
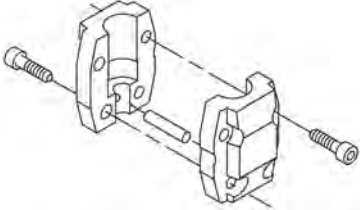
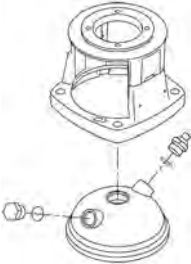

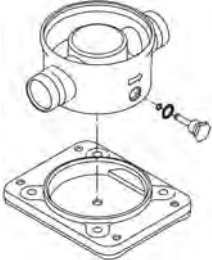


Qty.	Description
1	<p data-bbox="199 338 497 367"><b>CRN 5-24 A-P-A-E-HQQE</b></p>  <p data-bbox="199 660 466 689">Product No.: <a href="#">96513491</a></p> <p data-bbox="199 719 1453 824">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). Pump materials in 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="199 862 935 891">The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p data-bbox="199 920 520 949"><b>Further product details</b></p> <p data-bbox="199 958 1430 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 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 1189 911 1218">The colour code for the finished product is NCS 9000/RAL 9005.</p> <p data-bbox="199 1247 284 1276"><b>Pump</b></p> <p data-bbox="199 1285 1390 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 1583 1366 1637">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 1935 1453 2033">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 2047 347 2076">Primary seal:</p> <ul data-bbox="236 2076 799 2105" 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) 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 combined drain plug and bypass valve. 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 tapped-hole flange (FT).</p> <p>Motor-mounting designation in accordance with IEC 60034-7: IM B 14 (Code I) / IM 3601 (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>

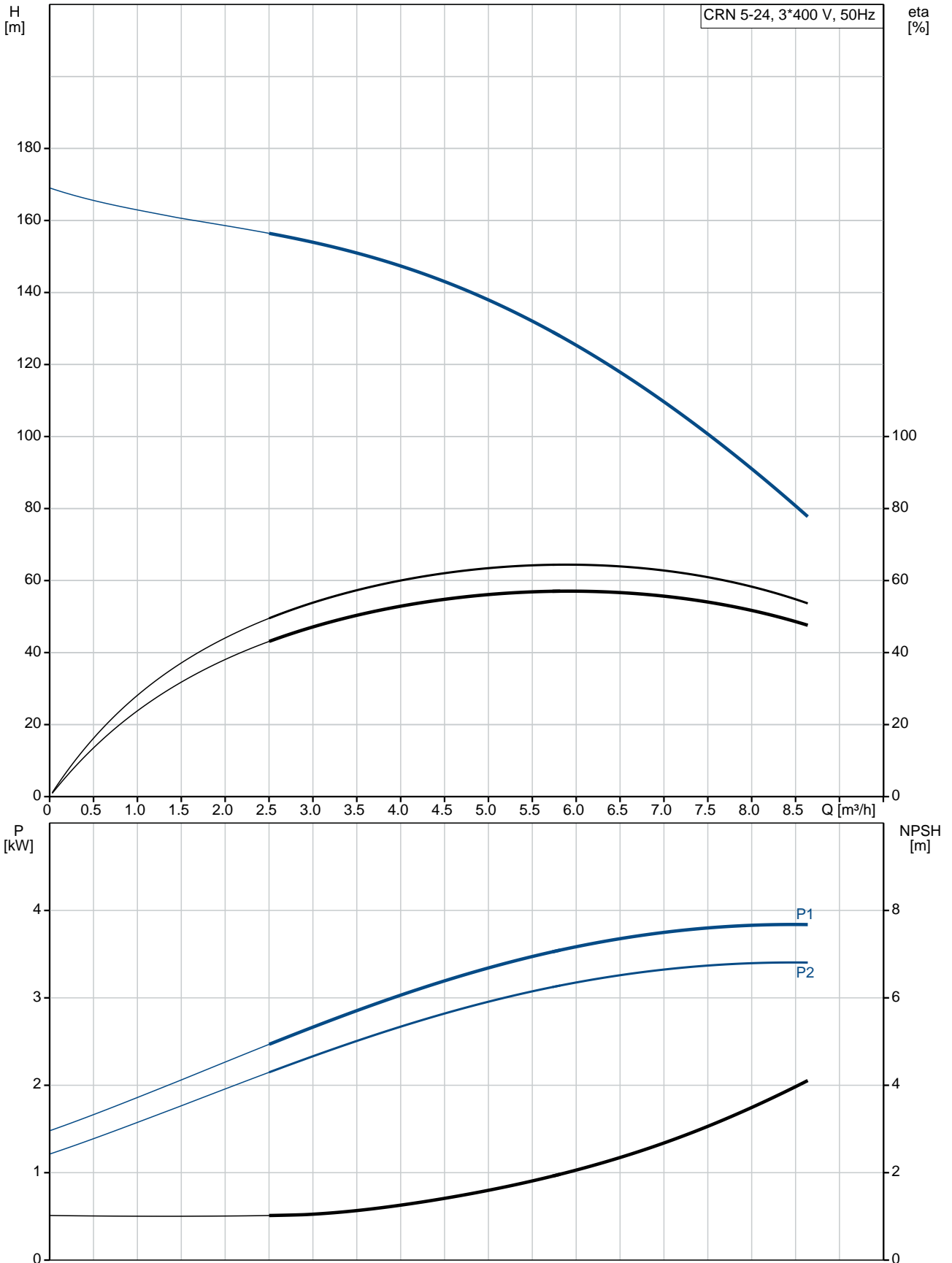
Qty.	Description
	<p><b>Technical:</b>            Pump speed on which pump data are based: 2917 rpm            Rated flow: 5.8 m<sup>3</sup>/h            Rated head: 125.5 m            Pump orientation: Vertical            Shaft seal arrangement: Single            Code for shaft seal: HQQE            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</p> <p><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 32              1 1/4 inch            Size of outlet connection: DN 32              1 1/4 inch            Pressure rating for pipe connection: PN 50            Flange size for motor: FT130</p> <p><b>Electrical data:</b>            Motor standard: IEC            Motor type: 112MC            IE Efficiency class: IE3            Rated power - P2: 4 kW            Power (P2) required by pump: 4 kW            Mains frequency: 50 Hz            Rated voltage: 3 x 380-415D V            Rated current: 7.9 A            Starting current: 1000-1110 %            Cos phi - power factor: 0.87-0.87            Rated speed: 2920-2940 rpm            Efficiency: IE3 88,1%            Motor efficiency at full load: 88.1 %            Motor efficiency at 3/4 load: 88.6 %            Motor efficiency at 1/2 load: 85.2 %            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{a}\%{\text{¥}}</math>: 0.57            Net weight: 61 kg            Gross weight: 65.7 kg            Shipping volume: 0.148 m<sup>3</sup>            Danish VVS No.: 385912024</p>



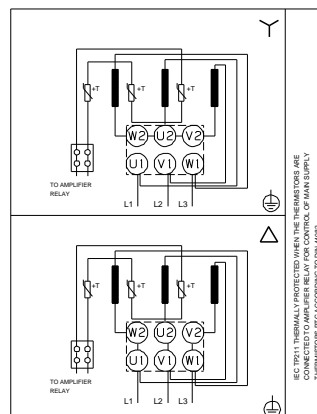
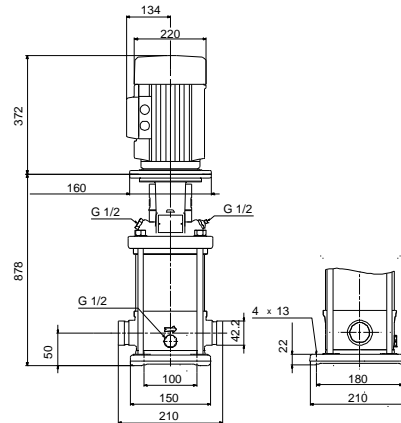
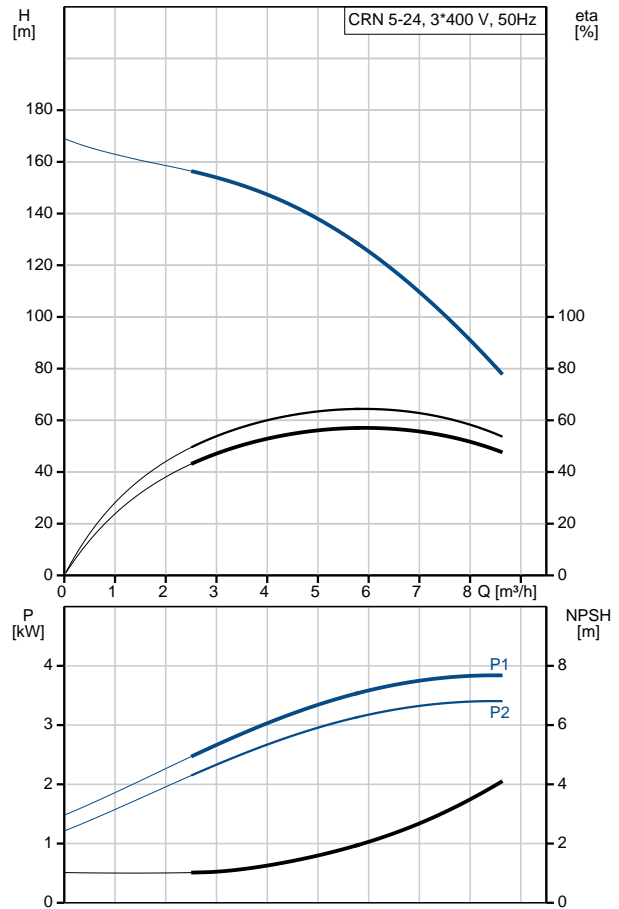
Company name: Personal  
Created by:  
Phone:

Date: 16/02/2019

### 96513491 CRN 5-24 A-P-A-E-HQQE 50 Hz



Description	Value
<b>General information:</b>	
Product name:	CRN 5-24 A-P-A-E-HQQE
Product No:	96513491
EAN number:	5700396645438
<b>Technical:</b>	
Pump speed on which pump data are based:	2917 rpm
Rated flow:	5.8 m <sup>3</sup> /h
Rated head:	125.5 m
Head max:	163.9 m
Stages:	24
Impellers:	24
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 32 1 1/4 inch
Size of outlet connection:	DN 32 1 1/4 inch
Pressure rating for pipe connection:	PN 50
Flange size for motor:	FT130
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/m <sup>3</sup>
<b>Electrical data:</b>	
Motor standard:	IEC
Motor type:	112MC
IE Efficiency class:	IE3
Rated power - P2:	4 kW
Power (P2) required by pump:	4 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-415D V
Rated current:	7.9 A





Company name: Personal

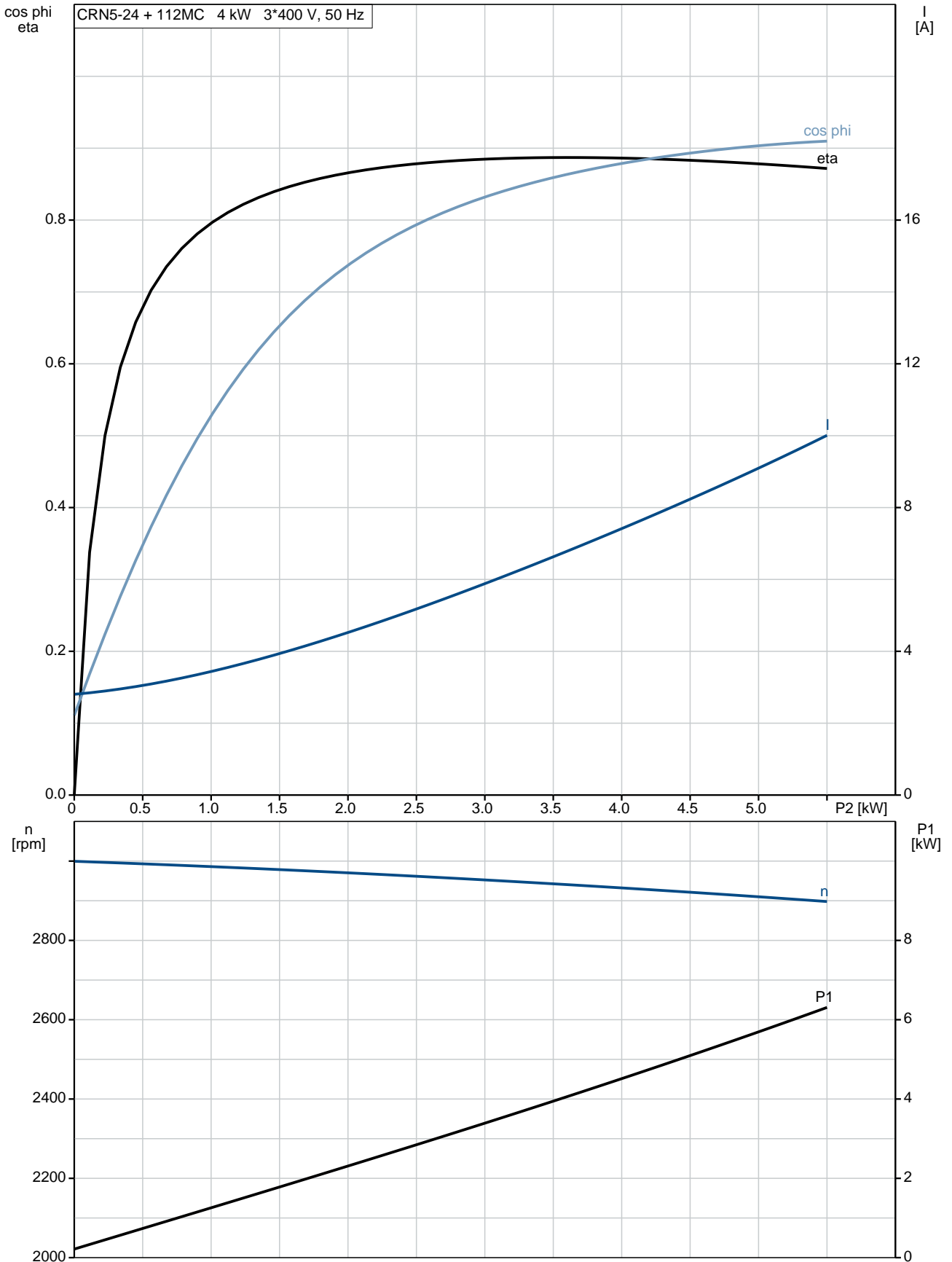
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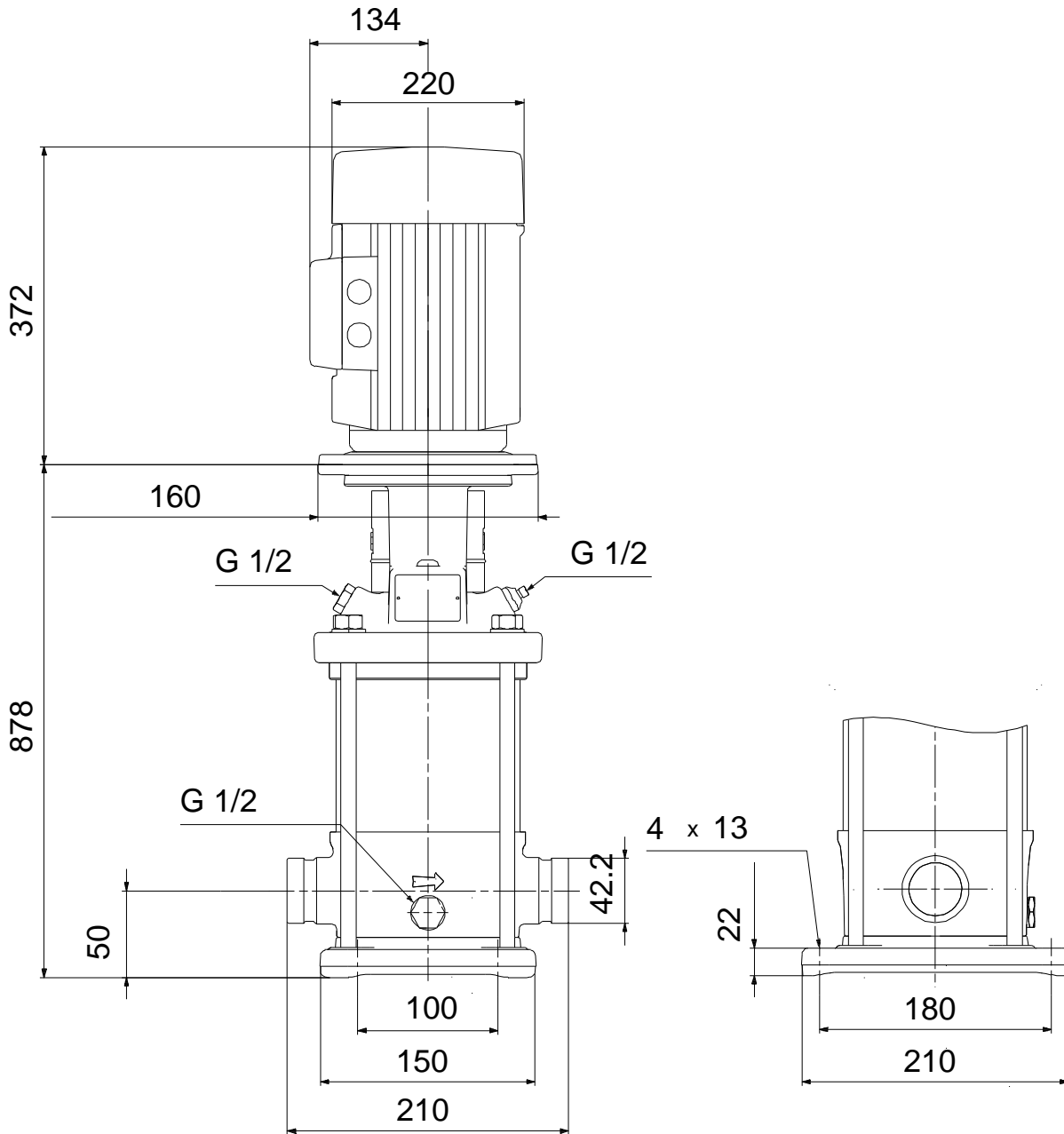
Date: 16/02/2019

Description	Value
Starting current:	1000-1110 %
Cos phi - power factor:	0.87-0.87
Rated speed:	2920-2940 rpm
Efficiency:	IE3 88,1%
Motor efficiency at full load:	88.1 %
Motor efficiency at 3/4 load:	88.6 %
Motor efficiency at 1/2 load:	85.2 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U15413
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI %:	0.57
Net weight:	61 kg
Gross weight:	65.7 kg
Shipping volume:	0.148 m <sup>3</sup>
Danish VVS No.:	385912024

## 96513491 CRN 5-24 A-P-A-E-HQQE 50 Hz



## 96513491 CRN 5-24 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.



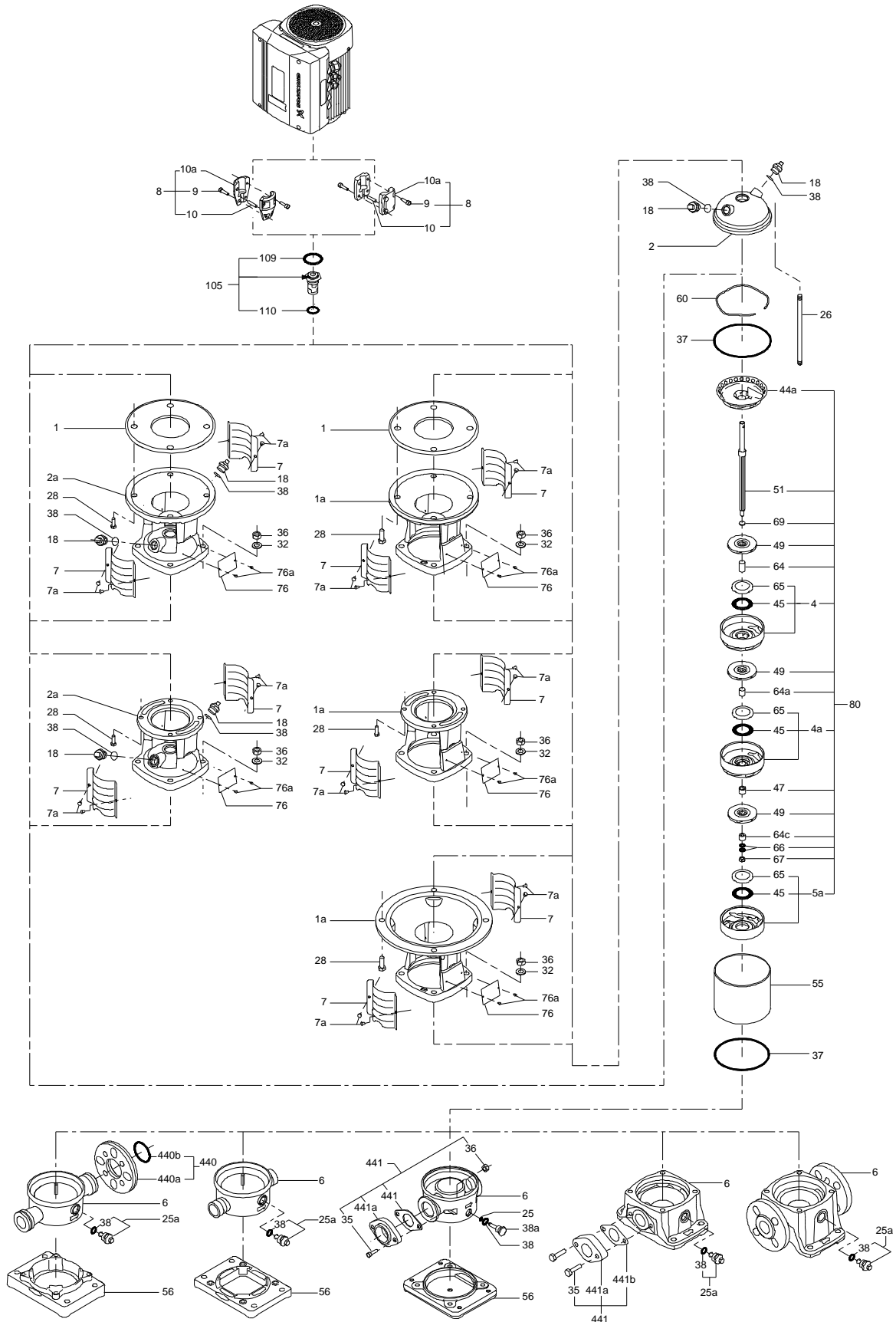
## 96513491 CRN 5-24 A-P-A-E-HQQE 50 Hz



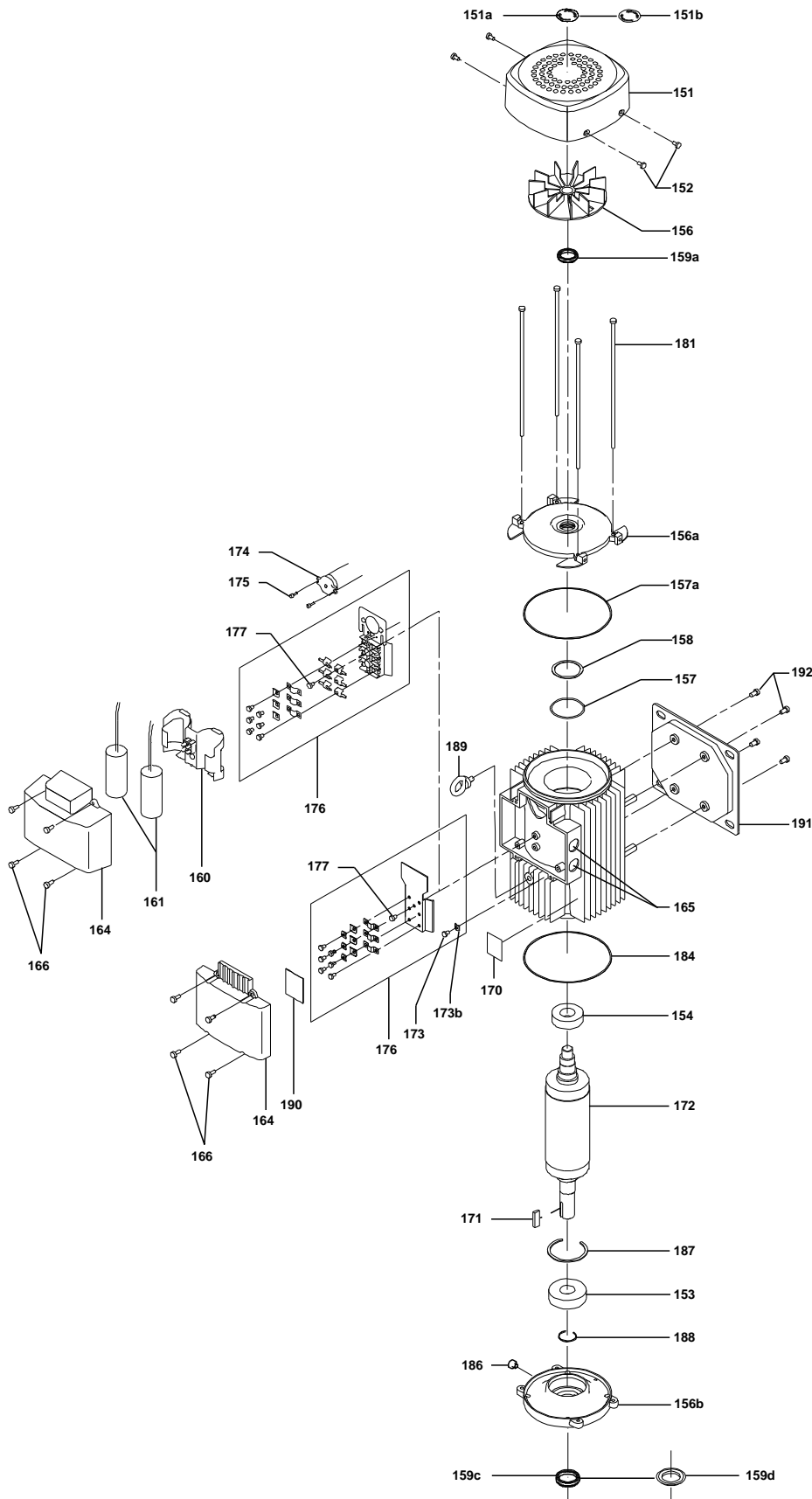
IEC TP211 THERMALLY PROTECTED WHEN THE THERMISTORS ARE  
 CONNECTED TO AMPLIFIER RELAY FOR CONTROL OF MAIN SUPPLY  
 THERMISTORS PTC ACCORDING TO DIN 44082

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

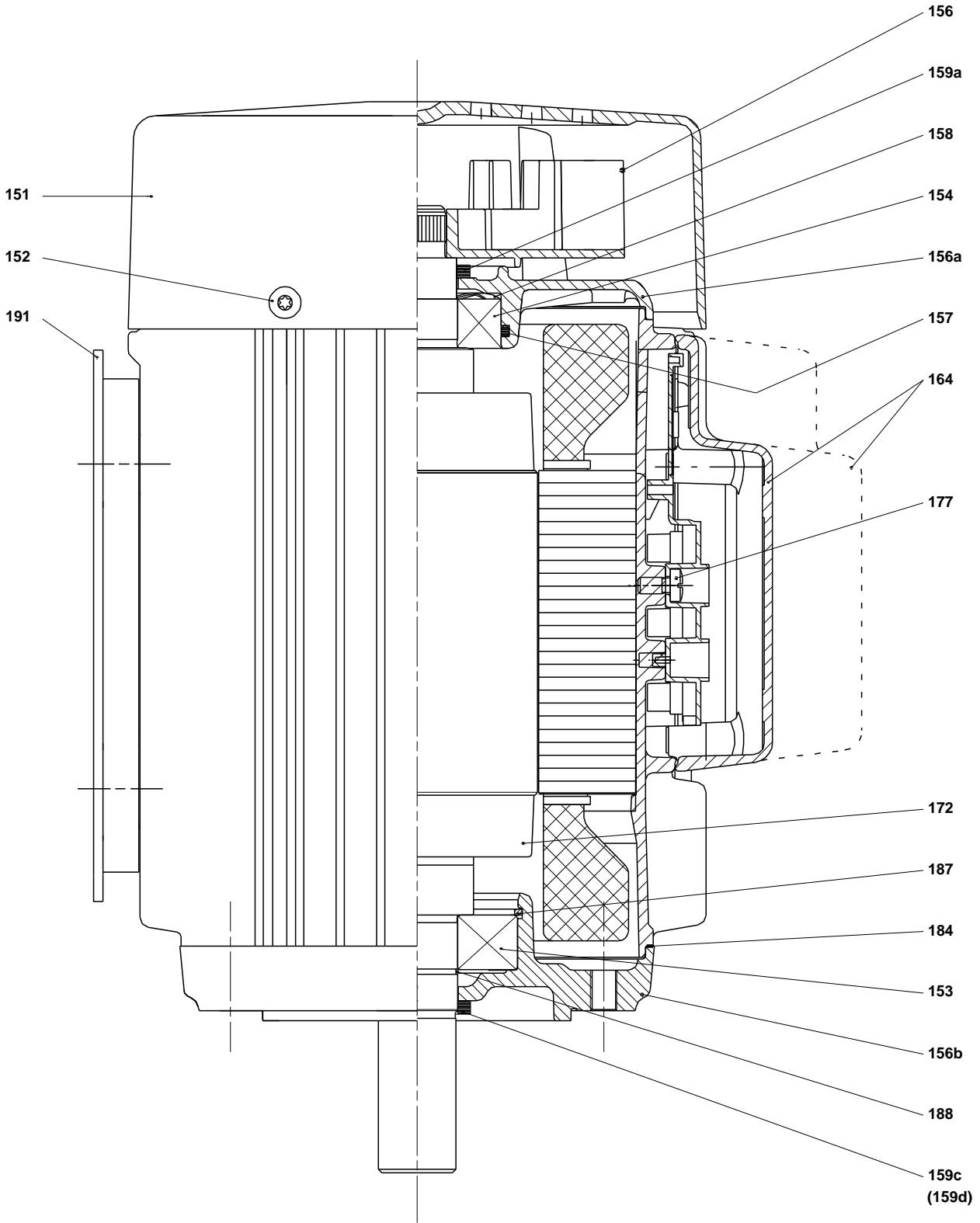
( TM069451 for SMCR standard)



(tm029184 0505)



(tm029178 2004)



**Spare parts CRN 5-24, Product No. 96513491**  
**Valid from 1.1.2011 (1152)**

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
- 80	Kit, chamber stack		Bearing type: SILICON CARBIDE	96453616	1	pcs
- 4a	Chamber w. bearing cpl.				5	
	Chamber					
45	Neck ring					
65	Neck ring retainer					
- 4	Chamber cpl.				18	
	Chamber					
45	Neck ring					
65	Neck ring retainer					
- 5a	Chamber cpl.				1	
	Chamber					
45	Neck ring					
65	Neck ring retainer					
- 44a	Guide vane				1	
	Plate					
	Guide vane					
50	Top plate					
47	Bearing ring, rotating				5	
+ 49	Impeller cpl.				24	
- 51	Shaft, spline, cpl.				1	
	Shaft					
62	Stop ring					
64d	Spacing pipe		Internal diameter: 12,85		1	
			Outer diameter: 15,85			
			Length (mm): 4,50			
64c	Clamp, splined		Internal diameter: 8,5		1	
			Outer diameter: 15			
64a	Spacing pipe		Length (mm): 13.00		5	
64	Spacing pipe		Length (mm): 26.0		18	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	
69	Spacing pipe		Length (mm): 2.00		1	
-	Kit, coupling			00415063	1	pcs
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M8			
10a	Coupling half				2	
10	Shaft pin		Diameter: 5		1	
			Length (mm): 26			
-	Kit, coupling guard			96505131	1	pcs
7.a	Combi Slot Torx screw				4	
7	Coupling guard				2	
-	Kit, gaskets			96455090	1	pcs
37	O-ring				2	
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			
109	O-ring		Diameter: 22,00		1	
			Material type: EPDM			
			Thickness: 2,75			

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, plug			96505133	1	pcs
- 18	Air vent screw					1
	Spindle					
	Plug					
23b	Spindle					1
25	Plug					1
25	Plug					1
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			96455086	1	pcs
+ 105	Shaft seal		Material type: HQQE			1
-	Kit, wear parts		Material type: SIC	96455101	1	pcs
- 4a	Chamber w. bearing cpl.					5
	Chamber					
45	Neck ring					
65	Neck ring retainer					
45	Neck ring					21
47	Bearing ring, rotating					5
64c	Clamp, splined		Internal diameter: 8,5			1
			Outer diameter: 15			
64a	Spacing pipe		Length (mm): 13.00			5
65	Neck ring retainer					21
66	Wedge lock washer					1
67	Lock nut		Thread: M8			1
441b	Gasket					2
-	Motor			85903740	1	pcs
-	Kit, bearing cpl.			96279802		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					
-	Kit, end shield			96279790		1
156a	End shield					
157	O-ring		Diameter: 62			
			Material type: NBR			
			Thickness: 3			
158	Waved washer					
159a	Seal ring					
-	Kit, eyebolt			96279825		1
189	Eyebolt					
-	Kit, fan			96279758		1
156	Fan					
159c	Seal ring					
159a	Seal ring					
-	Kit, fan cover			96279756		1
151b	Label					
151	Fan cover					



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Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
152	Pan head thread forming screw					
-	Kit, flange			96279779	1	
156b	Flange					
159.c	Seal ring					
186	Drain plug					
-	Kit, shaft seal			96279763	1	
159c	Seal ring					
159a	Seal ring					
-	Kit, staybolts			96279793	1	
181	Pan head staybolt					
-	Kit, terminal board			96279769	1	
173a	Base					
173	Pan head thread forming screw		Designation: COMBI TORX T25			
176	Slot cheese head screw		Designation: COMBI TORX T25			
			Length (mm): 10			
			Thread: M5			
176	Terminal					
176	Connecting piece					
176	Wire clamp					
176	Terminal board					
177	Pan head screw					
-	Kit, terminal box			96279772	1	
164	Terminal box cover w/gasket					
166	Pan head thread forming screw					
1a	Pump head			98804047	1	pcs
2	Pump cover			96588244	1	pcs
+ 4a	Bulk, Chamber w. bearing cpl. (5 pcs)			96547653	5	pcs
+ 4a	Chamber w. bearing cpl.			98371281	5	pcs
- 4	Chamber cpl.			98371279	18	pcs
45	Bulk, Neck ring (24 pcs)			96547603	1	
+ 5a	Chamber cpl.			98371278	1	pcs
6	Base			96588139	1	pcs
7.a	Bulk, Combi Slot Torx screw (1000 pcs)			96886324	4	pcs
7	Bulk, Coupling guard (10 pcs)			96603690	2	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
- 25a	Drain plug w/bypass valve			96588243	1	pcs
38	Bulk, O-ring (10 pcs)		Diameter: 16,3	99198815	1	
			Material type: EPDM			
			Thickness: 2,4			
38	Bulk, O-ring (50 pcs)		Diameter: 16,3	99412727	1	
			Material type: EPDM			
			Thickness: 2,4			
26	Staybolt		Length (mm): 745	98985621	4	pcs
			Thread: M12			
28	Bulk, Hex head screw (4 pcs)		Length (mm): 25	99335941	4	pcs
			Thread: M8			
37	Bulk, O-ring (24 pcs)			96547656	2	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			
+ 44a	Guide vane			98902003	1	pcs



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Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
47	Bulk, Bearing ring, rotating (10 pcs)			97905743	5	pcs
47	Bearing ring, rotating			96547649	5	pcs
+ 49	Bulk, Impeller cpl. (10 pcs)			97643331	24	pcs
+ 49	Bulk, Impeller cpl. (24 pcs)			96547650	24	pcs
+ 49	Impeller cpl.			98394423	24	pcs
+ 51	Shaft, spline, cpl.			96588238	1	pcs
55	Outer sleeve			98716703	1	pcs
56	Base plate			96588142	1	pcs
60	Formed wire spring			96547664	1	pcs
64c	Bulk, Clamp, splined (5 pcs)		Internal diameter: 8,5 Outer diameter: 15	98496968	1	pcs
64a	Bulk, Spacing pipe (24 pcs)		Length (mm): 13.00	96536452	5	pcs
64a	Spacing pipe		Length (mm): 13.00	98520104	5	pcs
64	Bulk, Spacing pipe (24 pcs)		Length (mm): 26.0	96536304	18	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 pipe (10 pcs)		Length (mm): 2.00	96536451	1	pcs
+ 105	Bulk, Shaft seal (15 pcs)		Material type: HQQE	96983415	1	pcs