AISI 316
7	Outer sleeve	Stainless steel	1.4401	AISI 316
8	Clamping plate	Cast iron 37-2	1.0037	
9	Base	Stainless steel	1.4401	AISI 316
10	Neckring	Teflon		
11	Baseplate	Cast iron GG20★	0.6020	ASTM 25B
12	Shaft seal	RUUE, RUUV, AUUE, AUUV, AUAE, BUBE, BUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

★ Stainless steel on request

CRN-SF



Sectional Drawing



Pump

The CRN-SF pump is a non self-priming, vertical multistage centrifugal pump fitted with a Grundfos standard motor.

The pump consists of a base and a pump head. The pump body and the outer sleeve are fixed between the base and the pump head by means of clamping plates.

The direction of rotation is opposite to that of the other pumps, and the pump body is upside-down, thus giving the opposite direction of flow of liquid.

The base, the pump head cover as well as vital pump components are made from stainless steel. The base has in-line suction and discharge ports.

The pump has a maintenance-free mechanical shaft seal with dimensions to DIN 24960.

Pipework Connection

Pump Type	PJE Coupling	
	with Threaded Socket	with Socket for Welding
CRN 2-SF	1¼"	ø32 mm
CRN 4-SF	1¼"	ø32 mm
CRN 8-SF	2"	ø50 mm
CRN 16-SF	2"	ø50 mm

Operating Conditions

Liquid Temperature: –15°C to +90°C, depending on shaft seal, see page 12.

Ambient Temperature: Maximum +40°C.

Minimum Inlet Pressure: 2 bar during operation.

Materials

Pos. no.	Description	Materials	DIN W.- No.	AISI/ASTM
1	Pump head	Cast iron GG20	0.6020	ASTM 25B
2	Pump head cover	Stainless steel	1.4401	AISI 316
3	Coupling guard	Stainless steel	1.4301	AISI 304
4	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
5	Impeller	Stainless steel	1.4401	AISI 316
6	Intermediate-chamber	Stainless steel	1.4401	AISI 316
7	Outer sleeve	Stainless steel	1.4401	AISI 316
8	Clamping plate	Steel 37-2	1.0037	
9	Base	Stainless steel	1.4401	AISI 316
10	Neckring	Acoflon 215		
11	Baseplate	Cast iron GG20★	0.6020	ASTM 25B
12	Shaft seal	RUUE, RUUV, AUUE, AUUV, AUAE, BUBE, BUBV		
	Rubber parts in pump	Same as in shaft seal EPDM or FPM (Viton)		

Pumped Liquids

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

When pumping liquids with a density and/or viscosity higher than that of water, motors with correspondingly higher outputs must be used, 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 and content of solvents, oils etc.

Please note that aggressive liquids (e.g. sea water) may destroy the oxide film which protects the stainless steel and thus cause corrosion.

CR, CRN

For liquid transfer, circulation and pressure boosting of cold or hot clean water.

CRN

In systems where all parts in contact with the liquid must be made of stainless steel, CRN pumps must be used.

Motor

The motor is a totally enclosed, fan-cooled, 2-pole Grundfos standard motor with principal dimensions in accordance with the IEC and DIN standards.

Electrical tolerances according to IEC 34/EN 60034.

Mounting:

- up to 4 kW: V 18,
- from 5.5 kW: V 1

Insulation Class: F.

Enclosure Class: IP 55, On request: IP 44 and IP 54.

50 Hz Standard-

- Voltages:
- 3 x 200/346 V,
 - 3 x 200-220/346-380V,
 - 3 x 220-240/380-415V,
 - 3 x 380-415Δ V,
 - 1 x 220-230/240 V,
 - 1 x 110/220 V.

Motors for other voltages are available on request.

Single-phase motors have a built-in thermal overload switch.

Three-phase motors must be connected to a motor starter in accordance with local regulations.

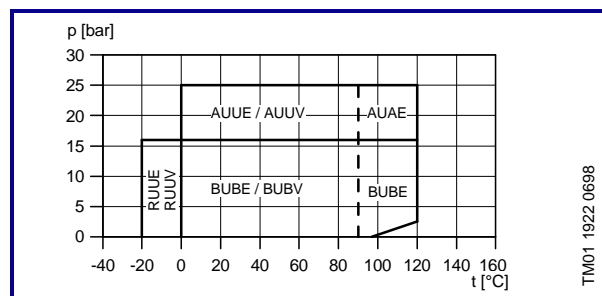
Three-phase Grundfos motors from 3 kW upwards have a built-in thermistor (PTC) according to DIN 44082.

Max. Operating Pressure and Liquid Temperature for the Shaft Seal

The actual operating range depends on the operating pressure, pump type, the type of shaft seal and the liquid temperature.

The following curves apply to clean water and water containing glycol.

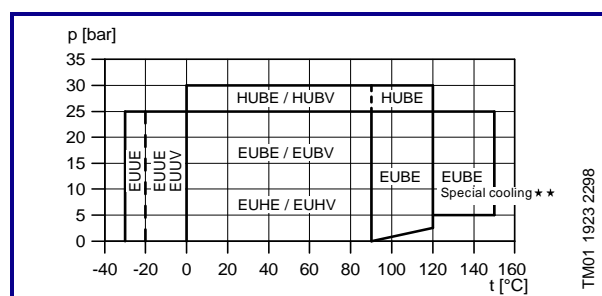
CR, CRN 2, 4, 8 and 16



Shaft Seal	Description	Max. Press. [bar]	Max. Temp. Range [°C]
RUUE	O-ring (balanced seal), TC/TC ★, EPDM	16	-20 to +90
RUUV	O-ring (balanced seal), TC/TC, Viton	16	-20 to +90
AUUE	O-ring, TC/TC, EPDM	25	0 to +90
AUUV	O-ring, TC/TC, Viton	25	0 to +90
AUAE	O-ring, TC/metal-impregnated carbon, EPDM	25	0 to +120
BUBE	Bellows, TC/carbon, EPDM	16	0 to +120
BUBV	Bellows, TC/carbon, Viton	16	0 to +90

★ TC = Tungsten Carbide

CR, CRN 32, 45, 64 and 90



Shaft Seal	Description	Max. Press. [bar]	Max. Temp. Range [°C]
EUUE	O-ring (Cartridge), TC/TC ★, EPDM	25	-30 to +90
EUUV	O-ring (Cartridge), TC/TC, Viton	25	-20 to +90
EUHE	O-ring (Cartridge), TC/hybrid, EPDM	25	0 to +90 ★ ★
EUHV	O-ring (Cartridge), TC/hybrid, Viton	25	0 to +90 ★ ★
EUBE	O-ring (Cartridge), TC/carbon, EPDM	25	0 to +120
EUBV	O-ring (Cartridge), TC/Carbon, Viton	25	0 to +90
EUBE	O-ring (Cartridge), TC/carbon, EPDM	25	+120 to +150 ★ ★
HUBE	O-ring (Cartridge), (balanced seal), TC/carbon, EPDM	30	0 to +120
HUBV	O-ring (Cartridge), (balanced seal), TC/carbon, Viton	30	0 to +90

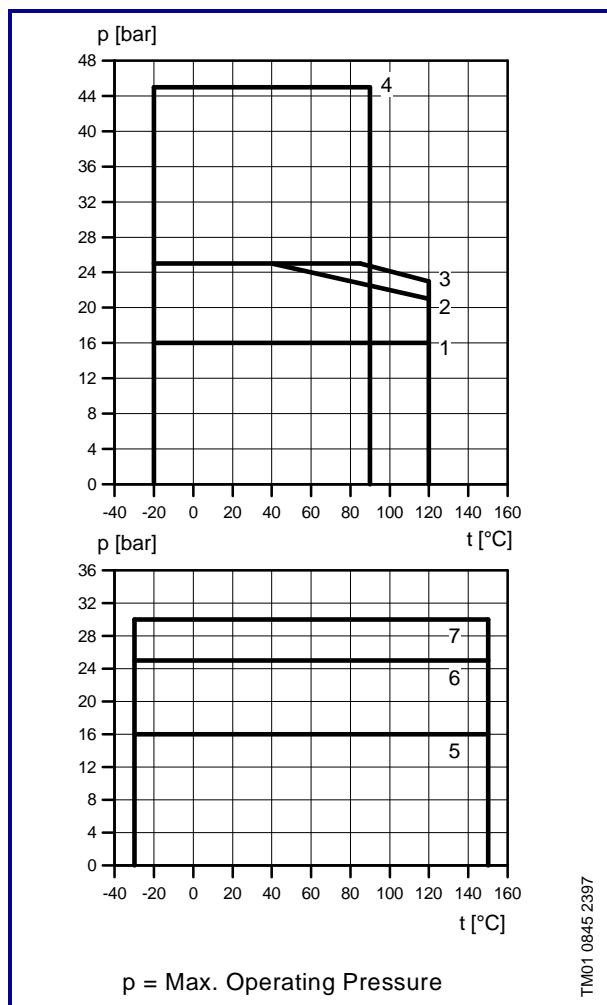
★ TC = Tungsten Carbide

★★ On request

Maximum Operating Pressure

Hz	Pump Type	Curve No.
50	CR 2-20 → CR 2-150	1
	CR 2-180 → CR 2-260	2
	CR 4-20/1 → CR 4-160	1
	CR 4-190 → CR 4-220	2
	CR 8-20/1 → CR 8-120	1
	CR 8-140 → CR 8-200	3
	CR 16-30/2 → CR 16-80	1
	CR 16-100 → CR 16-160	3
	CR 32-1-1 → CR 32-7	5
	CR 32-8-2 → CR 32-12	6
	CR 32-13-2 → CR 32-14	7
	CR 45-1-1 → CR 45-5	5
	CR 45-6-2 → CR 45-9	6
	CR 45-10-2 → CR 45-10	7
	CR 64-1-1 → CR 64-5	5
	CR 64-6-2 → CR 64-7-1	6
	CR 90-1-1 → CR 90-4	5
	CR 90-5-2 → CR 90-6	6
CRN-SF	CRN-SF	4

The following figure shows pressure- and temperature limits. Pressures and temperatures must be within the limits stated.



Maximum Inlet Pressure

CR, CRN,

CRN-S: The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure + pressure against a closed valve must always be lower than the maximum permissible operating pressure.

CRN-SF: During starting: 5 bar.

During operation: 25 bar.

CR, CRN 2	
CR, CRN 2-20	6 bar
CR, CRN 2-30 → 2-110	10 bar
CR, CRN 2-130 → 2-260	15 bar
CR, CRN 4	
CR, CRN 4-20/1 → 4-20	6 bar
CR, CRN 4-30 → 4-100	10 bar
CR, CRN 4-120 → 4-220	15 bar
CR, CRN 8	
CR, CRN 8-20/1 → 8-60	6 bar
CR, CRN 8-80 → 8-200	10 bar
CR, CRN 16	
CR, CRN 16-30/2 → 16-30	6 bar
CR, CRN 16-40 → 16-160	10 bar
CR, CRN 32	
CR, CRN 32-1-1 → 32-2-2	3 bar
CR, CRN 32-2 → 32-4	4 bar
CR, CRN 32-5 → 32-10	10 bar
CR, CRN 32-11 → 32-14	15 bar
CR, CRN 45	
CR, CRN 45-1-1	3 bar
CR, CRN 45-1 → 45-2	4 bar
CR, CRN 45-3-2 → 45-5-1	10 bar
CR, CRN 45-6 → 45-10	15 bar
CR, CRN 64	
CR, CRN 64-1-1 → 64-2-2	4 bar
CR, CRN 64-2-1 → 64-3	10 bar
CR, CRN 64-4-1 → 64-7-1	15 bar
CR 90	
CR 90-1-1 → 90-1	4 bar
CR 90-2-2 → 90-3-2	10 bar
CR 90-3-1 → 90-6	15 bar

Type Key

CR, CRN 2, 4, 8 and 16

Example	CR	N	16-	30	/2	A	FJ	G	AUUE
Pump Range									
Version with vital parts in stainless steel. DIN W.-No. 1.4401 (AISI 316)									
Nominal flow rate [m ³ /h]									
Number of stages x 10									
Number of impellers (Only used if the pump has fewer impellers than chambers)									
Code for pump version									
Code for pipework connection									
Code for materials, excl. plastic and rubber parts									
Code for shaft seal and plastic/rubber parts, excluding neck ring									

CR, CRN 32, 45, 64 and CR 90

Example	CR	32-	2-	1-	X-	X-	X-	X-	XXXX
Pump Range: CR, CRN									
Nominal flow rate [m ³ /h]									
Number of stages									
Number of reduced impellers									
Code for pump version									
Code for pipework connection									
Code for materials									
Code for rubber parts in the pump									
Code for shaft seal									

Codes

Example

Pump Version

A	Basic version
SF	High pressure pump without staybolts
S	Pump without staybolts
H	Horizontal version. Base with horizontal suction port and vertical discharge port
R	Horizontal version with bearing bracket
B	Oversize motor, 1 flange size bigger
P	Undersize motor, 1 flange size smaller
T	Oversize motor, 2 flanges sizes bigger

Pipework Connection

A	Oval flange
C	CLAMP coupling
F	DIN flange
N	Changed diameter of ports
P	PJE coupling
O	External thread, Union

Materials

A	Basic version
G	Stainless steel parts in 1.4401 or similar class
J	Shaft and/or outer sleeve in 1.4401 or similar class
K	Bronze intermediate chamber bearing

Code for rubber parts in pump (Only CR, CRN 32, 45, 64 and CR 90)

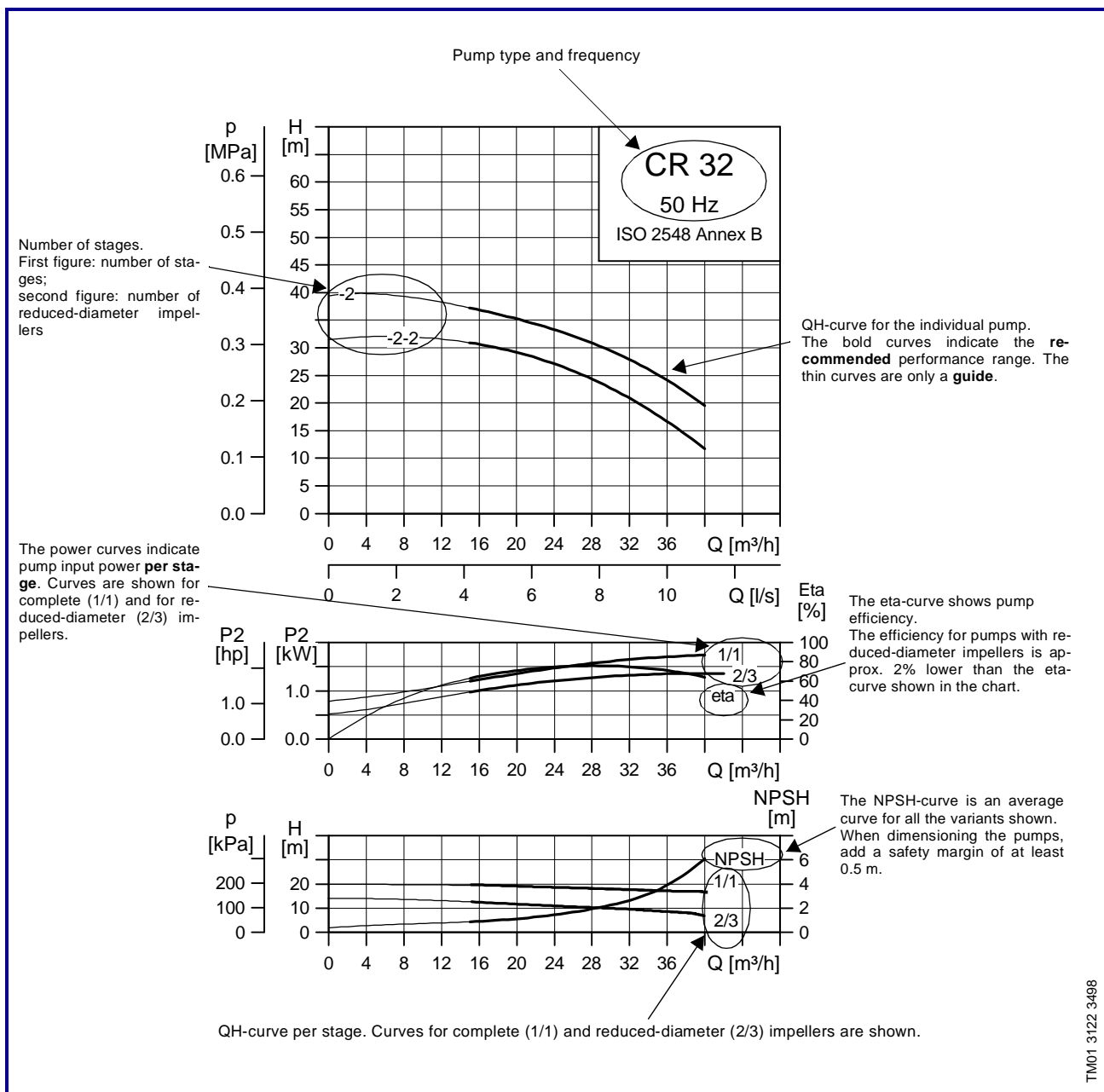
E	EPDM
V	FPM (Viton)

Shaft Seal

A	O-ring seal with fixed driver
H	Balanced seal, cartridge
B	Rubber bellows seal
D	Balanced seal
E	Cartridge with O-ring (only CR, CRN 32, 45, 64 and CR 90)
A	Carbon, synthetic metal-impregnated
B	Carbon, synthetic resin-impregnated
U	Tungsten carbide (wolfram carbide)
Q	Silicon carbide
H	Wolfram carbide
E	EPDM
V	FPM (Viton)
K	PFE (Kalrez)

A - F - A - X - B U B E

B U B E



TM01 3122 3498

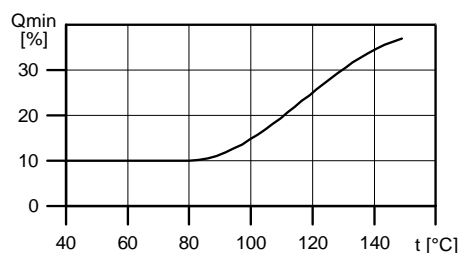
Performance Curves

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

1. Tolerances to ISO 2548, Annex B, if indicated.
2. The motors used for the measurements are standard Grundfos motors.
3. Measurements were made with airless water at a temperature of 20°C.
4. The curves apply to a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).

5. Due to the risk of overheating, the pumps should **not** be used at a flow below the minimum flow rate.

The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.



TM01 2816 2498

Selection of CR, CRN Pump

Pump Size

Selection of pump size should be based on:

- consumption pattern,
- highest possible flow and pressure (peak values),
- economy.

As a rule of thumb pipes should be dimensioned in such a way that the velocity of the liquid does not exceed 1 to 1.5 m/sec.

Efficiency

If the pump is always to operate in the same duty point, select a pump where this duty point coincides with the highest efficiency.

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

NPSH

If the pressure in the pump is lower than the vapour pressure of the pumped liquid this may cause cavitation. To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in metres head can be calculated as follows:

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

p_b = Barometric pressure in bar.
(Barometric pressure can be set to 1 bar).
In closed systems, p_b indicates the system pressure in bar.

NPSH = Net Positive Suction Head in metres head
(to be read from the NPSH curve on at the highest flow the pump will be delivering).

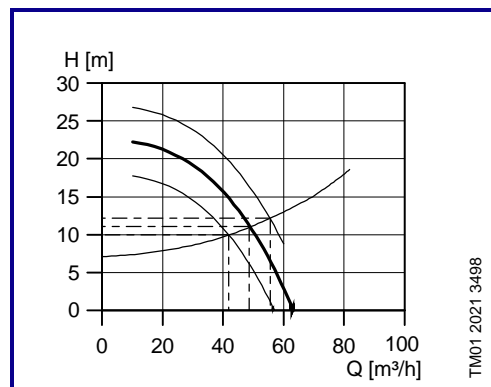
H_f = Friction loss in suction pipe in metres head
(at the highest flow the pump will be delivering.)

H_v = Vapour pressure in metres head.

H_s = Safety margin = minimum 0.5 metres head.

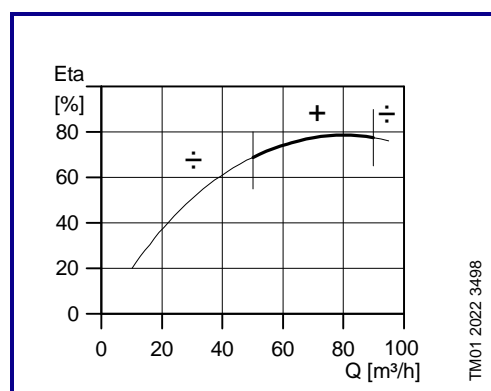
If the calculated "H" is positive, the pump can operate at a suction lift of maximum "H" metres head.

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



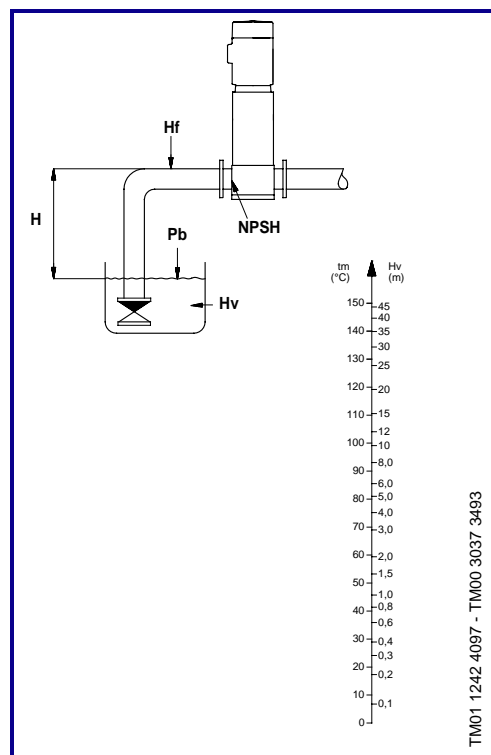
TM01 2021 3498

The pump must be able to fulfil the flow and pressure requirements.



TM01 2022 3498

Check that the highest efficiency falls within the marked duty range.



TM01 1242 4097 - TM00 3037 3493

Check that the pump does not have and will not be exposed to cavitation.

Material

The material variant (CR/CRN) is to be selected on the basis of the liquid to be pumped. The product range covers two basic types.

- CR is suitable for clean, non-aggressive liquids such as potable water, oils, etc.
- CRN is suitable for clean, slightly aggressive liquids such as salt water, acids, etc. (see list of pumped liquids page 64).

Shaft Seal

The shaft seal is to be selected on the basis of liquid temperature and max. pressure.

For other liquids than water, the chemical resistance of the materials - incl. seal face, seat and rubber components of the shaft seal - must be taken into account.

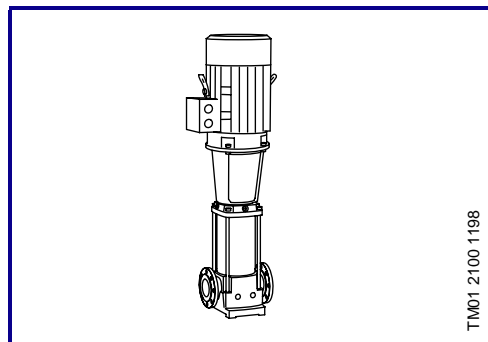
Parallel Operation

It may be an advantage to install a number of pumps connected in parallel instead of one big pump. Among the advantages are for instance:

- adaptation to the required duty point in systems with varying flow profile,
- increased reliability of supply as only part of the system capacity is affected in case of pump failure.

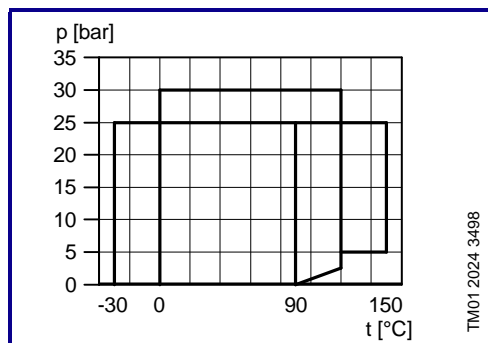
Miscellaneous

In case of liquid viscosity and relative density different from that of water, motor size and pump performance must be taken into account.



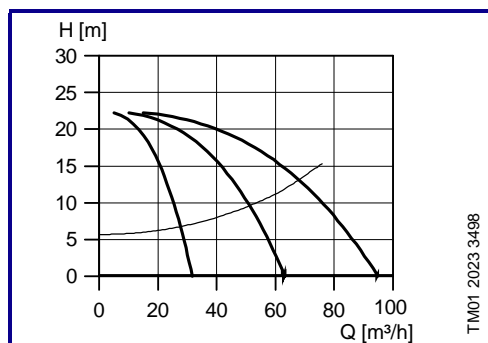
TM01 2100 1198

The material variant must be suitable for the pumped liquid (CR or CRN).



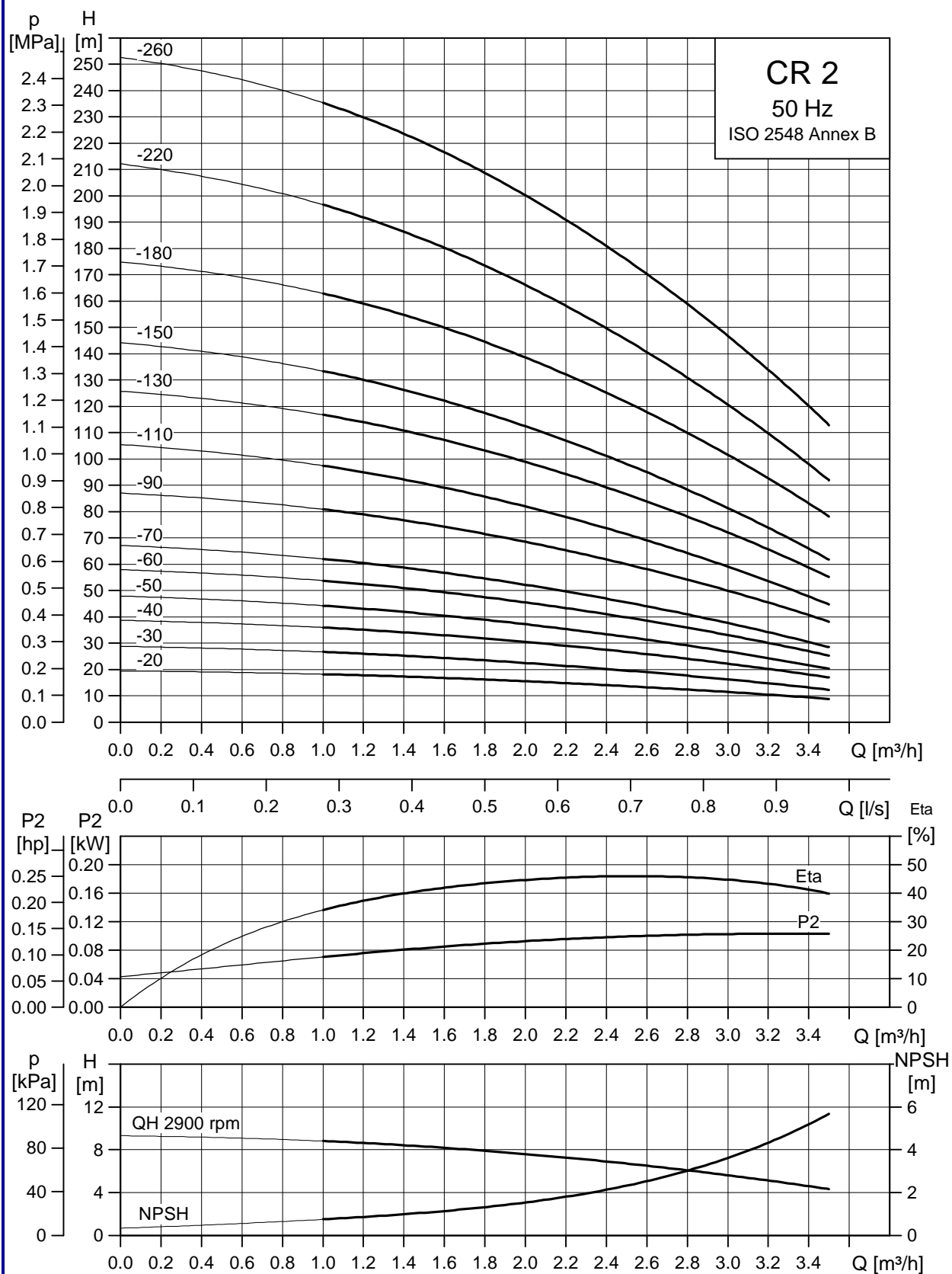
TM01 2024 3498

The shaft seal material and variant must be suitable for the pumped liquid.



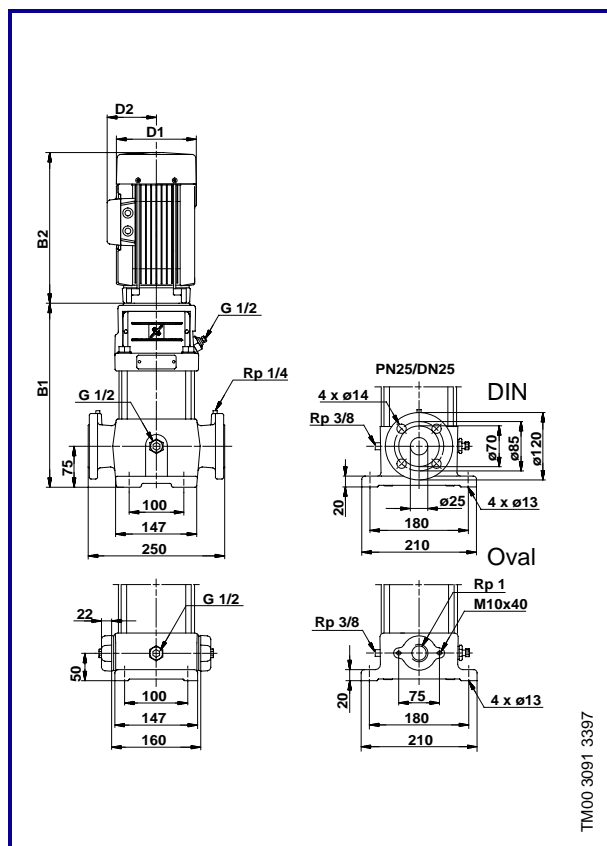
TM01 2023 3498

In case the duty profile varies, consider the installation of two or more pumps in parallel.



TM00 0409 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]							Net Weight [kg]	
	*		*	**	**			*	**
	B1	B2	B1 + B2	B1	B1 + B2	D1	D2		
CR 2-20	220	190	410	245	435	140	110	20	25
CR 2-30	240	190	430	265	455	140	110	20	25
CR 2-40	260	190	450	285	475	140	110	20	25
CR 2-50	275	190	465	300	490	140	110	20	25
CR 2-60	300	230	530	325	555	140	110	20	25
CR 2-70	315	230	545	340	570	140	110	25	30
CR 2-90	350	230	580	375	605	140	110	30	35
CR 2-110	385	230	615	410	640	140	110	30	35
CR 2-130	440	280	720	465	745	180	110	30	35
CR 2-150	475	280	755	500	780	180	110	30	35
CR 2-180		280		555	835	180	110		50
CR 2-220		280		625	905	180	110		55
CR 2-260		335		705	1040	180	110		60

* CR 2 with oval flanges

** CR 2 with DIN flanges

Pipework connection:

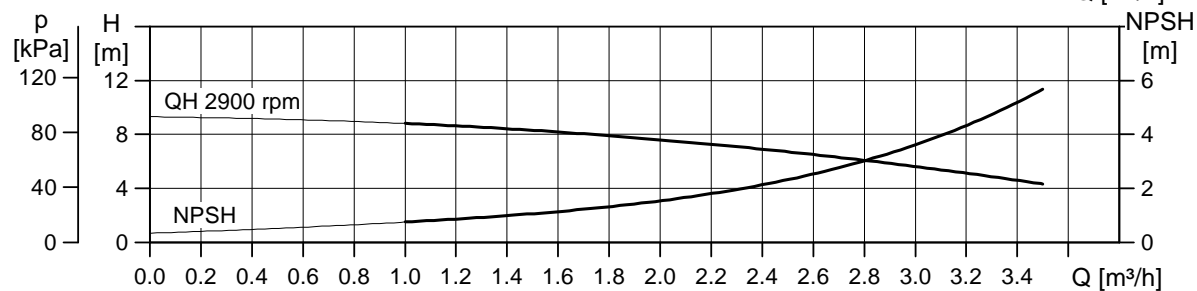
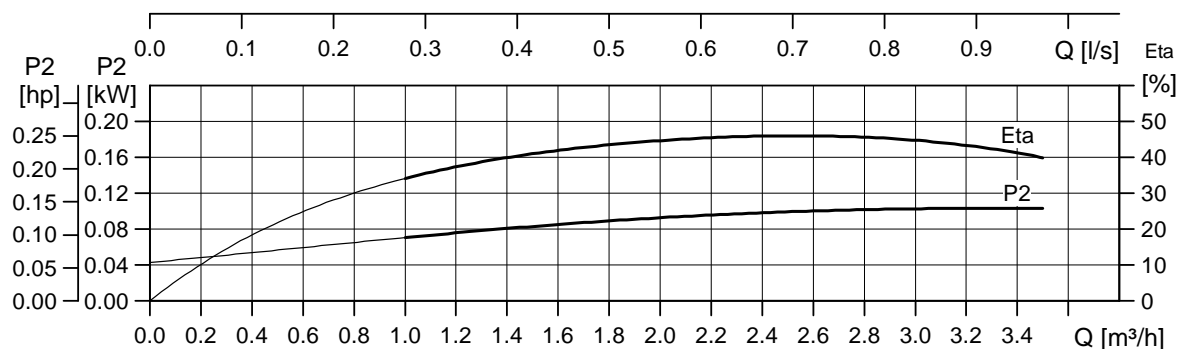
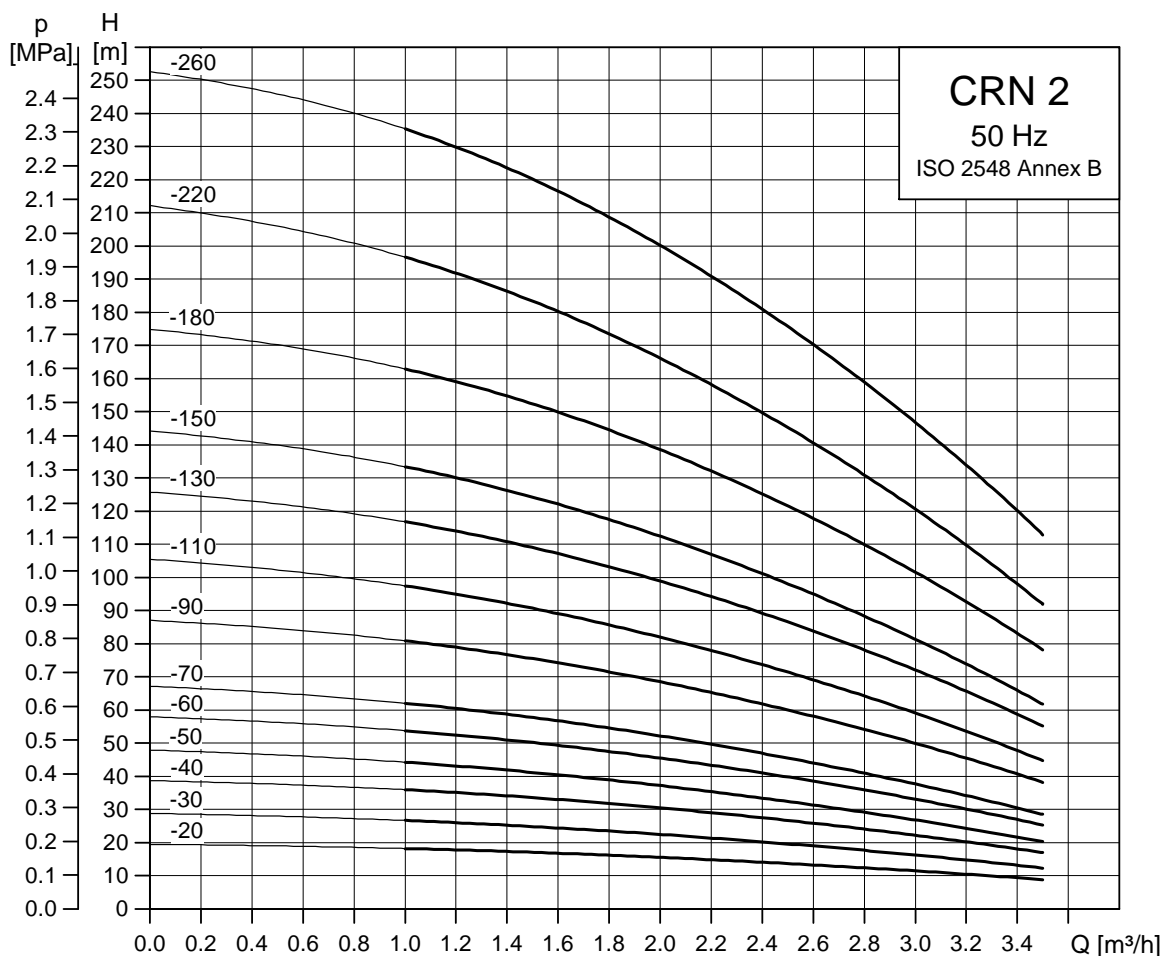
DIN 2566 with threaded socket

DIN 2634 with socket for welding

Electrical Data

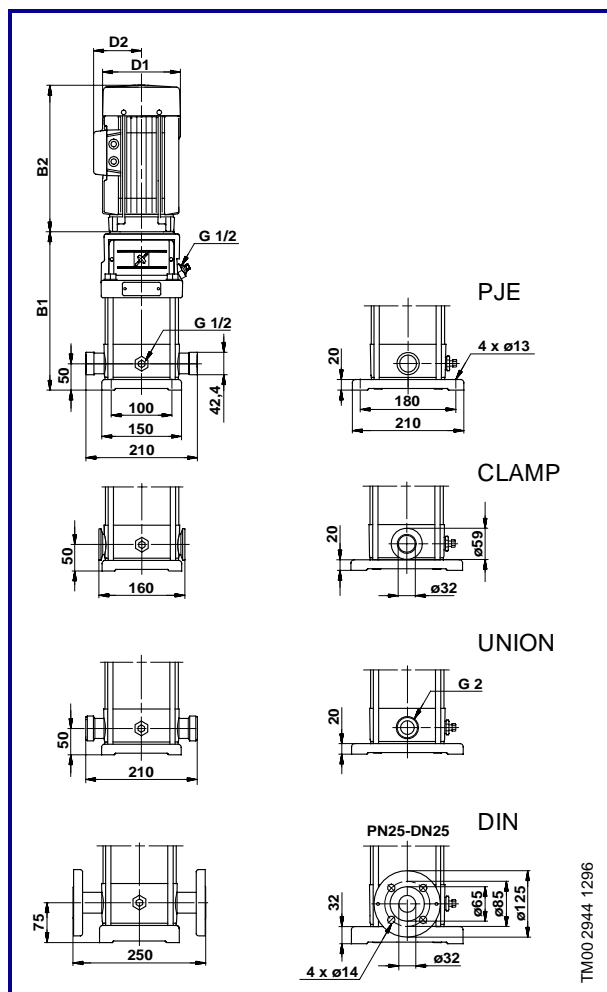
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 2-20	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CR 2-30	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CR 2-40	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CR 2-50	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CR 2-60	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CR 2-70	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CR 2-90	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CR 2-110	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CR 2-130	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CR 2-150	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CR 2-180	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 2-220	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 2-260	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5



TM00 0410 3498

Dimensional Sketches



Dimensions and Weight

Pump Type	Dimensions [mm]						Net Weight [kg]
	* B1	B2	* B1 + B2	** B1	** B1 + B2	D1	
CRN 2-20	220	190	410	245	435	140	20
CRN 2-30	240	190	430	265	455	140	20
CRN 2-40	260	190	450	285	475	140	20
CRN 2-50	275	190	465	300	490	140	20
CRN 2-60	300	230	530	325	555	140	25
CRN 2-70	315	230	545	340	570	140	25
CRN 2-90	350	230	580	375	605	140	30
CRN 2-110	385	230	615	410	640	140	30
CRN 2-130	440	280	720	465	745	180	35
CRN 2-150	475	280	755	500	780	180	35
CRN 2-180	530	280	810	555	835	180	40
CRN 2-220	600	280	880	625	905	180	45
CRN 2-260	680	335	1015	705	1040	180	50

* CRN 2 with PJE or CLAMP couplings or for unions

** CRN 2 with DIN flanges

Pipework connection:

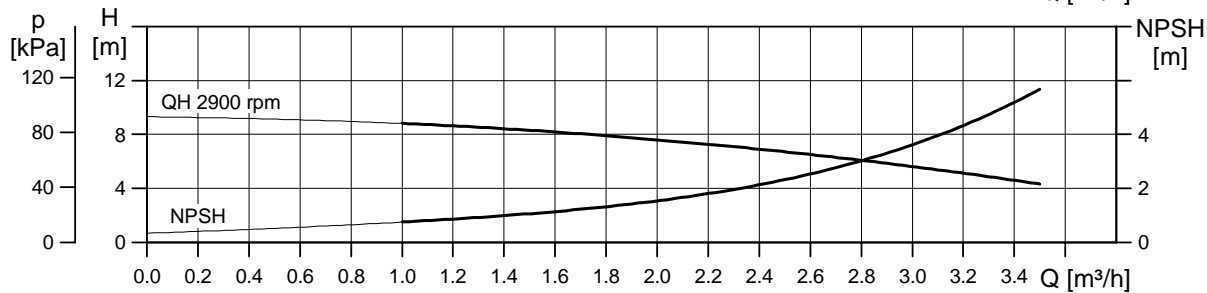
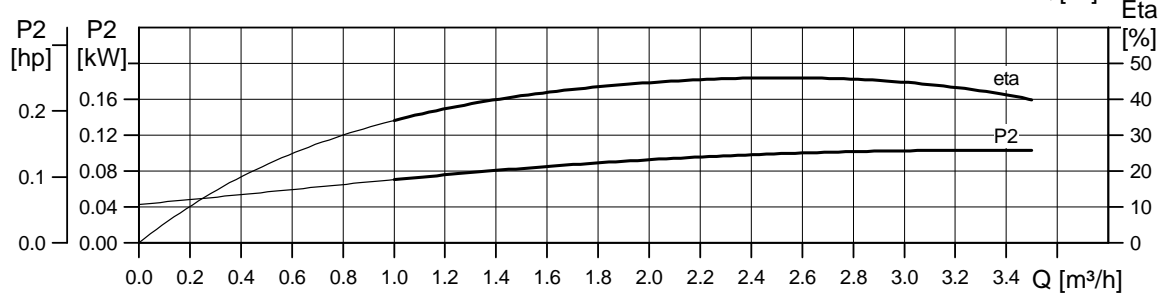
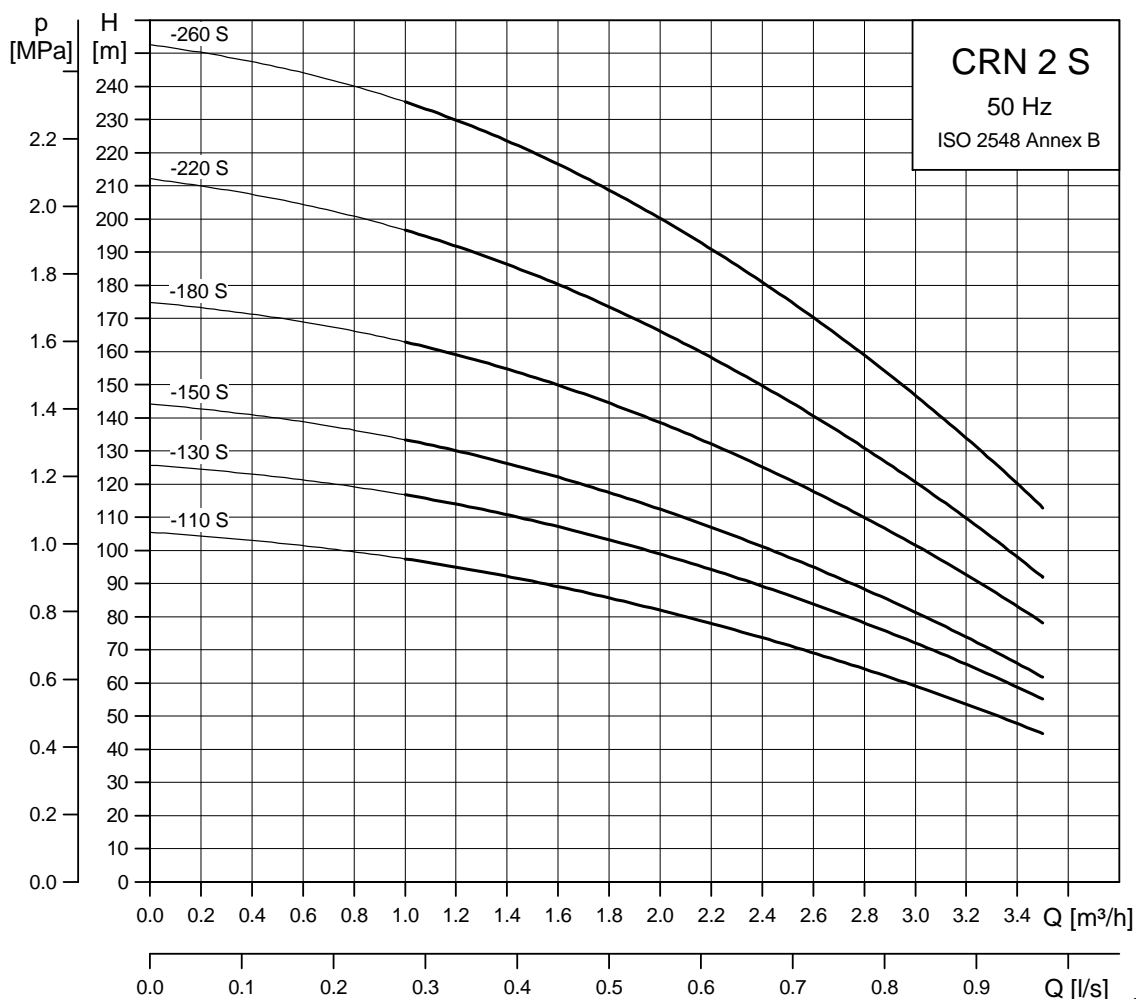
DIN 2566 with threaded socket

DIN 2634 with socket for welding

Electrical Data

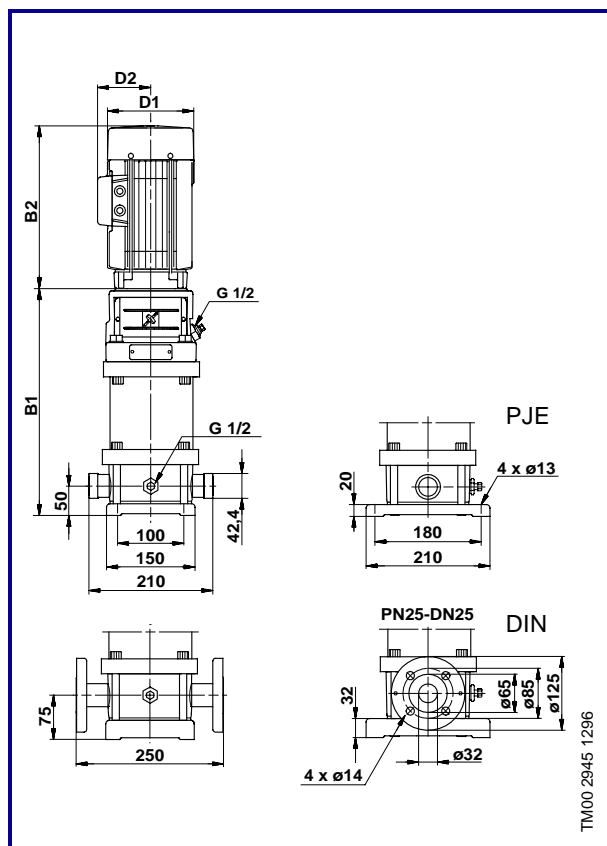
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 2-20	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CRN 2-30	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CRN 2-40	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CRN 2-50	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CRN 2-60	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CRN 2-70	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CRN 2-90	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 2-110	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 2-130	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 2-150	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 2-180	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 2-220	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 2-260	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5



TM00 3156 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]							Net Weight [kg]
	* B1	B2	* B1 + B2	** B1	** B1 + B2	D1	D2	
CRN 2-110 S	385	230	615	410	640	140	110	35
CRN 2-130 S	440	280	720	465	745	180	110	40
CRN 2-150 S	475	280	755	500	780	180	110	40
CRN 2-180 S	530	280	810	555	835	180	110	45
CRN 2-220 S	600	280	880	625	905	180	110	50
CRN 2-260 S	680	335	1015	705	1040	180	110	55

* CRN 2 S with PJE couplings

** CRN 2 S with DIN flanges

Pipework connection:

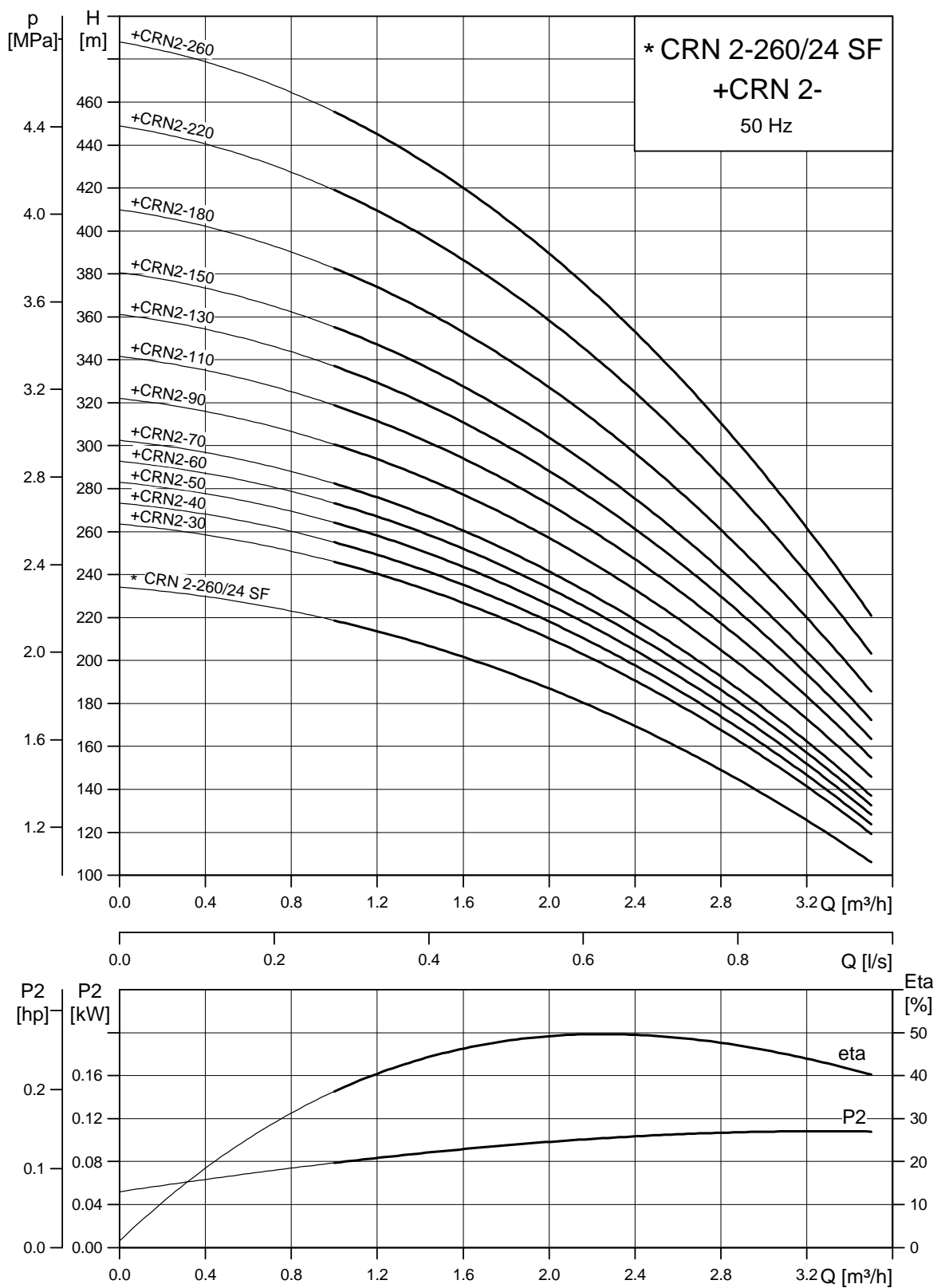
DIN 2566 with threaded socket

DIN 2634 with socket for welding

Electrical Data

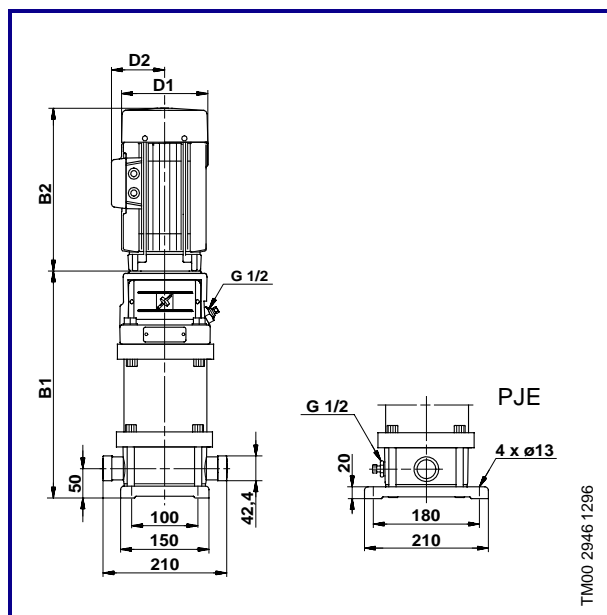
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 2-110 S	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 2-130 S	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 2-150 S	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 2-180 S	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 2-220 S	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 2-260 S	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5



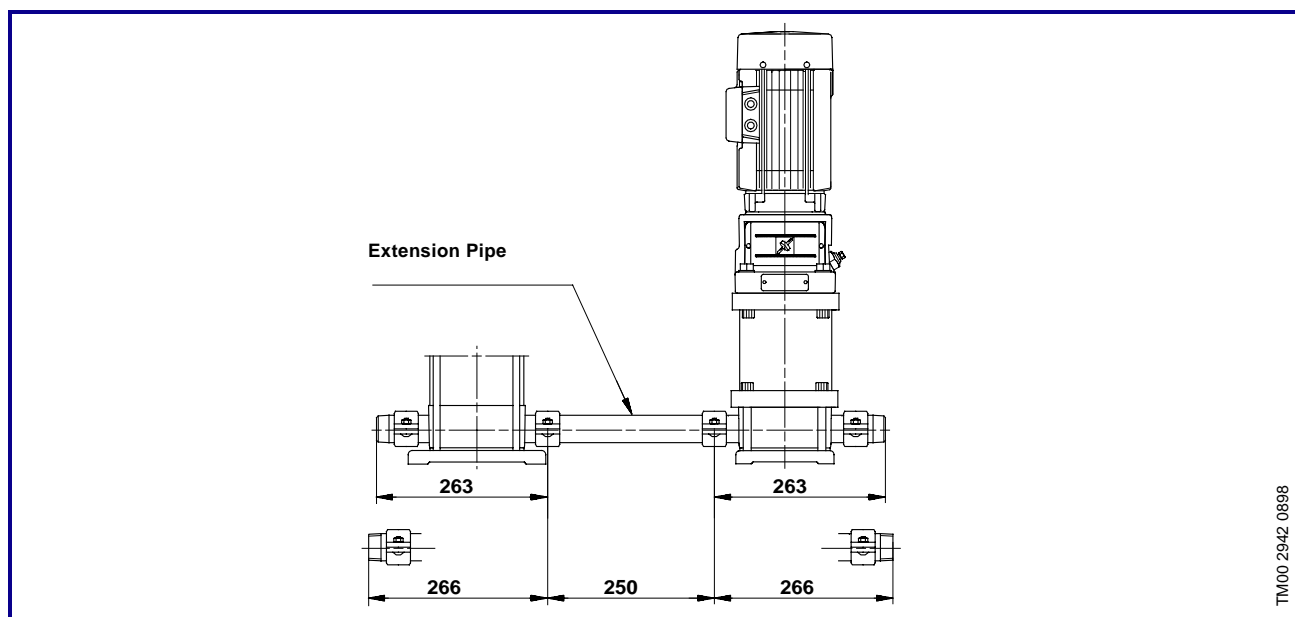
TM00 3689 3498

Dimensional Sketches



Dimensions and Weights

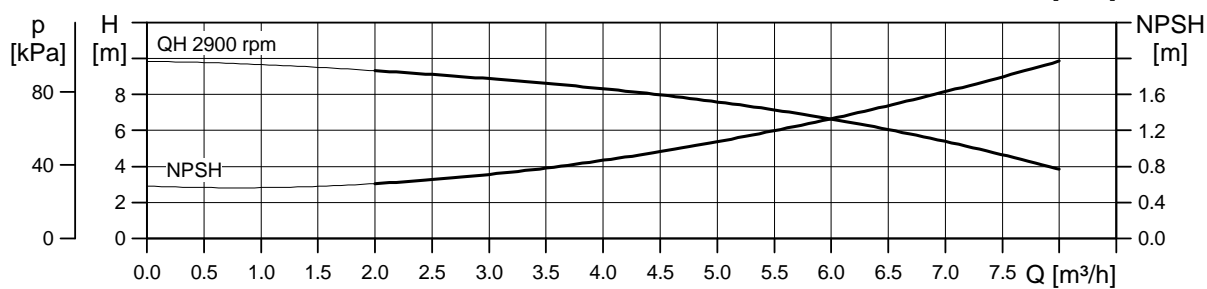
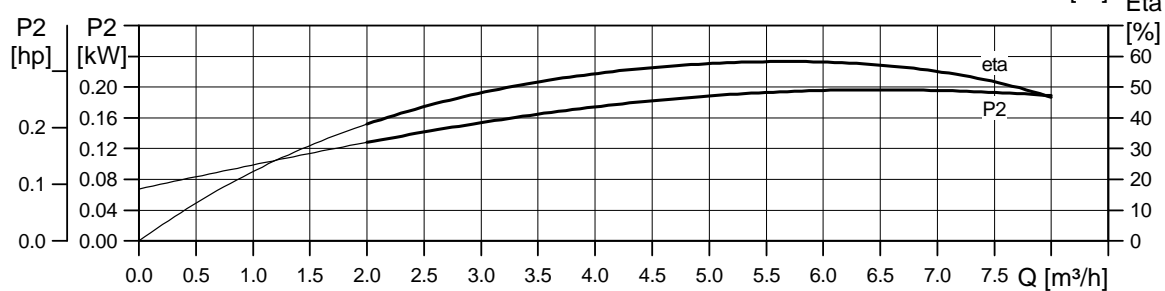
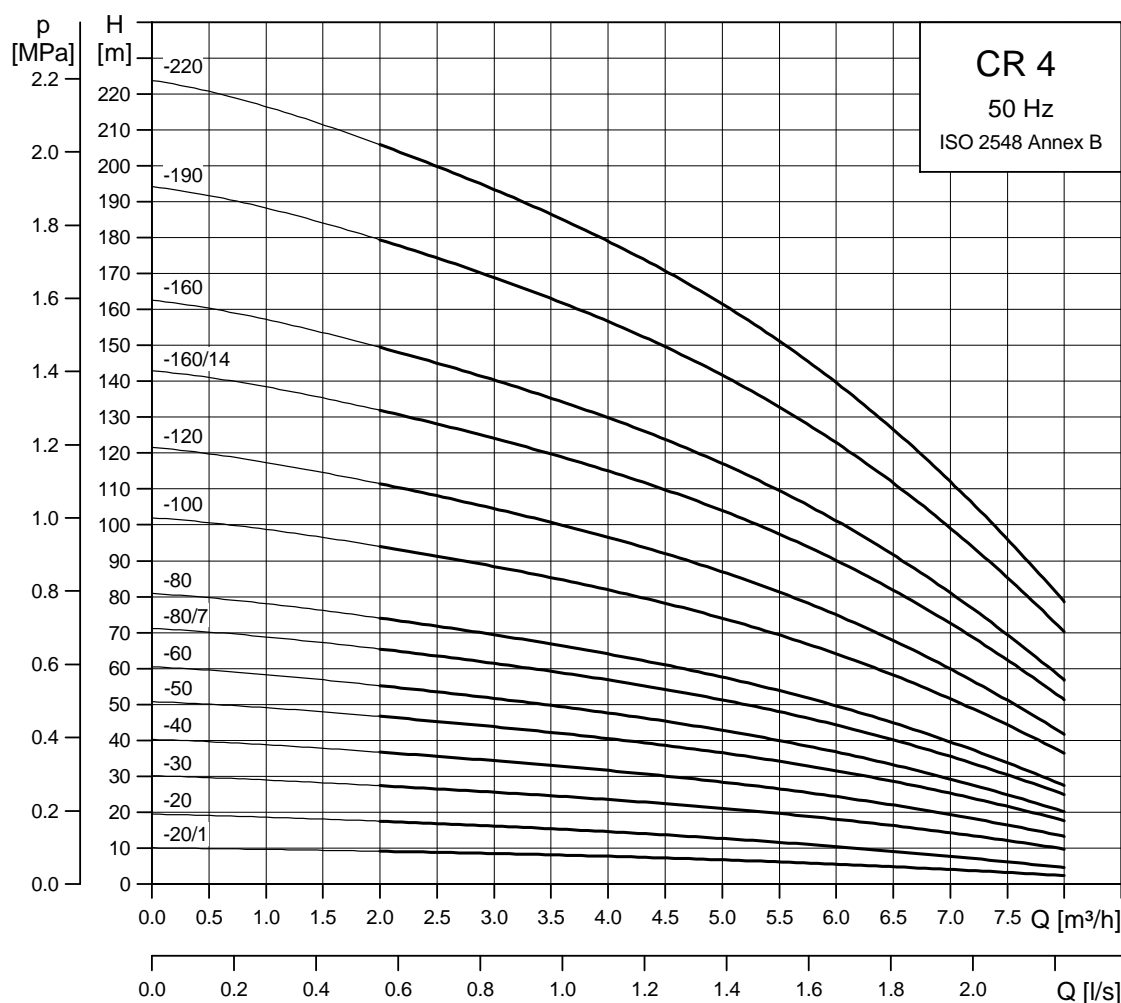
Pump Type	Dimensions [mm]					Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	
CRN 2-260/24 SF	680	370	1050	180	135	50



Electrical Data

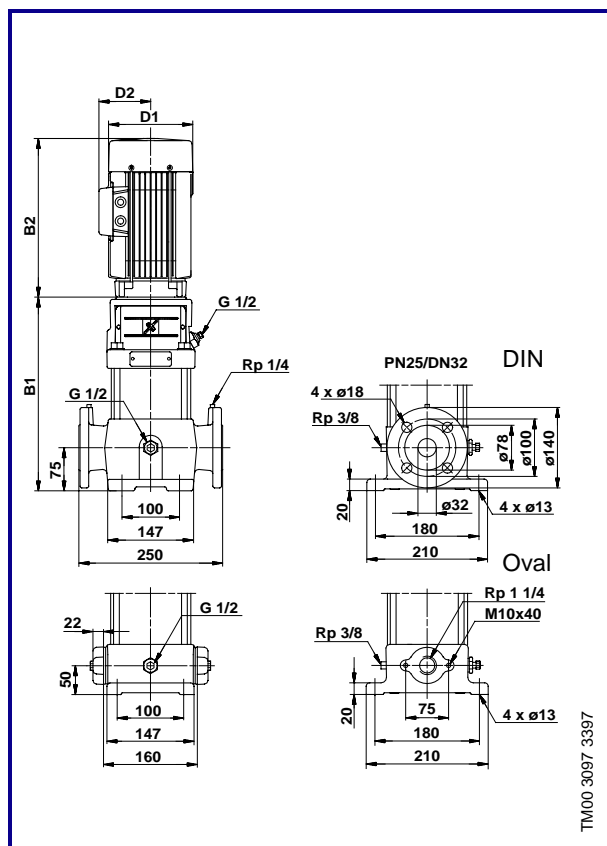
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 2-260/24 SF	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5



TM00 0411 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]							Net Weight [kg]	
	*		*	**	**			*	**
	B1	B2	B1 + B2	B1	B1 + B2	D1	D2		
CR 4-20/1	235	190	425	260	450	140	110	20	25
CR 4-20	235	190	425	260	450	140	110	20	25
CR 4-30	265	190	455	290	480	140	110	20	25
CR 4-40	295	230	525	320	550	140	110	20	25
CR 4-50	325	230	555	350	580	140	110	20	25
CR 4-60	350	230	580	375	605	140	110	20	25
CR 4-80/7	420	280	700	445	720	180	125	25	30
CR 4-80	420	280	700	445	725	180	110	25	30
CR 4-100	475	280	755	500	780	180	110	30	35
CR 4-120	530	280	810	555	835	180	110	30	35
CR 4-160/14	645	335	980	670	1005	180	110	40	45
CR 4-160	645	335	980	670	1005	180	110	45	50
CR 4-190		370		750	1080	180	135		60
CR 4-220		370		830	1200	180	135		65

* CR 4 with oval flanges
 ** CR 4 with DIN flanges

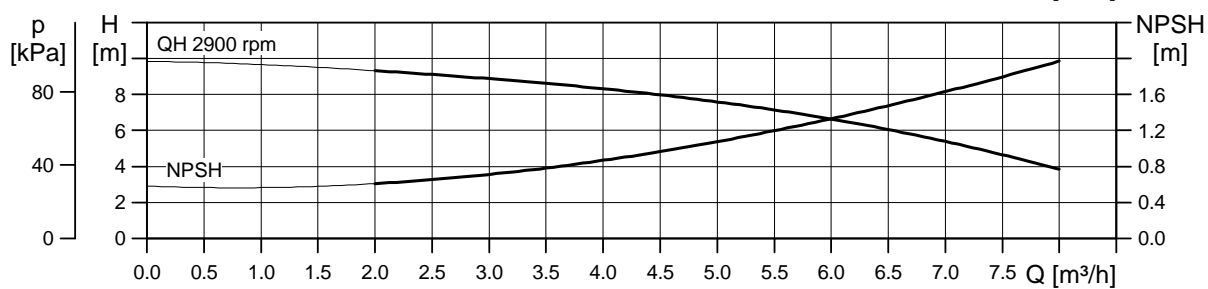
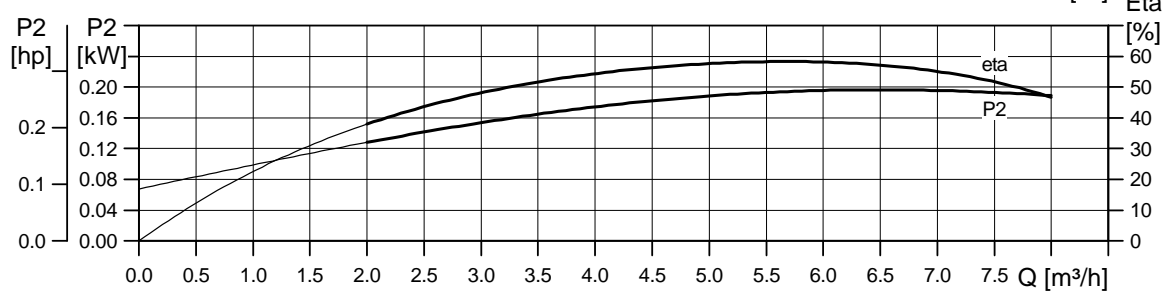
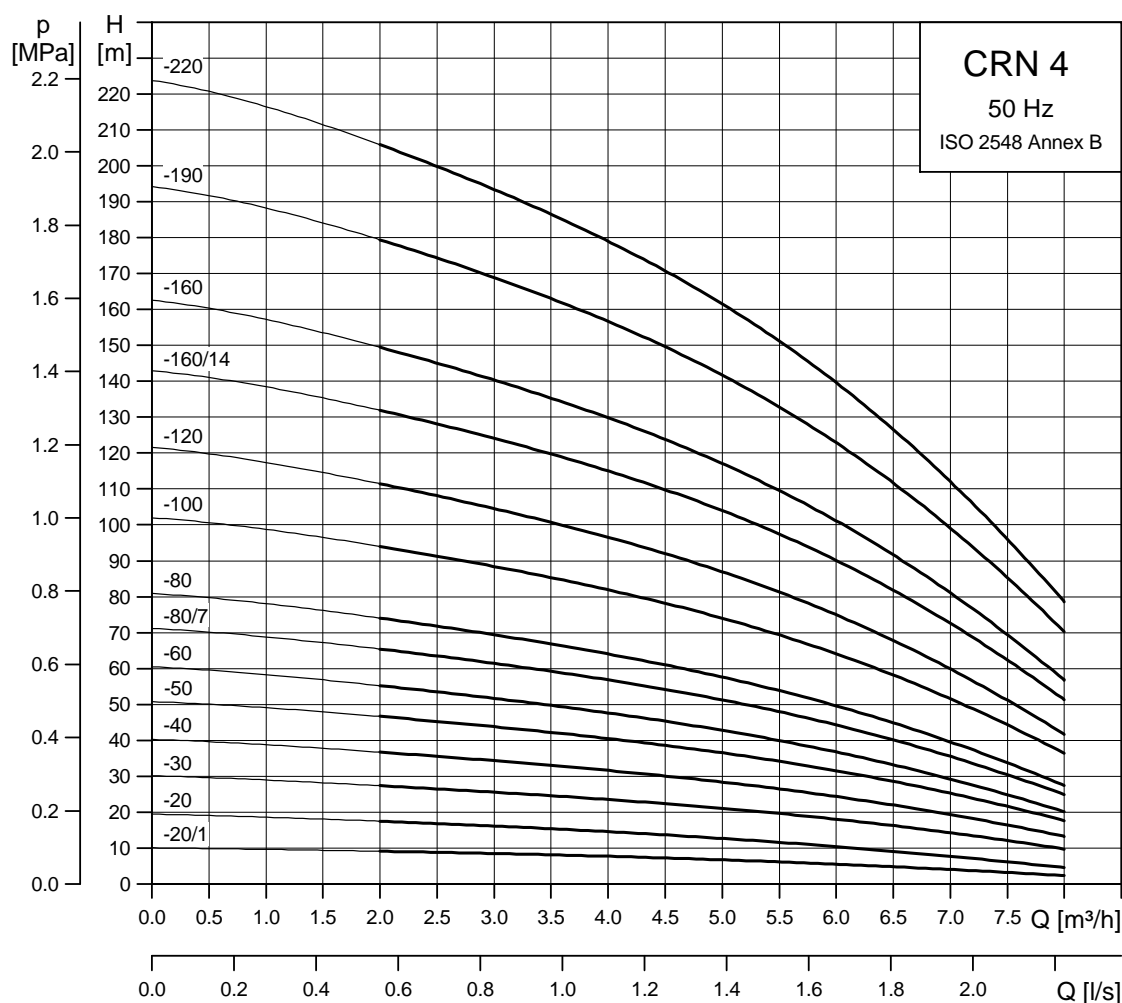
Pipework connection:

DIN 2566 with threaded socket
 DIN 2634 with socket for welding

Electrical Data

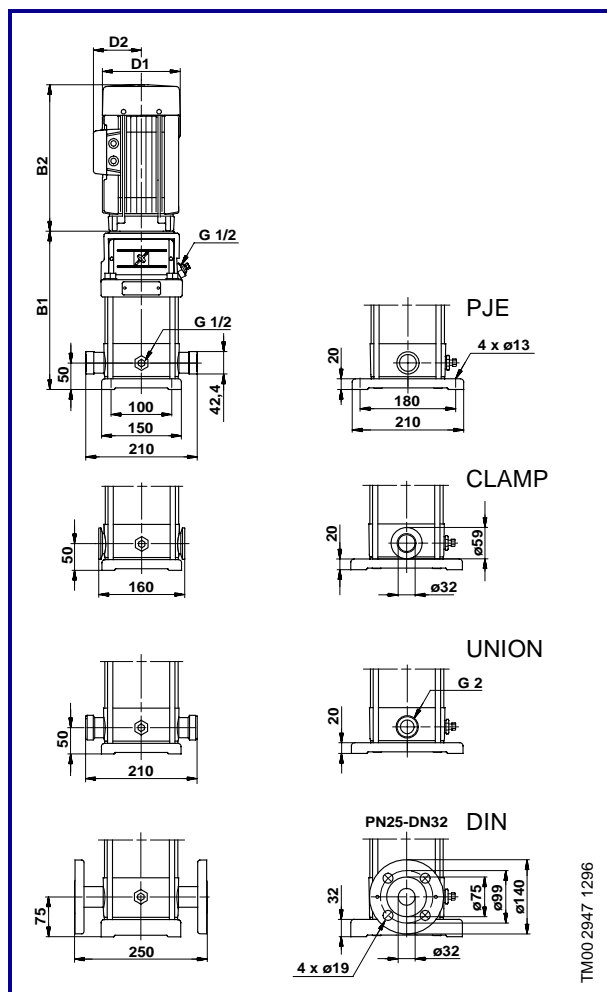
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 4-20/1	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CR 4-20	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CR 4-30	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CR 4-40	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CR 4-50	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CR 4-60	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CR 4-80/7	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CR 4-80	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CR 4-100	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 4-120	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 4-160/14	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CR 4-160	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CR 4-190	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CR 4-220	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5



TM00 0412 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	* B1	B2	* B1 + B2	** B1	** B1 + B2	D1	D2
CRN 4-20/1	235	190	425	260	450	140	110
CRN 4-20	235	190	425	260	450	140	110
CRN 4-30	265	190	455	290	480	140	110
CRN 4-40	295	230	525	320	550	140	110
CRN 4-50	325	230	555	350	580	140	110
CRN 4-60	350	230	580	375	605	140	110
CRN 4-80/7	420	280	700	445	725	180	110
CRN 4-80	420	280	700	445	725	180	110
CRN 4-100	475	280	755	500	780	180	110
CRN 4-120	530	280	810	555	835	180	110
CRN 4-160/14	645	335	980	670	1005	180	110
CRN 4-160	645	335	980	670	1005	180	110
CRN 4-190	725	370	1095	750	1120	180	135
CRN 4-220	805	370	1175	830	1200	180	135

* CRN 4 with PJE or CLAMP couplings or for unions

** CRN 4 with DIN flanges

Pipework connection:

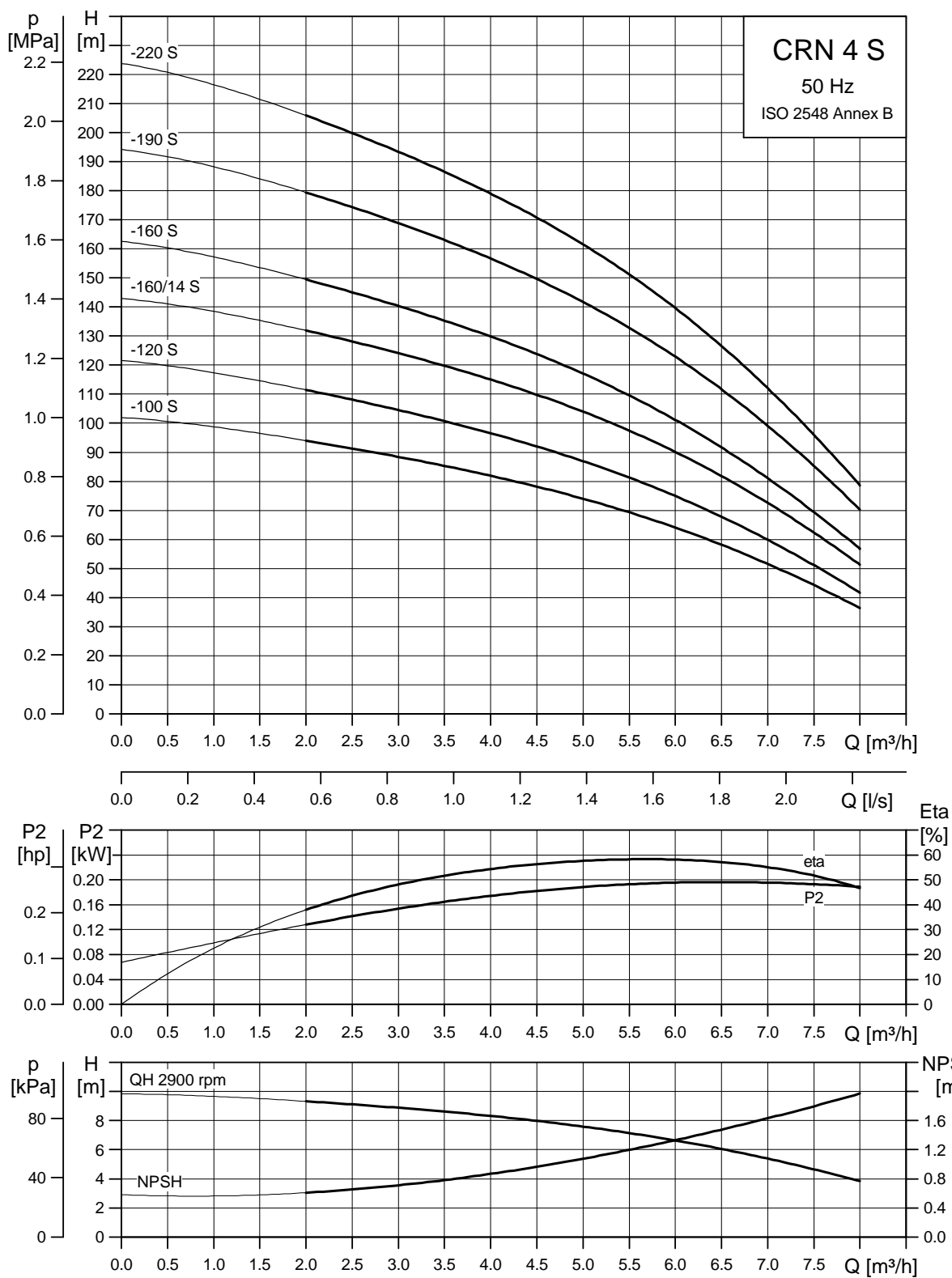
DIN 2566 with threaded socket

DIN 2634 with socket for welding

Electrical Data

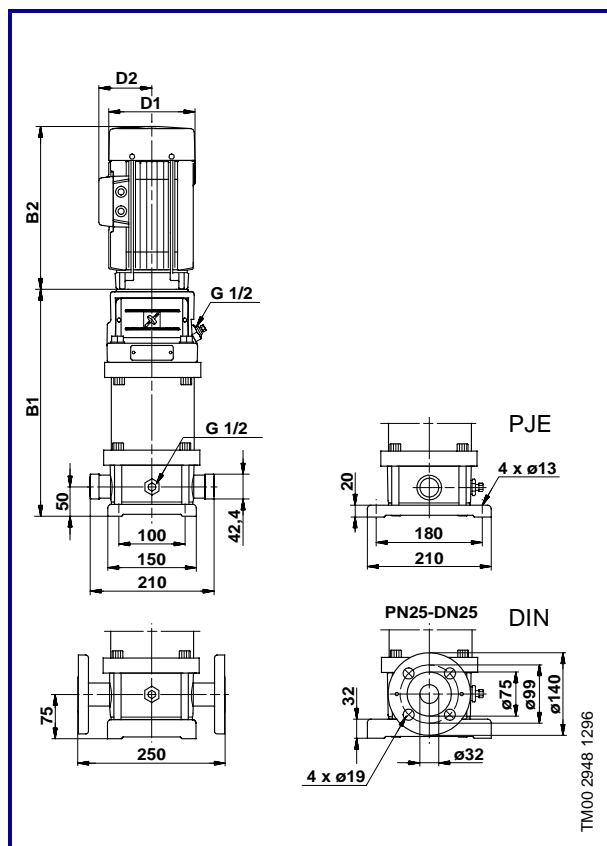
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 4-20/1	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CRN 4-20	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CRN 4-30	0.55	0.75	1.44	0.84-0.76	72	4.8-5.2
CRN 4-40	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CRN 4-50	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 4-60	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 4-80/7	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 4-80	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 4-100	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 4-120	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 4-160/14	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 4-160	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 4-190	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 4-220	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]							Net Weight [kg]
	* B1	B2	* B1 + B2	** B1	** B1 + B2	D1	D2	
CRN 4-100 S	475	280	755	500	780	180	110	35
CRN 4-120 S	530	280	810	555	835	180	110	35
CRN 4-160/14 S	645	335	980	670	1005	180	110	40
CRN 4-160 S	645	335	980	670	1005	180	110	40
CRN 4-190 S	725	370	1095	750	1120	180	135	40
CRN 4-220 S	805	370	1175	830	1200	180	135	45

* CRN 4 S with PJE couplings

** CRN 4 S with DIN flanges

Pipework connection:

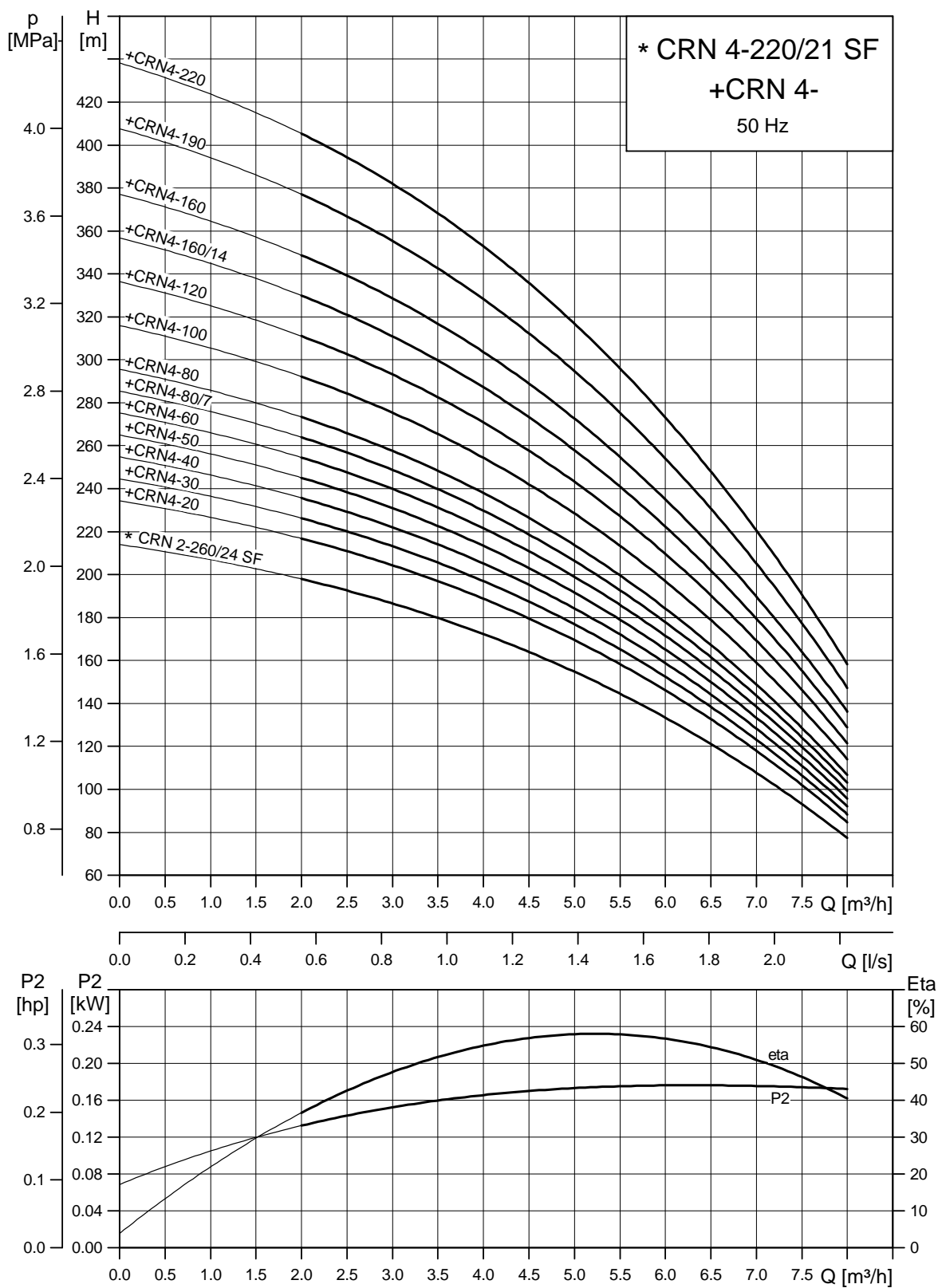
DIN 2566 with threaded socket

DIN 2634 with socket for welding

Electrical Data

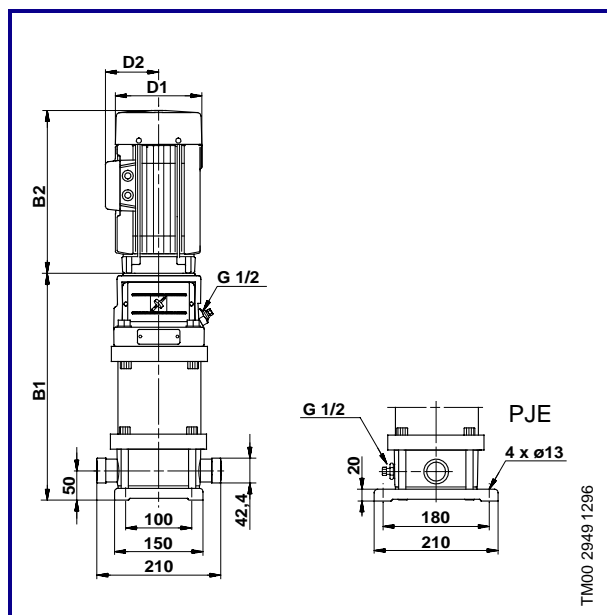
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 4-100 S	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 4-120 S	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 4-160/14 S	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 4-160 S	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 4-190 S	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 4-220 S	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5



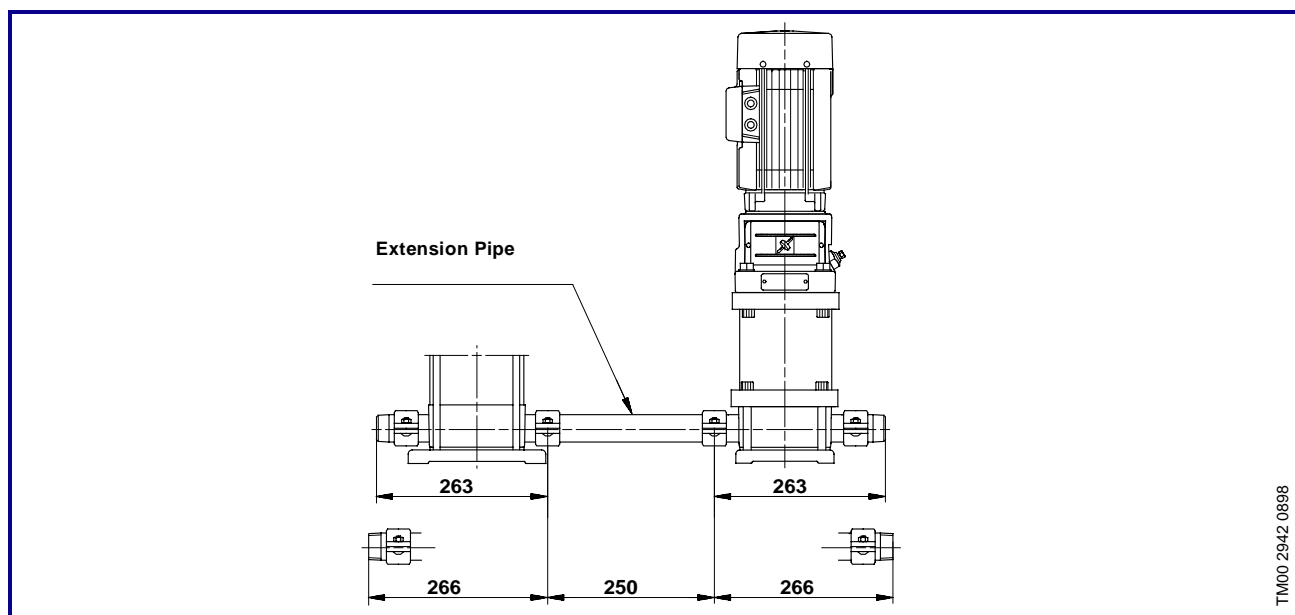
TM00 3690 3498

Dimensional Sketches



Dimensions and Weights

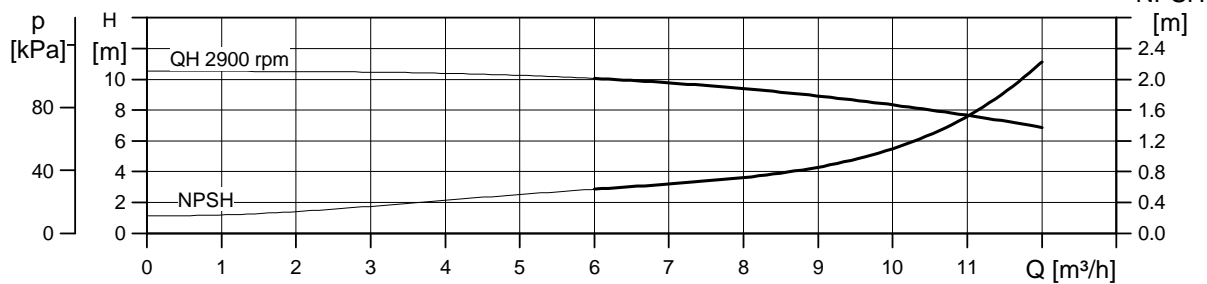
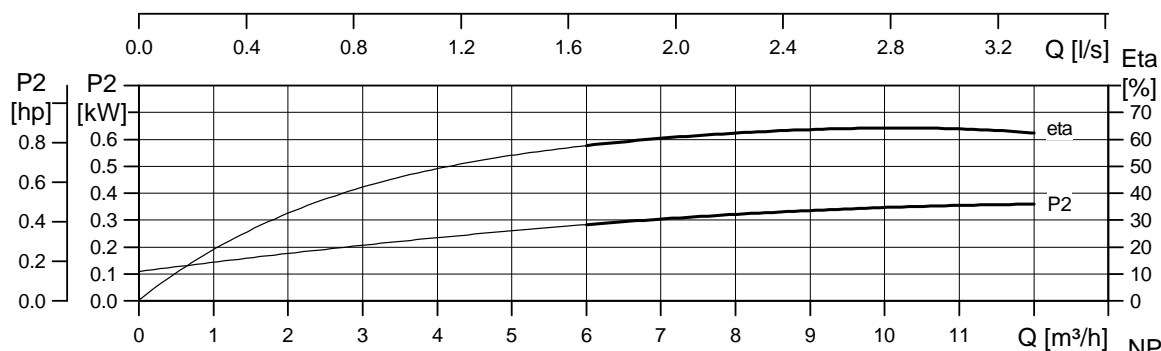
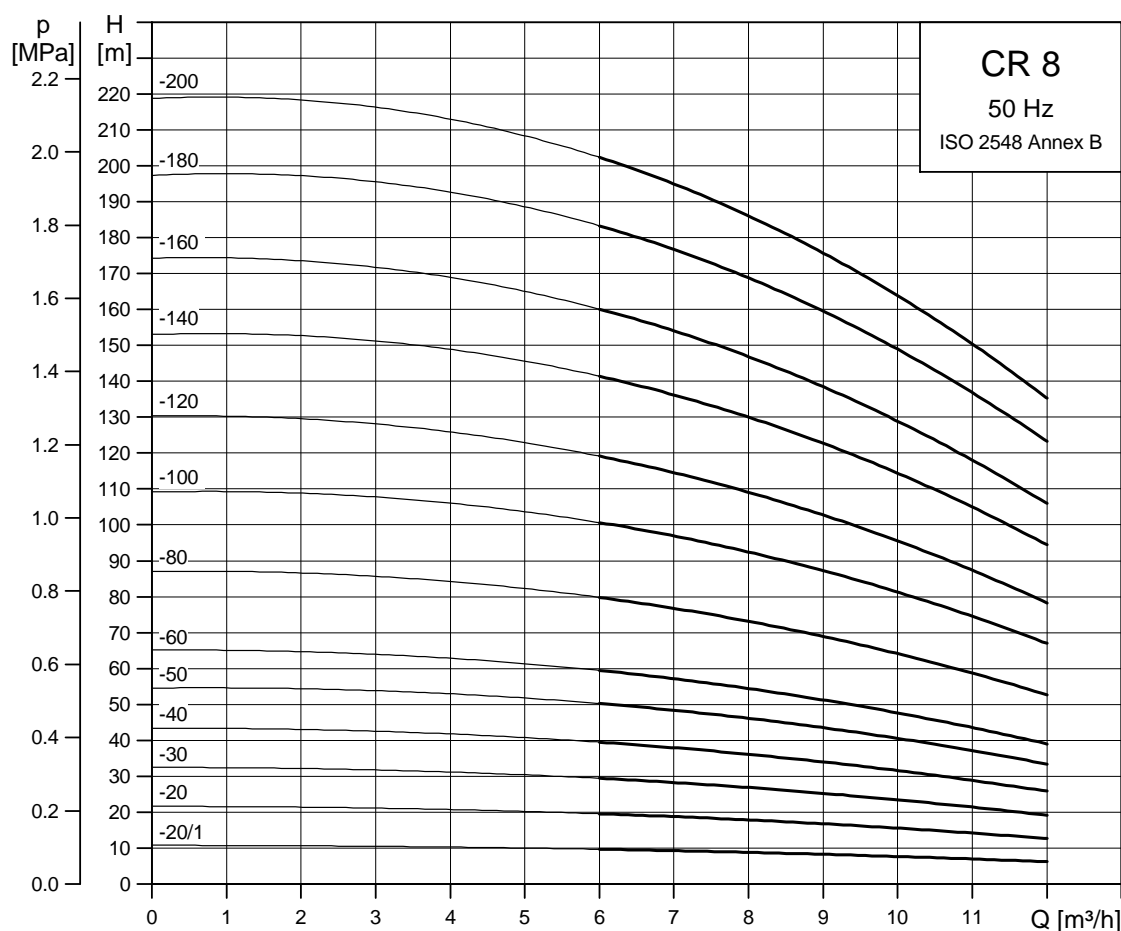
Pump Type	Dimensions [mm]					Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	
CRN 4-220/21 SF	805	370	1175	180	135	40



Electrical Data

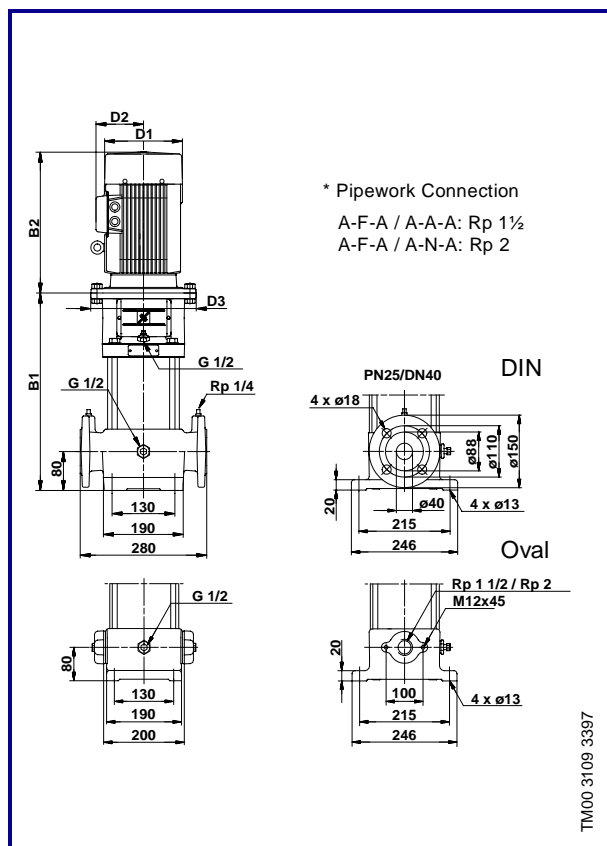
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 4-220/21 SF	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]	
	B1	B2	B1 + B2	D1	D2	D3	*	**
CR 8-20/1	335	190	525	140	110		30	35
CR 8-20	340	230	570	140	110		30	35
CR 8-30	370	230	600	140	110		30	35
CR 8-40	415	280	695	180	110		40	45
CR 8-50	445	280	725	180	110		45	50
CR 8-60	475	280	755	180	110		45	50
CR 8-80	540	335	875	180	110		50	55
CR 8-100	600	370	970	180	135		50	55
CR 8-120	660	370	1030	180	135		55	60
CR 8-140	740	390	1130	220	135	300		85
CR 8-160	800	390	1190	220	135	300		85
CR 8-180	860	390	1250	220	135	300		90
CR 8-200	920	390	1310	220	135	300		90

* CR 8 with oval flanges

** CR 8 with DIN flanges

Pipework connection:

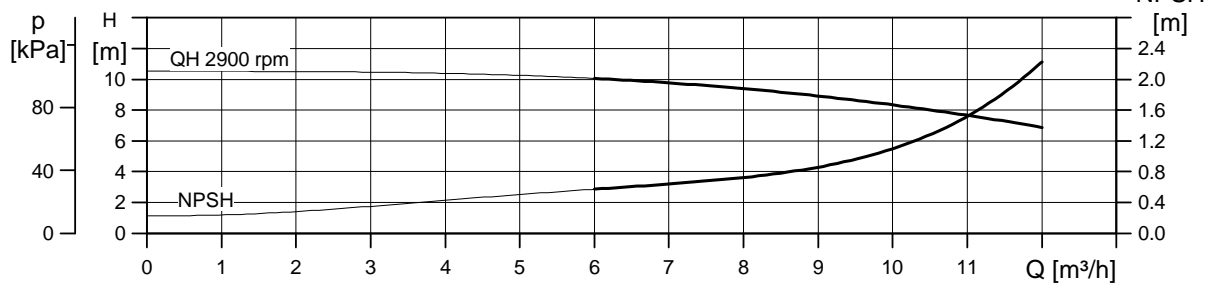
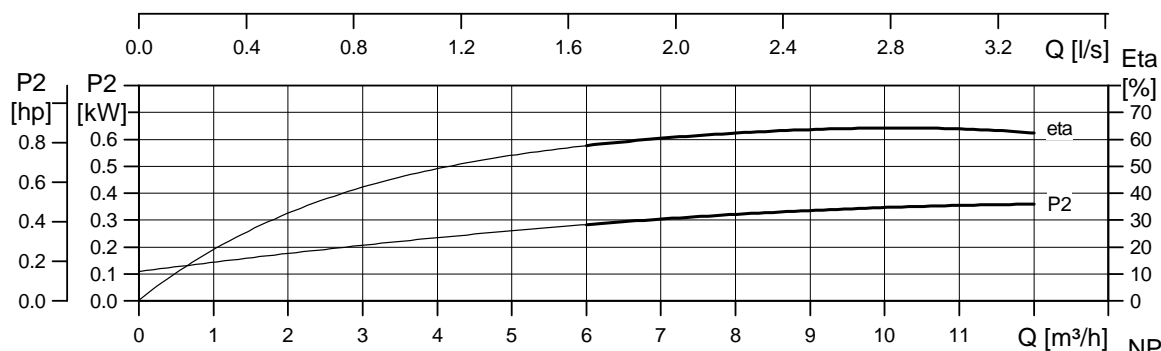
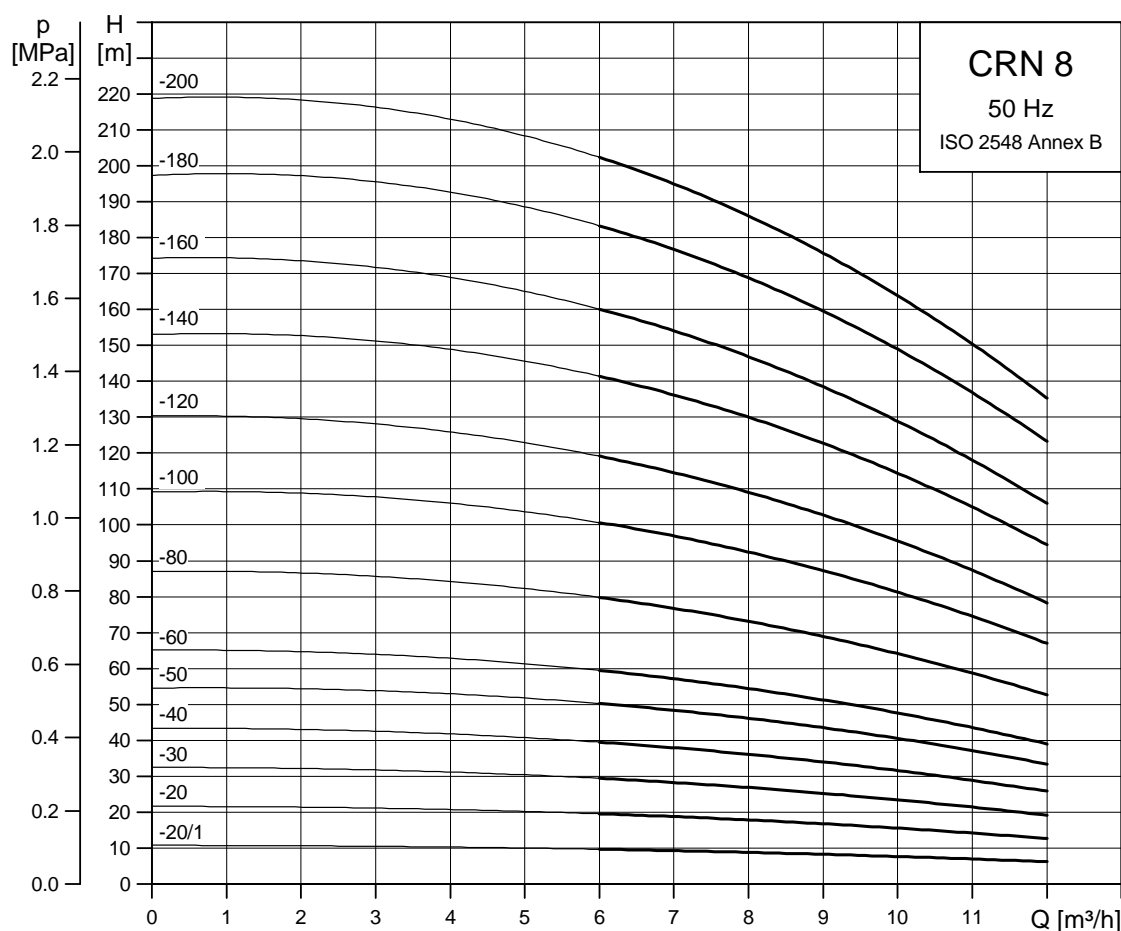
DIN 2566 with threaded socket

DIN 2634/2635 with socket for welding

Electrical Data

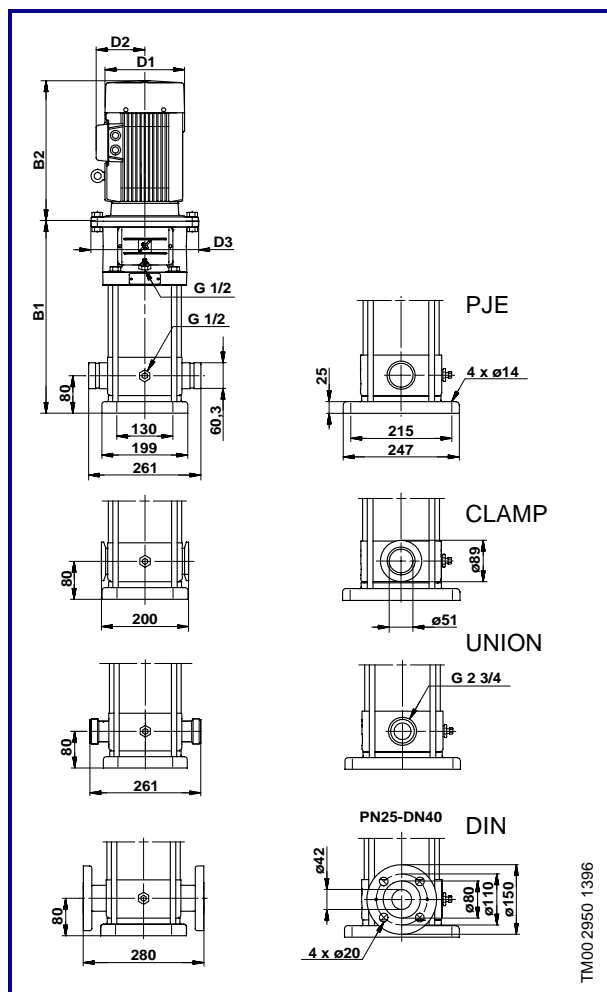
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current I _{1/1} [A]	Power Factor Cos φ _{1/1}	Motor Efficiency η[%]	I _{start} I _{1/1}
	[kW]	[hp]				
CR 8-20/1	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CR 8-20	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CR 8-30	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CR 8-40	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CR 8-50	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 8-60	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 8-80	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CR 8-100	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CR 8-120	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CR 8-140	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 8-160	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 8-180	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CR 8-200	7.5	10	15.2	0.87-0.81	89	9.1-9.9



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 8-20/1	335	190	525	140	110		25
CRN 8-20	340	230	570	140	110		25
CRN 8-30	370	230	600	140	110		30
CRN 8-40	415	280	695	180	110		30
CRN 8-50	445	280	725	180	110		40
CRN 8-60	475	280	755	180	110		40
CRN 8-80	540	335	875	180	125		45
CRN 8-100	600	370	970	180	135		55
CRN 8-120	660	370	1030	180	135		55
CRN 8-140	740	390	1130	220	135	300	80
CRN 8-160	800	390	1190	220	135	300	80
CRN 8-180	860	390	1250	220	135	300	90
CRN 8-200	920	390	1310	220	135	300	90

Pipework connection:

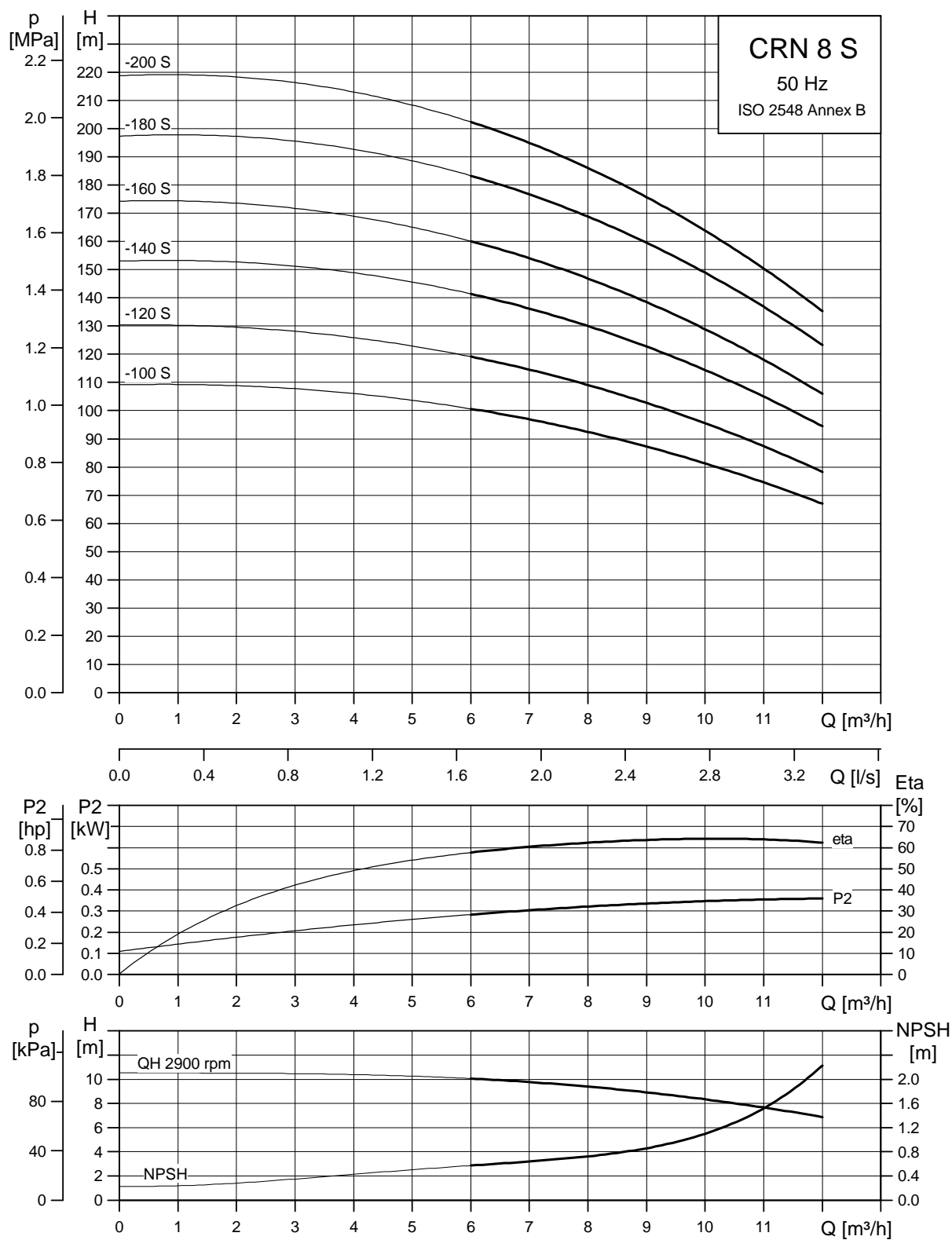
DIN 2566 with threaded socket

DIN 2634/2635 with socket for welding

Electrical Data

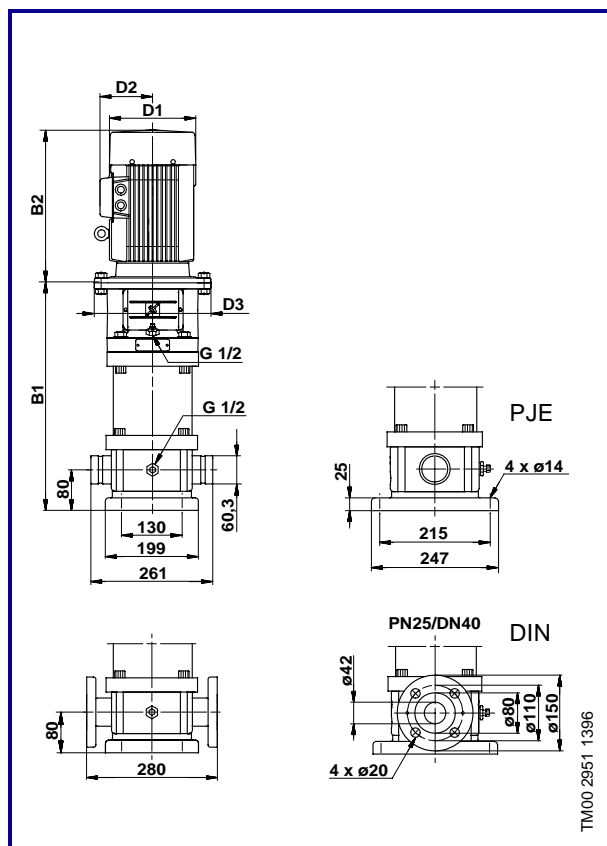
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 8-20/1	0.37	0.50	0.96	0.84-0.76	72	4.8-5.2
CRN 8-20	0.75	1.0	1.86	0.86-0.78	74	5.0-5.5
CRN 8-30	1.1	1.5	2.65	0.87-0.79	76	5.2-5.7
CRN 8-40	1.5	2.0	3.40	0.85-0.79	82	6.3-6.9
CRN 8-50	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 8-60	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 8-80	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 8-100	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 8-120	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 8-140	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 8-160	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 8-180	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 8-200	7.5	10	15.2	0.87-0.81	89	9.1-9.9



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 8-100 S	600	370	970	180	135		60
CRN 8-120 S	660	370	1030	180	135		60
CRN 8-140 S	740	390	1130	220	135	300	85
CRN 8-160 S	800	390	1190	220	135	300	85
CRN 8-180 S	860	390	1250	220	135	300	95
CRN 8-200 S	920	390	1310	220	135	300	95

Pipework connection:

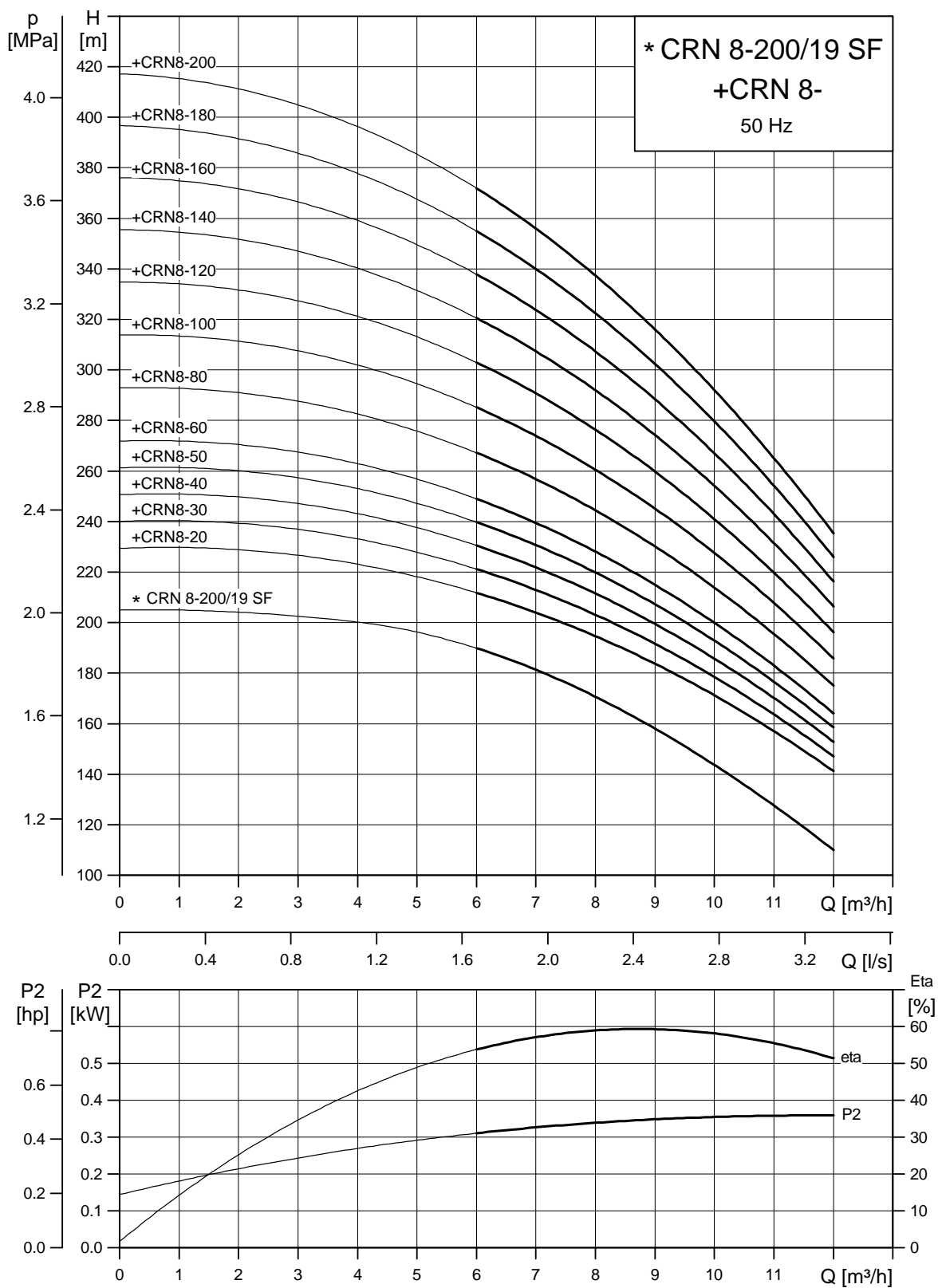
DIN 2566 with threaded socket

DIN 2634/2635 with socket for welding

Electrical Data

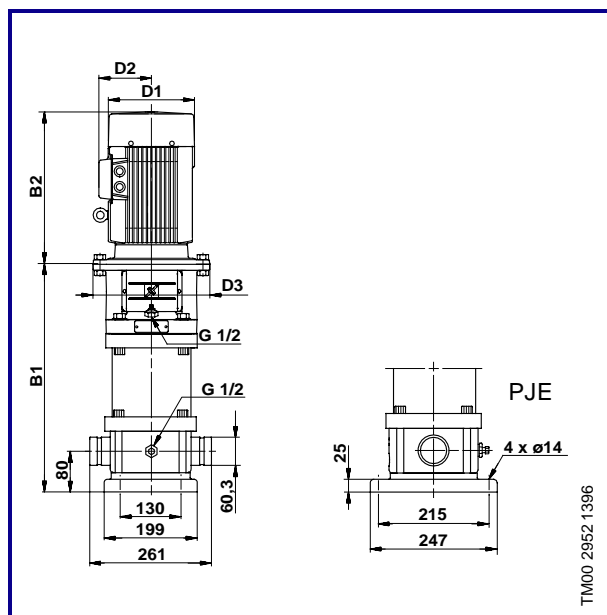
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 8-100 S	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 8-120 S	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 8-140 S	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 8-160 S	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 8-180 S	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 8-200 S	7.5	10	15.2	0.87-0.81	89	9.1-9.9



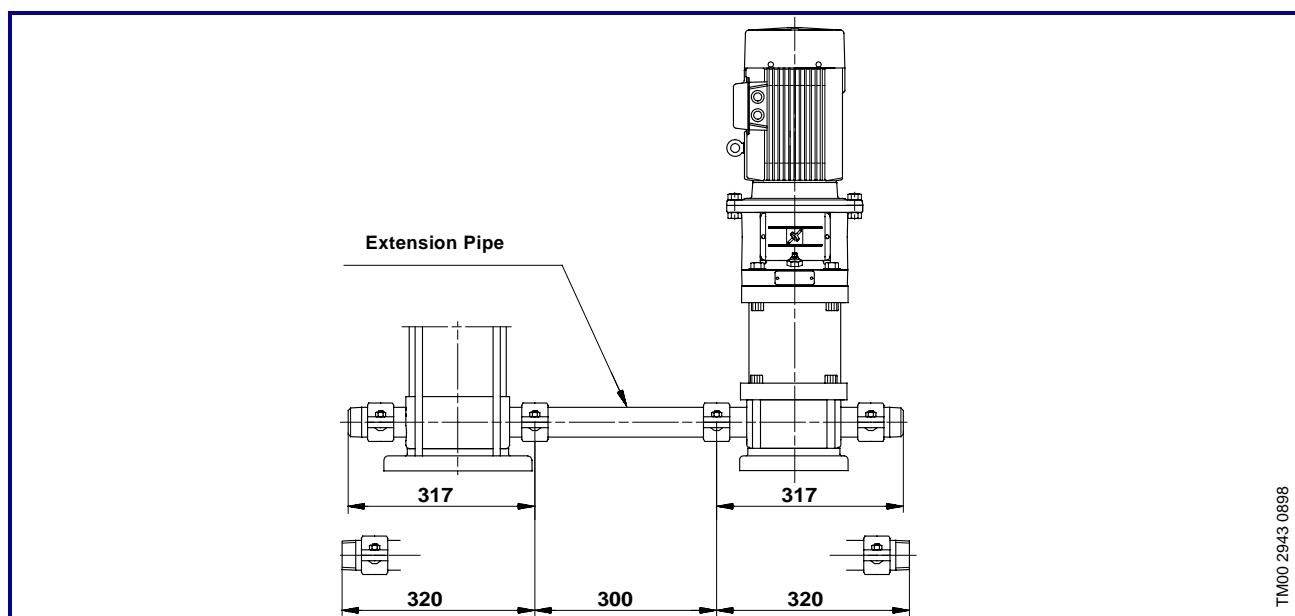
TM00 3691 3498

Dimensional Sketches



Dimensions and Weights

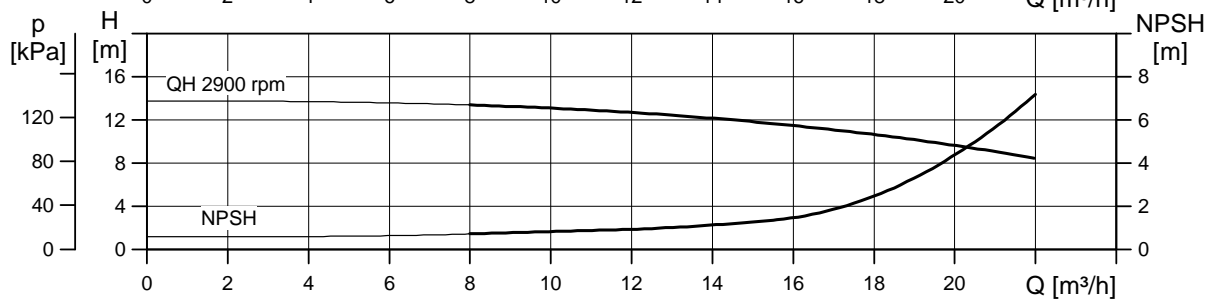
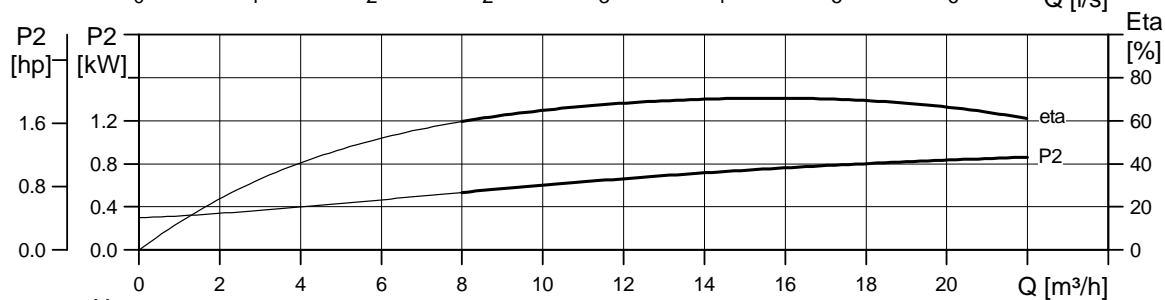
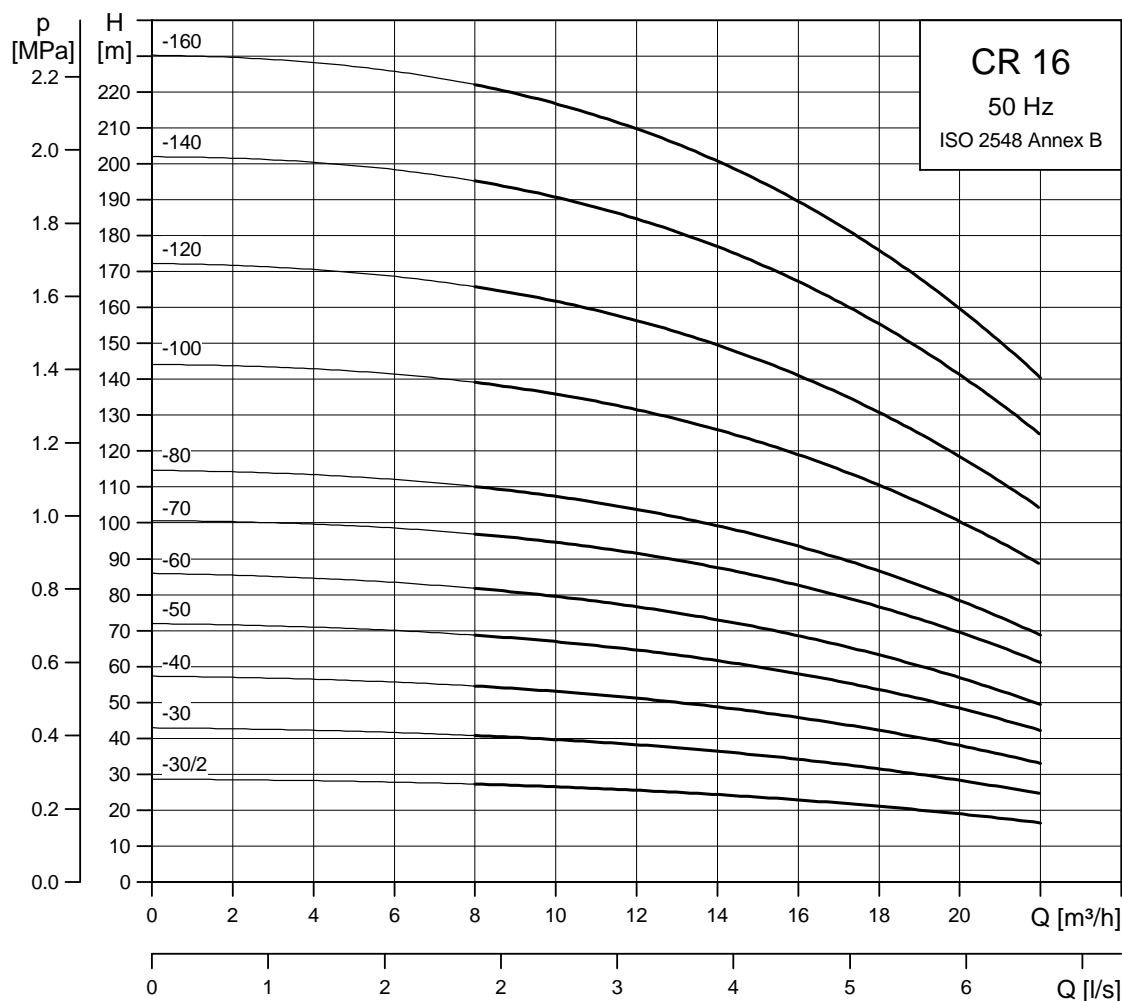
Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 8-200/19 SF	920	390	1310	220	135	300	90



Electrical Data

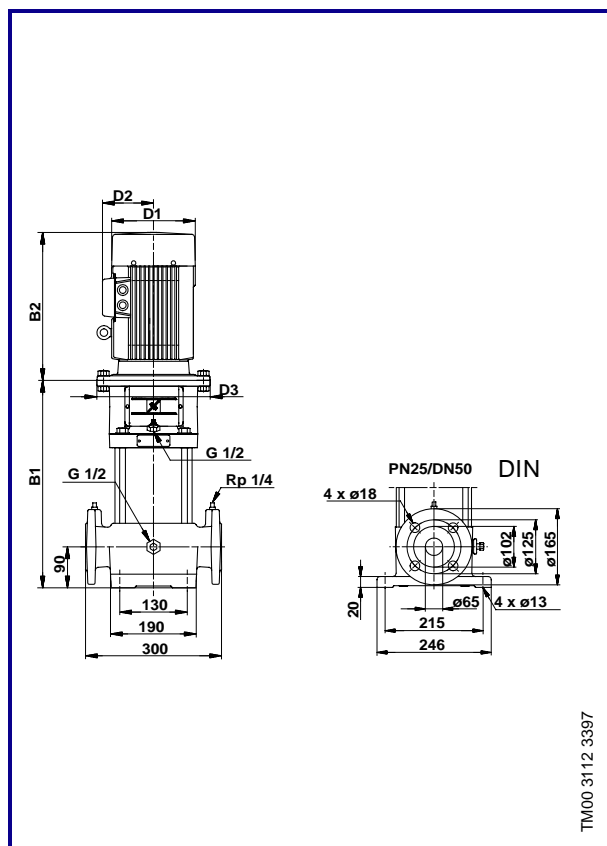
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 8-200/19 SF	7.5	10	15.2	0.87-0.81	89	9.1-9.9



TM00 0415 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CR 16-30/2	460	280	740	180	110		50
CR 16-30	460	335	795	180	110		55
CR 16-40	505	370	875	180	135		60
CR 16-50	570	390	960	220	135	300	80
CR 16-60	615	390	1005	220	135	300	85
CR 16-70	660	390	1050	220	135	300	90
CR 16-80	705	390	1095	220	135	300	90
CR 16-100	825	465	1290	260	170	350	125
CR 16-120	915	465	1380	260	170	350	130
CR 16-140	1005	505	1510	325	250	350	175
CR 16-160	1095	505	1600	325	250	350	180

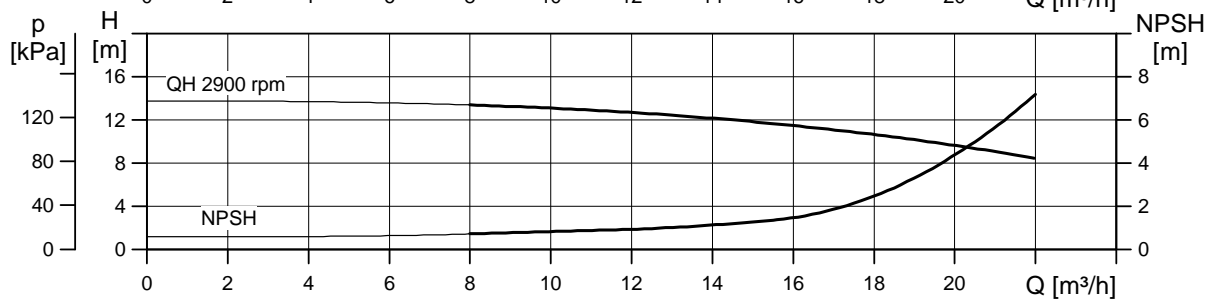
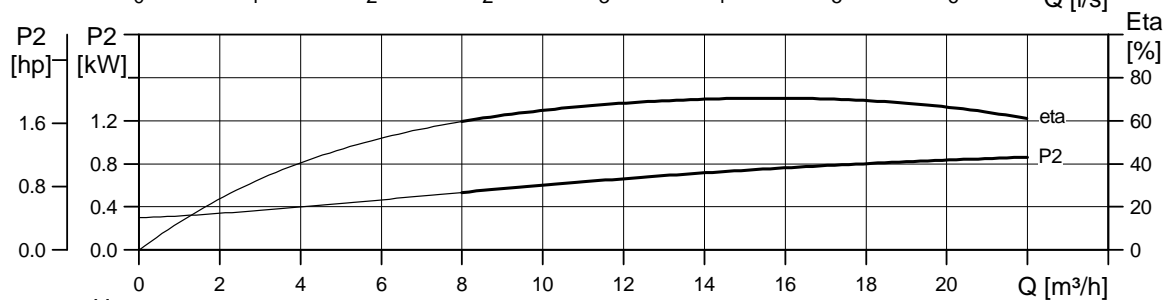
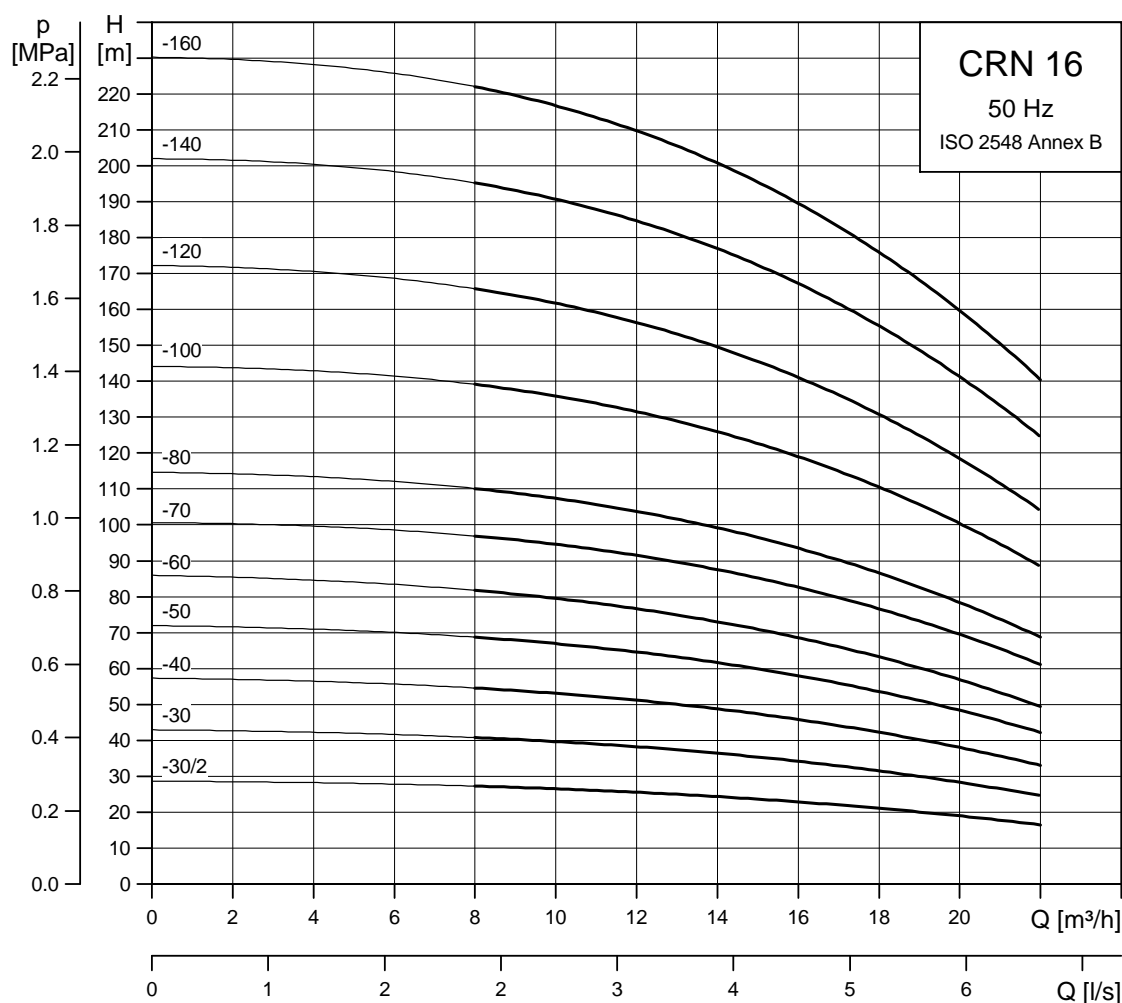
Pipework connection:

DIN 2566 with threaded socket
DIN 2634 with socket for welding

Electrical Data

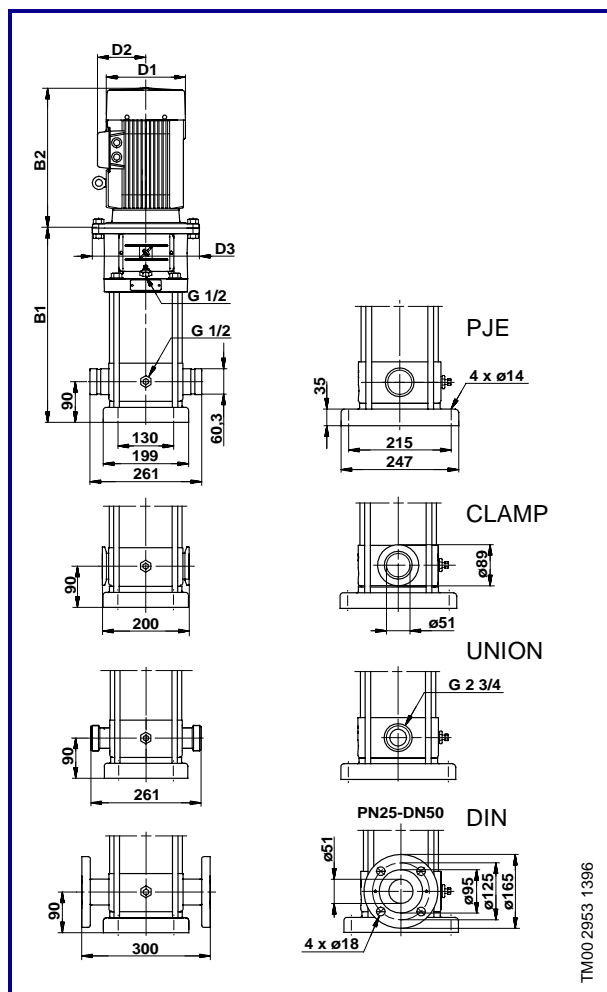
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 16-30/2	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CR 16-30	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CR 16-40	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CR 16-50	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 16-60	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 16-70	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CR 16-80	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CR 16-100	11	15	21.5	0.91-0.87	85	7.3-8.0
CR 16-120	11	15	21.5	0.91-0.87	85	7.3-8.0
CR 16-140	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8
CR 16-160	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8



TM00 0416 3498

Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 16-30/2	460	280	740	180	110		40
CRN 16-30	460	335	795	180	110		50
CRN 16-40	505	370	875	180	135		55
CRN 16-50	570	390	960	220	135	300	70
CR 16-60	615	390	1005	220	135	300	75
CRN 16-70	660	390	1050	220	135	300	80
CRN 16-80	705	390	1095	220	135	300	80
CRN 16-100	825	465	1290	260	170	350	115
CRN 16-120	915	465	1380	260	170	350	115
CRN 16-140	1005	505	1510	325	250	350	160
CRN 16-160	1095	505	1600	325	250	350	165

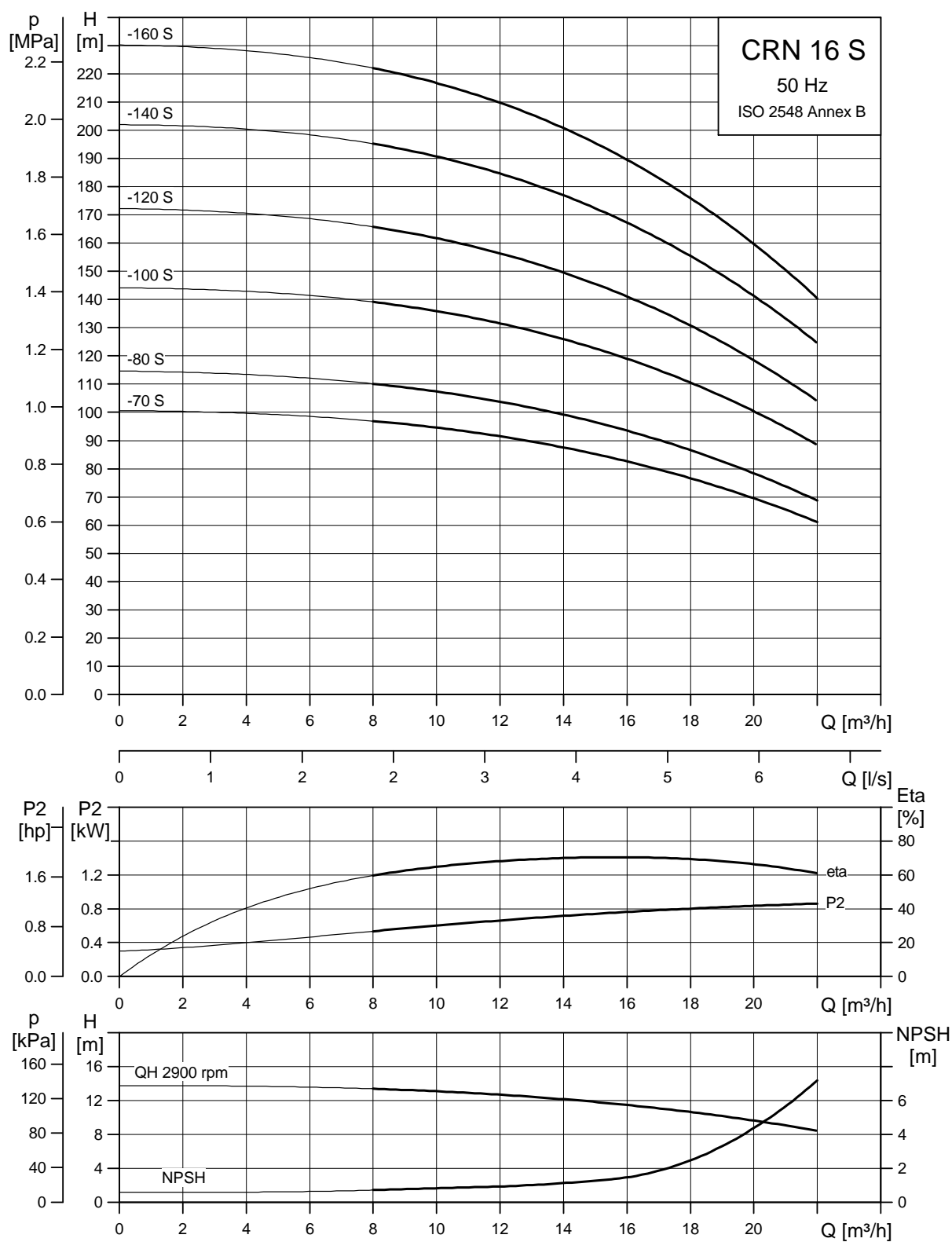
Pipework connection:

DIN 2566 with threaded socket
DIN 2634 with socket for welding

Electrical Data

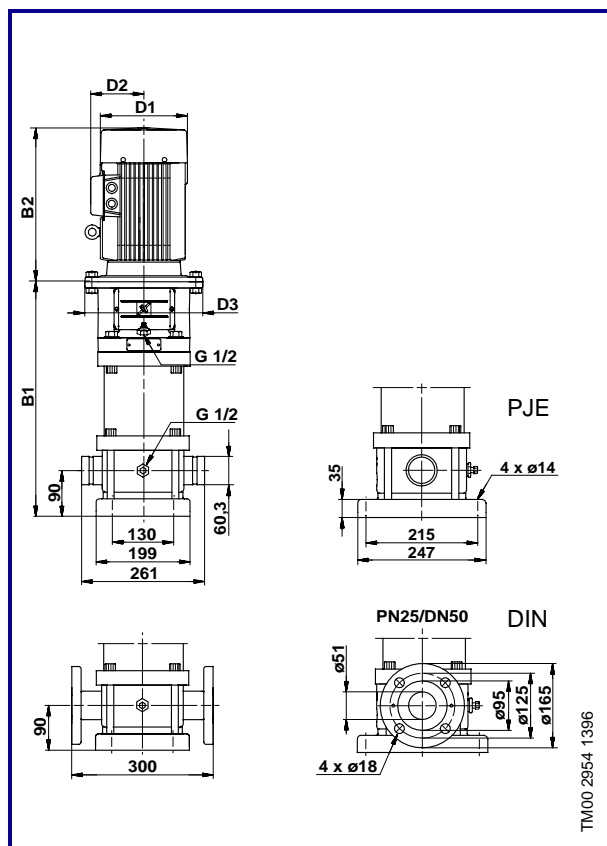
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 16-30/2	2.2	3.0	4.75	0.87-0.82	84	7.0-7.6
CRN 16-30	3.0	4.0	6.25	0.88-0.82	86	7.8-8.5
CRN 16-40	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 16-50	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 16-60	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 16-70	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 16-80	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 16-100	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 16-120	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 16-140	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8
CRN 16-160	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 16-70 S	660	390	1050	220	135	300	85
CRN 16-80 S	705	390	1095	220	135	300	85
CRN 16-100 S	825	465	1290	260	170	350	120
CRN 16-120 S	915	465	1380	260	170	350	120
CRN 16-140 S	1005	505	1510	325	250	350	165
CRN 16-160 S	1095	505	1600	325	250	350	170

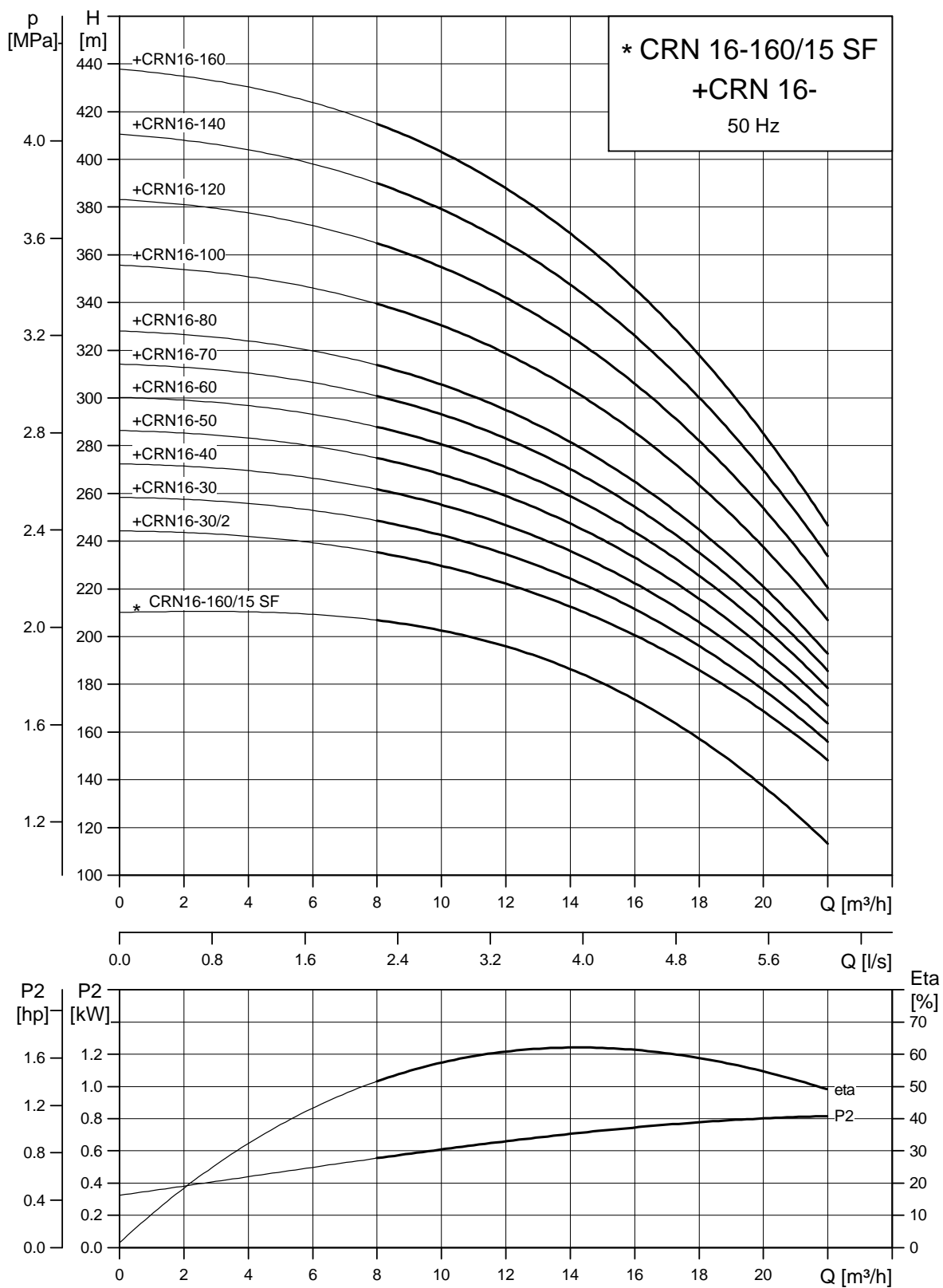
Pipework connection:

DIN 2566 with threaded socket
DIN 2634 with socket for welding

Electrical Data

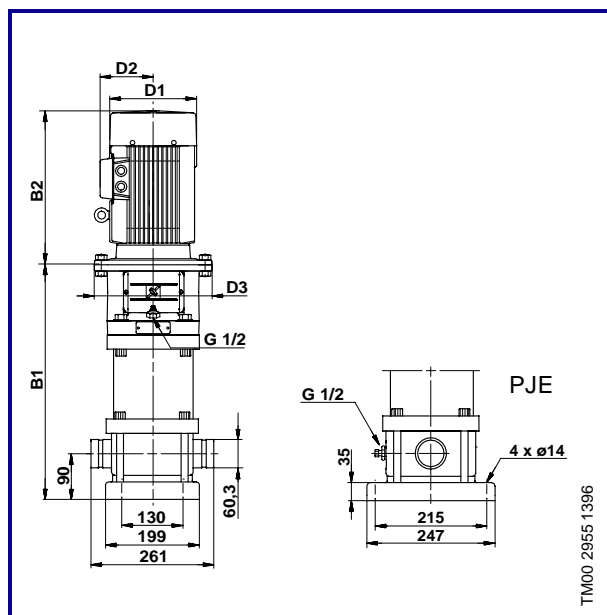
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 16-70 S	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 16-80 S	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 16-100 S	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 16-120 S	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 16-140 S	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8
CRN 16-160 S	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8



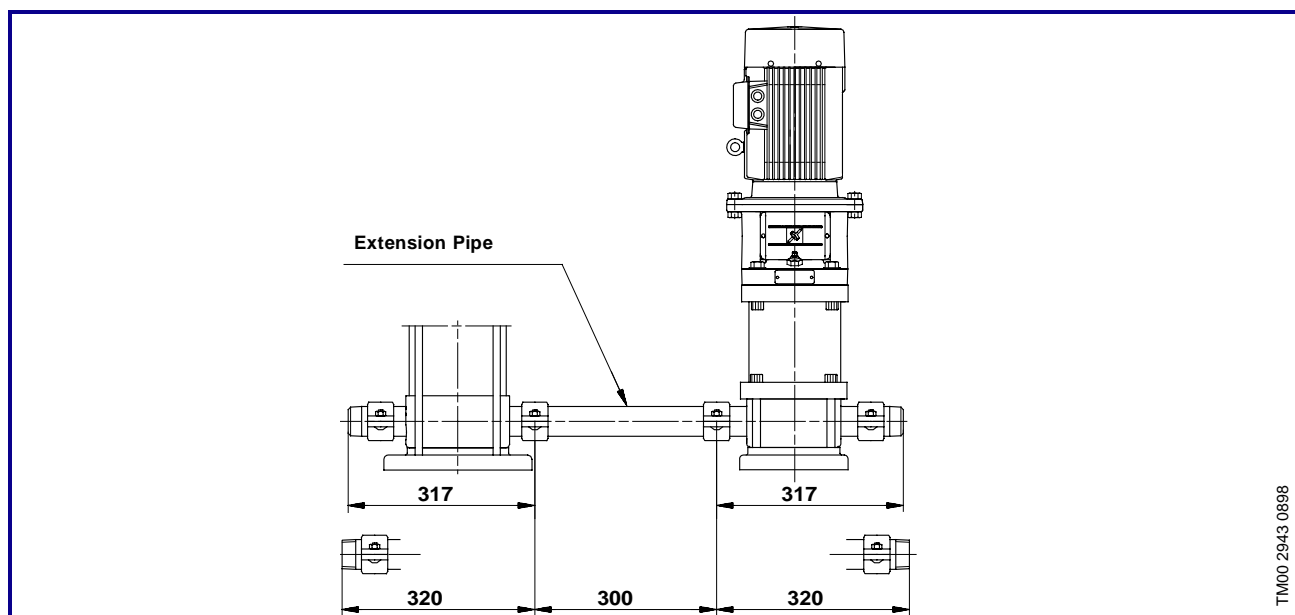
TM00 3692 3498

Dimensional Sketches



Dimensions and Weights

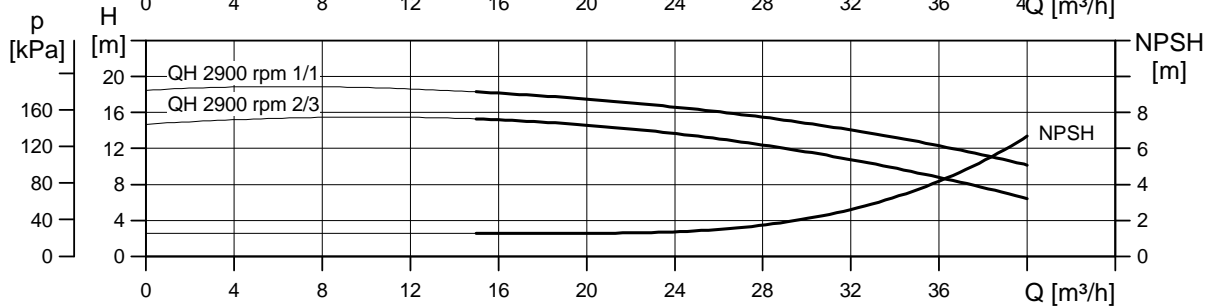
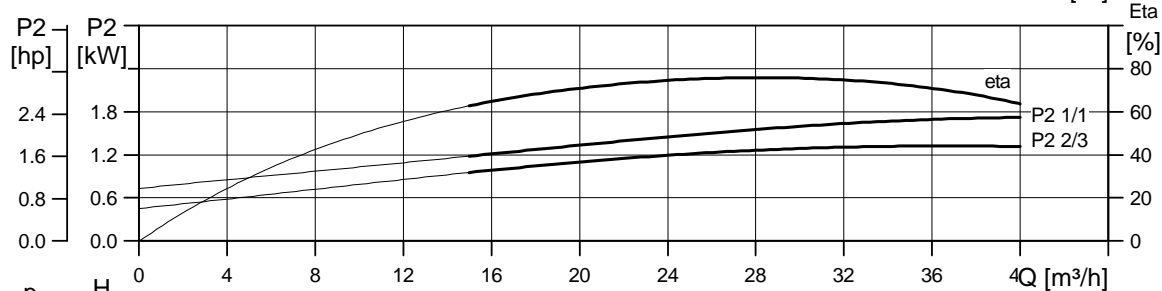
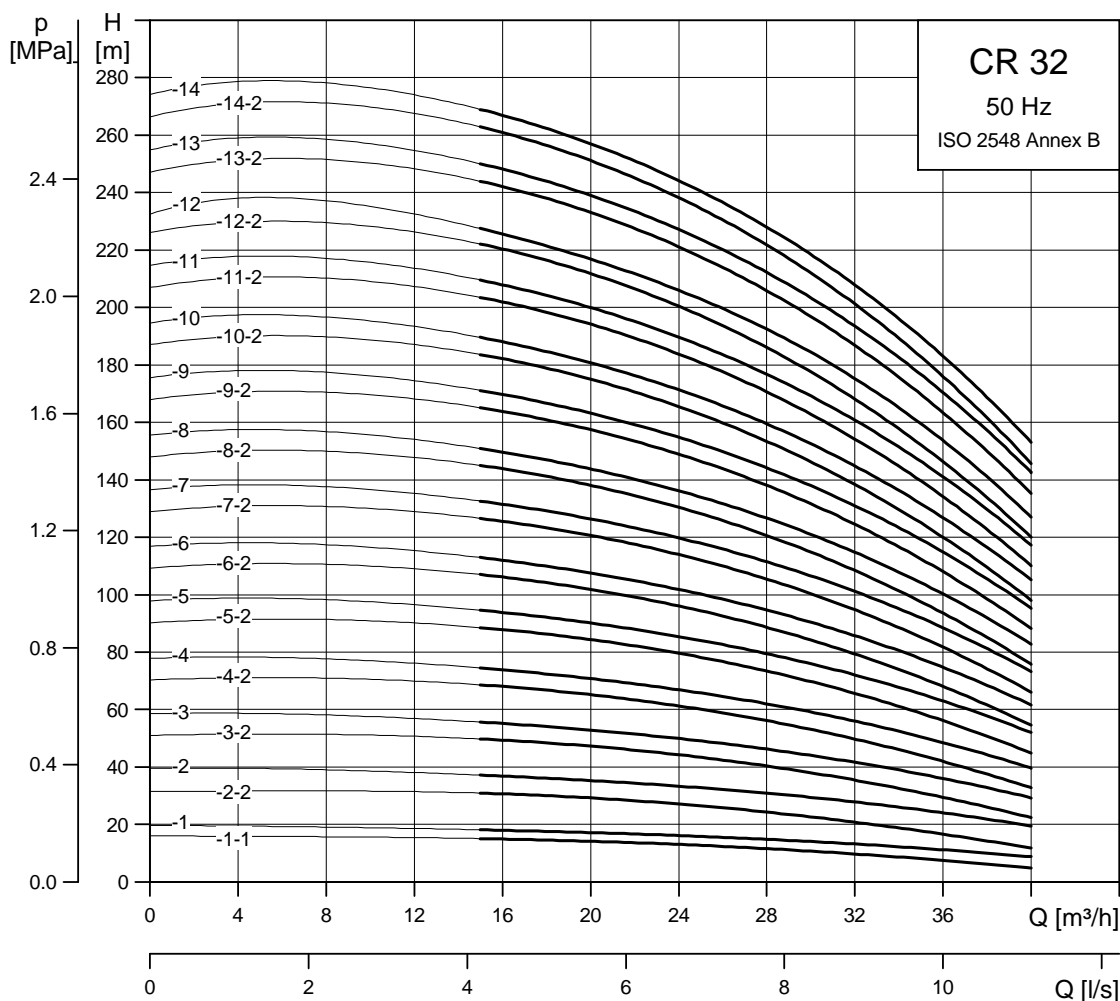
Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 16-160/15 SF	1095	505	1600	325	250	350	165



Electrical Data

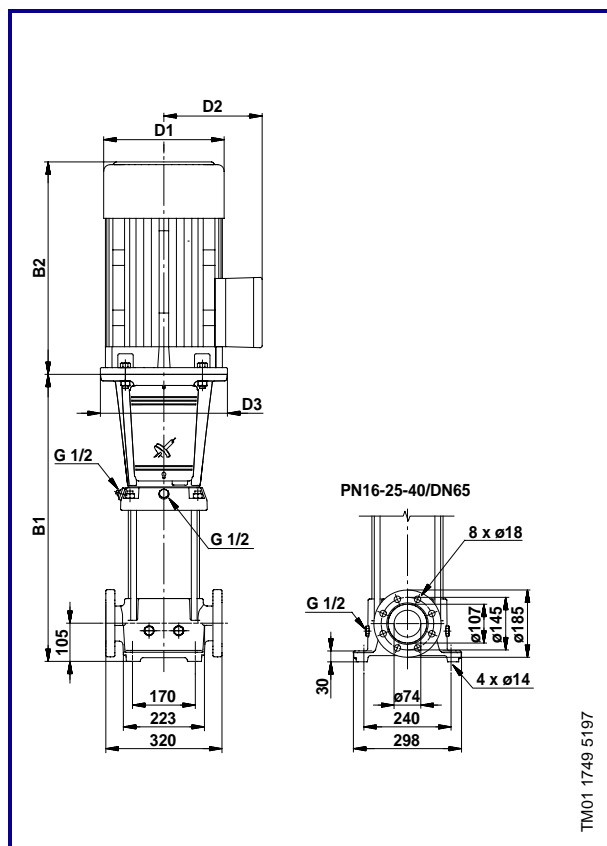
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 16-160/15 SF	15	20	29.4-27.1	0.88	88.2-87.9	7.0-7.8



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Dimensional Sketches



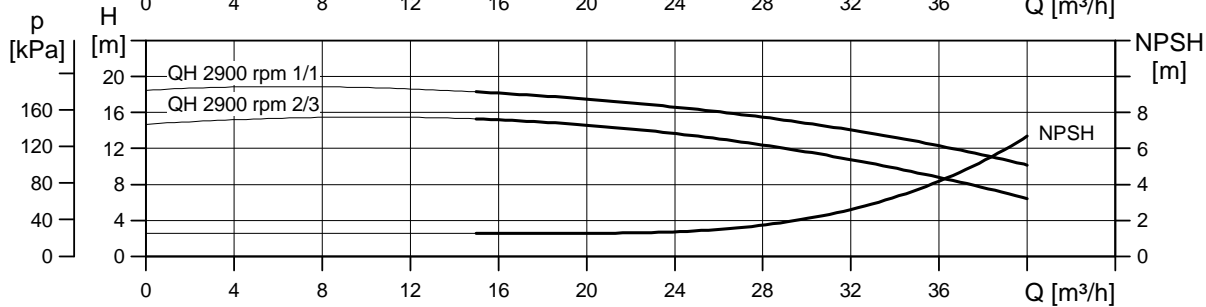
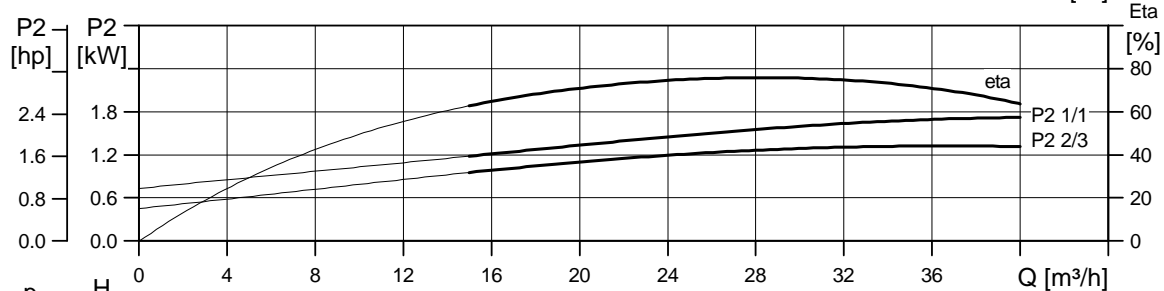
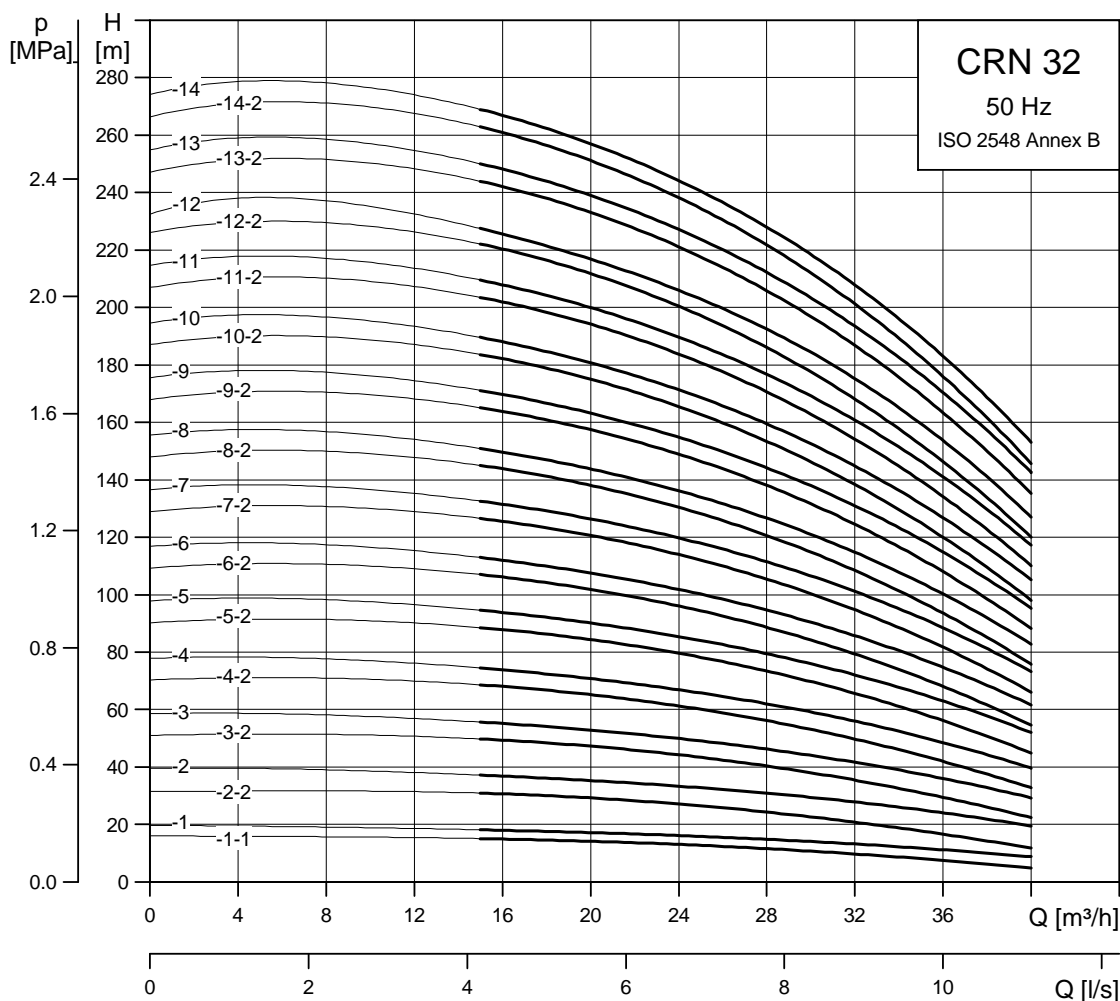
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CR 32-1-1	505	281	786	178	110	135	70
CR 32-1	505	281	786	178	110	135	79
CR 32-2-2	575	335	910	178	110	143	89
CR 32-2	575	372	947	220	134	158	98
CR 32-3-2	645	391	1036	220	134	298	107
CR 32-3	645	391	1036	220	134	298	107
CR 32-4-2	715	391	1106	220	134	298	115
CR 32-4	715	391	1106	220	134	298	115
CR 32-5-2	895	464	1359	260	172	350	156
CR 32-5	895	464	1359	260	172	350	156
CR 32-6-2	965	464	1429	260	172	350	160
CR 32-6	965	464	1429	260	172	350	160
CR 32-7-2	1035	478	1513	306	197	350	197
CR 32-7	1035	478	1513	306	197	350	197
CR 32-8-2	1105	478	1583	306	197	350	201
CR 32-8	1105	478	1583	306	197	350	201
CR 32-9-2	1175	478	1653	306	197	350	215
CR 32-9	1175	478	1653	306	197	350	215
CR 32-10-2	1245	478	1723	306	197	350	219
CR 32-10	1245	478	1723	306	197	350	219
CR 32-11-2	1315	600	1915	364	269	350	276
CR 32-11	1315	600	1915	364	269	350	276
CR 32-12-2	1385	600	1985	364	269	350	280
CR 32-12	1385	600	1985	364	269	350	280
CR 32-13-2	1455	667	2122	404	306	400	362
CR 32-13	1455	667	2122	404	306	400	362
CR 32-14-2	1525	667	2192	404	306	400	366
CR 32-14	1525	667	2192	404	306	400	366

Electrical Data

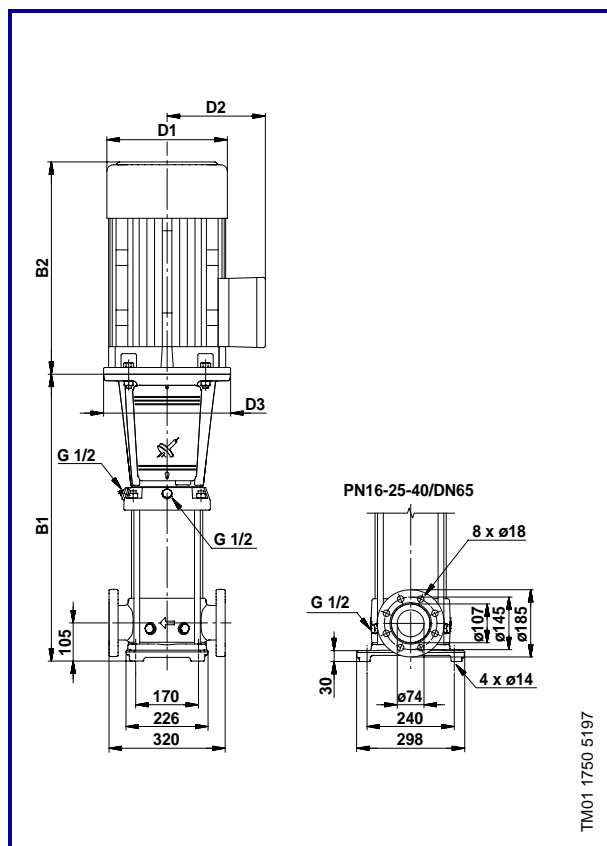
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	I_{start} $I_{1/1}$
	[kW]	[hp]				
CR 32-1-1	1.5	2.0	3.40	0.85-0.79	82.0	6.3-6.9
CR 32-1	2.2	3.0	4.75	0.87-0.82	84.0	7.0-7.6
CR 32-2-2	3.0	4.0	6.25	0.88-0.82	86.0	7.8-8.5
CR 32-2	4.0	5.5	8.00	0.90-0.87	87.0	8.7-9.5
CR 32-3-2	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 32-3	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 32-4-2	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CR 32-4	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CR 32-5-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 32-5	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 32-6-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 32-6	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 32-7-2	15	20	28.7	0.87	86.0	6.0
CR 32-7	15	20	28.7	0.87	86.0	6.0
CR 32-8-2	15	20	28.7	0.87	86.0	6.0
CR 32-8	15	20	28.7	0.87	86.0	6.0
CR 32-9-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 32-9	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 32-10-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 32-10	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 32-11-2	22	30	42.0-40.0	0.86	89.2	7.3
CR 32-11	22	30	42.0-40.0	0.86	89.2	7.3
CR 32-12-2	22	30	42.0-40.0	0.86	89.2	7.3
CR 32-12	22	30	42.0-40.0	0.86	89.2	7.3
CR 32-13-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 32-13	30	40	56.0-52.0	0.88	91.7	7.5
CR 32-14-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 32-14	30	40	56.0-52.0	0.88	91.7	7.5



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Dimensional Sketches



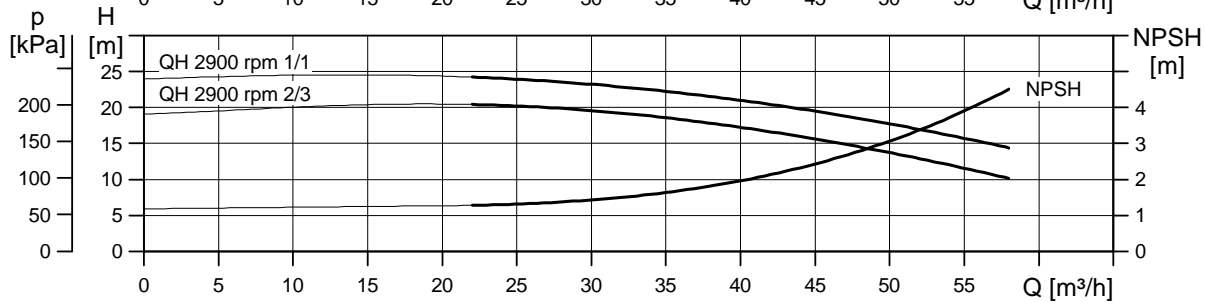
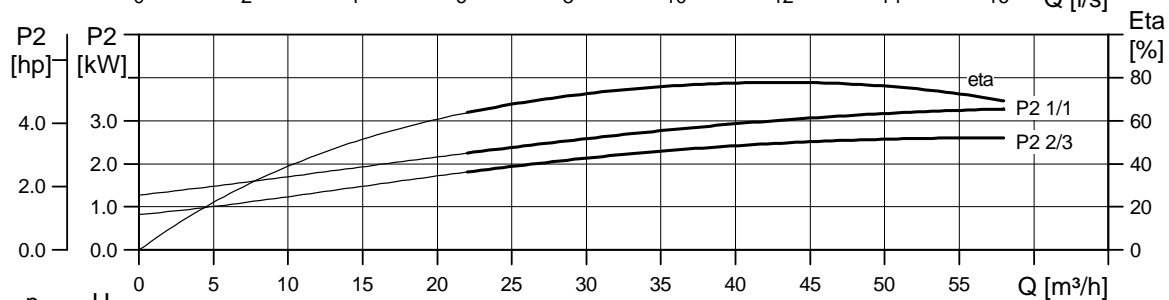
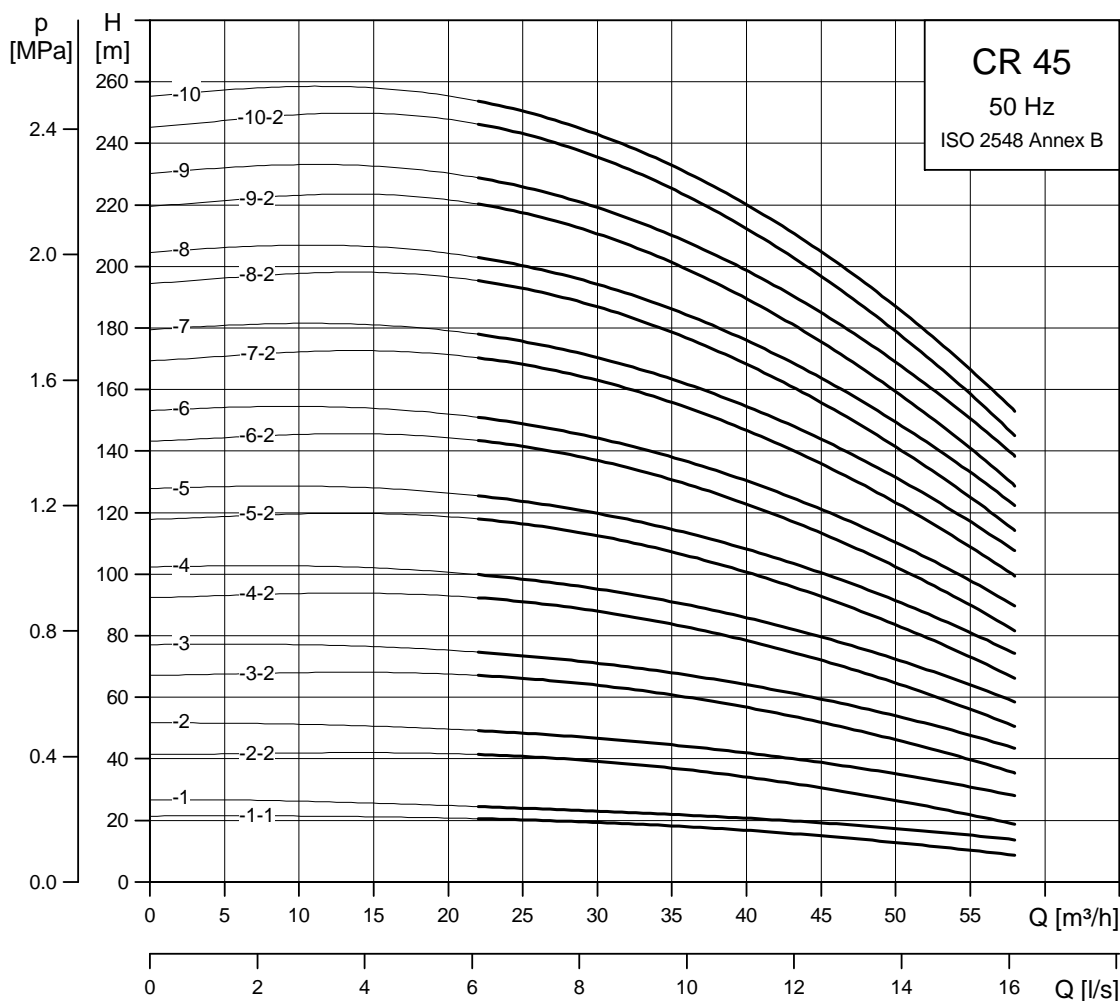
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 32-1-1	505	281	786	178	110	135	70
CRN 32-1	505	281	786	178	110	135	79
CRN 32-2-2	575	335	910	178	110	143	88
CRN 32-2	575	372	947	220	134	158	97
CRN 32-3-2	645	391	1036	220	134	298	106
CRN 32-3	645	391	1036	220	134	298	106
CRN 32-4-2	715	391	1106	220	134	298	115
CRN 32-4	715	391	1106	220	134	298	115
CRN 32-5-2	895	464	1359	260	172	350	156
CRN 32-5	895	464	1359	260	172	350	156
CRN 32-6-2	965	464	1429	260	172	350	160
CRN 32-6	965	464	1429	260	172	350	160
CRN 32-7-2	1035	478	1513	306	197	350	197
CRN 32-7	1035	478	1513	306	197	350	197
CRN 32-8-2	1105	478	1583	306	197	350	201
CRN 32-8	1105	478	1583	306	197	350	201
CRN 32-9-2	1175	478	1653	306	197	350	214
CRN 32-9	1175	478	1653	306	197	350	214
CRN 32-10-2	1245	478	1723	306	197	350	218
CRN 32-10	1245	478	1723	306	197	350	218
CRN 32-11-2	1315	600	1915	364	269	350	275
CRN 32-11	1315	600	1915	364	269	350	275
CRN 32-12-2	1385	600	1985	364	269	350	279
CRN 32-12	1385	600	1985	364	269	350	279
CRN 32-13-2	1455	667	2122	404	306	400	362
CRN 32-13	1455	667	2122	404	306	400	362
CRN 32-14-2	1525	667	2192	404	306	400	366
CRN 32-14	1525	667	2192	404	306	400	366

Electrical Data

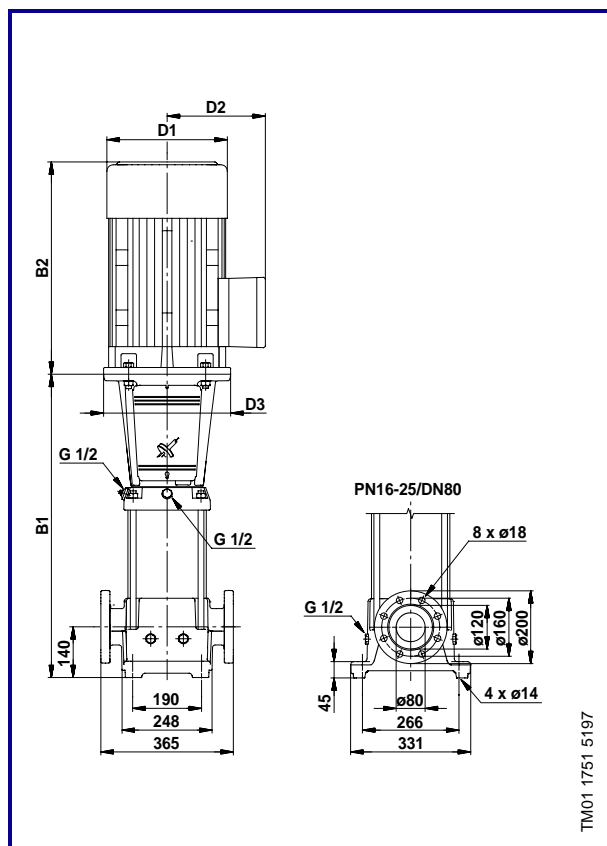
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	I_{start} $I_{1/1}$
	[kW]	[hp]				
CRN 32-1-1	1.5	2.0	3.40	0.85-0.79	82.0	6.3-6.9
CRN 32-1	2.2	3.0	4.75	0.87-0.82	84.0	7.0-7.6
CRN 32-2-2	3.0	4.0	6.25	0.88-0.82	86.0	7.8-8.5
CRN 32-2	4.0	5.5	8.00	0.90-0.87	87.0	8.7-9.5
CRN 32-3-2	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 32-3	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 32-4-2	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CRN 32-4	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CRN 32-5-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 32-5	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 32-6-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 32-6	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 32-7-2	15	20	28.7	0.87	86.0	6.0
CRN 32-7	15	20	28.7	0.87	86.0	6.0
CRN 32-8-2	15	20	28.7	0.87	86.0	6.0
CRN 32-8	15	20	28.7	0.87	86.0	6.0
CRN 32-9-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 32-9	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 32-10-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 32-10	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 32-11-2	22	30	42.0-40.0	0.86	89.2	7.3
CRN 32-11	22	30	42.0-40.0	0.86	89.2	7.3
CRN 32-12-2	22	30	42.0-40.0	0.86	89.2	7.3
CRN 32-12	22	30	42.0-40.0	0.86	89.2	7.3
CRN 32-13-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 32-13	30	40	56.0-52.0	0.88	91.7	7.5
CRN 32-14-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 32-14	30	40	56.0-52.0	0.88	91.7	7.5



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Dimensional Sketches



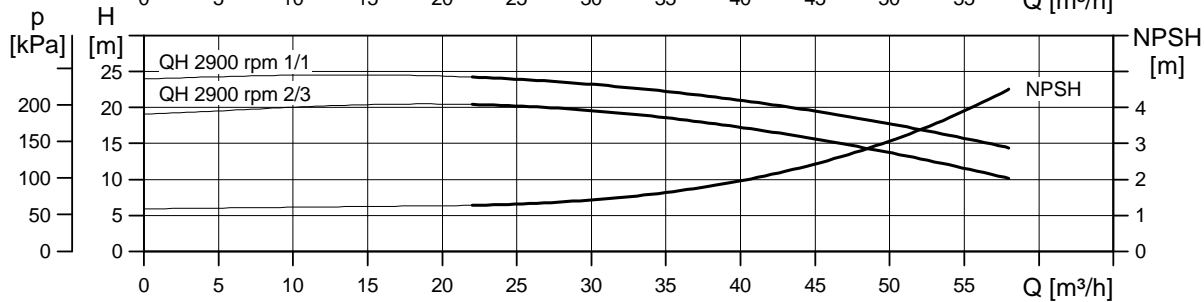
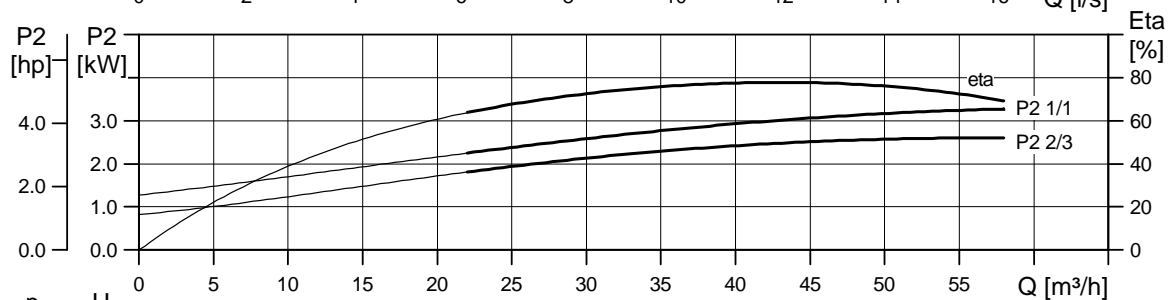
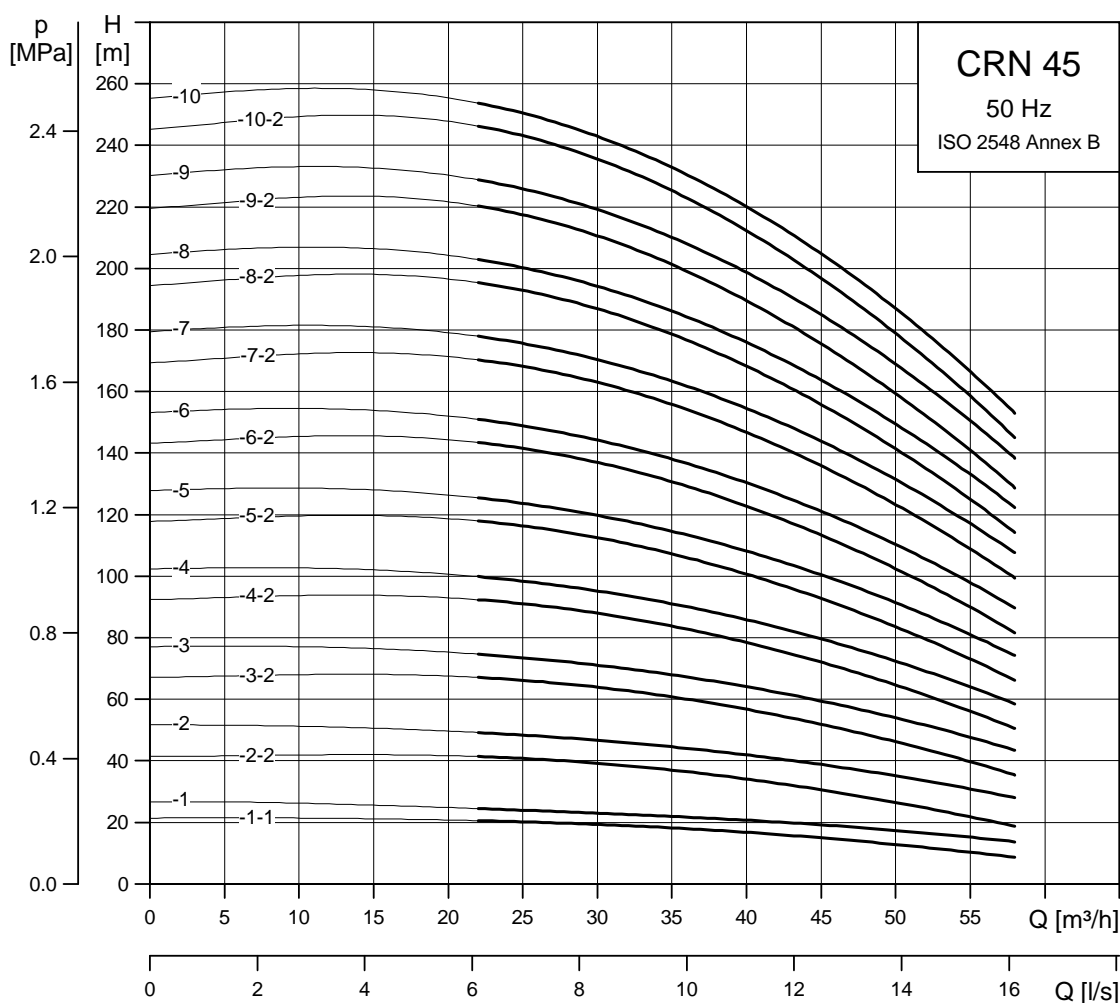
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CR 45-1-1	558	335	893	178	110	135	95
CR 45-1	558	372	930	220	134	158	104
CR 45-2-2	638	391	1029	220	134	298	113
CR 45-2	638	391	1029	220	134	298	118
CR 45-3-2	828	464	1292	260	172	350	159
CR 45-3	828	464	1292	260	172	350	159
CR 45-4-2	908	478	1386	306	197	350	196
CR 45-4	908	478	1386	306	197	350	196
CR 45-5-2	988	478	1466	306	197	350	210
CR 45-5	988	478	1466	306	197	350	210
CR 45-6-2	1068	600	1668	364	269	350	267
CR 45-6	1068	600	1668	364	269	350	267
CR 45-7-2	1148	667	1815	404	306	400	350
CR 45-7	1148	667	1815	404	306	400	350
CR 45-8-2	1228	667	1895	404	306	400	354
CR 45-8	1228	667	1895	404	306	400	354
CR 45-9-2	1308	667	1975	404	306	400	358
CR 45-9	1308	667	1975	404	306	400	358
CR 45-10-2	1388	667	2055	404	306	400	382
CR 45-10	1388	715	2103	404	306	400	382

Electrical Data

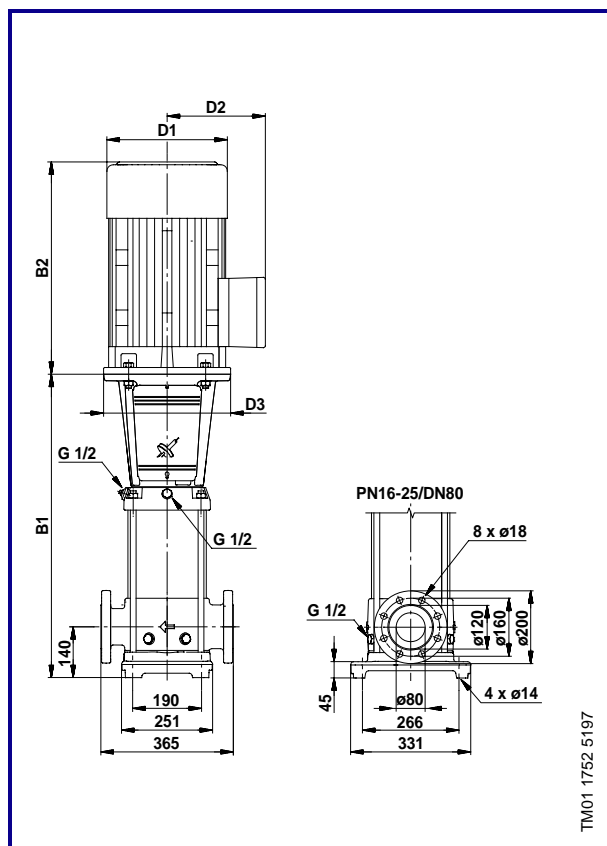
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 45-1-1	3.0	4.0	6.25	0.88-0.82	86.0	7.8-8.5
CR 45-1	4.0	5.5	8.00	0.90-0.87	87.0	8.7-9.5
CR 45-2-2	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 45-2	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CR 45-3-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 45-3	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 45-4-2	15	20	28.7	0.87	86.0	6.0
CR 45-4	15	20	28.7	0.87	86.0	6.0
CR 45-5-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 45-5	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 45-6-2	22	30	42.0-40.0	0.86	89.2	7.3
CR 45-6	22	30	42.0-40.0	0.86	89.2	7.3
CR 45-7-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 45-7	30	40	56.0-52.0	0.88	91.7	7.5
CR 45-8-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 45-8	30	40	56.0-52.0	0.88	91.7	7.5
CR 45-9-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 45-9	37	50	68.0-63.0	0.89	92.4	7.8
CR 45-10-2	37	50	68.0-63.0	0.89	92.4	7.8
CR 45-10	37	50	68.0-63.0	0.89	92.4	7.8



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Dimensional Sketches



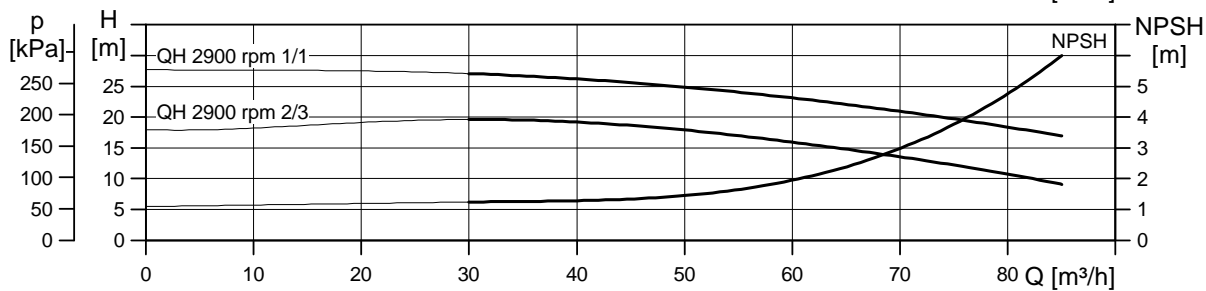
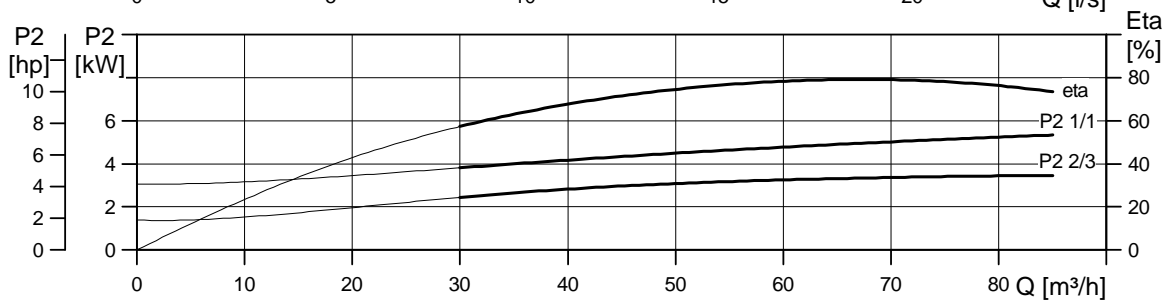
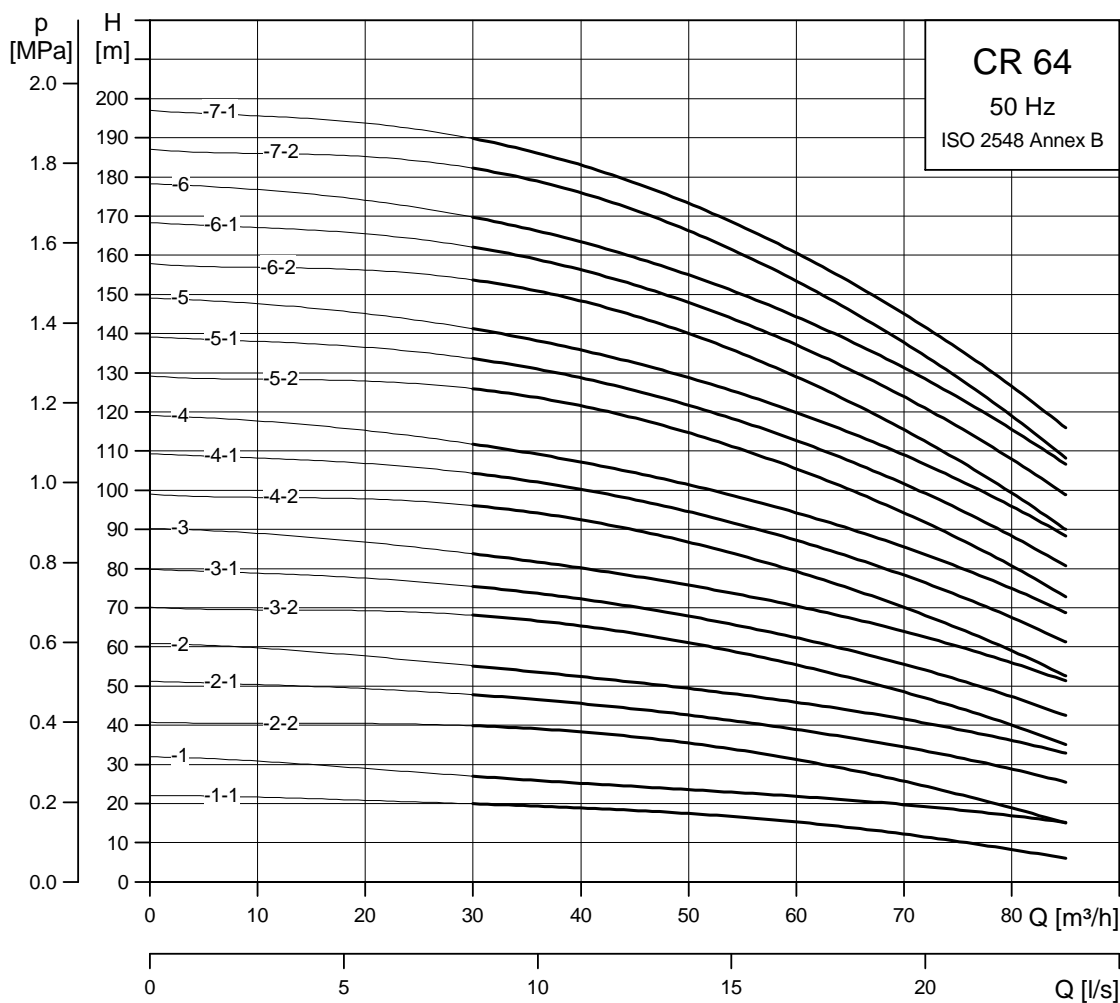
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 45-1-1	558	335	893	178	110	135	94
CRN 45-1	558	372	930	220	134	158	103
CRN 45-2-2	638	391	1029	220	134	298	112
CRN 45-2	638	377	1015	220	148	300	117
CRN 45-3-2	828	464	1292	260	172	350	158
CRN 45-3	828	464	1292	260	172	350	158
CRN 45-4-2	908	478	1386	306	197	350	196
CRN 45-4	908	478	1386	306	197	350	196
CRN 45-5-2	988	478	1466	306	197	350	209
CRN 45-5	988	478	1466	306	197	350	209
CRN 45-6-2	1068	600	1668	364	269	350	266
CRN 45-6	1068	600	1668	364	269	350	266
CRN 45-7-2	1148	667	1815	404	306	400	349
CRN 45-7	1148	667	1815	404	306	400	349
CRN 45-8-2	1228	667	1895	404	306	400	353
CRN 45-8	1228	667	1895	404	306	400	353
CRN 45-9-2	1308	667	1975	404	306	400	358
CRN 45-9	1308	667	1975	404	306	400	358
CRN 45-10-2	1388	667	2055	404	306	400	382
CRN 45-10	1388	667	2055	404	306	400	382

Electrical Data

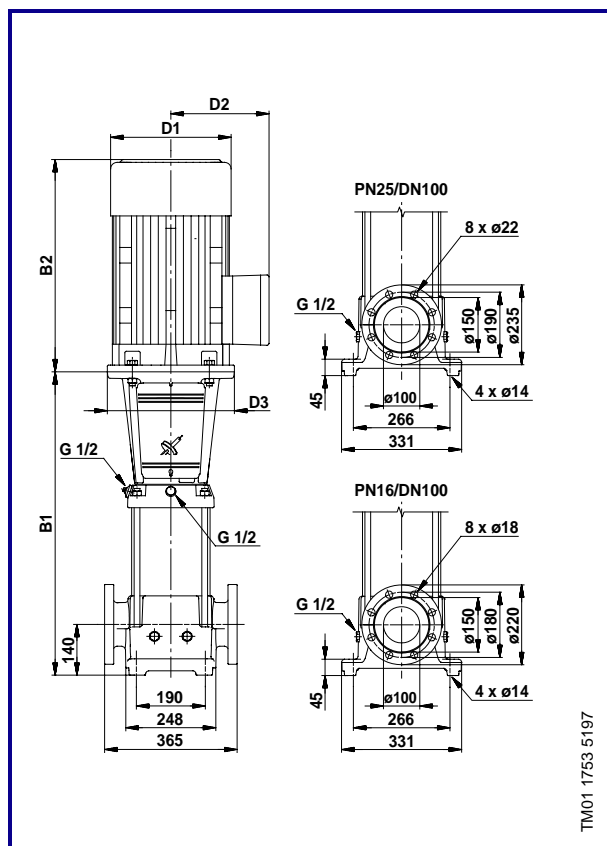
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \varphi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CRN 45-1-1	3.0	4.0	6.25	0.88-0.82	86.0	7.8-8.5
CRN 45-1	4.0	5.5	8.00	0.90-0.87	87.0	8.7-9.5
CRN 45-2-2	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 45-2	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CRN 45-3-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 45-3	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CRN 45-4-2	15	20	28.7	0.87	86.0	6.0
CRN 45-4	15	20	28.7	0.87	86.0	6.0
CRN 45-5-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 45-5	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 45-6-2	22	30	42.0-40.0	0.86	89.2	7.3
CRN 45-6	22	30	42.0-40.0	0.86	89.2	7.3
CRN 45-7-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 45-7	30	40	56.0-52.0	0.88	91.7	7.5
CRN 45-8-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 45-8	30	40	56.0-52.0	0.88	91.7	7.5
CRN 45-9-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 45-9	37	50	68.0-63.0	0.89	92.4	7.8
CRN 45-10-2	37	50	68.0-63.0	0.89	92.4	7.8
CRN 45-10	37	50	68.0-63.0	0.89	92.4	7.8



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Dimensional Sketches



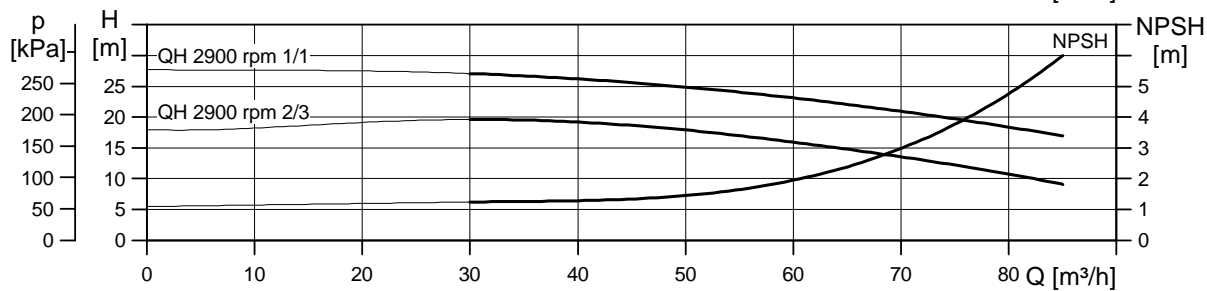
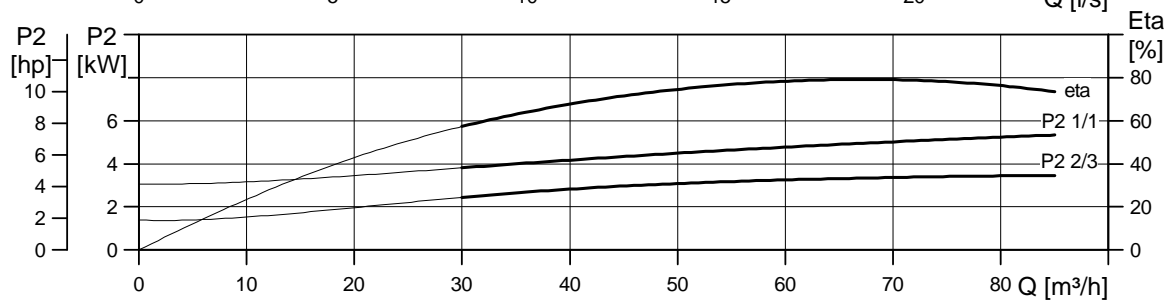
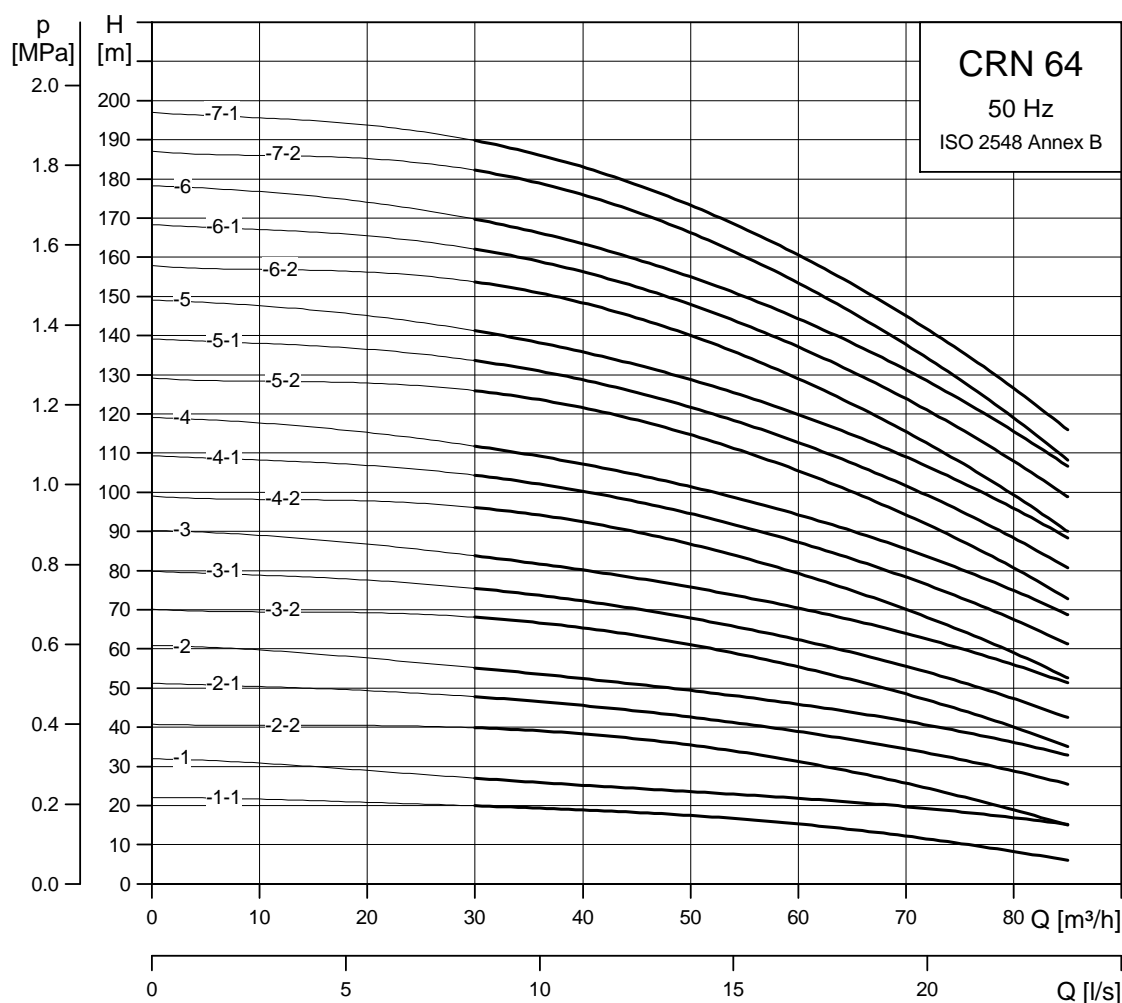
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CR 64-1-1	561	372	933	220	134	158	107
CR 64-1	561	391	952	220	134	298	112
CR 64-2-2	644	391	1035	220	134	298	121
CR 64-2-1	754	464	1218	260	172	350	158
CR 64-2	754	464	1218	260	172	350	158
CR 64-3-2	836	478	1314	306	197	350	196
CR 64-3-1	836	478	1314	306	197	350	196
CR 64-3	836	478	1314	306	197	350	205
CR 64-4-2	919	478	1397	306	197	350	209
CR 64-4-1	919	600	1519	364	269	350	262
CR 64-4	919	600	1519	364	269	350	262
CR 64-5-2	1001	667	1668	404	306	400	345
CR 64-5-1	1001	667	1668	404	306	400	345
CR 64-5	1001	667	1668	404	306	400	345
CR 64-6-2	1084	667	1751	404	306	400	350
CR 64-6-1	1084	667	1751	404	306	400	370
CR 64-6	1084	667	1751	404	306	400	370
CR 64-7-2	1166	667	1833	404	306	400	374
CR 64-7-1	1166	667	1833	404	306	400	374

Electrical Data

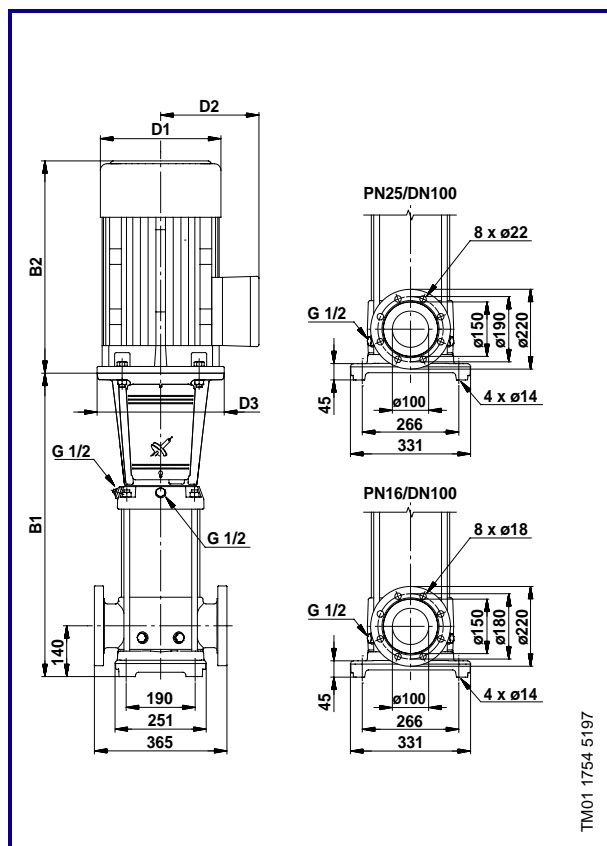
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 64-1-1	4.0	5.5	8.00	0.90-0.87	87.0	8.7-9.5
CR 64-1	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 64-2-2	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CR 64-2-1	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 64-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 64-3-2	15	20	28.7	0.87	86.0	6.0
CR 64-3-1	15	20	28.7	0.87	86.0	6.0
CR 64-3	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 64-4-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 64-4-1	22	30	42.0-40.0	0.86	89.2	7.3
CR 64-4	22	30	42.0-40.0	0.86	89.2	7.3
CR 64-5-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 64-5-1	30	40	56.0-52.0	0.88	91.7	7.5
CR 64-5	30	40	56.0-52.0	0.88	91.7	7.5
CR 64-6-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 64-6-1	37	50	68.0-63.0	0.89	92.4	7.8
CR 64-6	37	50	68.0-63.0	0.89	92.4	7.8
CR 64-7-2	37	50	68.0-63.0	0.89	92.4	7.8
CR 64-7-1	37	50	68.0-63.0	0.89	92.4	7.8



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Dimensional Sketches



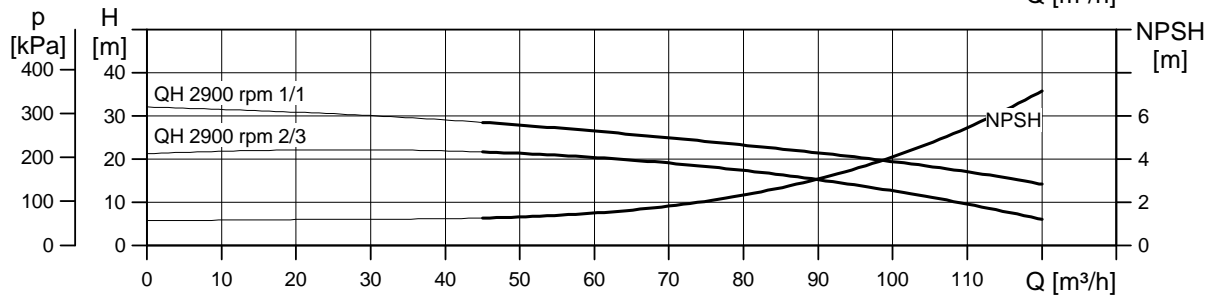
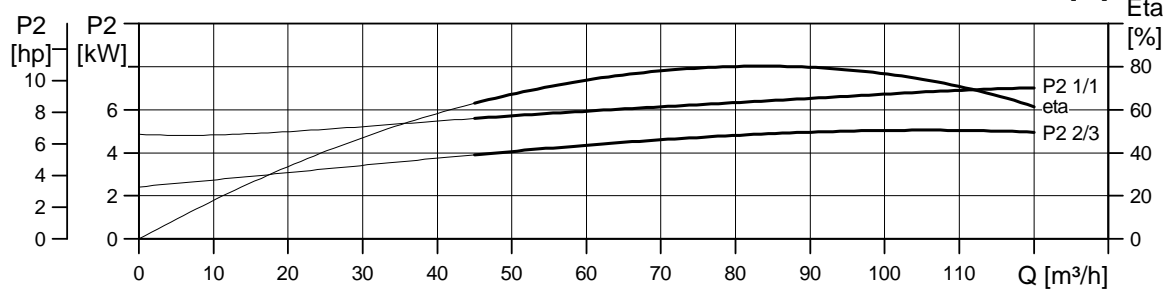
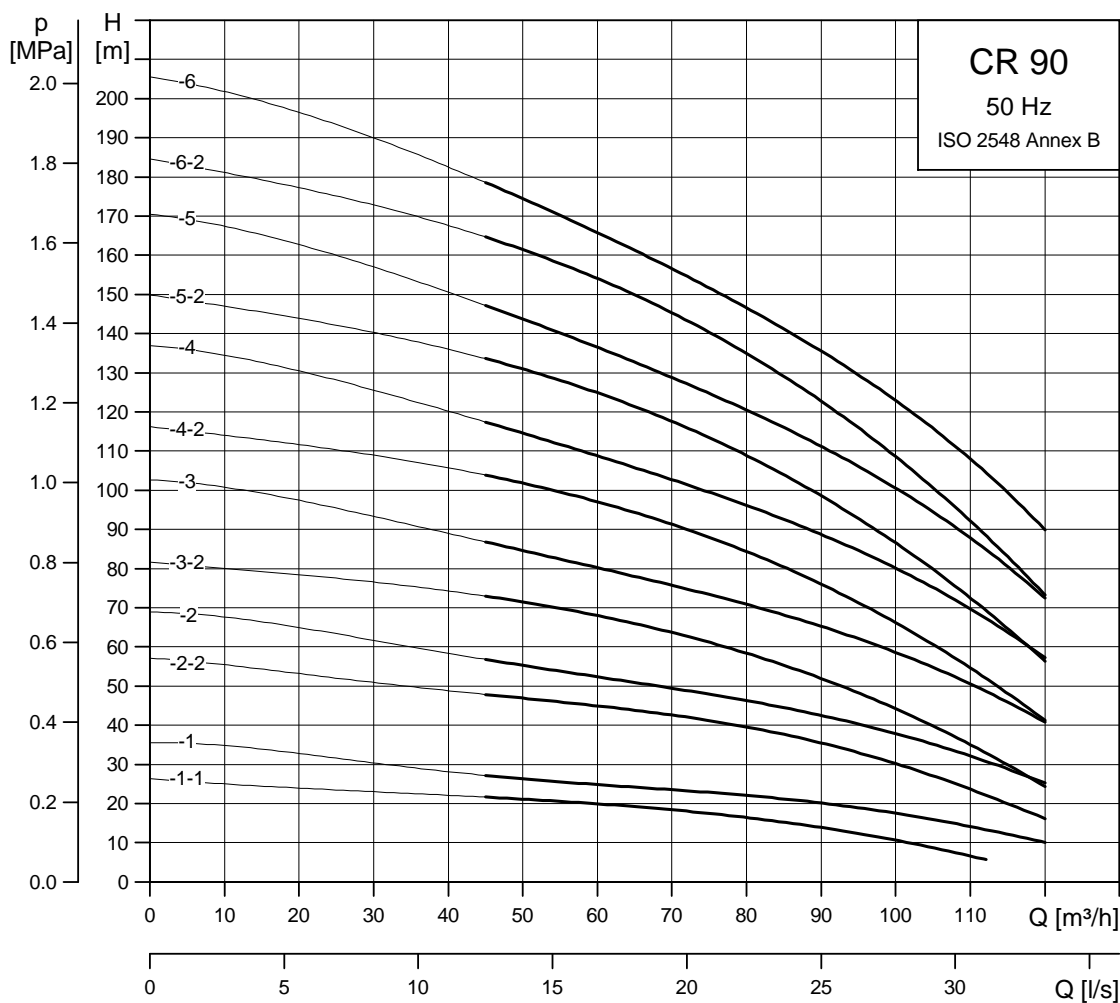
Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CRN 64-1-1	561	372	933	220	134	158	106
CRN 64-1	561	391	952	220	134	298	111
CRN 64-2-2	644	391	1035	220	134	298	120
CRN 64-2-1	754	464	1218	260	172	350	157
CRN 64-2	754	464	1218	260	172	350	157
CRN 64-3-2	836	478	1314	306	197	350	194
CRN 64-3-1	836	478	1314	306	197	350	194
CRN 64-3	836	478	1314	306	197	350	205
CRN 64-4-2	919	478	1397	306	197	350	208
CRN 64-4-1	919	600	1519	364	269	350	261
CRN 64-4	919	600	1519	364	269	350	261
CRN 64-5-2	1001	667	1668	404	306	400	344
CRN 64-5-1	1001	667	1668	404	306	400	344
CRN 64-5	1001	667	1668	404	306	400	344
CRN 64-6-2	1084	667	1751	404	306	400	348
CRN 64-6-1	1084	667	1751	404	306	400	368
CRN 64-6	1084	667	1751	404	306	400	368
CRN 64-7-2	1166	667	1833	404	306	400	373
CRN 64-7-1	1166	667	1833	404	306	400	373

Electrical Data

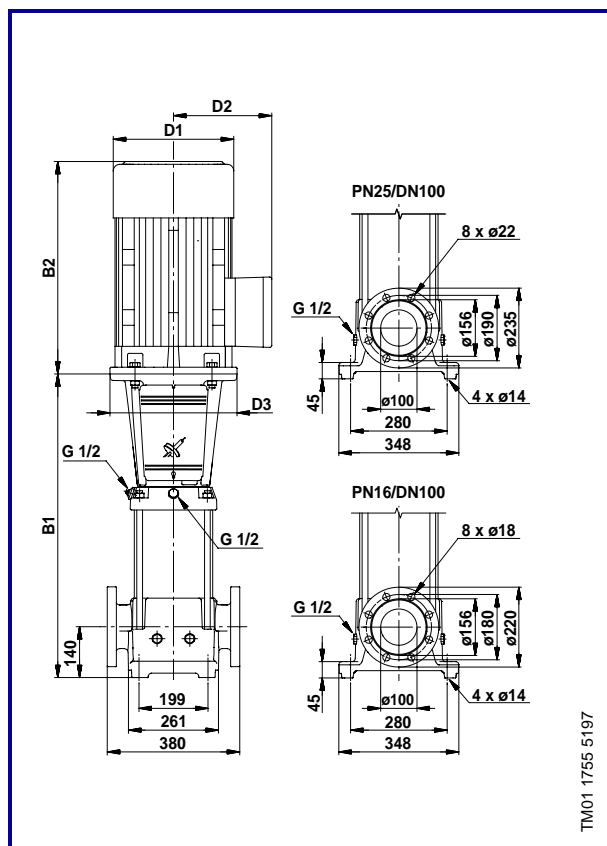
3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$I_{start} / I_{1/1}$
	[kW]	[hp]				
CRN 64-1-1	4.0	5.5	8.00	0.90-0.87	87	8.7-9.5
CRN 64-1	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CRN 64-2-2	7.5	10	15.2	0.87-0.81	89	9.1-9.9
CRN 64-2-1	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 64-2	11	15	21.5	0.91-0.87	85	7.3-8.0
CRN 64-3-2	15	20	28.7	0.87	86.0	6.0
CRN 64-3-1	15	20	28.7	0.87	86.0	6.0
CRN 64-3	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 64-4-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CRN 64-4-1	22	30	42.0-40.0	0.86	89.2	7.3
CRN 64-4	22	30	42.0-40.0	0.86	89.2	7.3
CRN 64-5-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 64-5-1	30	40	56.0-52.0	0.88	91.7	7.5
CRN 64-5	30	40	56.0-52.0	0.88	91.7	7.5
CRNv 64-6-2	30	40	56.0-52.0	0.88	91.7	7.5
CRN 64-6-1	37	50	68.0-63.0	0.89	92.4	7.8
CRN 64-6	37	50	68.0-63.0	0.89	92.4	7.8
CRN 64-7-2	37	50	68.0-63.0	0.89	92.4	7.8
CRN 64-7-1	37	50	68.0-63.0	0.89	92.4	7.8



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Dimensional Sketches



Dimensions and Weights

Pump Type	Dimensions [mm]						Net Weight [kg]
	B1	B2	B1 + B2	D1	D2	D3	
CR 90-1-1	571	391	962	220	134	350	118
CR 90-1	571	391	962	220	134	350	122
CR 90-2-2	773	464	1237	260	172	350	164
CR 90-2	773	478	1251	306	197	350	197
CR 90-3-2	865	478	1343	306	197	350	211
CR 90-3	865	600	1465	364	269	350	264
CR 90-4-2	957	667	1624	404	306	400	347
CR 90-4	957	667	1624	404	306	400	347
CR 90-5-2	1049	667	1716	404	306	400	372
CR 90-5	1049	667	1716	404	306	400	372
CR 90-6-2	1141	715	1856	459	342	450	437
CR 90-6	1141	715	1856	459	342	450	437

Electrical Data

3 x 380-415 V, 50 Hz

Pump Type	Motor		Full Load Current $I_{1/1}$ [A]	Power Factor $\cos \phi_{1/1}$	Motor Efficiency η [%]	$\frac{I_{start}}{I_{1/1}}$
	[kW]	[hp]				
CR 90-1-1	5.5	7.5	11.0	0.89-0.86	88.5	8.9-9.7
CR 90-1	7.5	10	15.2	0.87-0.81	89.0	9.1-9.9
CR 90-2-2	11	15	21.5	0.91-0.87	85.0	7.3-8.0
CR 90-2	15	20	28.7	0.87	86.0	6.0
CR 90-3-2	18.5	25	35.9-34.1	0.86	87.0	7.2
CR 90-3	22	30	42.0-40.0	0.86	89.2	7.3
CR 90-4-2	30	40	56.0-52.0	0.88	91.7	7.5
CR 90-4	30	40	56.0-52.0	0.88	91.7	7.5
CR 90-5-2	37	50	68.0-63.0	0.89	92.4	7.8
CR 90-5	37	50	68.0-63.0	0.89	92.4	7.8
CR 90-6-2	45	60	83.0-78.0	0.87	92.1	7.8
CR 90-6	45	60	83.0-78.0	0.87	92.1	7.8

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 list is to be used as a guide only.

Notes

- D Often with additives.
- E Density and/or viscosity differ from that of water. Allow for this when calculating motor output and pump performance.
- F Pump selection depends on many factors. Please contact Grundfos.
- G Temperature must be below boiling point.
- 2 Corrosion. The pumped liquid attacks all standard metals. Use a shaft seal with no metal components in contact with the pumped liquid.
- 4 Poor lubricating properties. The pumped liquid has so poor lubricating properties that dry running should be avoided.
- 7 The pumped liquid is easily ignited.
- 8 The pumped liquid is flammable.

Pumped liquids	Notes	Additional information	Shaft seal	
			CR	CRN
Acetic acid CH_3COOH		Concentration = 5% <20°C		EUUE
Ammonia hydroxide NH_4OH		Concentration = 10% <40°C	EUUE	
Ammonium bicarbonate NH_4HCO_3	E	Saturated solution <90°C		EUUE, BUBE
Applewine/cider		<100°C		EUHE, AUUE
Barium hydroxide $\text{Ba}(\text{OH})_2$	E	Saturated solution <60°C		EUUE, BUBE
Barium nitrate $\text{Ba}(\text{NO}_3)_2$	E	Saturated solution <80°C		EUUE, BUBE
Borax $\text{Na}_2\text{B}_4\text{O}_7$	E	Saturated solution <60°C		EUUE, AUUE
Boric acid H_3BO_3		Concentration = 4% <60°C		EUHE, AUUV
Calcareous water		<90°C	EUHE, AUUE	
Calcium hydroxide $\text{Ca}(\text{OH})_2$	E	<50°C		EUUV, BUBE
Chlorine-containing water	F	<30°C Max. 500 ppm		EUHE, BUBE
Chromic acid H_2CrO_4	E	Concentration = <1% <20°C		HUBV
Citric acid $\text{C}_6\text{H}_8\text{O}_7\text{H}$	E	Concentration = 5% <50°C		HUBE, AUUE
Completely desalinated water (demineralized)		<90°C		EUHE, BUBE
		90 - 120°C		EUUE, BUBE, AUUE
Copper sulphate CuSO_4	E	<60°C		HUBE, BUBE
Corn oil	E, G	Concentration = 100%	EUHV, AUUV	
Diesel oil	E, 8	Concentration = 100%	EUUV, AUUV	
Domestic hot water (potable water)		<90°C		EUHE, BUBE, AUUE
		90°C - 120°C		EUUE, BUBE, AUUE
	F	120°C - 150°C		EUUE
Ethylene glycol $\text{CH}_2\text{OHCH}_2\text{OH}$	E	Concentration <50% <90°C	EUUE, AUUE	
Formic acid HCOOH	E	Concentration = 5% <20°C		HUBE
Glycerol (glycerine) $\text{CH}_2\text{OHCHOHCH}_2\text{OH}$	E	<100°C	EUUE, BUBE, AUUE	
Groundnut oil	E	Concentration = 100%	EUHV, AUUV	
Hydraulic oil (based on mineral oil)	E	Concentration = 100% <80°C	EUHE, AUUV	
Magnesium sulphate MgSO_4	E	Concentration <26% <100°C		EUUE, BUBE
Motor/engine oil	E	Concentration = 100%	EUHV, AUUV	
Naphtalene C_{10}H_8		Concentration = 100% <80°C	EUHE	
Nitric acid HNO_3	E, G	Concentration = 1% <20°C		HUBV
Oil-containing water		<100°C	EUUV, AUUV, BUBV	
Olive oil		Concentration = 100%	EUUV, AUUV, BUBV	

Continued on next page

List - continued

Pumped liquids	Notes	Additional Information	Shaft seal	
			CR	CRN
Oxalic acid (COOH) ₂		Concentration = 5% <20°C		HUBE, AUUE, BUBE
Ozone-containing water (O ₃)		<100°C	EUHE	
Paraffin oil (kerosene)	7	Concentration = 100%	EUHV	
Phosphoric acid H ₃ PO ₄	E	Concentration = 1% <50°C		HUBE
Potassium bicarbonate KHCO ₃	E	<60°C	EUUE	
Potassium carbonate K ₂ CO ₃	E	Concentration <20% <50°C	EUUE	
Potassium hydroxide KOH	E, 2, 4	Concentration <20% <50°C		EUUE
Potassium sulphate K ₂ SO ₄	E	Concentration <30% <80°C		EUUE
Propylene glycol CH ₂ OHCHOHCH ₃	D	Concentration <50% <90°C	EUUE, AUUE, BUBE	
Rape seed oil	E, G	Concentration = 100%	EUHV, AUUV, BUBV	
Refrigerant with sodium chloride (NaCl)	E	<5°C Concentration <25%, pH 8	EUUE, BUBE	
Silicone oil	E, G	Concentration = 100%	EUHV, AUUV, EUUV	
Sodium bicarbonate NaHCO ₃	E	<60°C	EUUE, EUBE, BUBE	
Sodium hydroxide NaOH	E	Concentration <20% <50°C		EUUE, EUUE
Sodium nitrate NaNO ₃	E	Saturated solution <80°C		EUUE
Sodium phosphate Na ₃ PO ₄	E	<60°C	EUUE	
Sodium sulphate Na ₂ SO ₄	E	Concentration <30% <80°C		EUUE
Softened water		<90°C		EUHE, BUBE, AUUE
		90°C - 120°C		EUBE, BUBE, AUAE
Soya bean oil	E, G	Concentration = 100%	EUHV, AUUV	
Sulphurous acid H ₂ SO ₃	E	Concentration = <1% <20°C		HUBE
Sulphuric acid H ₂ SO ₄	E	Concentration < 1% <20°C		HUBE
Toluene C ₆ H ₅ CH ₃	7	Concentration = 100% <20°C		EUHV, AUUV
Unsalted swimming-pool water		Ca. 1 ppm chlorine (Cl ₂)		EUHE
Xylene C ₆ H ₄ (CH ₃) ₂		Concentration = 100% <25°C	EUHV, EUUV, AUUV	

Pipework Connection

For pipework connection various sets of counter flanges and couplings are available.

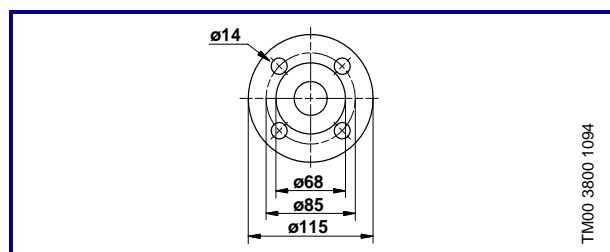
Counter flanges

A set includes 1 counter flange, 1 gasket and bolts and nuts.

NOTE: The positions of the holes in the dimensional sketches below cannot be used for dimensioning. See dimensional sketch for the pump in question.

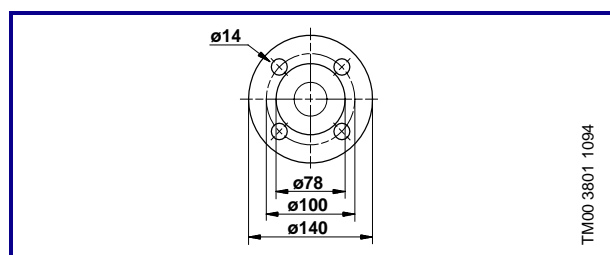
CR 2 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 1	40 99 01
For welding	25 bar DIN 2634	25 mm nominal	40 99 02



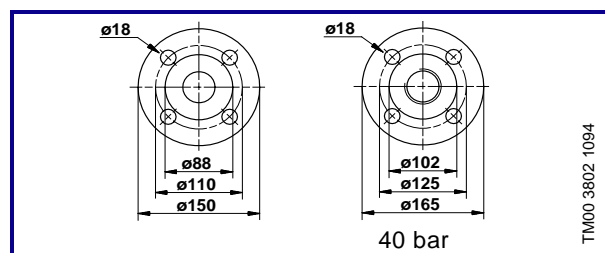
CR 4 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 1½	41 99 01
For welding	25 bar DIN 2634	32 mm nominal	41 99 02



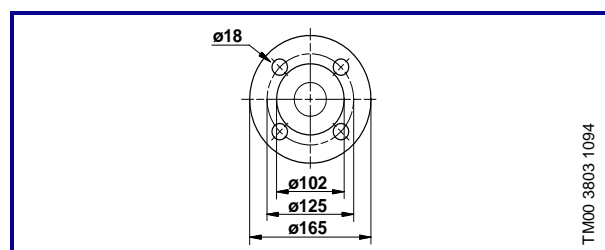
CR 8 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 1½	42 99 02
Threaded	16 bar DIN 2566	Rp 2	42 99 04
For welding	25 bar DIN 2634	40 mm nominal	42 99 01
For welding	40 bar DIN 2634	50 mm nominal	42 99 03



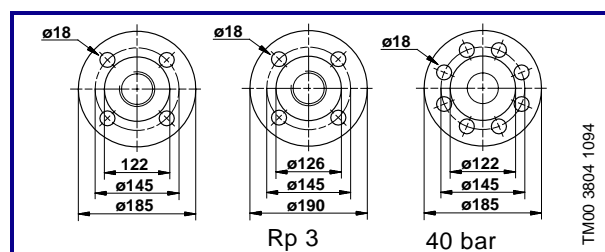
CR 16 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 2	33 99 03
Threaded	16 bar Special flange	Rp 2½	33 99 04
For welding	25 bar DIN 2634	50 mm nominal	33 99 01
For welding	25 bar Special flange	50 mm nominal	33 99 02



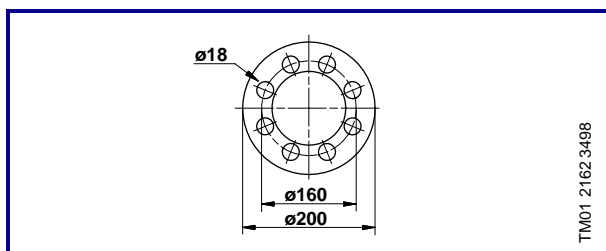
CR 32 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 2½	34 99 02
Threaded	16 bar Special flange	Rp 3	34 99 01
For welding	16 bar DIN 2633	65 mm nominal	34 99 04
For welding	40 bar DIN 2635	65 mm nominal	34 99 05
For welding	16 bar Special flange	65 mm nominal	34 99 03



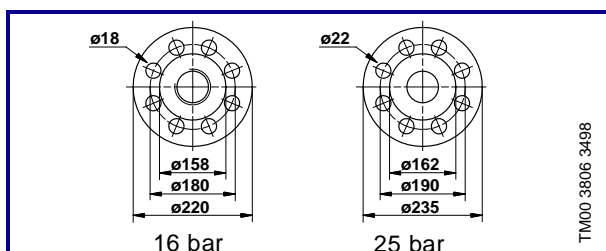
CR 45 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar	Rp 3	35 05 40
For welding	16 bar	80mm nominal	35 05 41
For welding	25 bar	80mm nominal	35 05 42
For welding	40 bar	80mm nominal	35 05 42



CR 64 and 90 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar DIN 2566	Rp 4	36 99 01
For welding	16 bar DIN 2633	100 mm nominal	36 99 02
For welding	25 bar DIN 2633	100 mm nominal	36 99 05



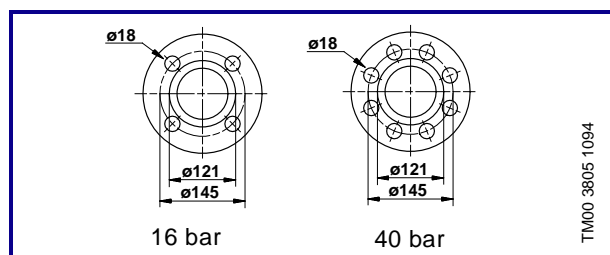
CRN 2, 4, 8 & 16 Counter Flanges

See dimensions CR 2, 4, 8 and 16 counter flanges.

Pump Type	Flange	Nominal Pressure	Pipework Connection	Part Number
CRN 2	Threaded	16 bar DIN 2566	Rp 1	40 52 84
CRN 2	For welding	25 bar DIN 2634	25 mm nominal	40 52 85
CRN 4	Threaded	16 bar DIN 2566	Rp 1½	41 53 04
CRN 4	For welding	25 bar DIN 2634	32 mm nominal	41 53 05
CRN 8	Threaded	16 bar DIN 2566	Rp 1½	42 52 45
CRN 8	For welding	25 bar DIN 2634	40 mm nominal	42 52 46
CRN 16	Threaded	16 bar DIN 2566	Rp 2	33 52 54
CRN 16	For welding	25 bar DIN 2634	50 mm nominal	33 52 55

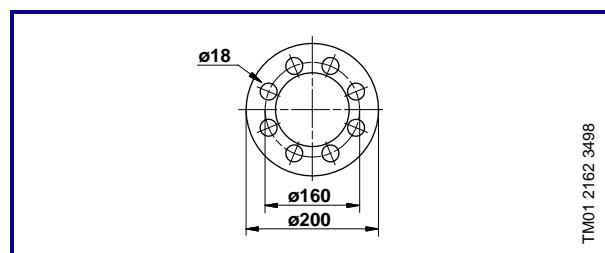
CRN 32 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar	Rp 2½	34 99 10
Threaded	16 bar Special flange	Rp 3	34 99 11
For welding	16 bar	65 mm nominal	34 99 06
For welding	40 bar	65 mm nominal	34 99 08
For welding	16 bar Special flange	65 mm nominal	34 99 07
For welding	25 bar Special flange	65 mm nominal	34 99 09



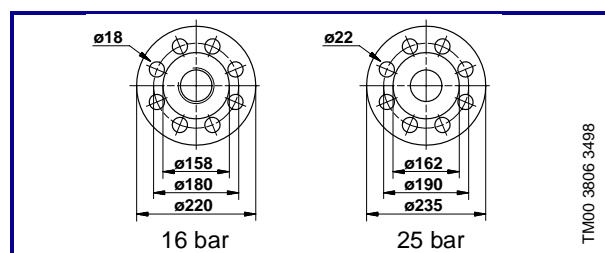
CRN 45 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar	Rp 3	35 05 43
For welding	16 bar	80mm nominal	35 05 44
For welding	25 bar	80mm nominal	35 05 45
For welding	40 bar	80mm nominal	35 05 46



CRN 64 Counter Flanges

Flange	Nominal Pressure	Pipework Connection	Part Number
Threaded	16 bar	Rp 4	36 99 04
For welding	16 bar	100 mm nominal	36 99 03
For welding	25 bar	100 mm nominal	36 99 06

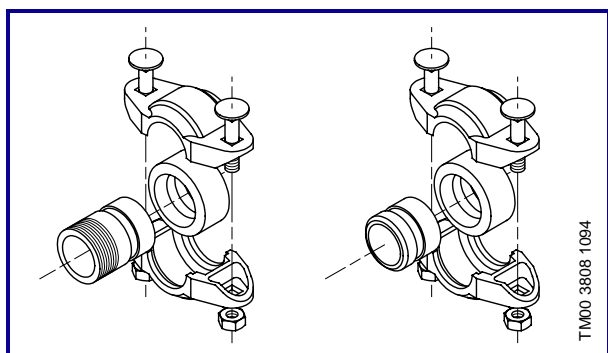


PJE Couplings

Couplings

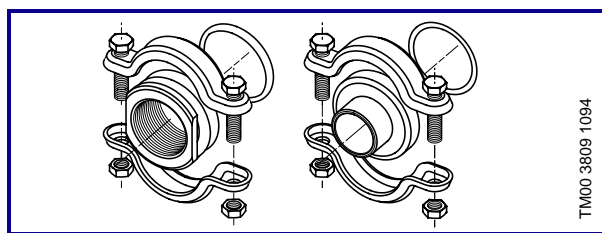
A set includes 1 coupling, 1 gasket and bolts and nuts.

Pump Type	Socket	PN	Pipework Connection	Rubber Parts	Part Number
CRN 2 and CRN 4	Threaded	80 bar	R 1½	EPDM	41 99 11
				Viton	41 99 05
	For welding	80 bar	DN 32	EPDM	41 99 12
				Viton	41 99 04
CRN 8 and CRN 16	Threaded	70 bar	R 2	EPDM	33 99 11
				Viton	33 99 18
	For welding	70 bar	DN 50	EPDM	33 99 10
				Viton	33 99 17



CLAMP Couplings

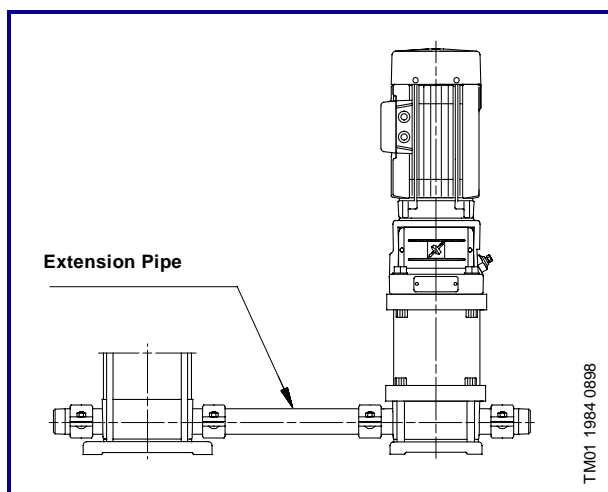
Pump Type	Socket	Pipework Connection	Rubber Parts	Part Number
CRN 2	Threaded	Rp 1	EPDM	40 52 80
			Viton	41 52 81
	For welding	ø28.5 mm	EPDM	40 52 82
			Viton	40 52 83
CRN 4	Threaded	Rp 1½	EPDM	41 52 96
			Viton	41 52 97
	For welding	ø37.2 mm	EPDM	41 53 00
			Viton	41 53 01
CRN 8	Threaded	Rp 1½	EPDM	42 52 38
			Viton	42 52 39
	For welding	ø43.1 mm	EPDM	42 52 42
			Viton	42 52 43
CRN 16	Threaded	Rp 2	EPDM	33 52 41
			Viton	33 52 42
	For welding	ø54.5 mm	EPDM	33 52 51
			Viton	33 52 52



Counterflanges and couplings for CRN pumps are made of stainless steel to DIN W.-Nr. 1.4401 (AISI 316).

CRN-SF Extension Pipe

Pump Type	Pipework connection	Part Number
CRN 2, CRN 4	DN 32	40 01 32
CRN 8, CRN 16	DN 50	42 01 38



PJE coupling

Pump Type	Pipework connection	Part Number	
		EPDM	VITON
CRN 2, CRN 4	DN 32	ID 17 81	ID 67 42
CRN 8, CRN 16	DN 50	ID 67 43	ID 26 43

Pipe stub

Pump Type	Pipework connection	Part Number	
		EPDM	VITON
CRN 2, CRN 4	DN 32	41 00 79	41 00 96
CRN 8, CRN 16	DN 50	33 01 99	33 02 07







V7 02 37 51 09 98	GB
Repl. V7 02 37 51 08 98	

Subject to alterations.

