
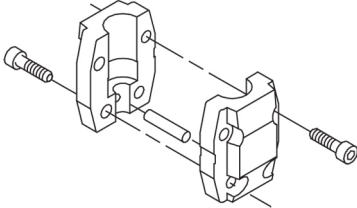
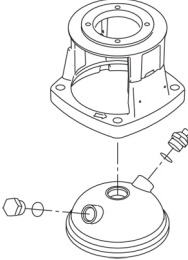
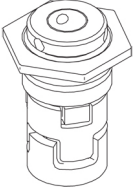
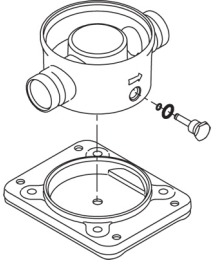


Qty.	Description
1	<p data-bbox="199 342 494 365"><b>CRN 20-7 A-P-A-E-HQQE</b></p>  <p data-bbox="199 663 467 685">Product No.: <a href="#">96500563</a></p> <p data-bbox="199 723 1452 824">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in 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 PJE (Victaulic®) couplings.</p> <p data-bbox="199 864 935 887">The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p data-bbox="199 925 520 947"><b>Further product details</b></p> <p data-bbox="199 958 1452 1059">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 1070 695 1189" 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 1193 909 1216">The colour code for the finished product is NCS 9000/RAL 9005.</p> <p data-bbox="199 1249 284 1272"><b>Pump</b></p> <p data-bbox="199 1283 1388 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 1366 1641">The pump head and flange for motor mounting is made in one piece (cast iron). The pump head cover is a separate component (stainless steel). The pump head has a combined 1/2" priming plug and vent screw.</p>  <p data-bbox="199 1939 1452 2040">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 2051 347 2074">Primary seal:</p> <ul data-bbox="239 2078 801 2101" style="list-style-type: none"> <li>• Rotating seal ring material: silicon carbide (SiC)</li> </ul>



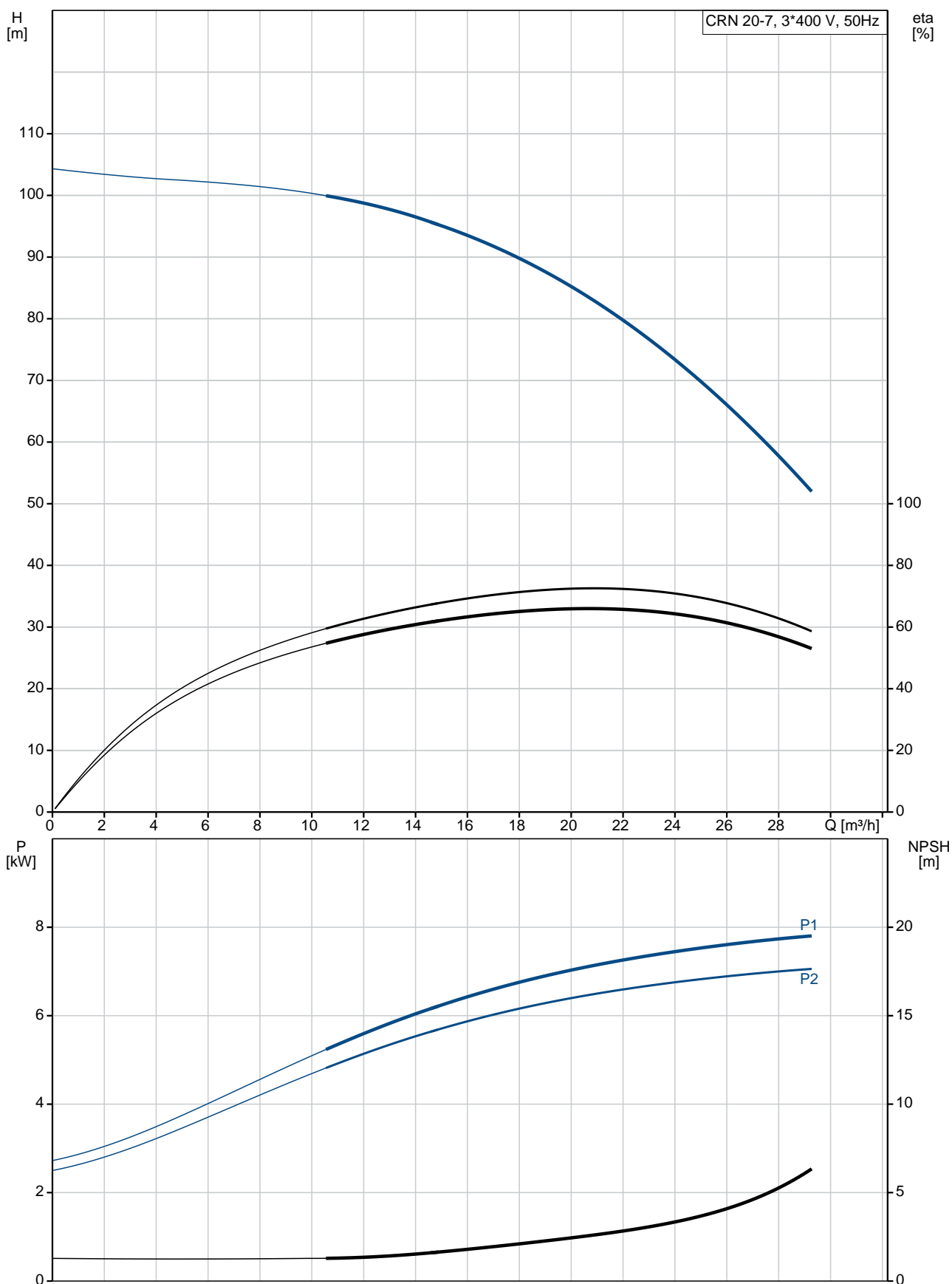
Qty.	Description
	<ul style="list-style-type: none"> <li>Stationary seat material: silicon carbide (SiC)</li> </ul> <p>This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.</p> <p>Secondary seal material: EPDM (ethylene-propylene rubber)</p> <p>EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.</p>  <p>The shaft seal is screwed into the pump head.</p> <p>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.</p> <p>The pump has a stainless-steel base mounted on a separate base plate. The base and base plate are kept in position by the tension of the staybolts which hold the pump together. The outlet side of the base has a drain plug. The pump is secured to the foundation by four bolts through the base plate. The base is prepared for connection by means of PJE (Victualic®) couplings.</p>  <p><b>Motor</b></p> <p>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).</p> <p>Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (Code II).</p> <p>Electrical tolerances comply with IEC 60034.</p> <p>The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p><b>Technical data</b></p> <p><b>Controls:</b></p> <p>Frequency converter: NONE</p> <p><b>Liquid:</b></p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: -20 .. 120 °C</p> <p>Liquid temperature during operation: 20 °C</p> <p>Density: 998.2 kg/m<sup>3</sup></p>



Qty.	Description
	<p><b>Technical:</b></p> <p>Pump speed on which pump data are based: 2919 rpm</p> <p>Rated flow: 21 m<sup>3</sup>/h</p> <p>Rated head: 81.7 m</p> <p>Pump orientation: Vertical</p> <p>Shaft seal arrangement: Single</p> <p>Code for shaft seal: HQQE</p> <p>Approvals on nameplate: CE, EAC, ACS</p> <p>Curve tolerance: ISO9906:2012 3B</p> <p><b>Materials:</b></p> <p>Base: Stainless steel EN 1.4408 AISI 316</p> <p>Impeller: Stainless steel EN 1.4401 AISI 316</p> <p>Bearing: SIC</p> <p><b>Installation:</b></p> <p>Maximum ambient temperature: 60 °C</p> <p>Maximum operating pressure: 25 bar</p> <p>Max pressure at stated temp: 25 bar / 120 °C 25 bar / -20 °C</p> <p>Type of connection: PJE</p> <p>Size of inlet connection: DN 50 2 inch</p> <p>Size of outlet connection: DN 50 2 inch</p> <p>Pressure rating for pipe connection: PN 50</p> <p>Flange size for motor: FF265</p> <p><b>Electrical data:</b></p> <p>Motor standard: IEC</p> <p>Motor type: 132SB</p> <p>IE Efficiency class: IE3</p> <p>Rated power - P2: 7.5 kW</p> <p>Power (P2) required by pump: 7.5 kW</p> <p>Mains frequency: 50 Hz</p> <p>Rated voltage: 3 x 380-415D/660-690Y V</p> <p>Rated current: 14,4-14,0/8,30-8,10 A</p> <p>Starting current: 780-910 %</p> <p>Cos phi - power factor: 0.88-0.82</p> <p>Rated speed: 2910-2920 rpm</p> <p>Efficiency: IE3 90,1%</p> <p>Motor efficiency at full load: 90.1-90.4 %</p> <p>Motor efficiency at 3/4 load: 90.8 %</p> <p>Motor efficiency at 1/2 load: 90.8 %</p> <p>Number of poles: 2</p> <p>Enclosure class (IEC 34-5): 55 Dust/Jetting</p> <p>Insulation class (IEC 85): F</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI <math>\eta_{\text{MEI}}</math>: 0.70</p> <p>Net weight: 96 kg</p> <p>Gross weight: 118 kg</p> <p>Shipping volume: 0.285 m<sup>3</sup></p> <p>Danish VVS No.: 385915070</p>

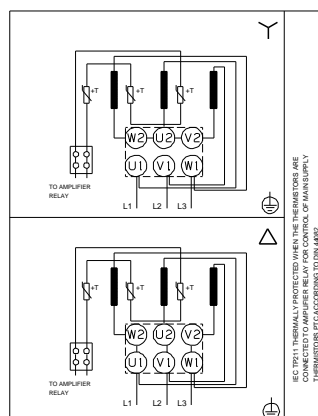
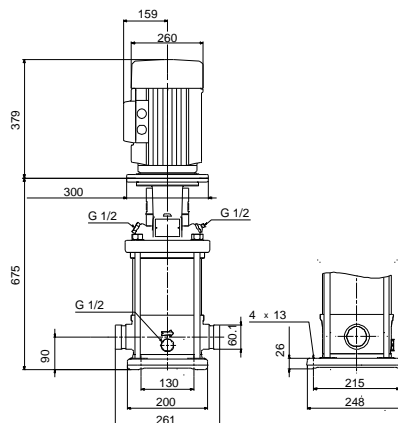
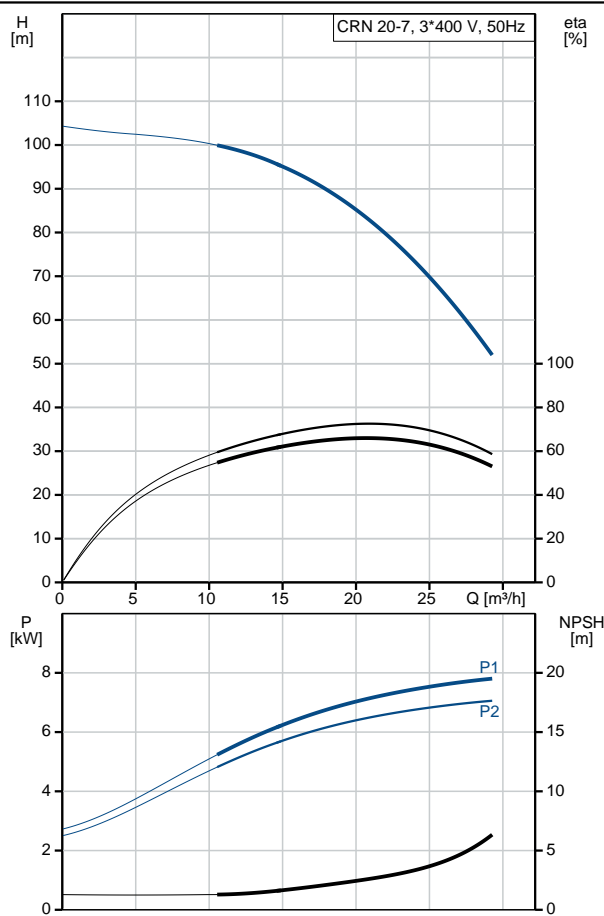


## 96500563 CRN 20-7 A-P-A-E-HQQE 50 Hz





Description	Value
<b>General information:</b>	
Product name:	CRN 20-7 A-P-A-E-HQQE
Product No:	96500563
EAN number:	5700396204321
<b>Technical:</b>	
Pump speed on which pump data are based:	2919 rpm
Rated flow:	21 m³/h
Rated head:	81.7 m
Head max:	103 m
Stages:	7
Impellers:	7
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:	A
<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
<b>Installation:</b>	
Maximum ambient temperature:	60 °C
Maximum operating pressure:	25 bar
Max pressure at stated temp:	25 bar / 120 °C 25 bar / -20 °C
Type of connection:	PJE
Size of inlet connection:	DN 50 2 inch
Size of outlet connection:	DN 50 2 inch
Pressure rating for pipe connection:	PN 50
Flange size for motor:	FF265
Connect code:	P
<b>Liquid:</b>	
Pumped liquid:	Water
Liquid temperature range:	-20 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m³
<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







Company name:

Created by:

Phone:

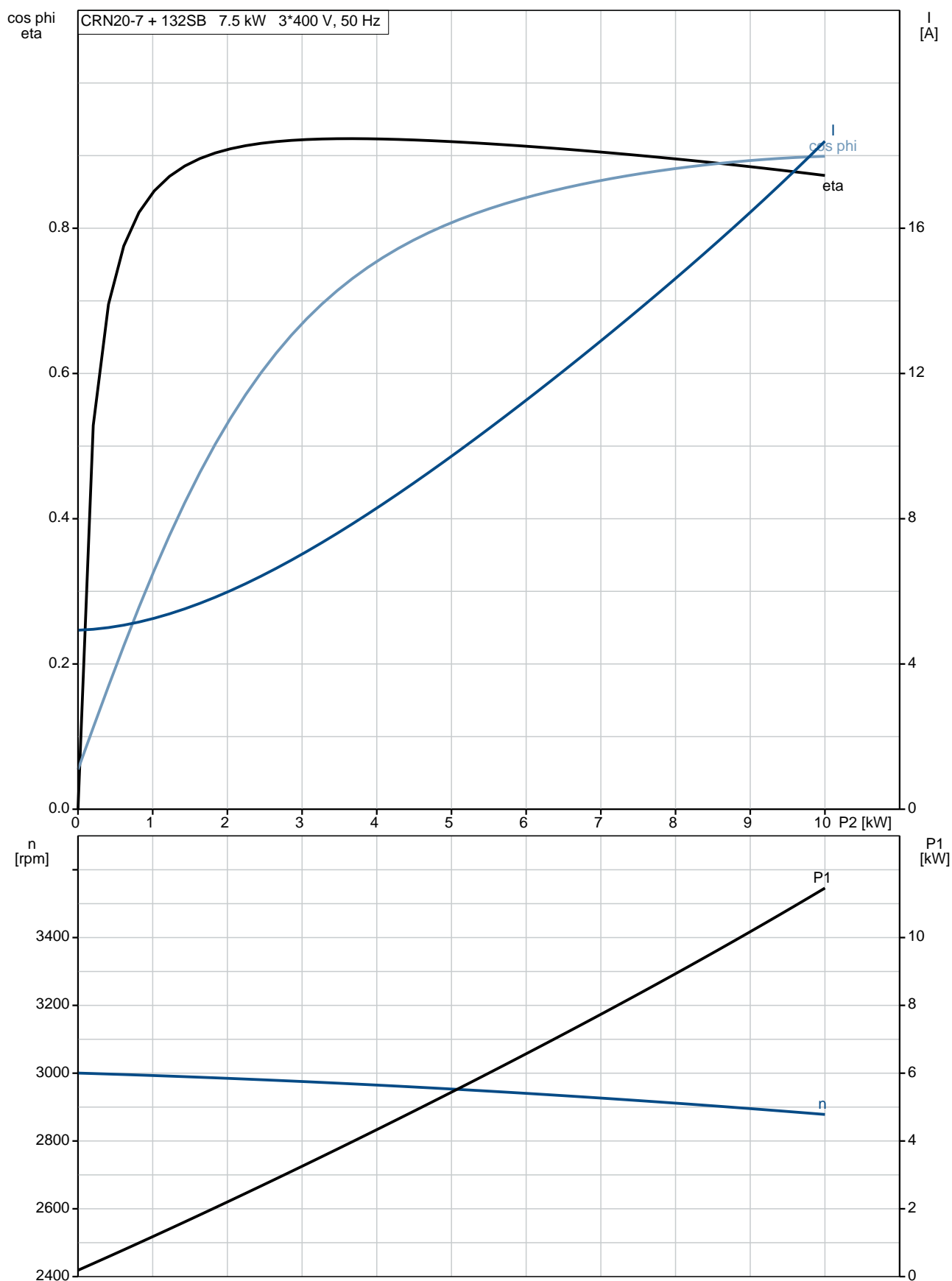
Date:

16/02/2019

Description	Value
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
Motor protec:	PTC
Motor No:	85U17522
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI $\eta_{\%}$ :	0.70
Net weight:	96 kg
Gross weight:	118 kg
Shipping volume:	0.285 m <sup>3</sup>
Danish VVS No.:	385915070

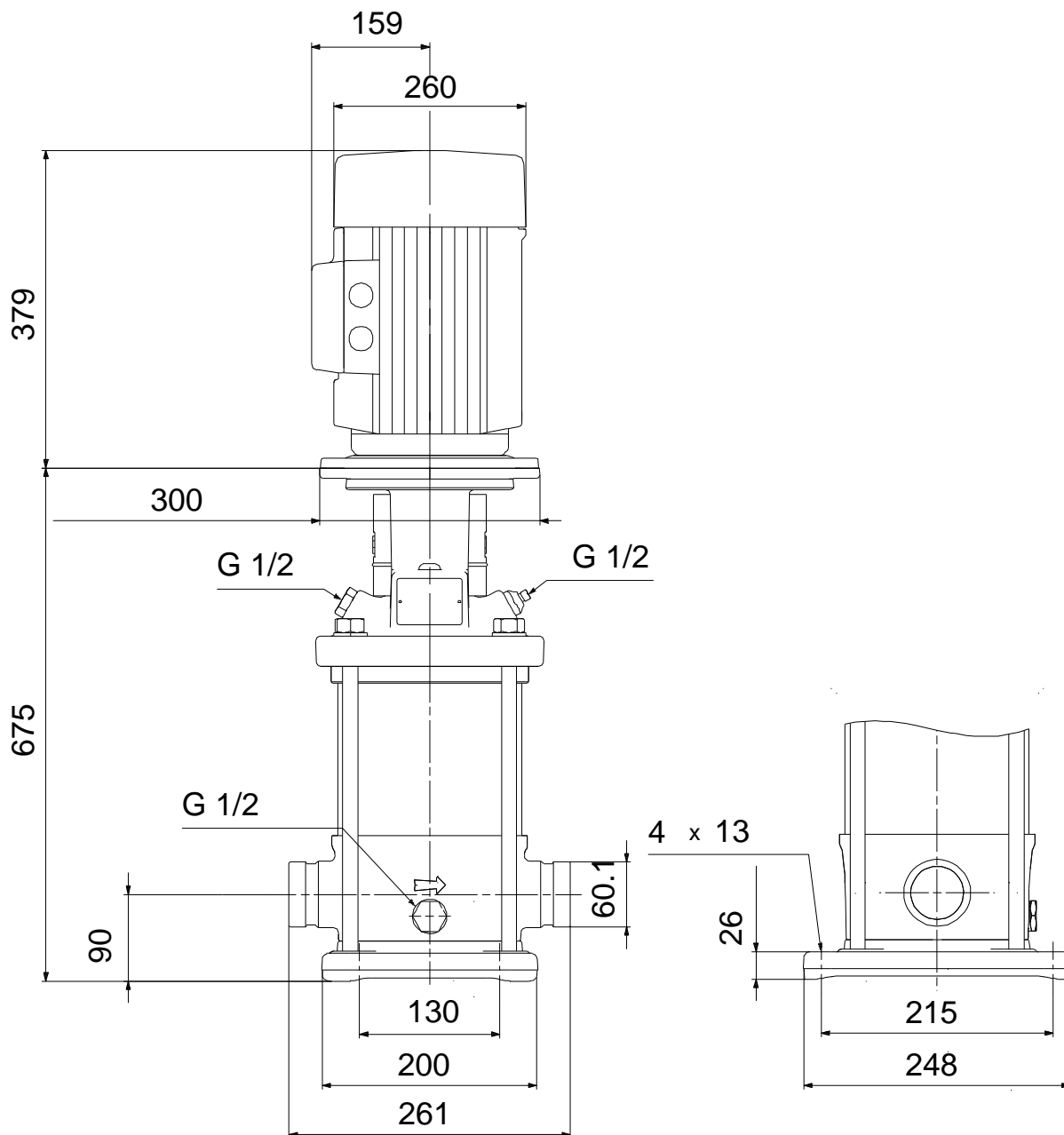


## 96500563 CRN 20-7 A-P-A-E-HQQE 50 Hz





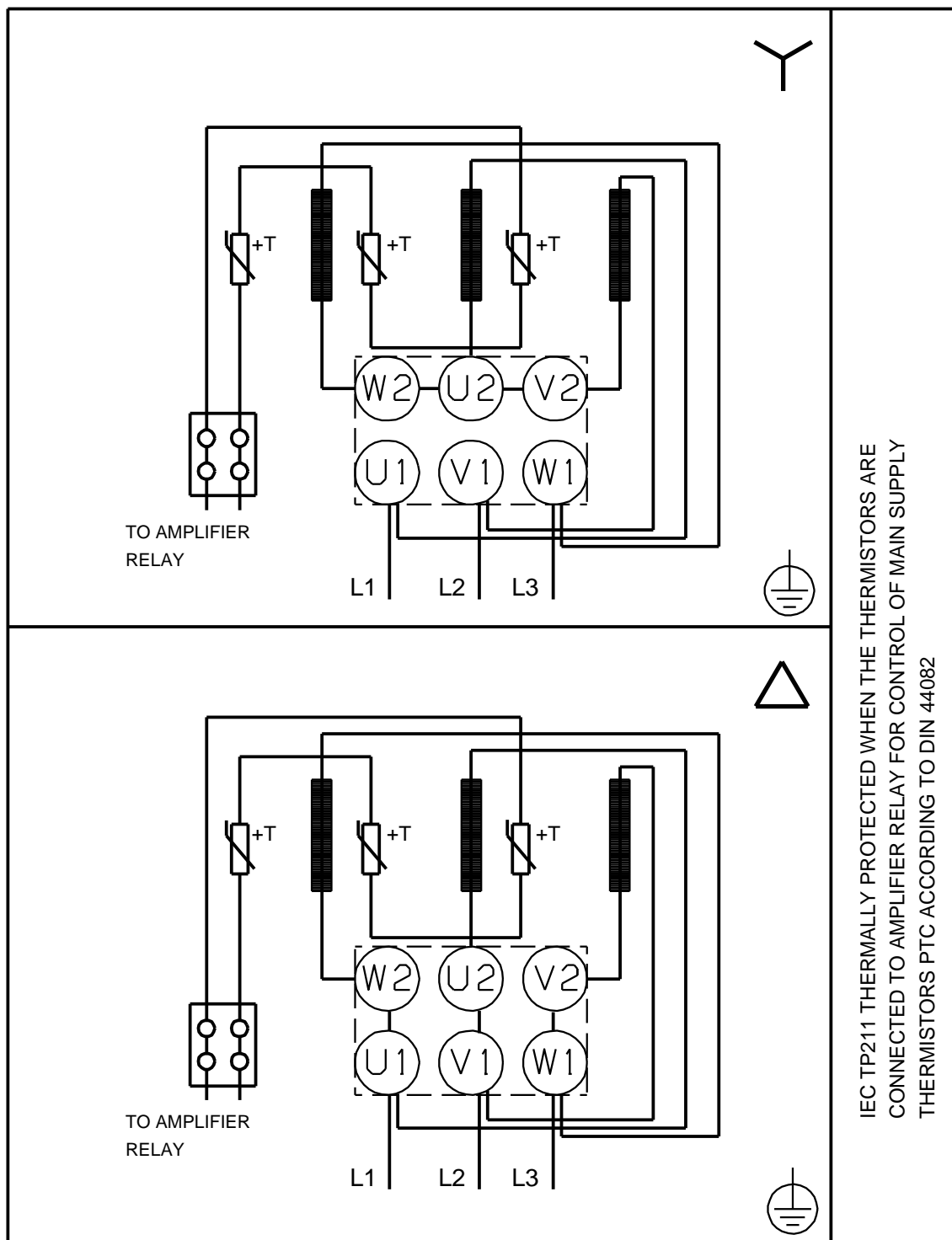
## 96500563 CRN 20-7 A-P-A-E-HQQE 50 Hz



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



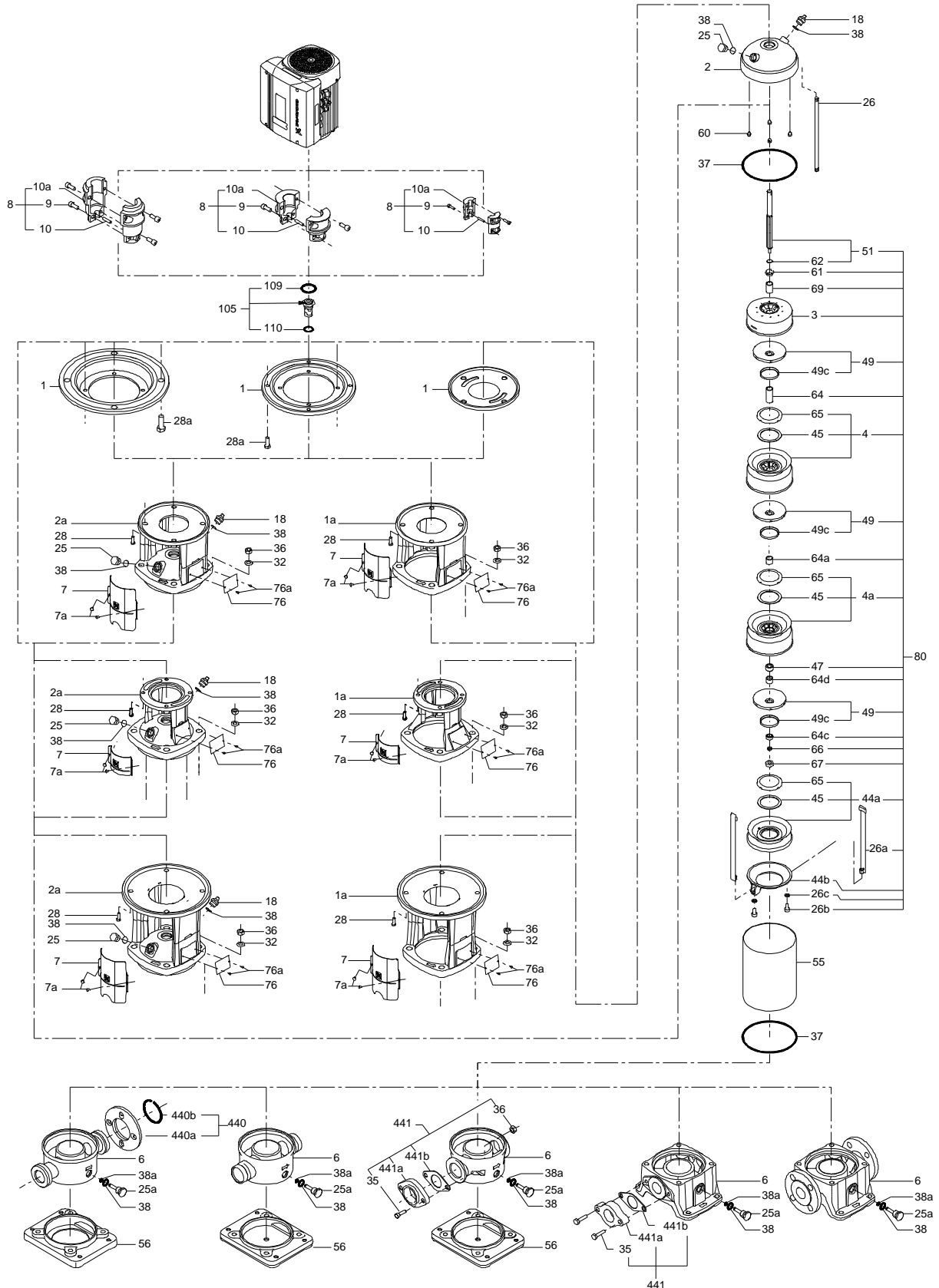
## 96500563 CRN 20-7 A-P-A-E-HQQE 50 Hz



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

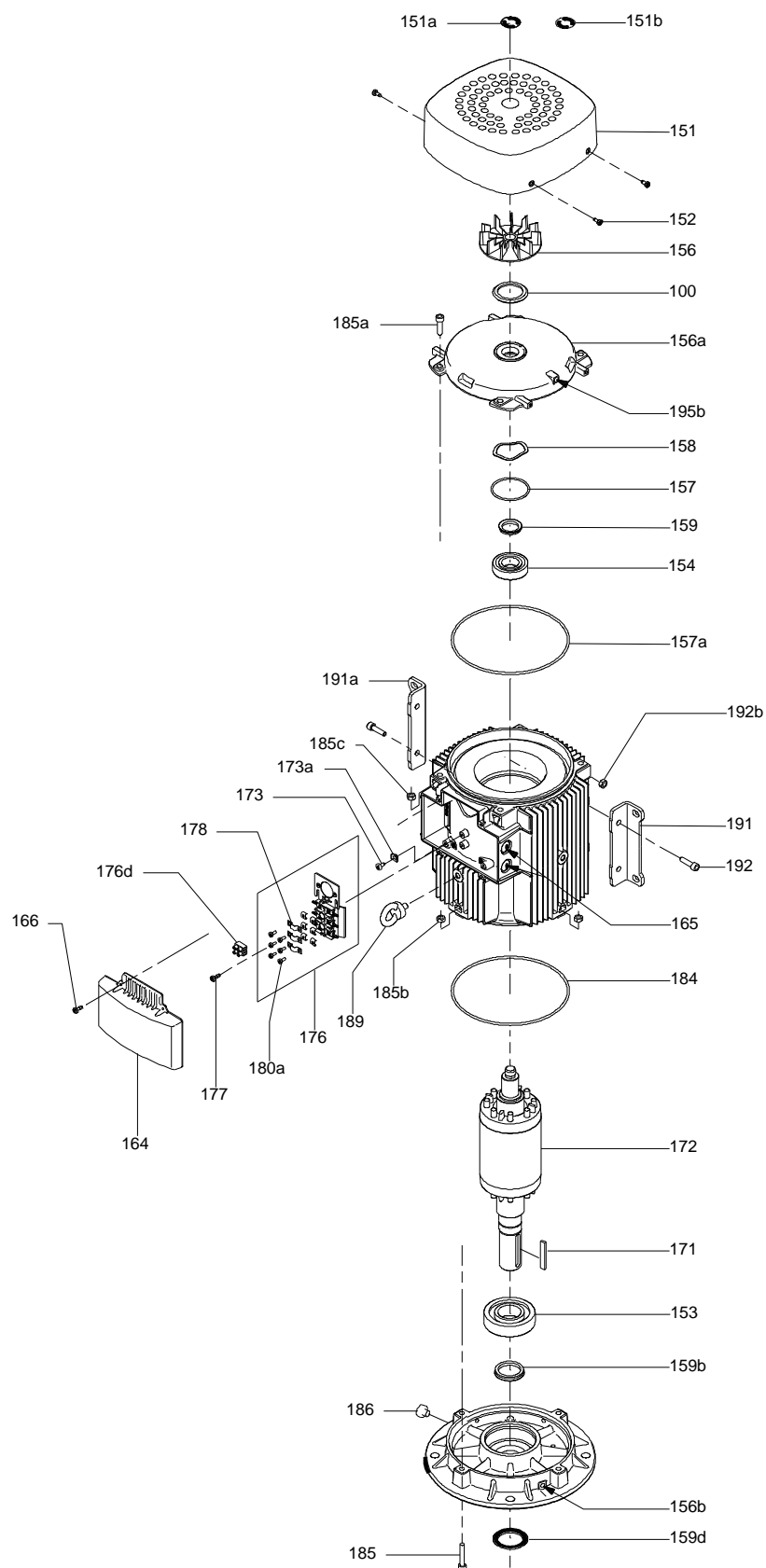


( tm069469 for MECR15,20 standard)



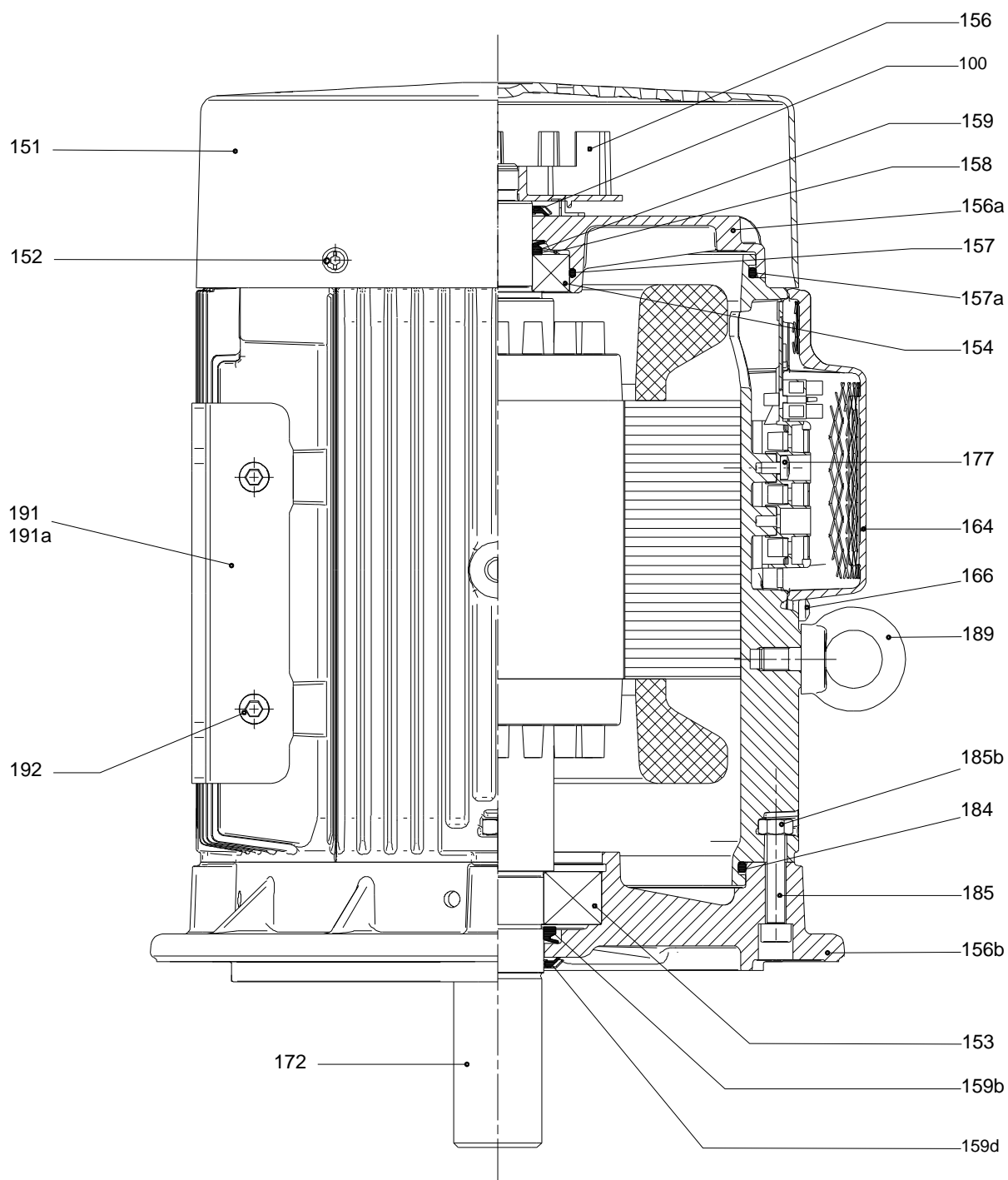


## Exploded view



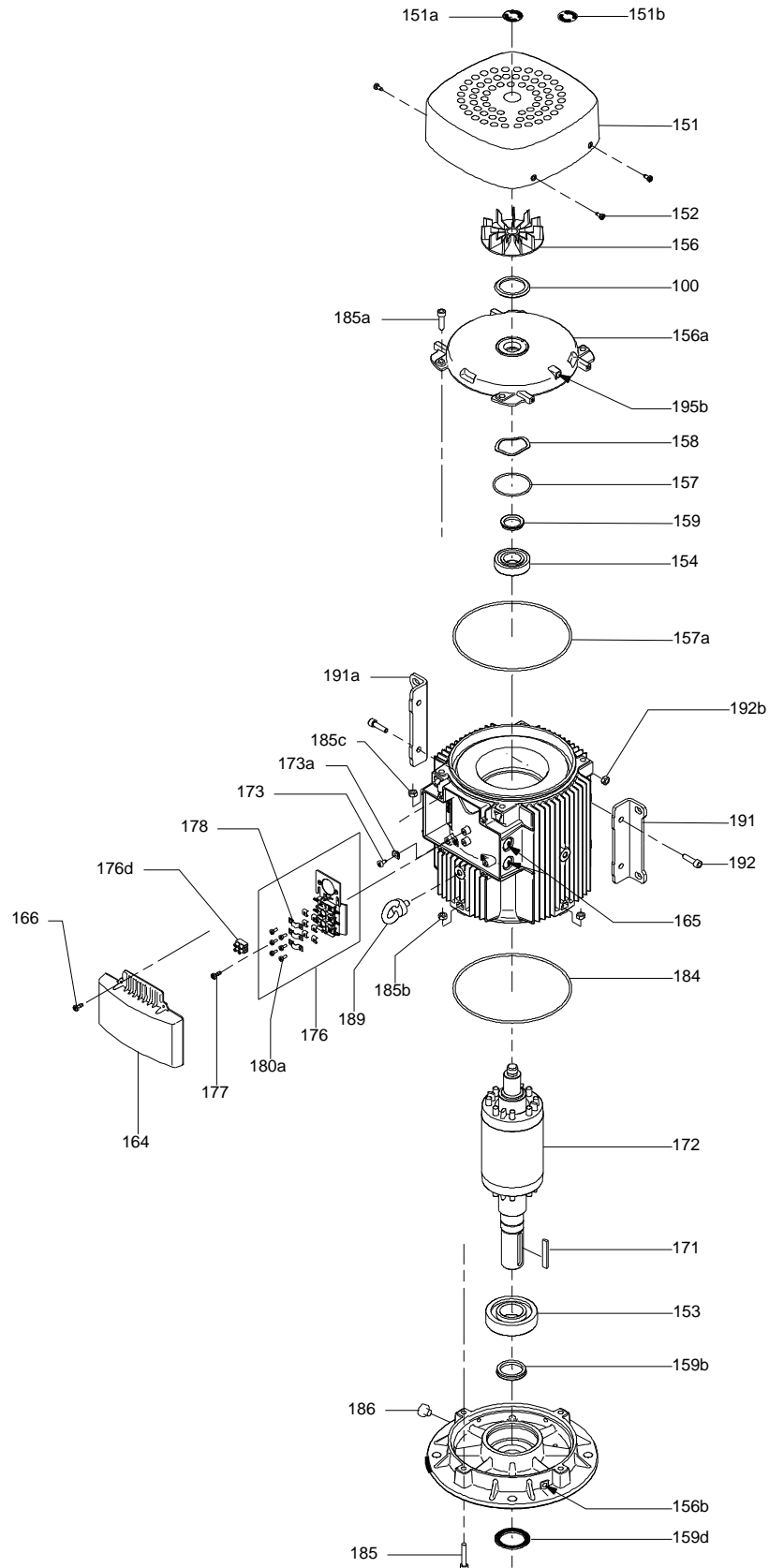


## Sectional drawing



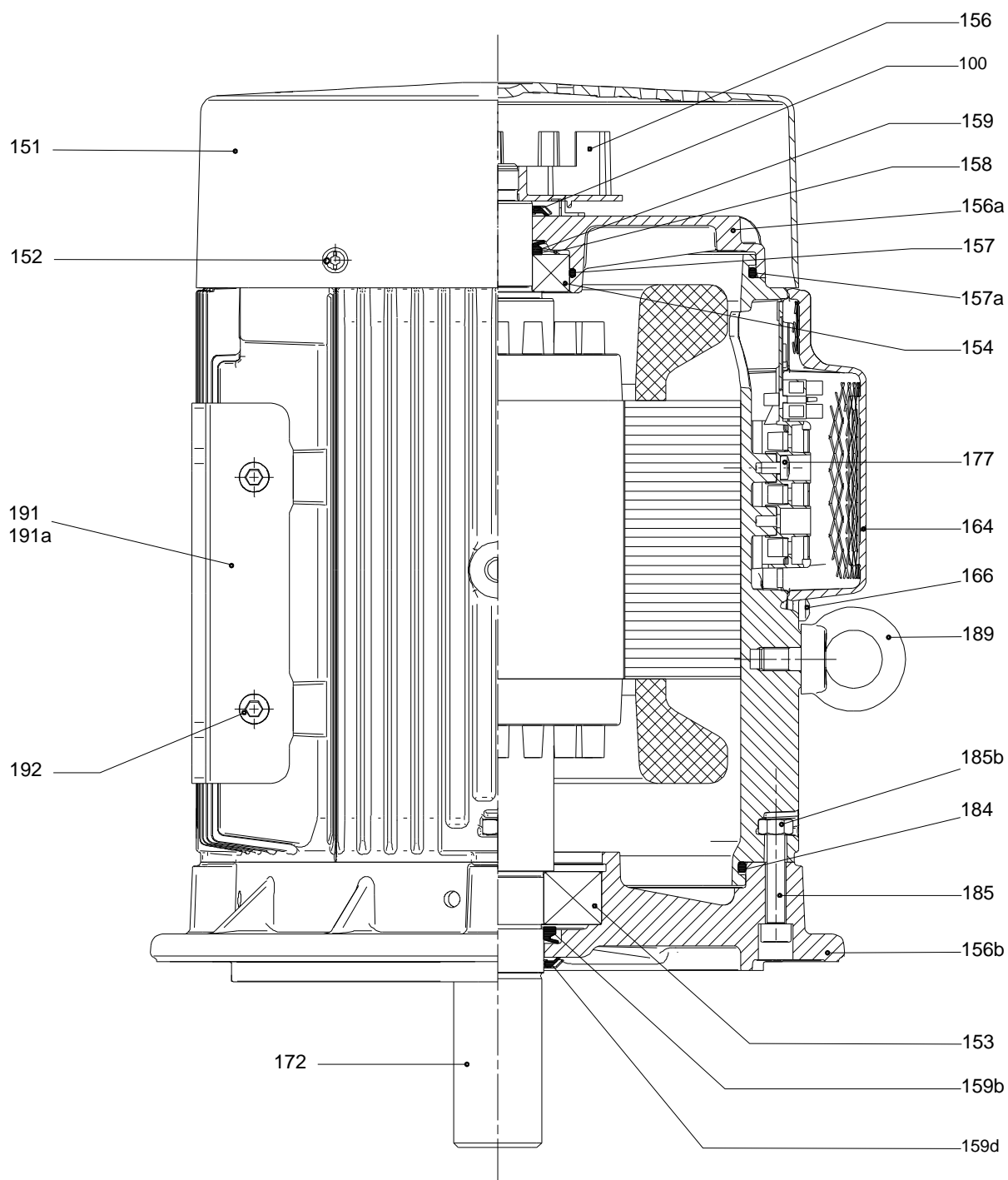


## Exploded view





## Sectional drawing





**Spare parts CRN 20-7, Product No. 96500563**

**Valid from 1.1.2011 (1152)**

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, chamber stack			96491790	1	pcs
- 80	Chamber stack				1	
- 3	Top intermediate chamber					
	Guide vane					
	Cover plate					
3	Intermediate chamber					
- 4a	Intermediate chamber cpl.					
	Sand Lifter					
	Guide cup					
	Bearing plate					
	Guide vane					
3	Intermediate chamber					
45a	Neck ring cpl.					
47	Bearing bush					
65	Retainer					
- 4	Intermediate chamber cpl.					
3	Intermediate chamber					
45a	Neck ring cpl.					
65	Retainer					
26a	Strap cpl.		Length (mm): 314MM			
26.c	Washer		Designation: DIN 125A			
			Thickness: 1,6			
26.b	Hex head screw					
44b	Inlet part					
- 44a	Inlet part cpl.					
45a	Neck ring cpl.					
65	Retainer					
47	Bearing ring					
- 49	Impeller cpl.					
49c	Wear ring					
49	Impeller					
- 51	Shaft, spline, cpl.					
	Bar					
62	Stop ring					
64d	Spacing bush					
64c	Spacing pipe		Length (mm): 12.7			
64a	Spacing pipe		Internal diameter: 17,5			
			Length (mm): 17			
64	Spacing pipe		Length (mm): 43.6			
66	Wedge lock washer					
67	Lock nut		Thread: M8			
69	Spacing bush					
-	Kit, coupling			96511351	1	pcs
	Adjusting fork				1	
- 8	Coupling				1	
9	Hex socket head cap screw		Designation: DIN 912			
			Length (mm): 25			
			Thread: M10			
10a	Coupling half					
10	Shaft pin		Diameter: 5			
			Length (mm): 26			
-	Kit, coupling guard			96509613	1	pcs
7.a	Combi Slot Torx screw				4	



Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
7	Coupling guard				2	
-	Kit, gaskets			96509609	1	pcs
	Gasket				2	
24	O-ring				2	
37	O-ring				2	
38a	O-ring		Diameter: 5,3		1	
			Material type: EPDM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		1	
			Material type: EPDM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		2	
			Material type: EPDM			
			Thickness: 2,4			
60	Spring				4	
415	Gasket				2	
441b	Gasket		Internal diameter: 49		2	
			Outer diameter: 92			
			Thickness: 2			
-	Kit, plug			96511312	1	pcs
- 18	Air vent screw				1	
	Spindle					
	Plug					
25a	Drain plug				1	
25	Plug				1	
38a	O-ring		Diameter: 5,3		1	
			Material type: FKM			
			Thickness: 2,4			
38a	O-ring		Diameter: 5,3		1	
			Material type: EPDM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		1	
			Material type: FKM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		2	
			Material type: FKM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		1	
			Material type: EPDM			
			Thickness: 2,4			
38	O-ring		Diameter: 16,3		2	
			Material type: EPDM			
			Thickness: 2,4			
-	Kit, shaft seal HQQE			96511844	1	pcs
	Emery cloth				1	
	Grinding device				1	
105	Shaft seal		Material type: HQQE		1	
-	Kit, wear parts			96511827	1	pcs
- 4a	Intermediate chamber cpl.				2	
	Sand Lifter					
	Guide cup					
	Bearing plate					
	Guide vane					
3	Intermediate chamber					
45a	Neck ring cpl.					
47	Bearing bush					
65	Retainer					
26.c	Washer		Designation: DIN 125A		2	
			Thickness: 1,6			



Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
26.b	Hex head screw				2	
45a	Neck ring cpl.				8	
47	Bearing ring				2	
49c	Wear ring				10	
62	Retaining ring				1	
64d	Spacing bush				2	
64c	Spacing pipe		Length (mm): 12.7		1	
64b	Spacing bush		Length (mm): 5.00		1	
64a	Spacing pipe		Internal diameter: 17,5		2	
			Length (mm): 17			
65	Retainer				8	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	
-	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					
-	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					



Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, terminal box cover			96796215	1	
164	Terminal box cover w/gasket					
166	Pan head thread forming screw					
-	Motor			85903585	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					
-	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	Pump head			98914854	1	pcs
1	Flange			99104283	1	pcs
2	Pump cover			98481138	1	pcs
+ 3	Bulk, Top intermediate chamber (3 pcs)			98371113	1	pcs
+ 3	Top intermediate chamber			98734577	1	pcs
+ 4a	Bulk, Intermediate chamber cpl. (10 pcs)			96538853	2	pcs



Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
+ 4a	Intermediate chamber cpl.			98371117	2	pcs
- 4	Bulk, Intermediate chamber cpl. (10 pcs)			96538840	4	pcs
3	Intermediate chamber			98371143	1	
65	Retainer			96547341	1	
+ 4	Intermediate chamber cpl.			98371115	4	pcs
6	Base			98654159	1	pcs
10	Bulk, Shaft pin (10 pcs)		Diameter: 5	96536473	1	pcs
			Length (mm): 26			
+ 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
26a	Strap cpl.		Length (mm): 314MM	98925044	2	pcs
26.c	Bulk, Washer (4 pcs)		Designation: DIN 125A	99262704	2	pcs
			Thickness: 1,6			
26.c	Washer		Designation: DIN 125A	96586880	2	pcs
			Thickness: 1,6			
26	Staybolt			98982882	4	pcs
37a	Bulk, O-ring (20 pcs)			96538857	1	pcs
38a	Bulk, O-ring (10 pcs)		Diameter: 5,3	99198791	1	pcs
			Material type: EPDM			
			Thickness: 2,4			
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			
44b	Inlet part			98814593	1	pcs
+ 44a	Inlet part cpl.			98818922	1	pcs
47	Bulk, Bearing ring (10 pcs)			96538795	2	pcs
- 49	Bulk, Impeller cpl. (5 pcs)			98394310	7	pcs
49c	Bulk, Wear ring (10 pcs)			96547340	1	
+ 49	Impeller cpl.			98394459	7	pcs
+ 51	Shaft, spline, cpl.			98368636	1	pcs
55	Outer sleeve			98812641	1	pcs
56	Base plate			98481136	1	pcs
60	Bulk, Spring (20 pcs)			96538963	4	pcs
64d	Bulk, Spacing bush (20 pcs)			96538947	2	pcs
64c	Bulk, Spacing pipe (5 pcs)		Length (mm): 12.7	97980241	1	pcs
64a	Bulk, Spacing pipe (10 pcs)		Internal diameter: 17,5	98417487	2	pcs
			Length (mm): 17			
64	Bulk, Spacing pipe (20 pcs)		Length (mm): 43.6	96535107	4	pcs
66	Bulk, Wedge lock washer (10 pcs)			96536157	1	pcs
67	Bulk, Lock nut (10 pcs)		Thread: M8	98277008	1	pcs
69	Bulk, Spacing bush (20 pcs)			96538949	1	pcs
76a	Bulk, Rivet (100 pcs)			96620489	1	pcs
105	Bulk, Shaft seal (11 pcs)		Material type: HQQE	96538914	1	pcs