

**Qty. Description**

1 CR 3-4 A-A-A-E-HQQE



Note! Product picture may differ from actual product

Product No.: [96516592](#)

Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). The pump head and base are in cast iron – all other wetted parts are in 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 oval flanges with internal Rp threads.

The pump is fitted with a 3-phase, fan-cooled asynchronous motor.

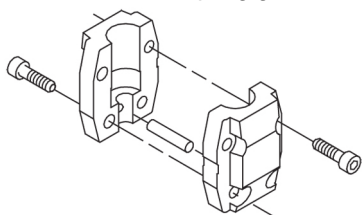
### Further product details

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:

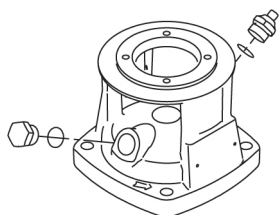
- 1) Alkaline-based cleaning.
  - 2) Zinc phosphating.
  - 3) Cathodic electro-deposition.
  - 4) Curing to a dry film thickness 18-22 my m.
- The colour code for the finished product is NCS 9000/RAL 9005.

### Pump

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.



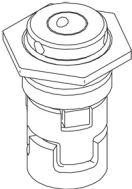
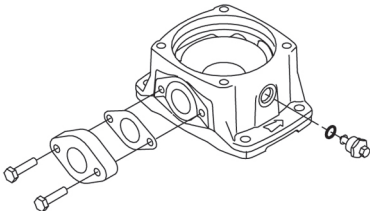
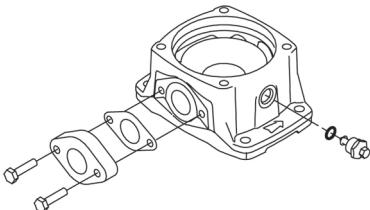
The pump head, pump head cover and flange for motor mounting is made in one piece. The pump head has a combined 1/2" priming plug and vent screw.



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.

Primary seal:

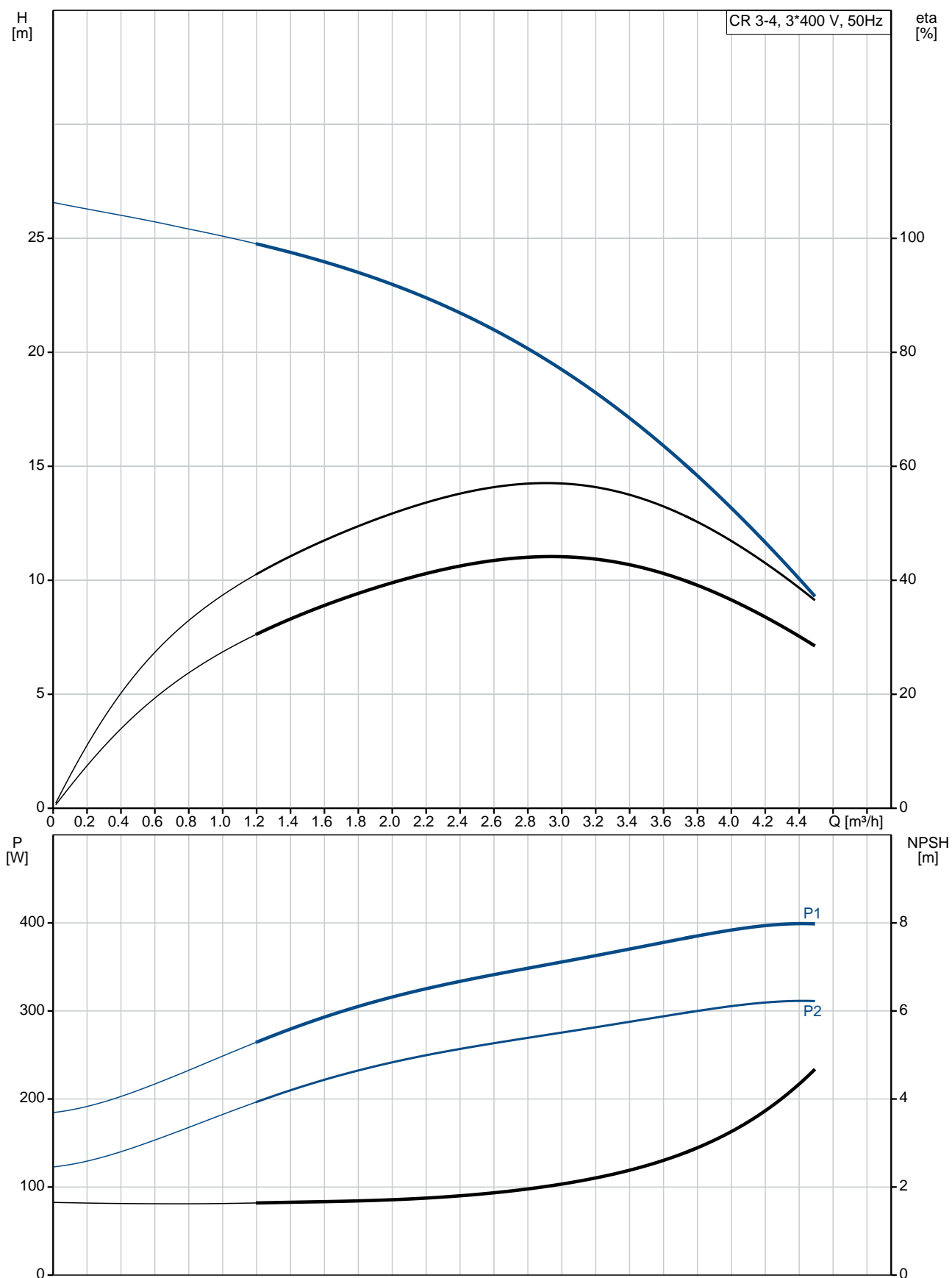
- Rotating seal ring material: silicon carbide (SiC)
- Stationary seat material: silicon carbide (SiC)

Qty.	Description
	<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 base is made of cast iron. The oval flanges are bolted to the base. 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.</p>  <p>The base is made of cast iron. The oval flanges are bolted to the base. 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.</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 does not incorporate motor protection and must be connected to a motor-protective circuit breaker which can be manually reset. The motor-protective circuit breaker must be set according to the rated current of the motor (I<sub>1</sub>/1).</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>

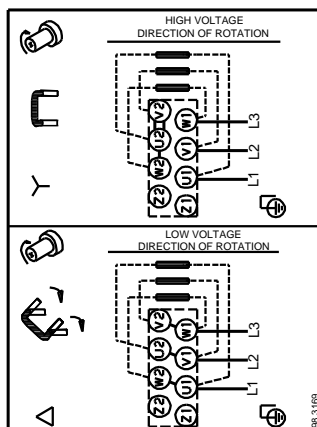
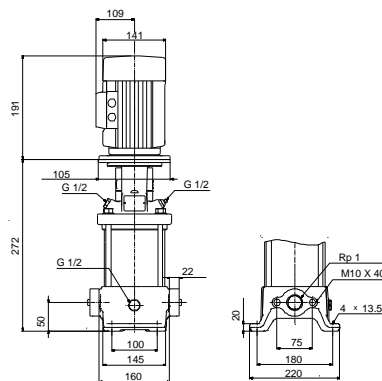
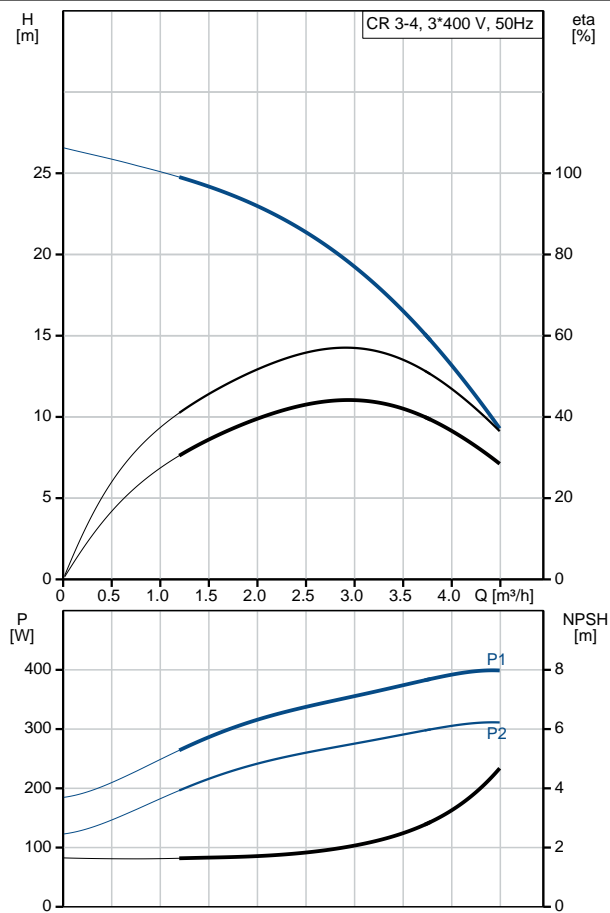
Qty.	Description
	<p>Liquid temperature during operation: 20 °C  Density: 998.2 kg/m<sup>3</sup></p> <p><b>Technical:</b>  Pump speed on which pump data are based: 2873 rpm  Rated flow: 3 m<sup>3</sup>/h  Rated head: 19.1 m  Pump orientation: Vertical  Shaft seal arrangement: Single  Code for shaft seal: HQQE  Approvals on nameplate: CE, EAC, ACS  Curve tolerance: ISO9906:2012 3B</p> <p><b>Materials:</b>  Base: Cast iron  EN 1561 EN-GJL-200  ASTM A48-25B  Impeller: Stainless steel  EN 1.4301  AISI 304  Bearing: SIC</p> <p><b>Installation:</b>  Maximum ambient temperature: 40 °C  Maximum operating pressure: 16 bar  Max pressure at stated temp: 16 bar / 120 °C  16 bar / -20 °C  Type of connection: Oval / Rp  Size of inlet connection: 1 inch  Size of outlet connection: 1 inch  Pressure rating for pipe connection: PN 16  Flange size for motor: FT85</p> <p><b>Electrical data:</b>  Motor standard: IEC  Motor type: 71A  IE Efficiency class: IE3  Rated power - P2: 0.37 kW  Power (P2) required by pump: 0.37 kW  Mains frequency: 50 Hz  Rated voltage: 3 x 220-240D/380-415Y V  Rated current: 1.74/1.00 A  Starting current: 490-530 %  Cos phi - power factor: 0.80-0.70  Rated speed: 2850-2880 rpm  Efficiency: IE3 73,8%  Motor efficiency at full load: 73.8 %  Motor efficiency at 3/4 load: 79.0 %  Motor efficiency at 1/2 load: 75.5 %  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}\%{\hat{a}}</math>: 0.70  Net weight: 18.9 kg  Gross weight: 21.5 kg  Shipping volume: 0.054 m<sup>3</sup>  Danish VVS No.: 385901004</p>

15/02/2019

## 96516592 CR 3-4 A-A-A-E-HQQE 50 Hz



Description	Value
<b>General information:</b>	
Product name:	CR 3-4 A-A-A-E-HQQE
Product No:	96516592
EAN number:	5700396745978
<b>Technical:</b>	
Pump speed on which pump data are based:	2873 rpm
Rated flow:	3 m³/h
Rated head:	19.1 m
Head max:	26.5 m
Stages:	4
Impellers:	4
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:	Cast iron
	EN 1561 EN-GJL-200
	ASTM A48-25B
Impeller:	Stainless steel
	EN 1.4301
	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
<b>Installation:</b>	
Maximum ambient temperature:	40 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C
	16 bar / -20 °C
Type of connection:	Oval / Rp
Size of inlet connection:	1 inch
Size of outlet connection:	1 inch
Pressure rating for pipe connection:	PN 16
Flange size for motor:	FT85
Connect code:	A
<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:	71A
IE Efficiency class:	IE3
Rated power - P2:	0.37 kW
Power (P2) required by pump:	0.37 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 220-240D/380-415Y V
Rated current:	1.74/1.00 A
Starting current:	490-530 %
Cos phi - power factor:	0.80-0.70





Company name:

Created by:

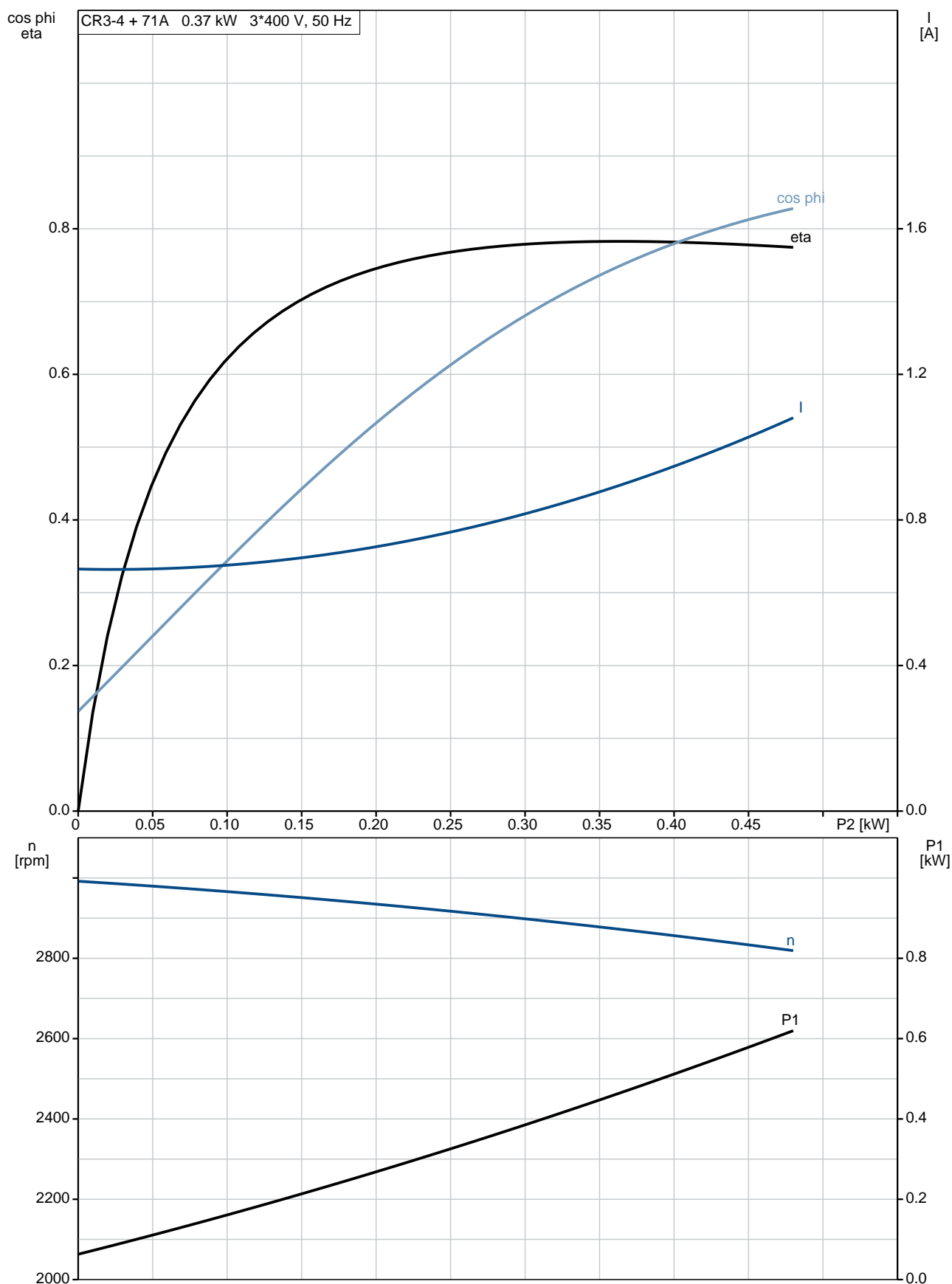
Phone:

Date:

15/02/2019

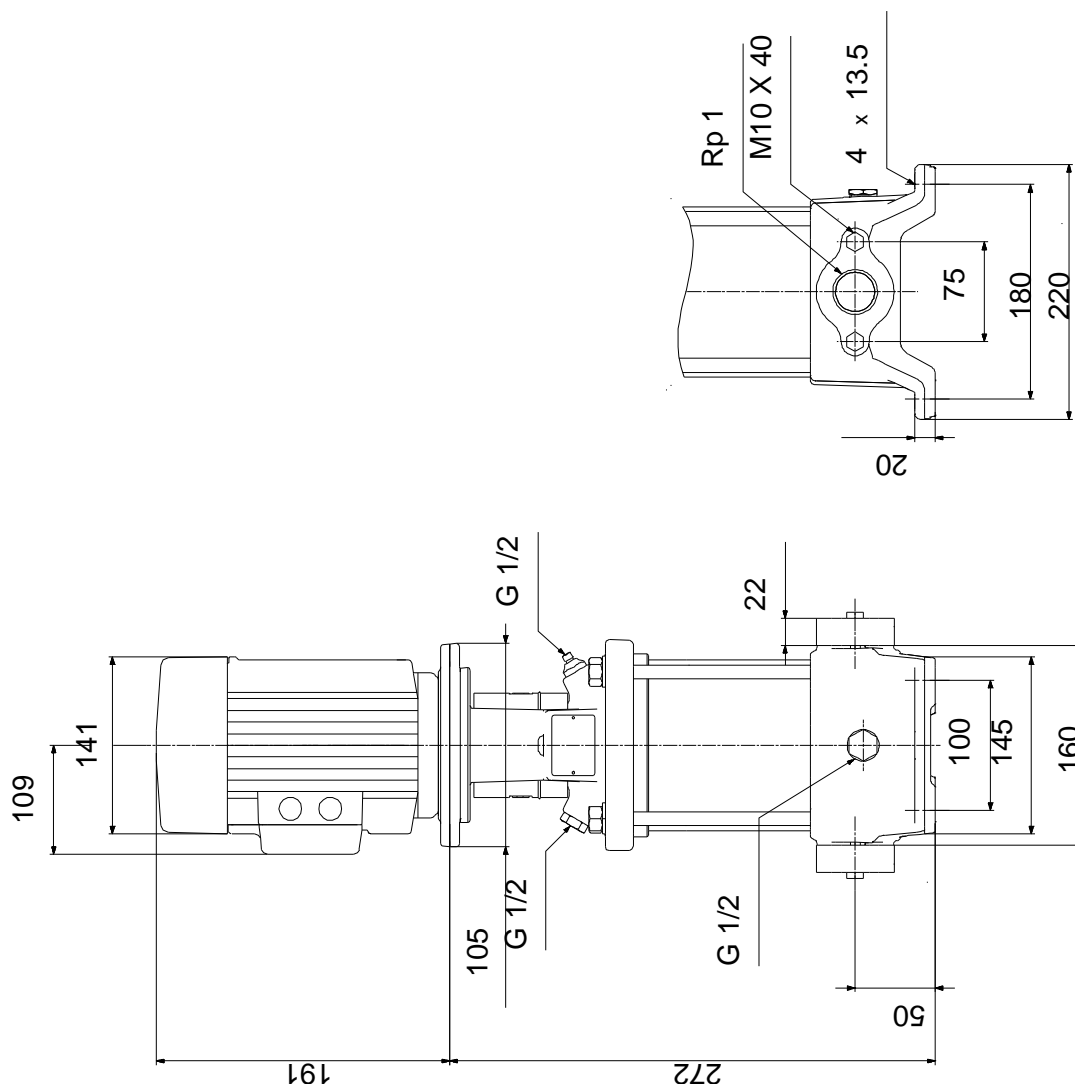
Description	Value
Rated speed:	2850-2880 rpm
Efficiency:	IE3 73,8%
Motor efficiency at full load:	73.8 %
Motor efficiency at 3/4 load:	79.0 %
Motor efficiency at 1/2 load:	75.5 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	NONE
Motor No:	85805102
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI $\hat{a}\%$ :	0.70
Net weight:	18.9 kg
Gross weight:	21.5 kg
Shipping volume:	0.054 m <sup>3</sup>
Danish VVS No.:	385901004
Swedish RSK No.:	5824824
Norwegian NRF no.:	9040222

## 96516592 CR 3-4 A-A-A-E-HQQE 50 Hz



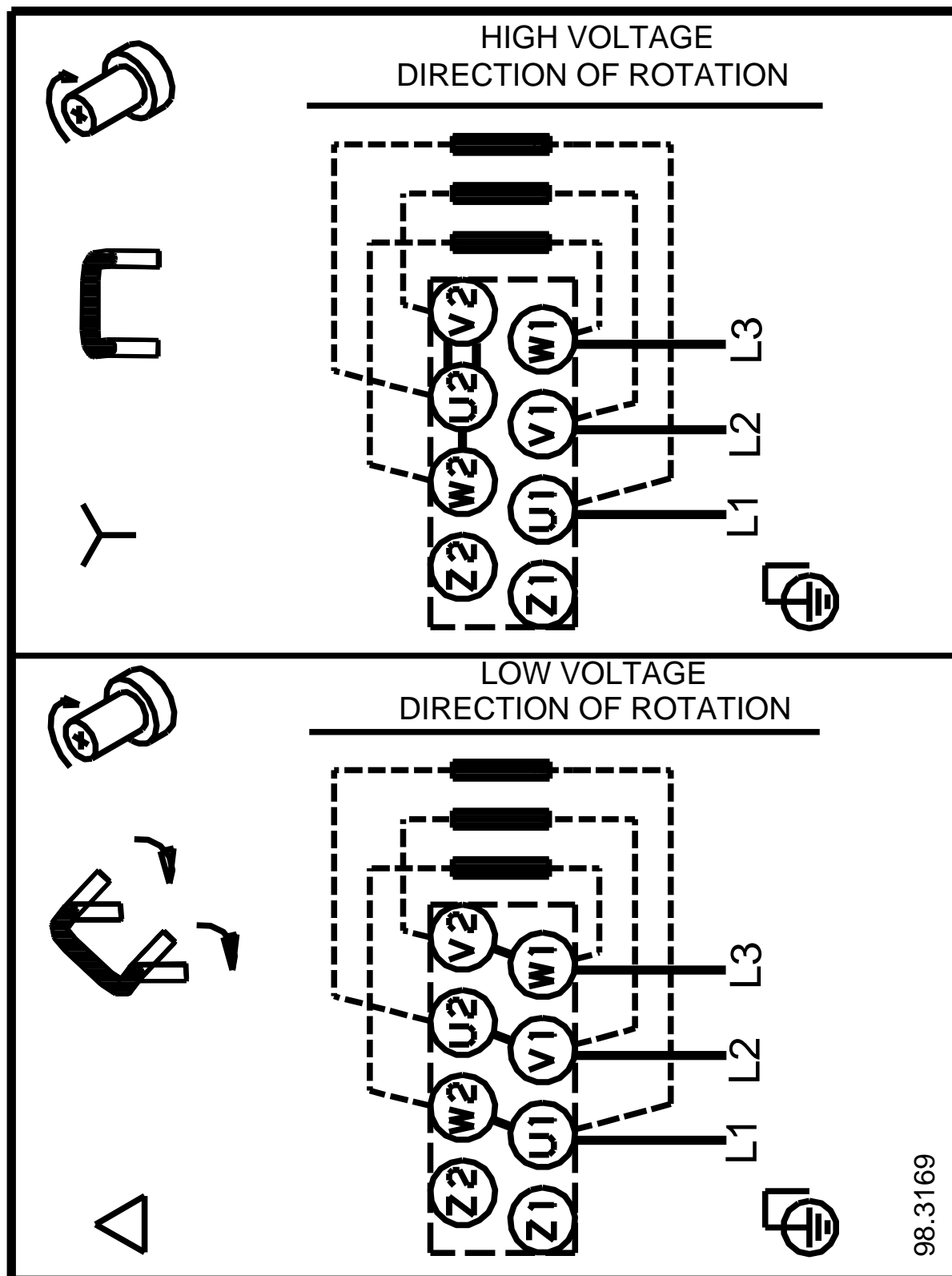


## 96516592 CR 3-4 A-A-A-E-HQQE 50 Hz



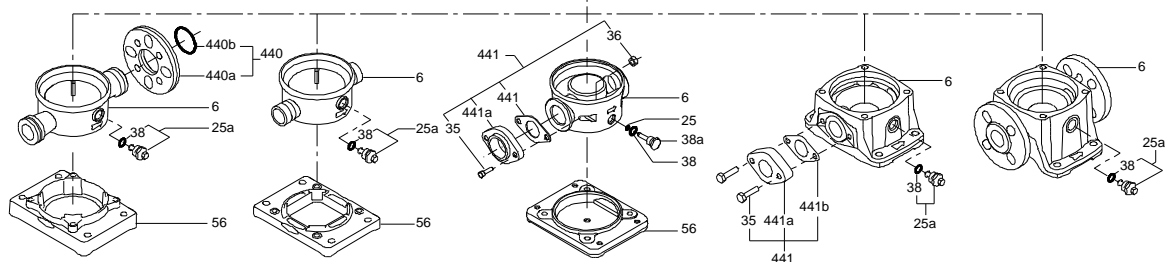
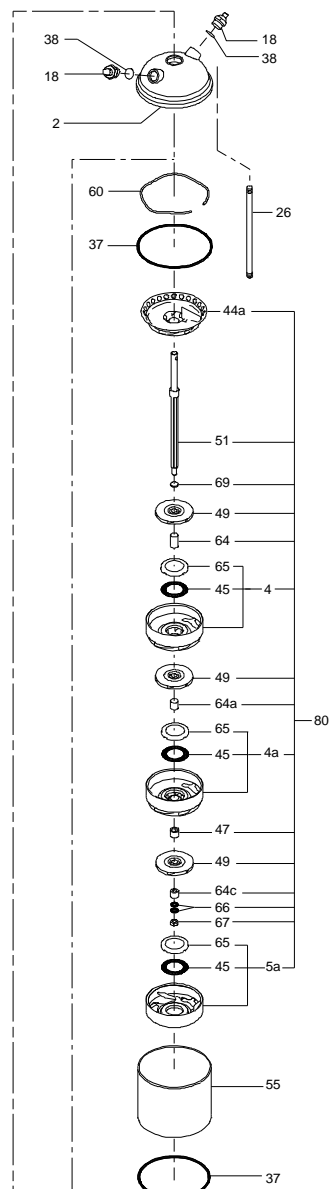
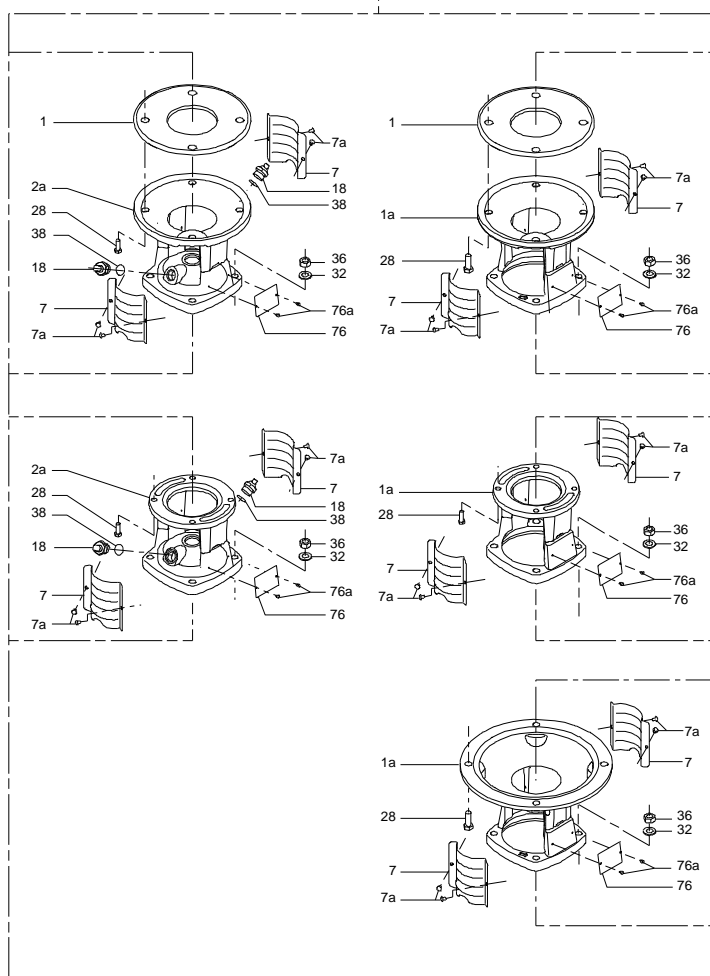
Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

96516592 CR 3-4 A-A-A-E-HQQE 50 Hz

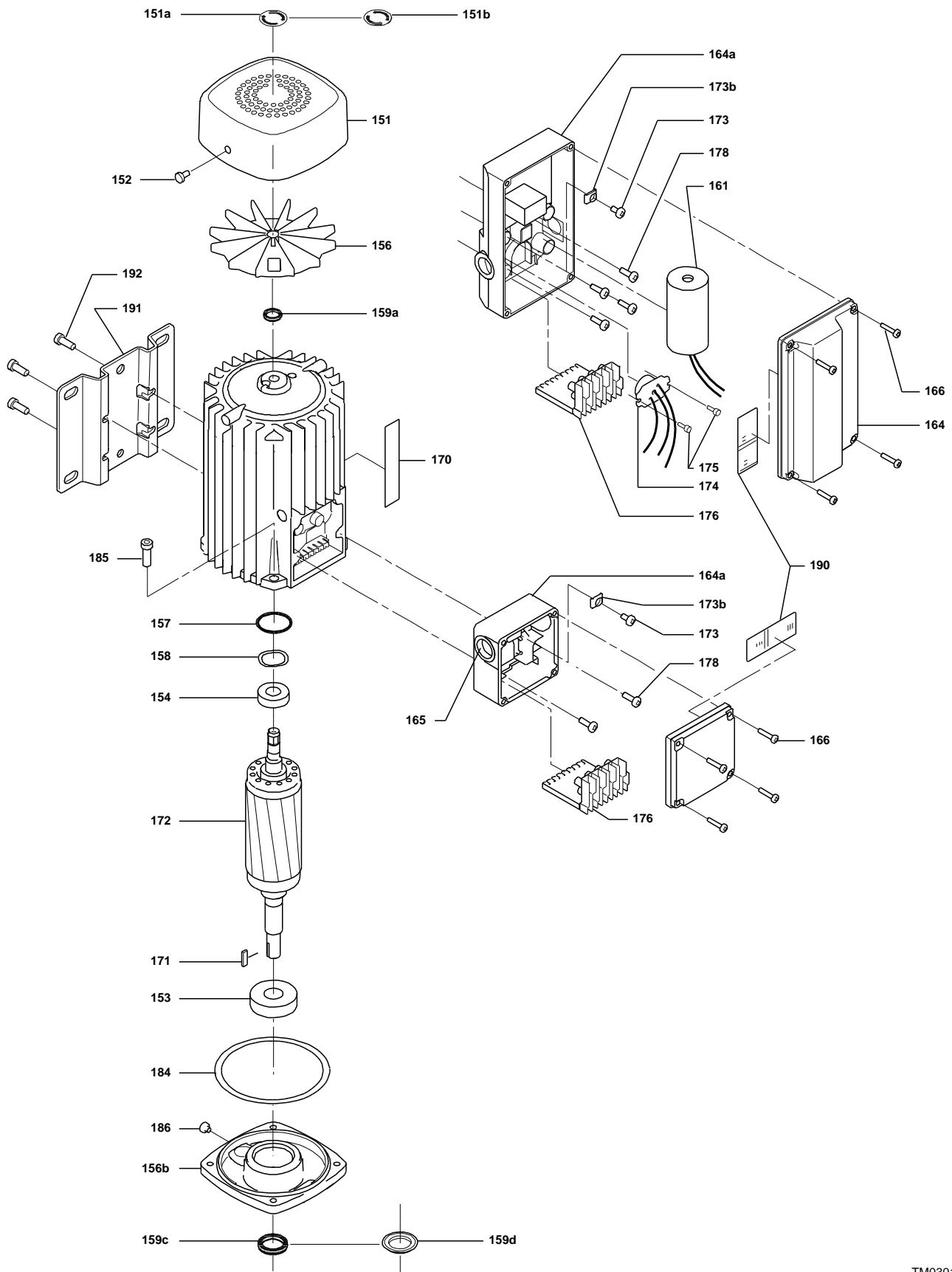


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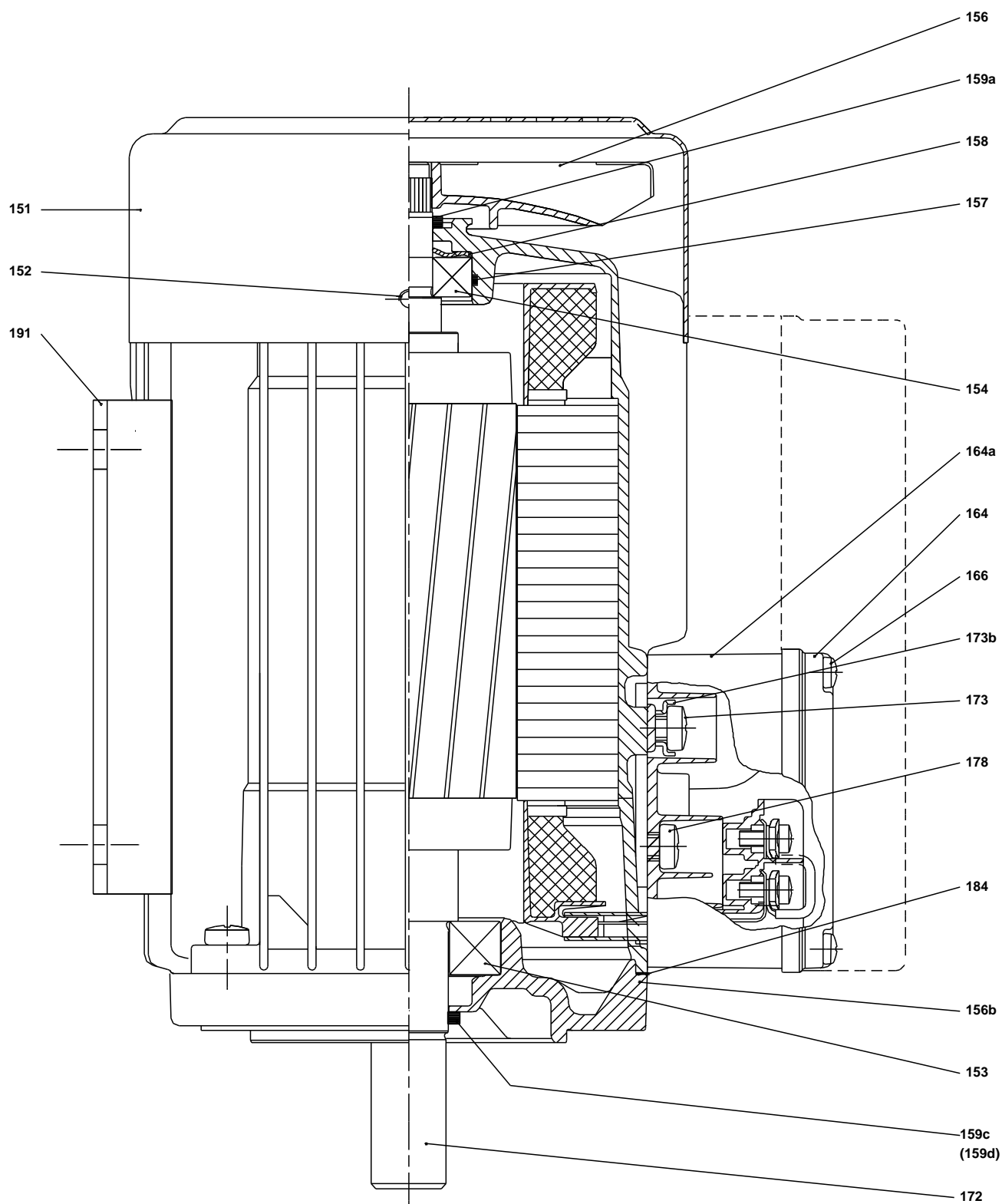
Note! All units are in [mm] unless others are stated.



**(TM030163 0505)**



(TM029177)



TM029177)

**Spare parts CR 3-4, Product No. 96516592**
**Valid from 1.1.2004 (0401)**

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, chamber stack		Bearing type: SILICON CARBIDE	96453531	1	pcs
- 4a	Chamber w. bearing cpl.				1	
	Vane					
	Intermediate chamber					
	Retainer for bearing					
	Guide vane					
45	Neck ring					
47	Bearing bush					
65	Retainer					
65	Retainer					
- 4	Chamber cpl.				2	
	Vane					
	Intermediate chamber					
	Plate					
	Guide vane					
45	Neck ring					
65	Retainer					
65	Retainer					
- 5a	Chamber cpl.				1	
	Vane					
	Intermediate chamber					
45	Neck ring					
65	Retainer					
65	Retainer					
- 44a	Guide vane cpl.				1	
	Plate					
	Guide vane					
50	Top plate					
47	Bearing ring, rotating				1	
49	Impeller cpl.				4	
51	Shaft, spline, cpl.				1	
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				2	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	
-	Kit, coupling			00415060	1	pcs
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 20			
			Thread: M6			
10a	Coupling half				2	
10	Shaft pin		Diameter: 5		1	
			Length (mm): 26			
-	Kit, coupling guard			96505130	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			

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
			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			
-	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: SILICON CARBIDE	96455095	1	pcs
- 4a	Chamber w. bearing cpl.				1	
4a	Intermediate chamber					
45	Neck ring					
65	Neck ring retainer					
45	Neck ring				8	
47	Bearing ring, rotating				1	
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			
65	Neck ring retainer				8	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	
441b	Gasket				2	
-	Motor			85900331	1	pcs
-	Kit, Ball bearing			96279730	1	
111	Ball bearing		Designation: 6204.2Z.C3.SYN			
111	Ball bearing					
157	O-ring		Diameter: 32			
			Material type: NBR			
			Thickness: 2			
158	Waved washer					
+	Kit, fan			96279721	1	
+	Kit, fan cover			96279720	1	
-	Kit, flange			96279727	1	
156b	Flange					
159c	Seal ring					
184	Gasket		Internal diameter: 114,80			

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
			Outer diameter: 121,20			
			Thickness: 0,25			
185	Pan head screw					
186	Drain plug					
+	Kit, shaft seal			96279722	1	
-	Kit, terminal box			96279724	1	
152	Pan head thread forming screw					
164a	Terminal box w/gasket					
164	Terminal box cover w/gasket					
173a	Washer		Designation: SQUARE			
			Internal diameter: 5,5			
			Outer diameter: 10X10			
			Thickness: 1,5			
173a	Base					
173	Pan head thread forming screw		Designation: COMBI TORX T25			
173	Pan head screw		Designation: DIN 7985			
175	Pan head screw		Designation: DIN 7985			
176	Terminal cpl.					
+	4a Bulk, Chamber w. bearing cpl. (3 pcs)			98371208	1	pcs
+	4a Bulk, Chamber w. bearing cpl. (5 pcs)			97690601	1	pcs
+	4a Bulk, Chamber w. bearing cpl. (5 pcs)			97690590	1	pcs
+	4a Chamber w. bearing cpl.			98371207	1	pcs
-	4 Bulk, Chamber cpl. (5 pcs)			97690020	2	pcs
	45 Bulk, Neck ring (24 pcs)			96536194	1	
	65 Bulk, Retainer (24 pcs)			98270018	1	
+	4 Bulk, Chamber cpl. (10 pcs)			96547662	2	pcs
+	4 Chamber cpl.			98371206	2	pcs
+	5a Bulk, Chamber cpl. (10 pcs)			98371205	1	pcs
+	5a Chamber cpl.			96588148	1	pcs
	6 Base			96588138	1	pcs
	10 Bulk, Shaft pin (10 pcs)		Diameter: 5	96536473	1	pcs
			Length (mm): 26			
-	25a Drain plug w/bypass valve			96588242	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 Bulk, Staybolt (4 pcs)		Length (mm): 97	96536314	4	pcs
			Thread: M12			
	26 Staybolt		Length (mm): 97	98986269	4	pcs
			Thread: M12			
	36 Bulk, Nut (20 pcs)		Thread: M12	96620479	4	pcs
	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 Bulk, Guide vane cpl. (5 pcs)			96547659	1	pcs
	47 Bulk, Bearing ring, rotating (10 pcs)			97905743	1	pcs
	47 Bearing ring, rotating			96547649	1	pcs
	49 Bulk, Impeller cpl. (5 pcs)			98426771	4	pcs
	49 Bulk, Impeller cpl. (10 pcs)			98394269	4	pcs
	49 Bulk, Impeller cpl. (24 pcs)			96547599	4	pcs
	49 Impeller cpl.			98394415	4	pcs





Company name:

Created by:

Phone:

Date:

15/02/2019

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
51	Shaft, spline, cpl.			96588199	1	pcs
55	Outer sleeve			98811265	1	pcs
64c	Bulk, Clamp, splined (5 pcs)		Internal diameter: 8,5	98496968	1	pcs
			Outer diameter: 15			
64a	Bulk, Spacing pipe (24 pcs)			96536198	2	pcs
66	Bulk, Wedge lock washer (10 pcs)			96536157	1	pcs
67	Bulk, Lock nut (10 pcs)		Thread: M8	98277008	1	pcs
+ 105	Bulk, Shaft seal (15 pcs)		Material type: HQQE	96983415	1	pcs
441b	Bulk, Gasket (24 pcs)			96536206	2	pcs
+ 441a	Flange		Thread: RP 1	96547453	2	pcs