
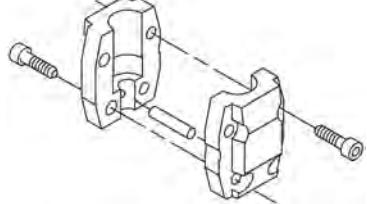
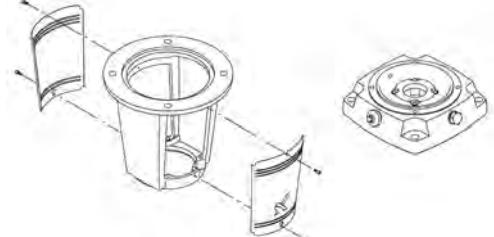


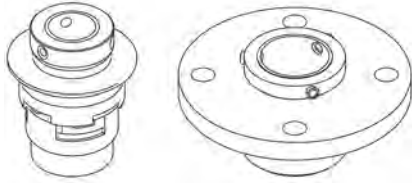
Qty.	Description
1	<p data-bbox="199 342 494 365"><b>CRN 90-1 A-F-A-E-HQQE</b></p>  <p data-bbox="199 663 470 685">Product No.: <a href="#">96124225</a></p> <p data-bbox="199 719 1460 824">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in contact with the liquid are in high-grade stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via DIN flanges.</p> <p data-bbox="199 864 933 887">The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p data-bbox="199 925 518 947"><b>Further product details</b></p> <p data-bbox="199 958 1460 1064">Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An integral part of the process is a pretreatment. The entire process consists of these elements:</p> <ol data-bbox="199 1075 694 1187" style="list-style-type: none"> <li>1) Alkaline-based cleaning.</li> <li>2) Zinc phosphating.</li> <li>3) Cathodic electro-deposition.</li> <li>4) Curing to a dry film thickness 18-22 my m.</li> </ol> <p data-bbox="199 1191 909 1214">The colour code for the finished product is NCS 9000/RAL 9005.</p> <p data-bbox="199 1249 279 1272"><b>Pump</b></p> <p data-bbox="199 1283 1396 1339">A standard split coupling connects the pump and motor shaft. It is enclosed in the pump head/motor stool by means of two coupling guards.</p>  <p data-bbox="199 1585 1460 1641">The motor stool connects the pump head and motor. The pump head has a combined 1/2" priming plug and vent screw.</p>  <p data-bbox="199 1910 1460 2011">The pump is fitted with a balanced O-ring seal unit with a rigid torque-transmission system. This seal type is assembled in a cartridge unit which makes replacement safe and easy. Due to the balancing, this seal type is suitable for high-pressure applications. The cartridge construction also protects the pump shaft from possible wear from a dynamic O-ring between pump shaft and shaft seal.</p> <p data-bbox="199 2022 343 2045">Primary seal:</p> <ul data-bbox="239 2049 805 2107" style="list-style-type: none"> <li>• Rotating seal ring material: silicon carbide (SiC)</li> <li>• Stationary seat material: silicon carbide (SiC)</li> </ul>

**Qty. Description**

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

Secondary seal material: EPDM (ethylene-propylene rubber)

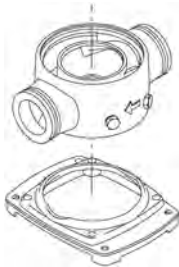
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



The shaft seal is retained in the pump head by a cover and screws. It can be replaced without removing the motor.

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

The pump has a stainless-steel base mounted on a separate base plate. The base and base plate are kept in position by the tension of the staybolts which hold the pump together. Both the inlet and the outlet side of the base have two pressure gauge tapings. The pump is secured to the foundation by four bolts through the base plate. The flanges are fastened to the base by means of locking rings.



**Motor**

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

Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II).

Electrical tolerances comply with IEC 60034.

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

The motor has thermistors (PTC sensors) in the windings in accordance with DIN 44081/DIN 44082. The protection reacts to both slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.

Thermal switches must be connected to an external control circuit in a way which ensures that the automatic reset cannot cause accidents. The motors must be connected to a motor-protective circuit breaker according to local regulations.

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

**Technical data**

**Controls:**

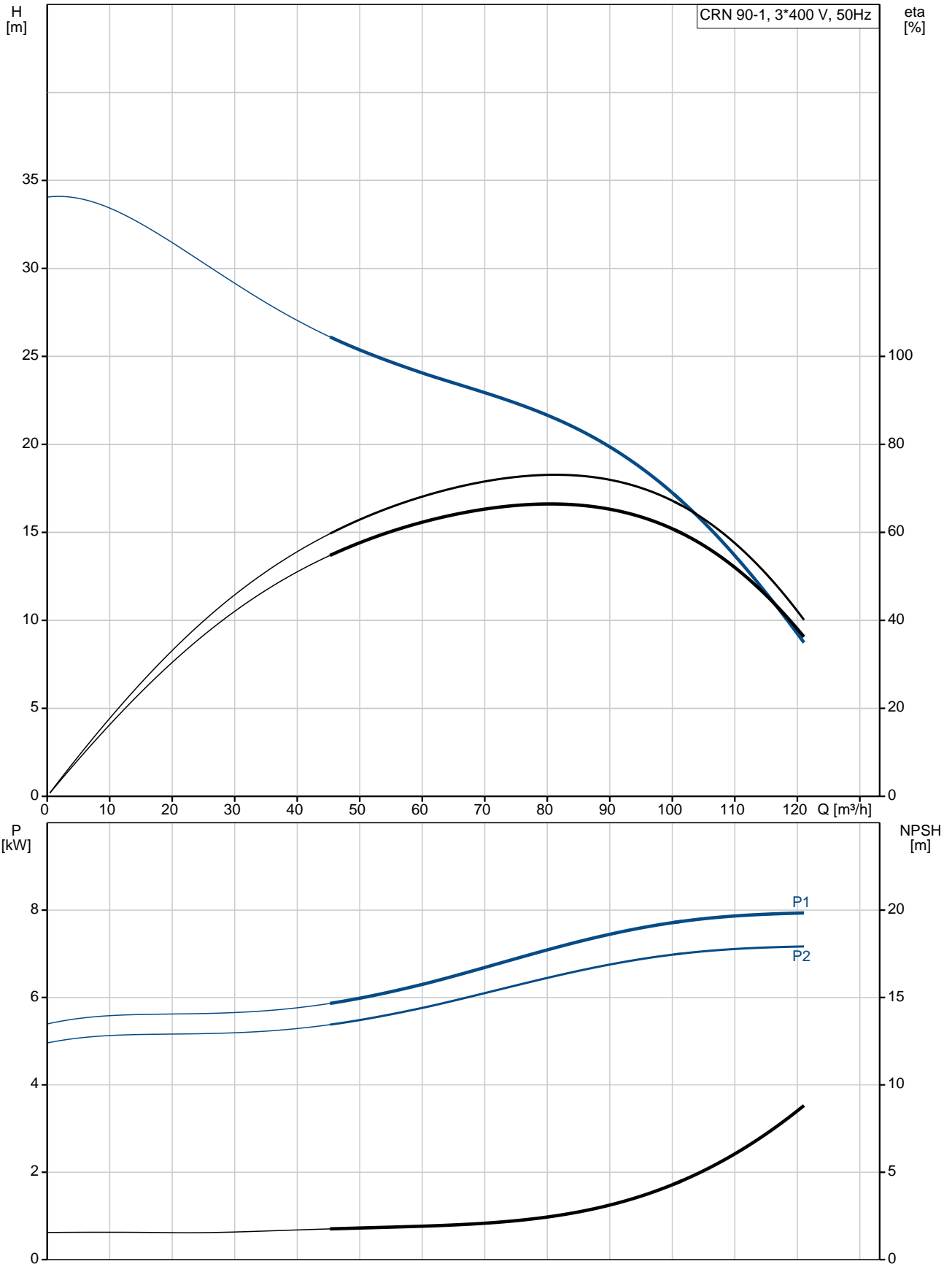
Frequency converter: NONE

**Liquid:**

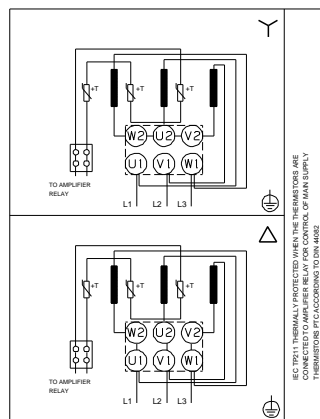
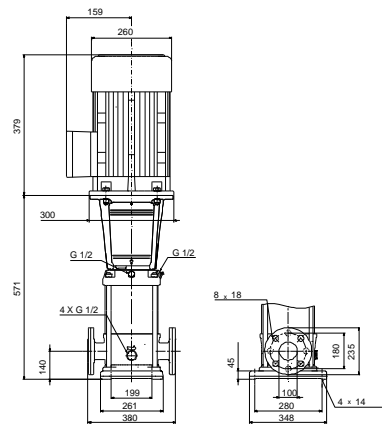
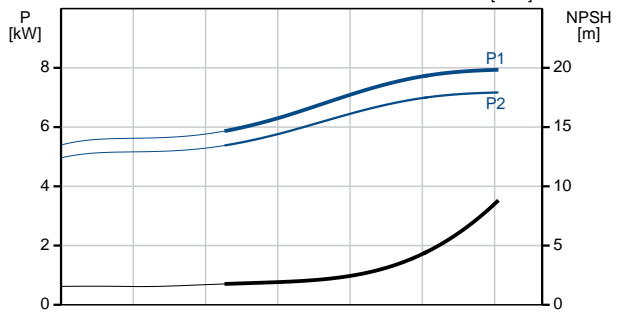
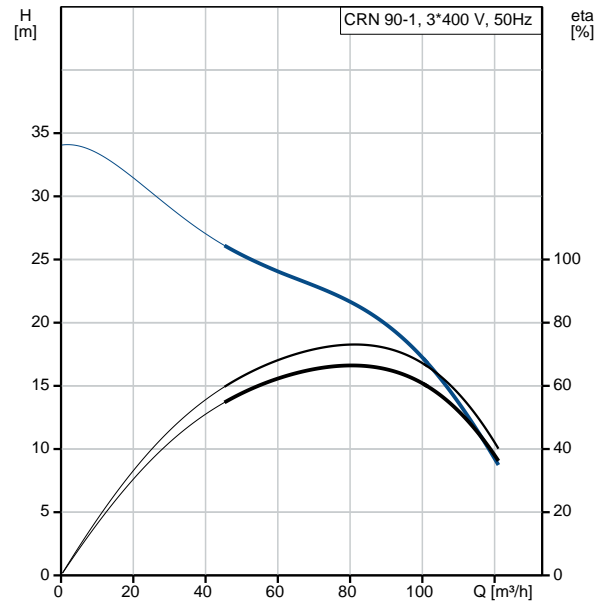
Pumped liquid: Water  
 Liquid temperature range: -40 .. 120 °C  
 Liquid temperature during operation: 20 °C  
 Density: 998.2 kg/m<sup>3</sup>

Qty.	Description
	<p><b>Technical:</b>                      Pump speed on which pump data are based: 2919 rpm                      Rated flow: 90 m<sup>3</sup>/h                      Rated head: 20.2 m                      Pump orientation: Vertical                      Shaft seal arrangement: Single                      Code for shaft seal: HQQE                      Approvals on nameplate: CE, EAC, ACS                      Curve tolerance: ISO9906:2012 3B</p> <p><b>Materials:</b>                      Base: Stainless steel                      EN 1.4408                      AISI 316                      Impeller: Stainless steel                      EN 1.4401                      AISI 316                      Bearing: SIC                      Support bearing: Graflon</p> <p><b>Installation:</b>                      Maximum ambient temperature: 60 °C                      Maximum operating pressure: 16 bar                      Max pressure at stated temp: 16 bar / 120 °C                      16 bar / -40 °C                      Type of connection: DIN                      Size of inlet connection: DN 100                      Size of outlet connection: DN 100                      Pressure rating for pipe connection: PN 16                      Flange size for motor: FF265</p> <p><b>Electrical data:</b>                      Motor standard: IEC                      Motor type: 132SB                      IE Efficiency class: IE3                      Rated power - P2: 7.5 kW                      Power (P2) required by pump: 7.5 kW                      Mains frequency: 50 Hz                      Rated voltage: 3 x 380-415D/660-690Y V                      Rated current: 14,4-14,0/8,30-8,10 A                      Starting current: 780-910 %                      Cos phi - power factor: 0.88-0.82                      Rated speed: 2910-2920 rpm                      Efficiency: IE3 90,1%                      Motor efficiency at full load: 90.1-90.4 %                      Motor efficiency at 3/4 load: 90.8 %                      Motor efficiency at 1/2 load: 90.8 %                      Number of poles: 2                      Enclosure class (IEC 34-5): 55 Dust/Jetting                      Insulation class (IEC 85): F</p> <p><b>Others:</b>                      Minimum efficiency index, MEI <math>\hat{\alpha}_{\%}</math>: 0.70                      Net weight: 119 kg                      Gross weight: 142 kg                      Shipping volume: 0.309 m<sup>3</sup>                      Danish VVS No.: 385919010</p>

## 96124225 CRN 90-1 A-F-A-E-HQQE 50 Hz



Description	Value
<b>General information:</b>	
Product name:	CRN 90-1 A-F-A-E-HQQE
Product No:	96124225
EAN number:	5700396705392
<b>Technical:</b>	
Pump speed on which pump data are based:	2919 rpm
Rated flow:	90 m <sup>3</sup> /h
Rated head:	20.2 m
Head max:	35.5 m
Stages:	1
Impellers:	1
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals on nameplate:	CE, EAC, ACS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	B
<b>Materials:</b>	
Base:	Stainless steel EN 1.4408 AISI 316
Impeller:	Stainless steel EN 1.4401 AISI 316
Material code:	A
Code for rubber:	E
Bearing:	SIC
Support bearing:	Graflon
<b>Installation:</b>	
Maximum ambient temperature:	60 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C 16 bar / -40 °C
Type of connection:	DIN
Size of inlet connection:	DN 100
Size of outlet connection:	DN 100
Pressure rating for pipe connection:	PN 16
Flange size for motor:	FF265
Connect code:	F
<b>Liquid:</b>	
Pumped liquid:	Water
Liquid temperature range:	-40 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m <sup>3</sup>
<b>Electrical data:</b>	
Motor standard:	IEC
Motor type:	132SB
IE Efficiency class:	IE3
Rated power - P2:	7.5 kW
Power (P2) required by pump:	7.5 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-415D/660-690Y V
Rated current:	14,4-14,0/8,30-8,10 A





Company name:

Created by:

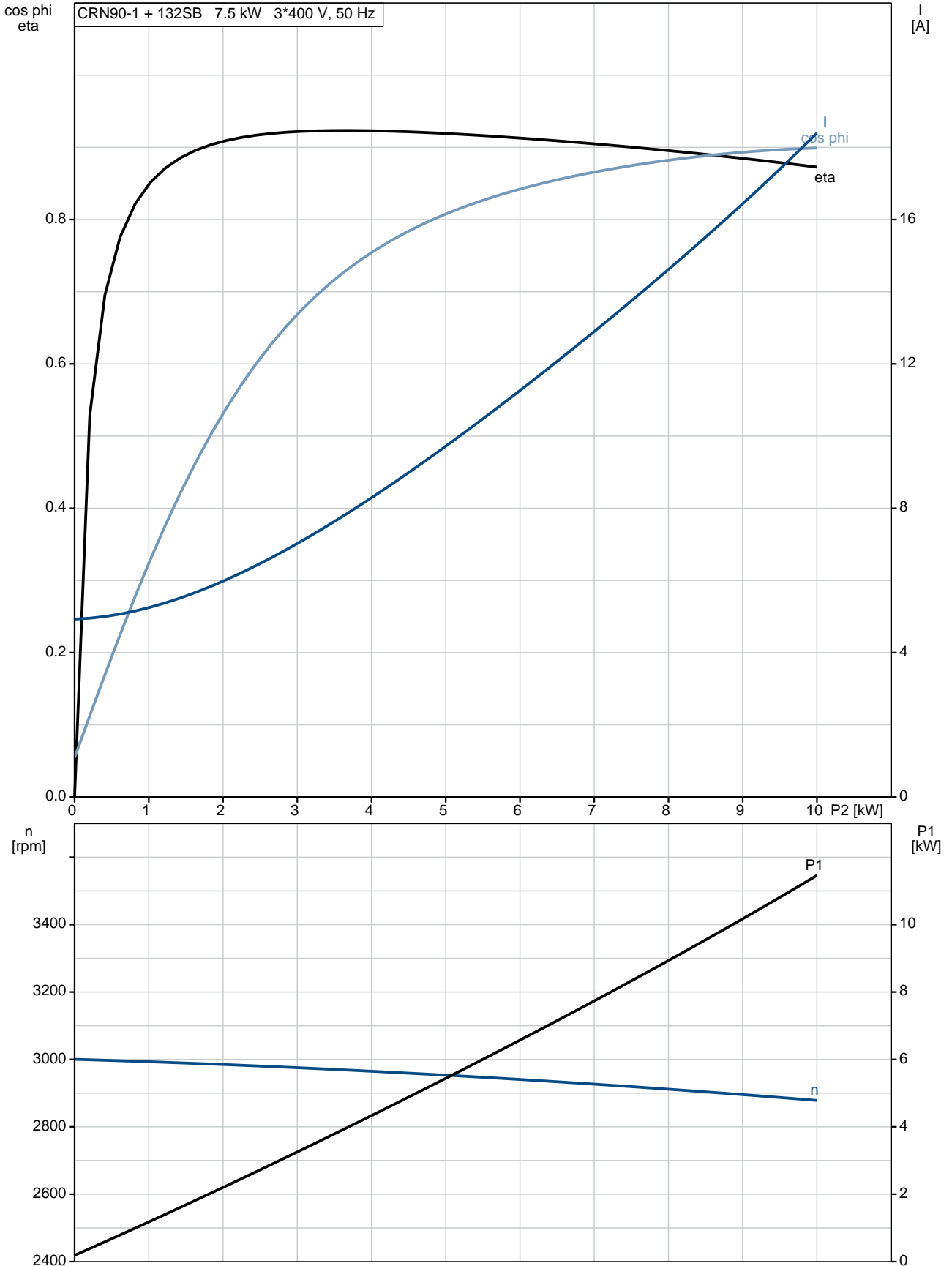
Phone:

Date:

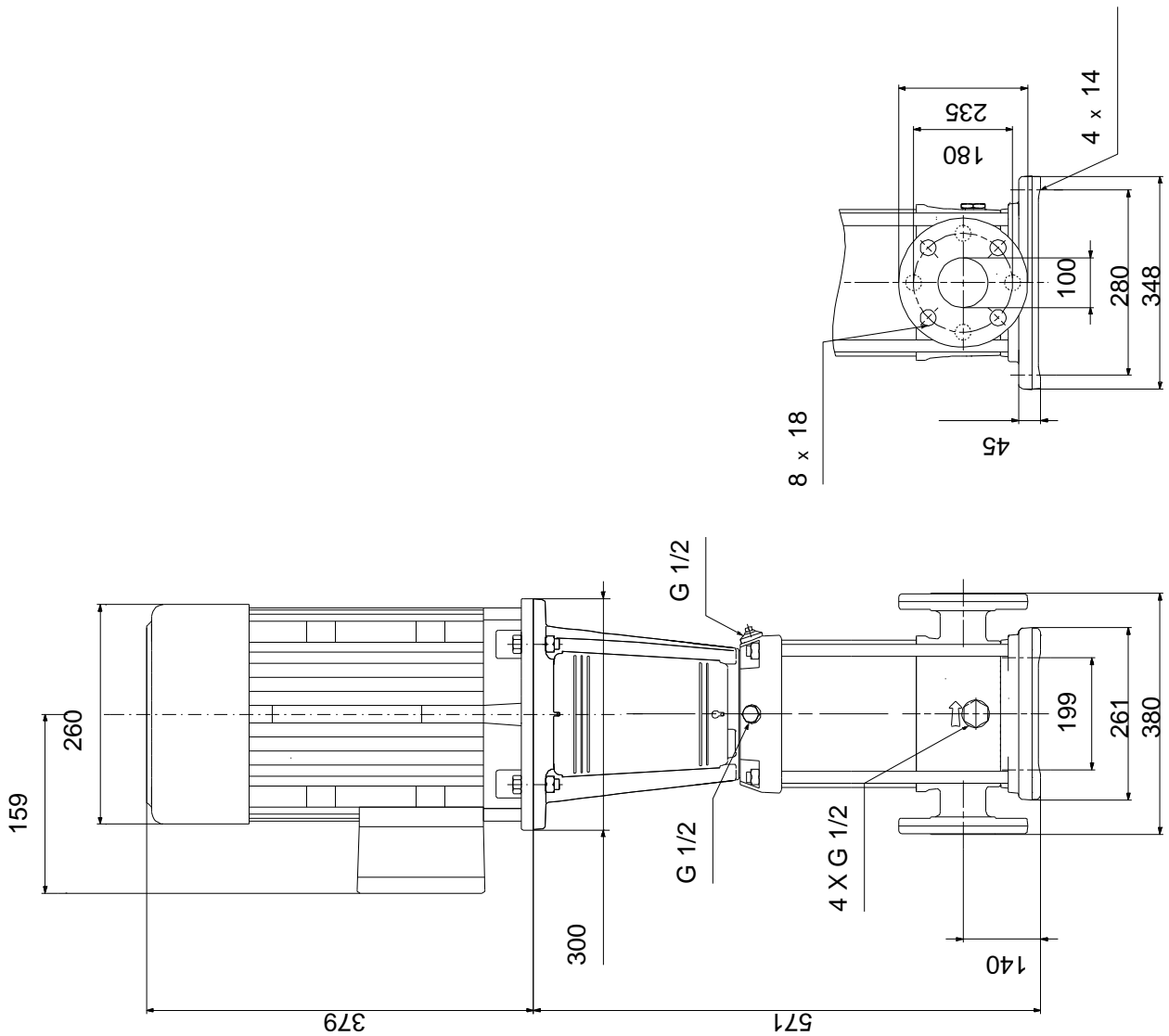
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Description	Value
Starting current:	780-910 %
Cos phi - power factor:	0.88-0.82
Rated speed:	2910-2920 rpm
Efficiency:	IE3 90,1%
Motor efficiency at full load:	90.1-90.4 %
Motor efficiency at 3/4 load:	90.8 %
Motor efficiency at 1/2 load:	90.8 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U17522
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI %:	0.70
Net weight:	119 kg
Gross weight:	142 kg
Shipping volume:	0.309 m <sup>3</sup>
Danish VVS No.:	385919010

## 96124225 CRN 90-1 A-F-A-E-HQQE 50 Hz



## 96124225 CRN 90-1 A-F-A-E-HQQE 50 Hz



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



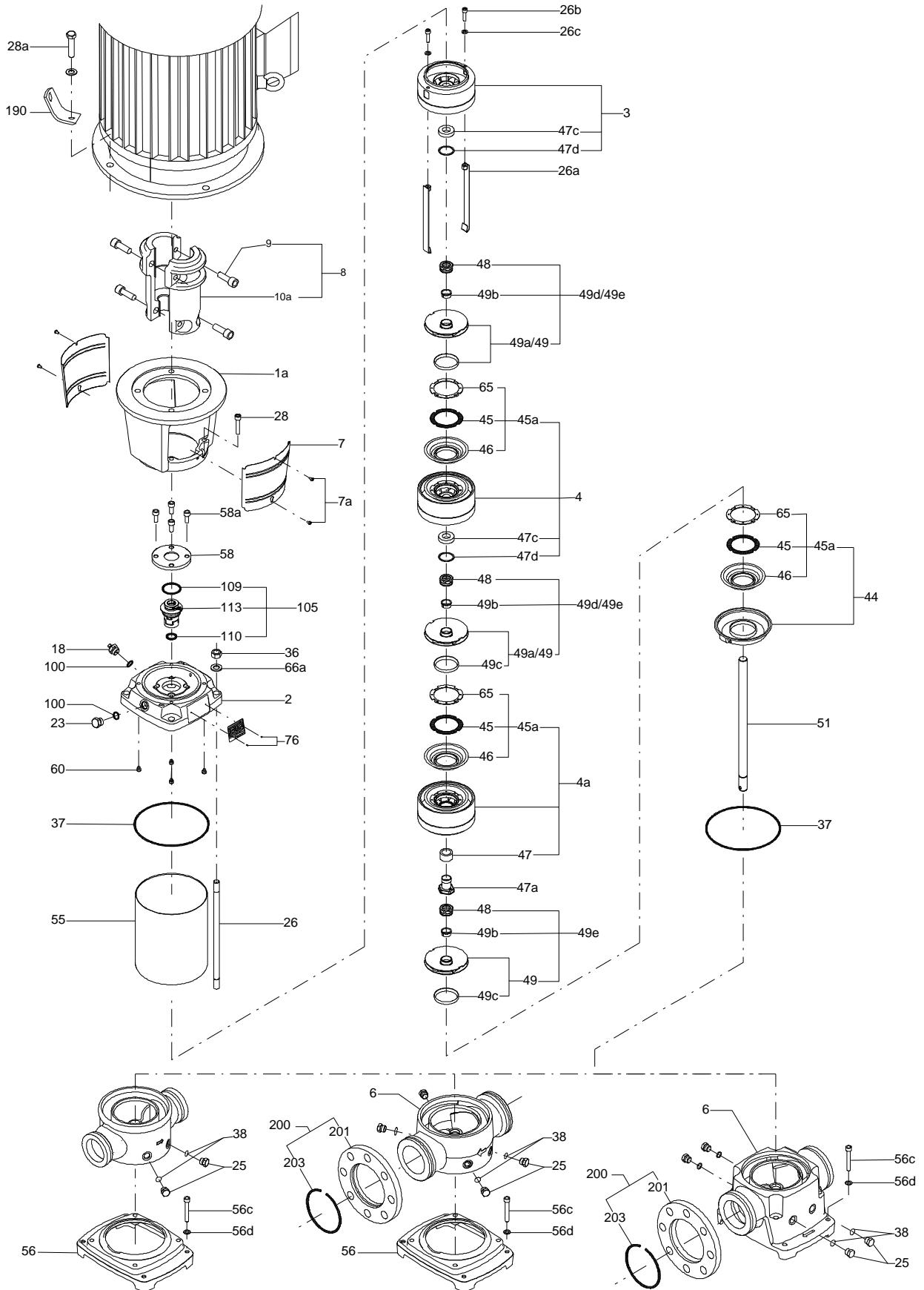
## 96124225 CRN 90-1 A-F-A-E-HQQE 50 Hz



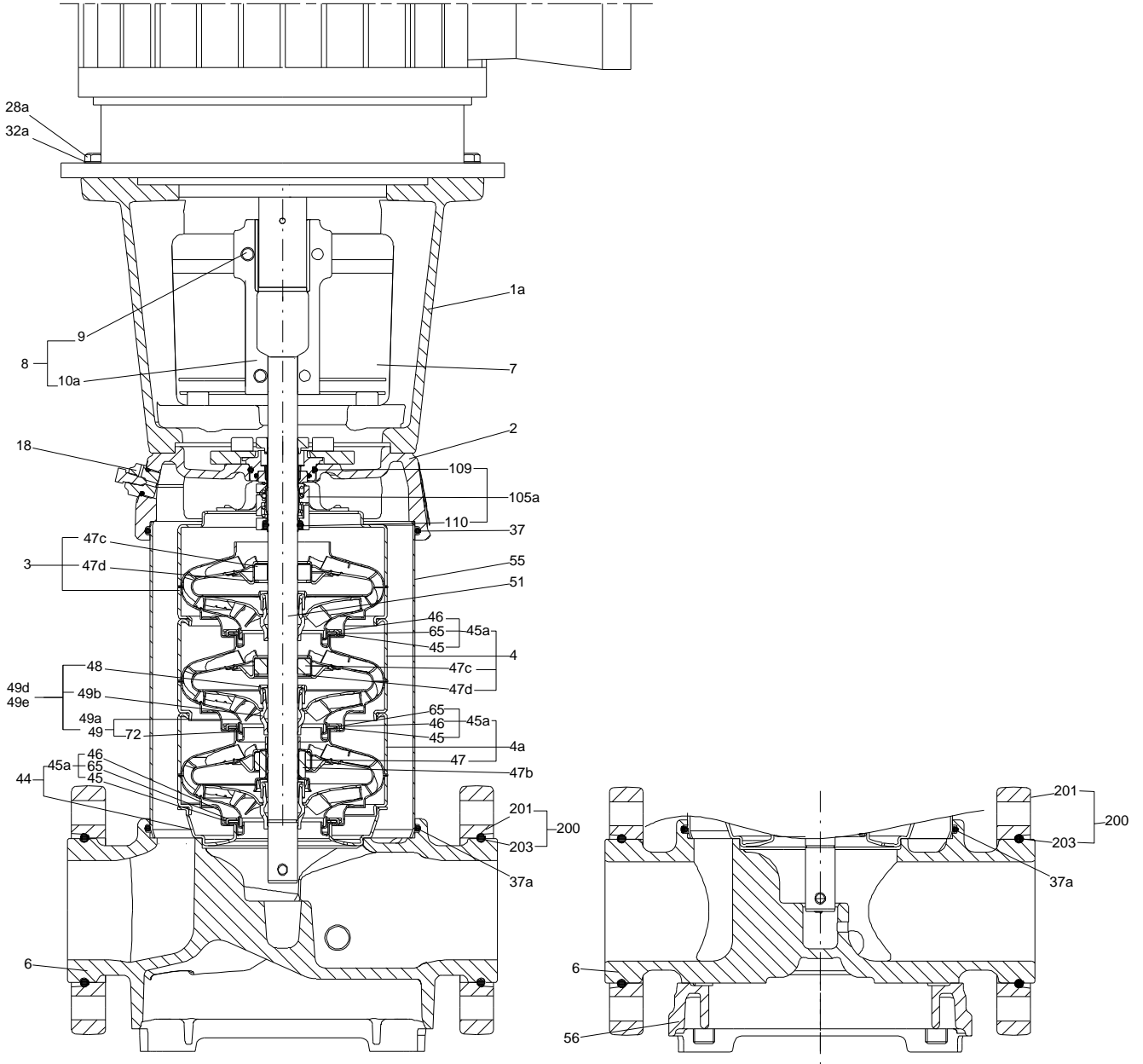
IEC TP211 THERMALLY PROTECTED WHEN THE THERMISTORS ARE  
CONNECTED TO AMPLIFIER RELAY FOR CONTROL OF MAIN SUPPLY  
THERMISTORS PTC ACCORDING TO DIN 44082

Note! All units are in [mm] unless others are stated.

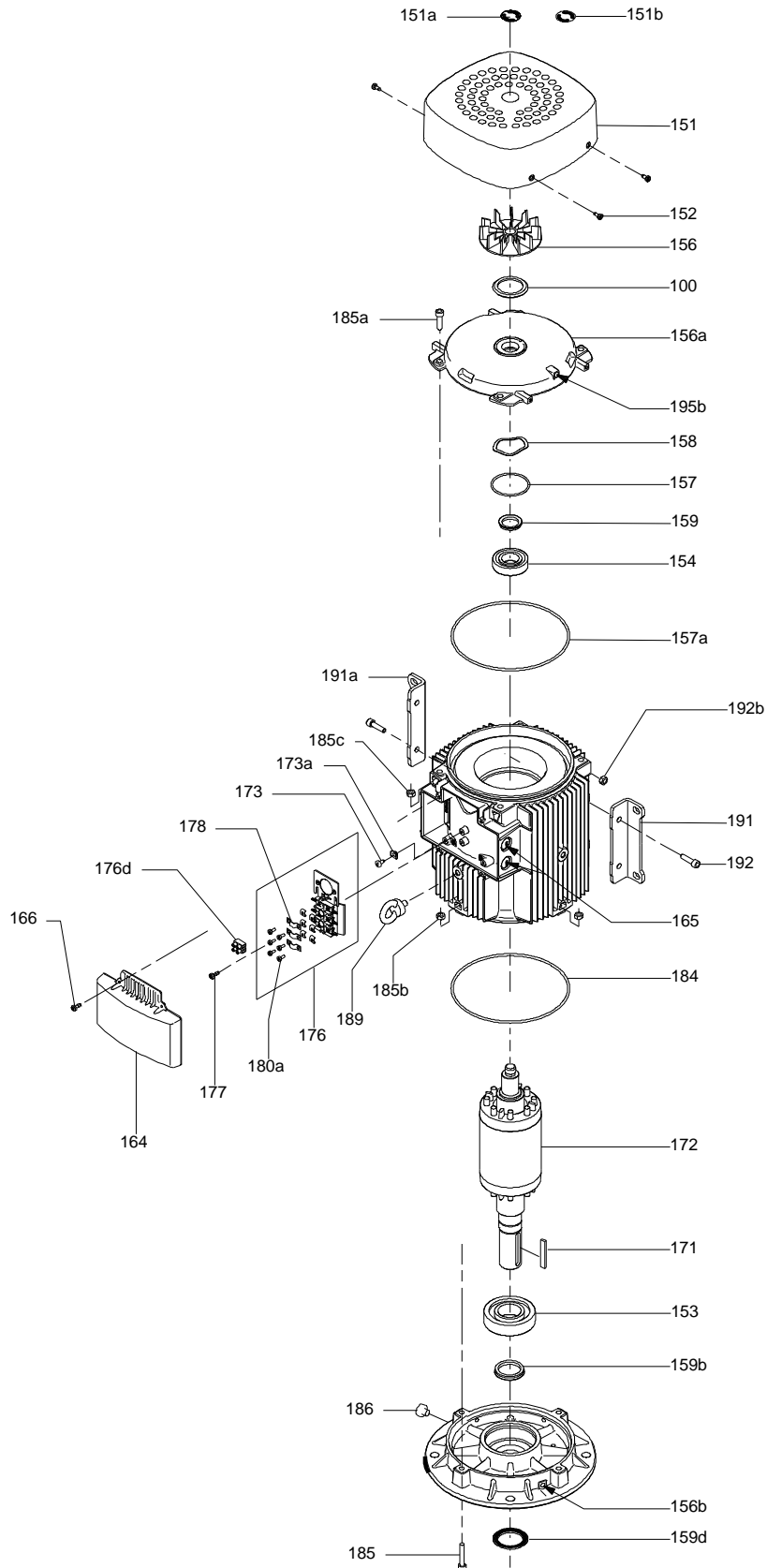
(TM065558 LACR )



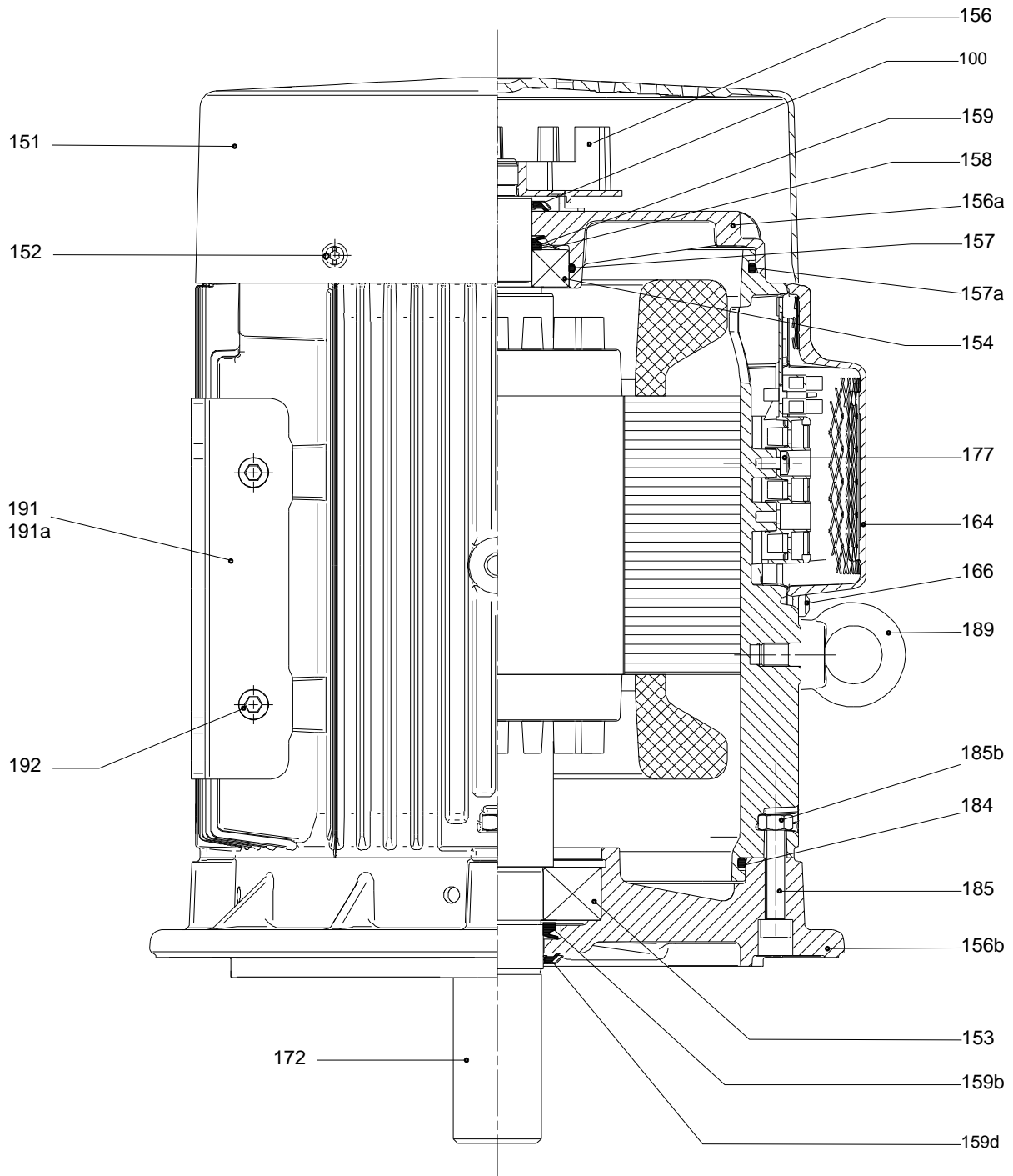
( TM065571 LACR)



## Exploded view



## Sectional drawing



**Spare parts CRN 90-1, Product No. 96124225**  
**Valid from 3.3.2014 (1410)**

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Base			96587699	1	pcs
6	Base				1	
-	Kit, chambers			98635099	1	pcs
- 3	Upper chamber cpl.				1	
	Cone					
	Spare, turbulence optimizer KP					
	Spare, turbulence optimizer KP					
	Spare, turbulence optimizer KP					
	Spare, turbulence optimizer KP					
	Spare, turbulence optimizer KP					
47	Bearing					
- 47a	Bearing				1	
	Driver					
	Holder					
	Disc spring					
	Bearing ring					
47f	Hairpin clip					
-	Kit, coupling			96416591	1	pcs
	Adjusting fork				1	
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M10			
10a	Coupling		Type: SPACER		1	
-	Kit, coupling guard			96505134	1	pcs
7a	Socket button head screw				4	
7	Coupling guard				2	
-	Kit, cover			98832448	1	pcs
58a	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M10			
58	Cover				1	
-	Kit, impeller			98593752	1	pcs
- 44	Suction interconnector cpl.				1	
	Suction interconnector					
45a	Neck ring cpl.					
48	Nut				1	
- 49e	Impeller cpl.				1	
48	Nut					
49b	Split cone					
49	Impeller					
-	Kit, impeller			98635108	1	pcs
48	Nut				1	
48	Nut				1	
49b	Split cone				1	
- 49	Impeller				1	
	Impeller hub					
49c	Wear ring					
-	Kit, plug			96505136	1	pcs
- 18	Air vent screw				1	
	Spindle					
	Plug					
25	Plug				4	
25	Plug				1	

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
38	O-ring		Diameter: 16,3 Material type: FKM Thickness: 2,4		2	
38	O-ring		Diameter: 16,3 Material type: FKM Thickness: 2,4		4	
38	O-ring		Diameter: 16,3 Material type: FKM Thickness: 2,4		6	
38	O-ring		Diameter: 16,3 Material type: EPDM Thickness: 2,4		2	
38	O-ring		Diameter: 16,3 Material type: EPDM Thickness: 2,4		4	
-	Kit, seals			96416601	1	pcs
	Adjusting fork				1	
37	O-ring				2	
38	O-ring		Diameter: 16,3 Material type: EPDM Thickness: 2,4		2	
38	O-ring		Diameter: 16,3 Material type: EPDM Thickness: 2,4		4	
60	Spring				4	
109	O-ring				1	
110	O-ring		Diameter: 21,2 Material type: EPDM Thickness: 3,55		1	
-	Kit, shaft seal HQQE			96525458	1	pcs
	Grinding device				1	
-	105 Shaft seal		Material type: HQQE		1	
	Adjusting fork					
109	O-ring					
110	O-ring		Diameter: 21,5 Material type: EPDM Thickness: 4,25			
-	Kit, wear parts			98497509	1	pcs
45	Seal ring				1	
45	Neck ring				2	
47d	Lock ring				2	
47c	Bush				1	
49c	Wear ring				1	
49c	Wear ring				2	
65	Top f/neck ring				1	
65	Top f/neck ring				2	
-	Motor			91333038	1	pcs
-	Kit, bearing cpl.			96796642	1	
111	Ball bearing		Designation: 6206.2Z.C3.SYN			
153	Angular-contact bearing					
157	O-ring		Diameter: 62 Material type: NBR Thickness: 3			
158	Waved washer					
159.b	V-ring					
159	V-ring					
-	Kit, eyebolt			96279874	1	
189	Lifting eye					



Company name:

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Phone:

Date:

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Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, fan			96796189	1	
156	Fan					
-	Kit, fan cover			96796188	1	
151	Fan cover					
152	Pan head thread forming screw					
-	Kit, flange			96796224	1	
156.b	Flange					
159.b	V-ring					
185c	Nut					
185	Hex socket head cap screw					
186	Drain plug					
-	Kit, gaskets			96798510	1	
184	O-ring					
-	Kit, ND-end shield cpl.			96796598	1	
156.a	End shield NDE					
157	O-ring		Diameter: 62			
			Material type: NBR			
			Thickness: 3			
158	Waved washer					
159	V-ring					
185.c	Nut					
185.a	Hex socket head cap screw					
-	Kit, shaft seal			96843458	1	
159.b	V-ring					
159	V-ring					
-	Kit, terminal board			96030209	1	
176	Terminal					
176	Terminal board					
178	Connecting piece					
179	Cable shoe					
180a	Slot cheese head screw		Designation: COMBI TORX T25			
			Length (mm): 10			
			Thread: M5			
180	Wire clamp					
-	Kit, terminal box cover			96796215	1	
164	Terminal box cover w/gasket					
166	Pan head thread forming screw					
1a	Motor stool			96547431	1	pcs
2	Pump head			97789459	1	pcs
+ 3	Bulk, Upper chamber cpl. (5 pcs)			99262805	1	pcs
6	Base			97974018	1	pcs
7a	Bulk, Socket button head screw (10 pcs)			96549696	4	pcs
7	Bulk, Coupling guard (10 pcs)			96603300	2	pcs
+ 8	Coupling cpl.		Dimension: 22/38	96587705	1	pcs
+ 18	Bulk, Air vent screw (5 pcs)			96547461	1	pcs
+ 18	Air vent screw			95061351	1	pcs
25	Bulk, Plug (10 pcs)			96536013	1	pcs
26	Staybolt		Length (mm): 321	98976756	4	pcs
			Thread: M16			
26c	Bulk, Washer (4 pcs)		Designation: DIN 125A	99262704	2	pcs
			Thickness: 1,6			
26c	Washer		Designation: DIN 125A	96586880	2	pcs
			Thickness: 1,6			
26b	Bulk, Hex socket head cap screw (10 pcs)			98931380	2	pcs
26a	Strap cpl.		Length (mm): 101	98983911	2	pcs
			Thread: M8			
28	Bulk, Hex socket head cap screw (10 pcs)		Designation: DIN 912	96536147	4	pcs
			Length (mm): 50			





Company name:

Created by:

Phone:

Date:

18/02/2019

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
			Thread: M10			
28	Bulk, Hex head screw (20 pcs)		Length (mm): 45 MM	96620474	4	pcs
			Thread: M12			
36	Bulk, Nut (20 pcs)		Thread: M12	96620479	4	pcs
38	Bulk, O-ring (10 pcs)		Diameter: 16,3	99198815	2	pcs
			Material type: EPDM			
			Thickness: 2,4			
38	Bulk, O-ring (50 pcs)		Diameter: 16,3	99412727	2	pcs
			Material type: EPDM			
			Thickness: 2,4			
+ 47a	Bulk, Bearing (5 pcs)			99270667	1	pcs
49b	Bulk, Split cone (10 pcs)			96536010	1	pcs
55	Outer sleeve			98820406	1	pcs
56	Base plate			97789433	1	pcs
58	Cover			98893158	1	pcs
60	Bulk, Spring (20 pcs)			96536032	4	pcs
- 105	Bulk, Shaft seal (12 pcs)		Material type: HQQE	96984086	1	pcs
	Adjusting fork			96587896	1	
109	Bulk, O-ring (10 pcs)			96547586	1	
+ 105	Bulk, Shaft seal (12 pcs)		Material type: HQQE	96984070	1	pcs
440b	Bulk, Lock ring (4 pcs)			96547435	1	pcs