

Qty.	Description
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1	CR 15-1 A-F-A-E-HQQE
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Note! Product picture may differ from actual product

Product No.: [96501697](#)

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 DIN flanges.

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

### Further product details

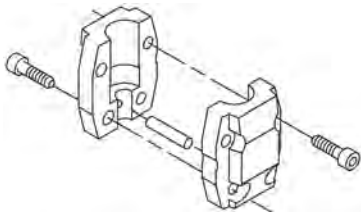
Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An 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.

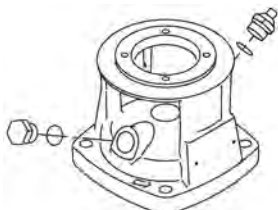
The colour code for the finished product is NCS 9000/RAL 9005.

### 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.



**Qty. Description**

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.

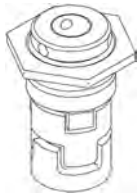
**Primary seal:**

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

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)

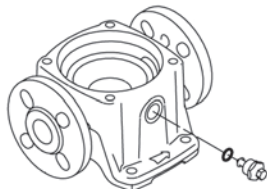
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



The shaft seal is screwed into the pump head.

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 base is made of cast iron. The flanges and base are cast in one piece. The outlet side of the base has a drain plug. The pump is secured to the foundation by four bolts through the base plate.



**Motor**

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).

Motor-mounting designation in accordance with IEC 60034-7: IM B 14 (Code I) / IM 3601 (Code II).

Electrical tolerances comply with IEC 60034.

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

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 (I1/1).

**Technical data**

**Controls:**

Frequency converter: NONE

**Liquid:**

Pumped liquid: Water

Liquid temperature range: -20 .. 120 °C

Liquid temperature during operation: 20 °C

Density: 998.2 kg/m<sup>3</sup>

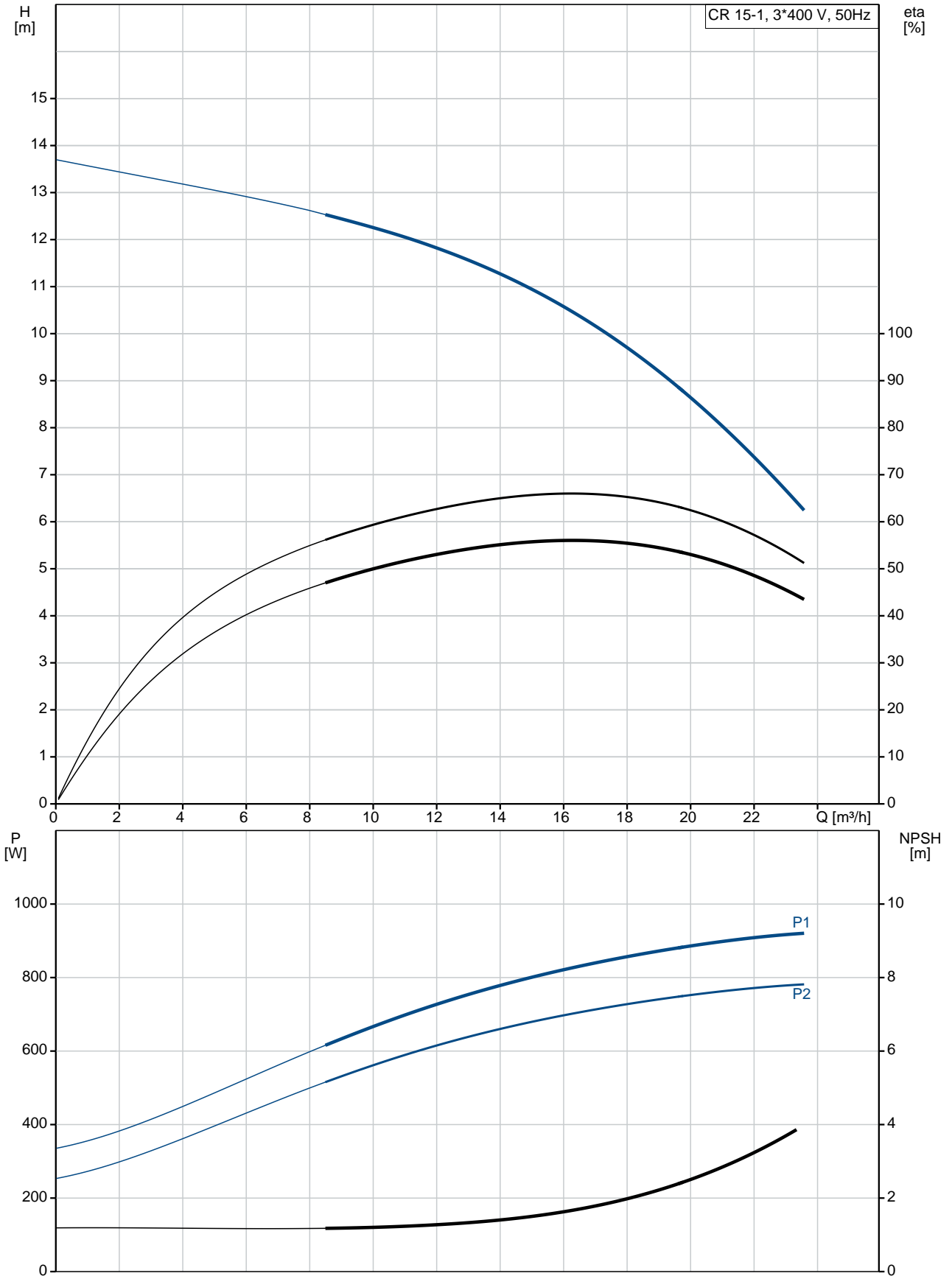
**Technical:**

Pump speed on which pump data are based: 2853 rpm

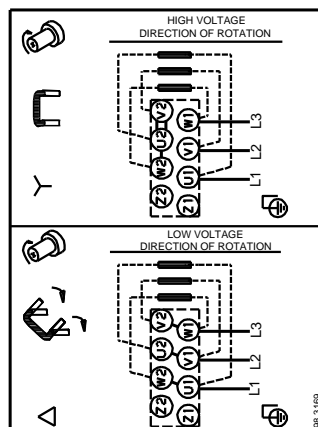
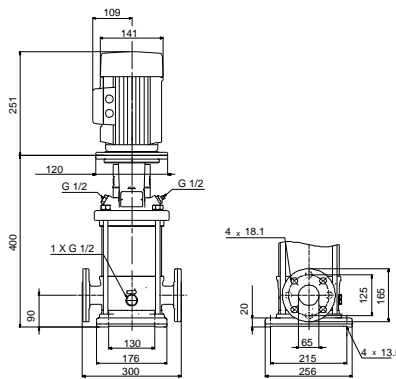
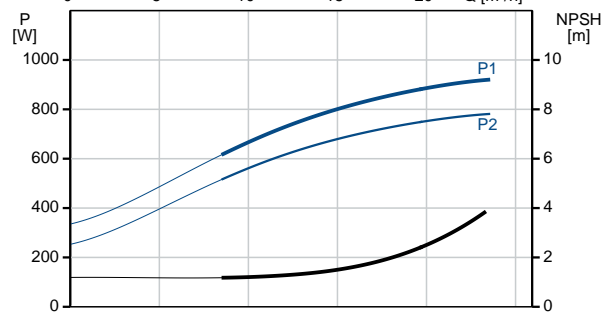
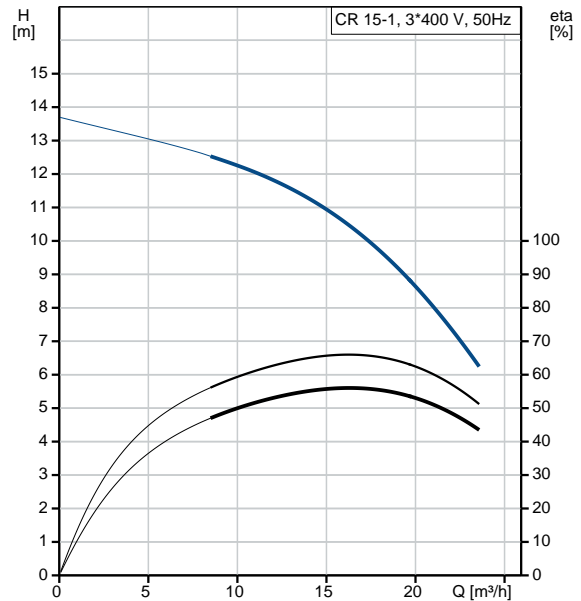
Rated flow: 17 m<sup>3</sup>/h

Qty.	Description
	Rated head: 9.9 m Pump orientation: Vertical Shaft seal arrangement: Single Code for shaft seal: HQQE Approvals on nameplate: CE, EAC, ACS Curve tolerance: ISO9906:2012 3B  <b>Materials:</b> Base: Cast iron EN 1561 EN-GJL-200 ASTM A48-25B Impeller: Stainless steel EN 1.4301 AISI 304 Bearing: SIC  <b>Installation:</b> Maximum ambient temperature: 60 °C Maximum operating pressure: 16 bar Max pressure at stated temp: 16 bar / 120 °C 16 bar / -20 °C Type of connection: DIN Size of inlet connection: DN 50 Size of outlet connection: DN 50 Pressure rating for pipe connection: PN 25 Flange rating inlet: 300 lb Flange size for motor: FT100  <b>Electrical data:</b> Motor standard: IEC Motor type: 80C IE Efficiency class: IE3 Rated power - P2: 1.1 kW Power (P2) required by pump: 1.1 kW Mains frequency: 50 Hz Rated voltage: 3 x 220-240D/380-415Y V Rated current: 4.35/2.50 A Starting current: 450-500 % Cos phi - power factor: 0.83-0.76 Rated speed: 2840-2870 rpm Efficiency: IE3 82,7% Motor efficiency at full load: 82.7 % Motor efficiency at 3/4 load: 84.6 % Motor efficiency at 1/2 load: 85.4 % Number of poles: 2 Enclosure class (IEC 34-5): 55 Dust/Jetting Insulation class (IEC 85): F  <b>Others:</b> Minimum efficiency index, MEI $\hat{\alpha}\%$ : 0.70 Net weight: 42 kg Gross weight: 55 kg Shipping volume: 0.173 m <sup>3</sup> Danish VVS No.: 385904310 Swedish RSK No.: 5823472

## 96501697 CR 15-1 A-F-A-E-HQQE 50 Hz



Description	Value
<b>General information:</b>	
Product name:	CR 15-1 A-F-A-E-HQQE
Product No:	96501697
EAN number:	5700396227405
<b>Technical:</b>	
Pump speed on which pump data are based:	2853 rpm
Rated flow:	17 m <sup>3</sup> /h
Rated head:	9.9 m
Head max:	13.5 m
Stages:	2
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:	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:	60 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 120 °C 16 bar / -20 °C
Type of connection:	DIN
Size of inlet connection:	DN 50
Size of outlet connection:	DN 50
Pressure rating for pipe connection:	PN 25
Flange rating inlet:	300 lb
Flange size for motor:	FT100
Connect code:	F
<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:	80C
IE Efficiency class:	IE3
Rated power - P2:	1.1 kW
Power (P2) required by pump:	1.1 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 220-240D/380-415Y V
Rated current:	4.35/2.50 A





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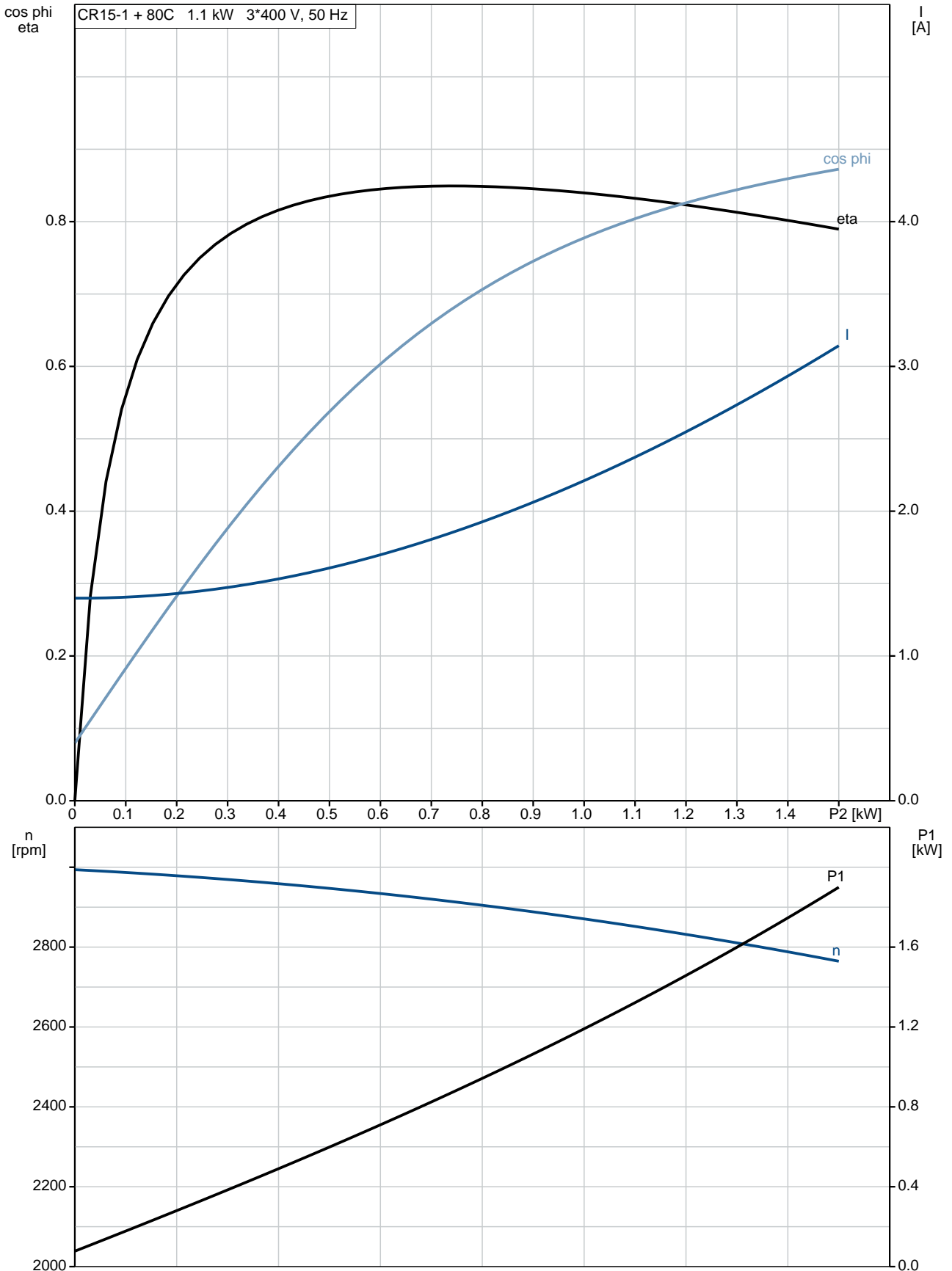
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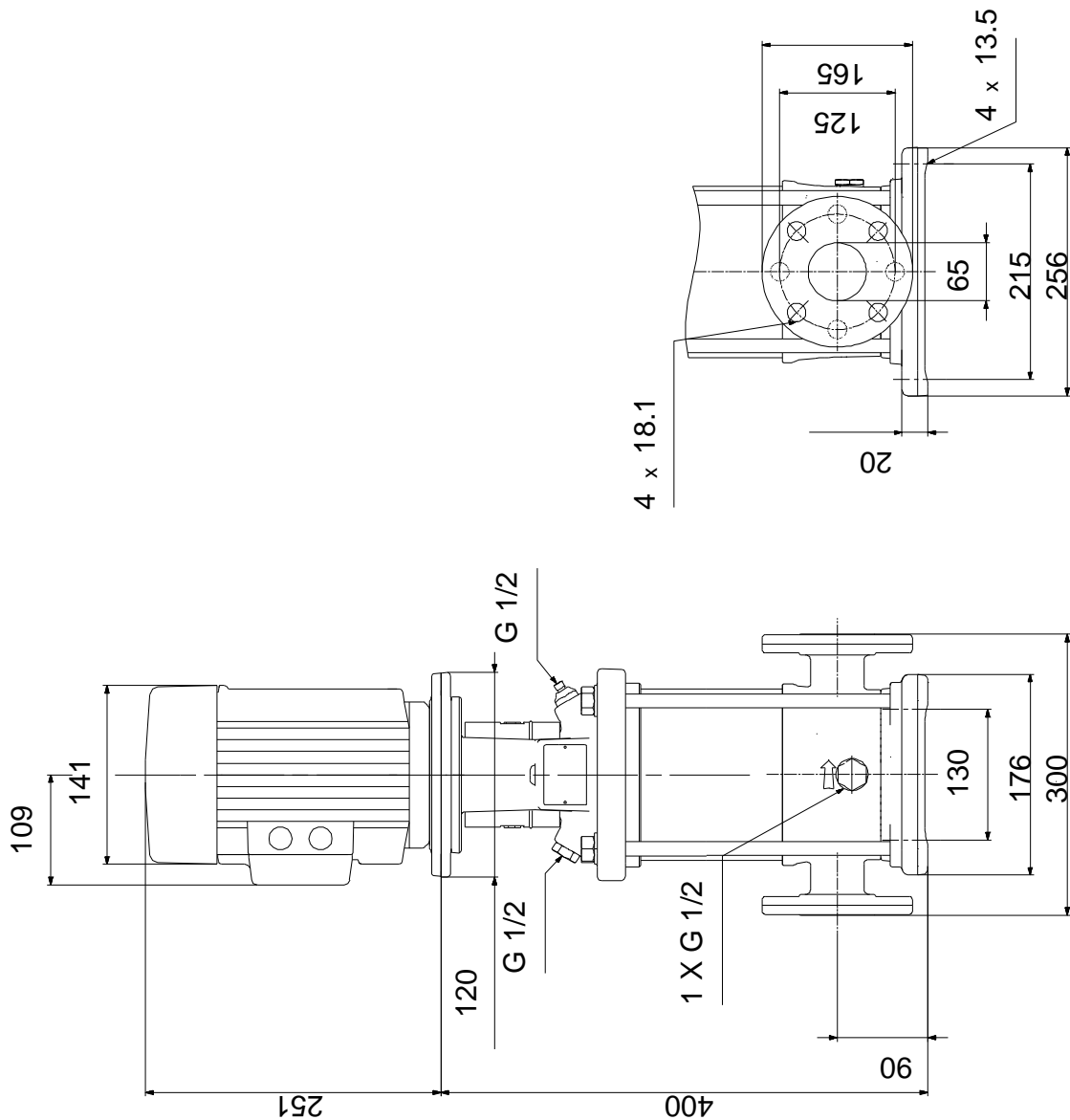
16/02/2019

Description	Value
Starting current:	450-500 %
Cos phi - power factor:	0.83-0.76
Rated speed:	2840-2870 rpm
Efficiency:	IE3 82,7%
Motor efficiency at full load:	82.7 %
Motor efficiency at 3/4 load:	84.6 %
Motor efficiency at 1/2 load:	85.4 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	NONE
Motor No:	85U05105
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI %:	0.70
Net weight:	42 kg
Gross weight:	55 kg
Shipping volume:	0.173 m <sup>3</sup>
Danish VVS No.:	385904310
Swedish RSK No.:	5823472

## 96501697 CR 15-1 A-F-A-E-HQQE 50 Hz



**96501697 CR 15-1 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.



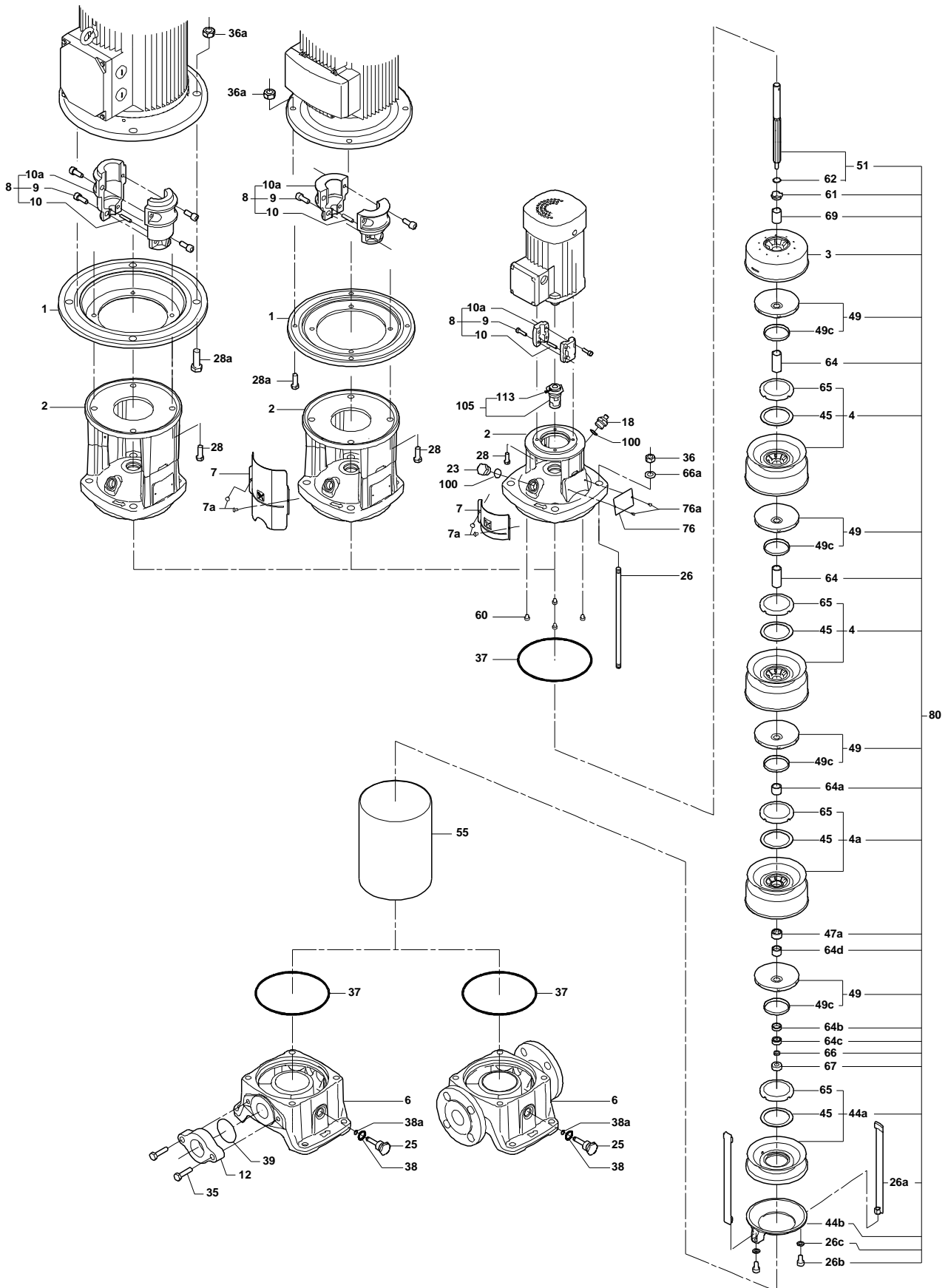
**96501697 CR 15-1 A-F-A-E-HQQE 50 Hz**



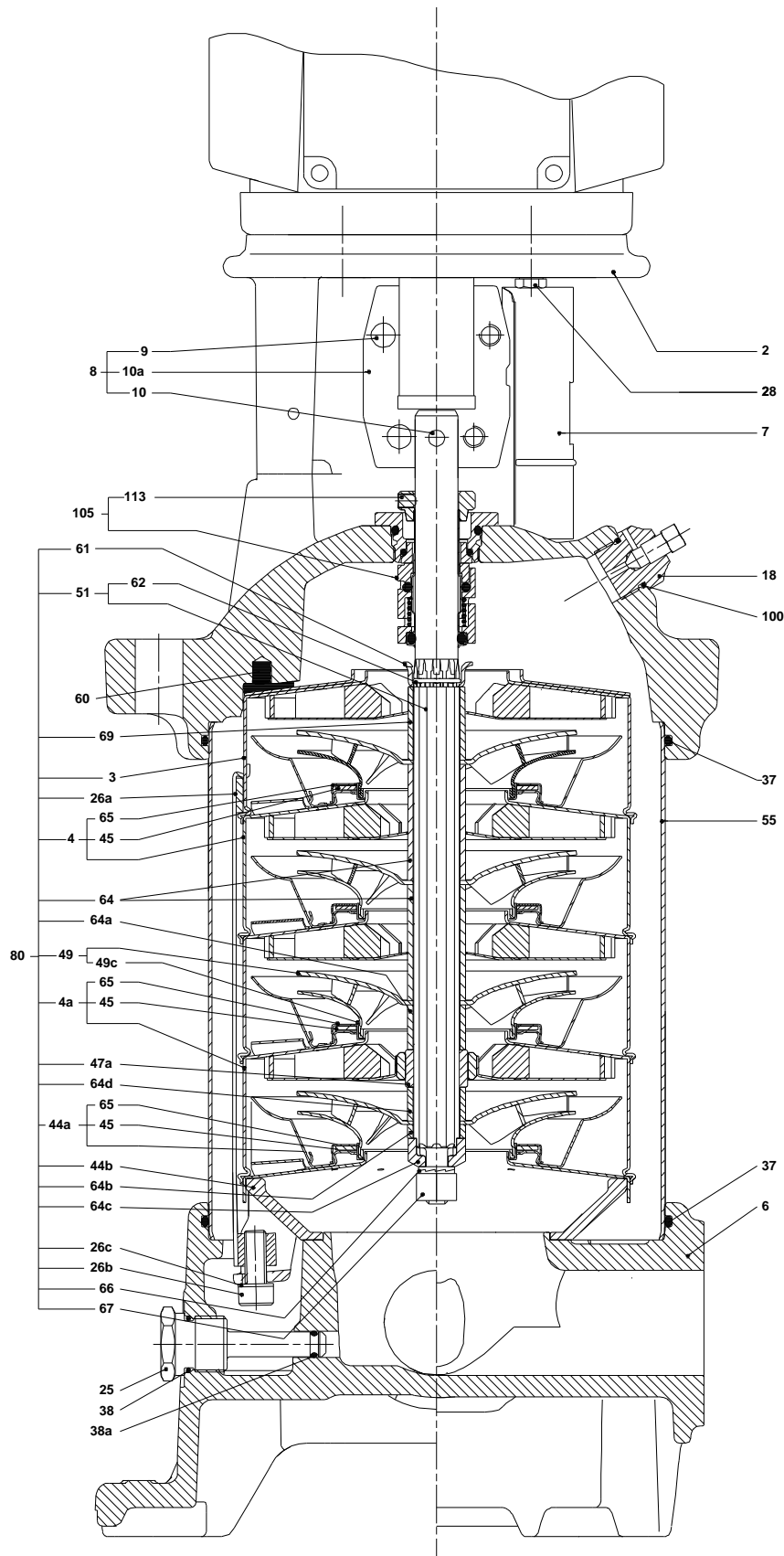
98.3169

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

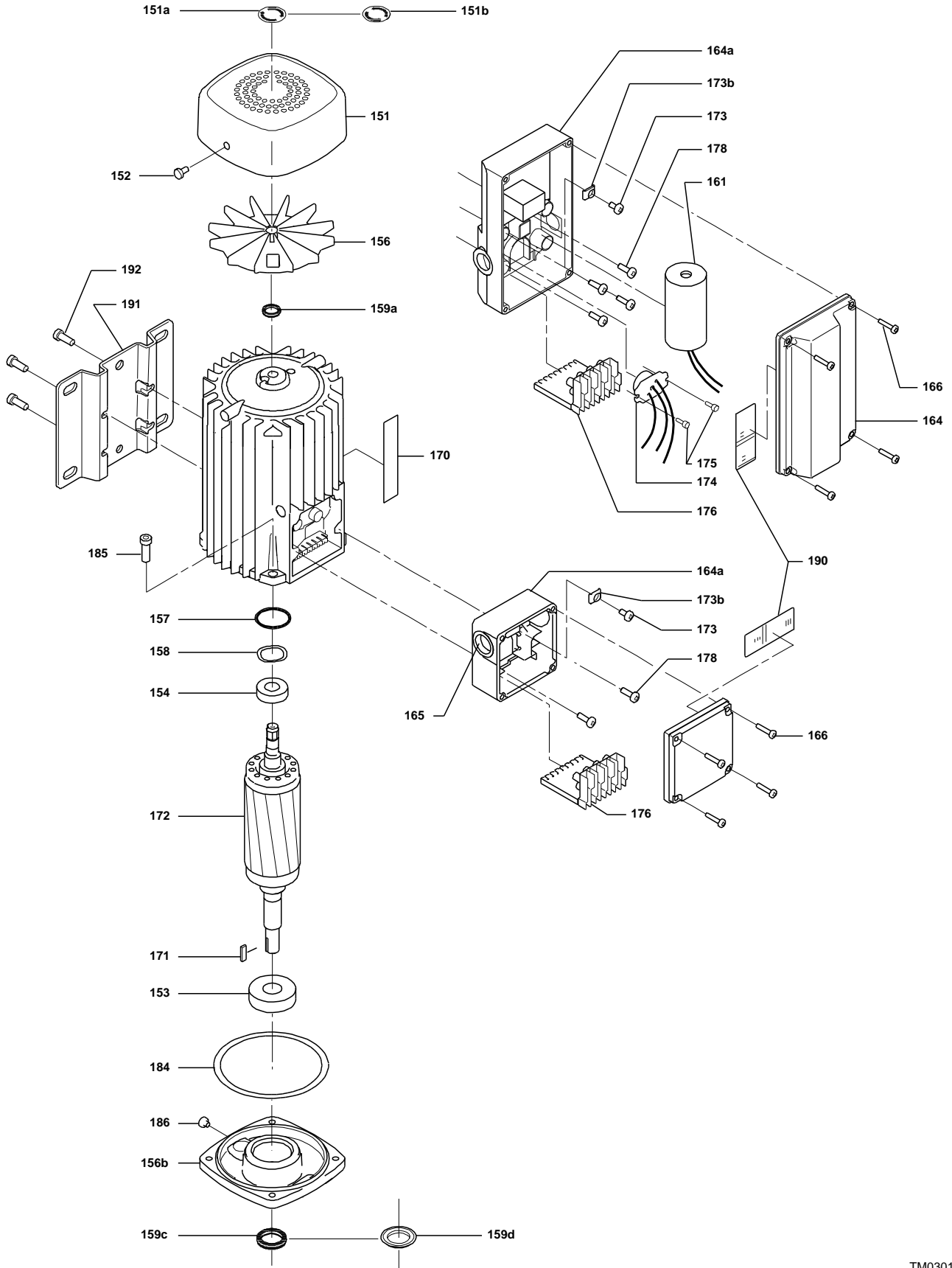
## Exploded view



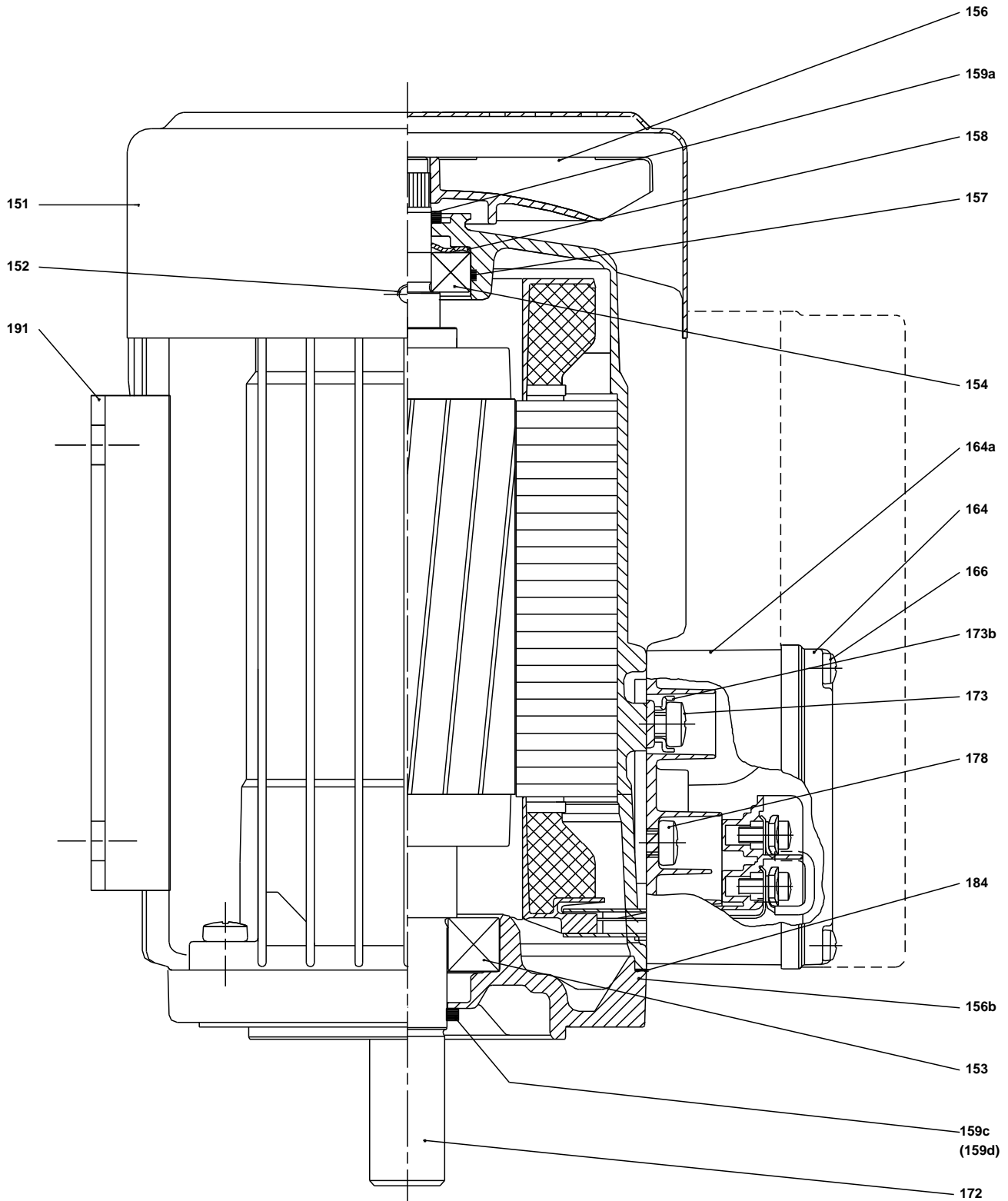
Sectional drawing



(TM030163 0505)

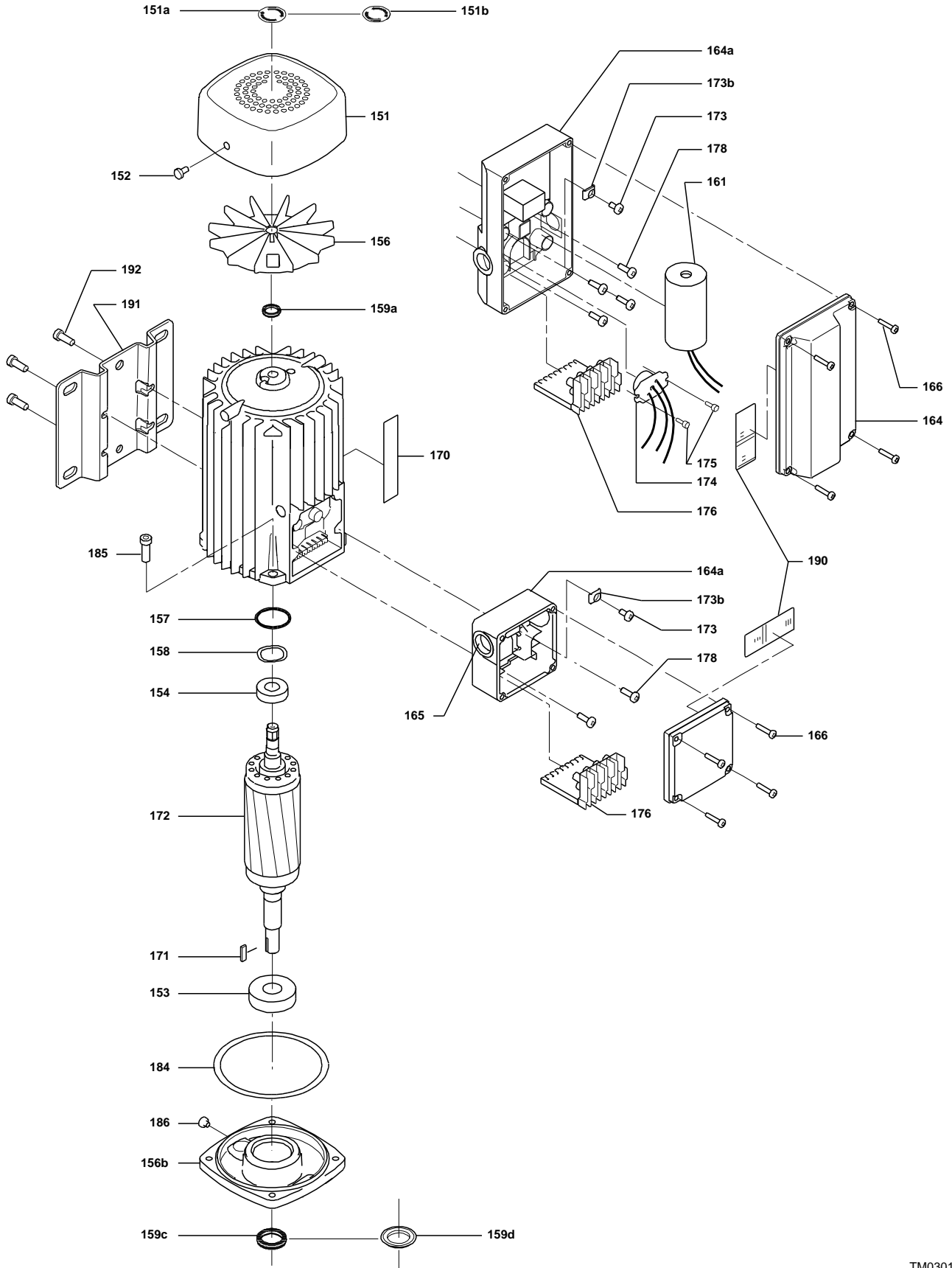


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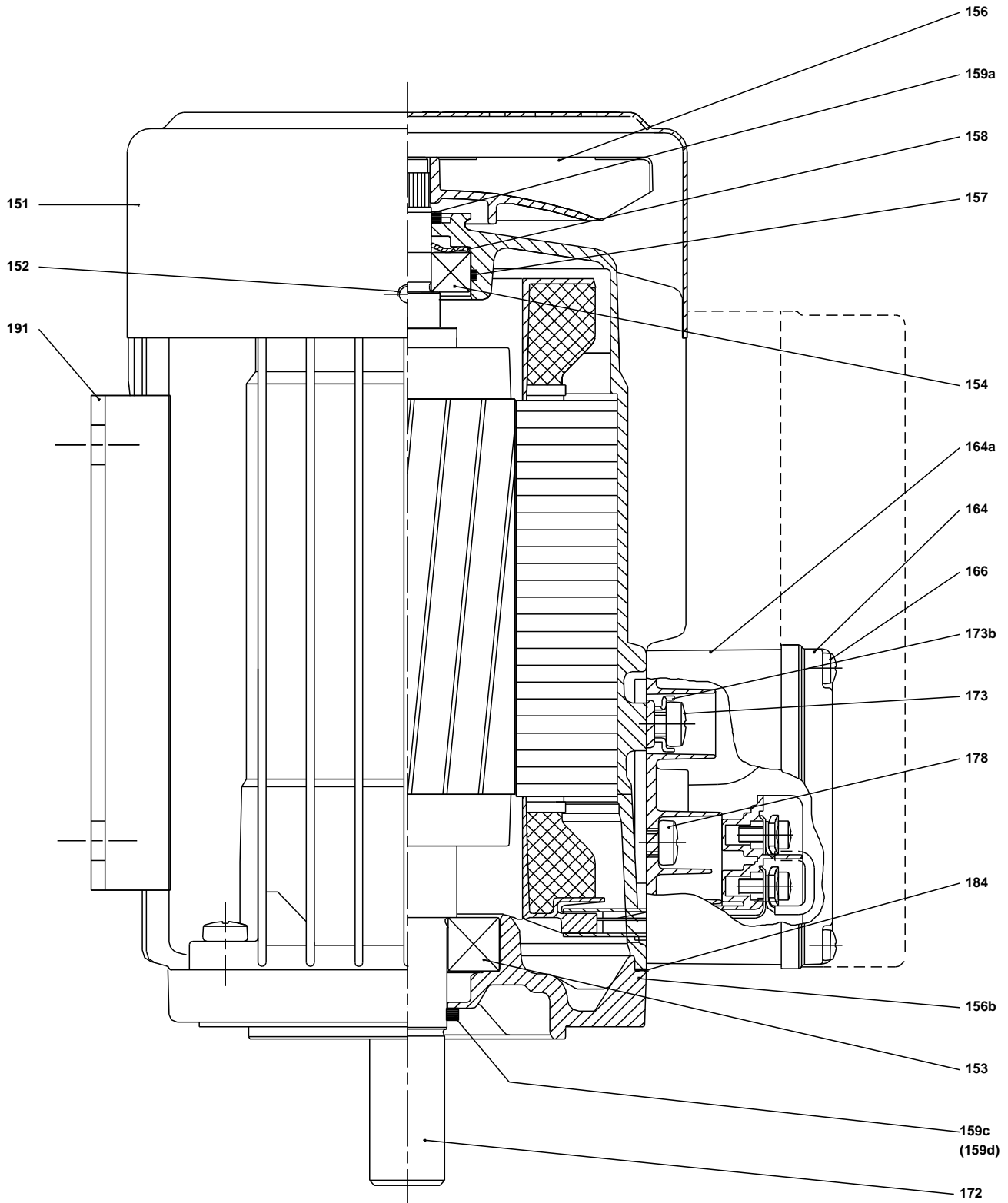


TM029177)

(TM030163 0505)



(TM029177)



TM029177)

**Spare parts CR 15-1, Product No. 96501697**  
**Valid from 1.1.2011 (1152)**

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-	Kit, chamber stack			96508453	1	pcs
- 80	Chamber stack				1	
- 4a	Intermediate chamber cpl.					
	Bearing plate					
3	Intermediate chamber					
45a	Neck ring cpl.					
47	Bearing bush					
65	Retainer for upper seal ring					
- 4	Upper chamber cpl.					
3	Chamber					
26a	Strap cpl.					
26.c	Washer		Designation: DIN 125A Thickness: 1,6			
26.b	Hex head screw					
- 44a	Inlet part cpl.					
45a	Neck ring cpl.					
65	Retainer for upper seal ring					
47	Bearing ring					
+ 49	Impeller cpl.					
- 51	Shaft, spline, cpl.					
	Bar					
62	Stop ring					
64d	Spacing bush					
64c	Spacing pipe		Length (mm): 12.7			
64b	Spacing bush		Length (mm): 5.00			
64a	Spacing pipe		Internal diameter: 17,5 Length (mm): 17			
64	Spacing pipe		Length (mm): 29.05			
66	Wedge lock washer					
67	Lock nut		Thread: M8			
-	Kit, coupling			96511317	1	pcs
	Adjusting fork				1	
9	Hex socket head cap screw		Designation: DIN 912 Length (mm): 20 Thread: M6		4	
10a	Coupling half				2	
10	Shaft pin		Diameter: 5 Length (mm): 26		1	
-	Kit, coupling guard			96509611	1	pcs
7.a	Combi Slot Torx screw				4	
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 Material type: EPDM Thickness: 2,4		1	
38	O-ring		Diameter: 16,3 Material type: EPDM Thickness: 2,4		1	
38	O-ring		Diameter: 16,3 Material type: EPDM		2	



Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
			Thickness: 2,4			
60	Spring				4	
415	Gasket				2	
441b	Gasket		Internal diameter: 49		2	
			Outer diameter: 92			
			Thickness: 2			
-	Kit, plug			96511311	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			96511824	1	pcs
- 4a	Intermediate chamber cpl.				1	
	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			
26.b	Hex head screw				2	
45a	Neck ring cpl.				5	
47	Bearing ring				1	
49c	Wear ring				6	
62	Retaining ring				1	
64d	Spacing bush				1	
64c	Spacing pipe		Length (mm): 12.7		1	
64b	Spacing bush		Length (mm): 5.00		1	
64a	Spacing pipe		Internal diameter: 17,5		1	
			Length (mm): 17			
65	Retainer				5	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	



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16/02/2019

Pos	Description	Annotation	Classification	Data	Part no.	Qty.	Unit
-	Motor				91333027	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	
156	Fan						
159a	Seal ring						
-	Kit, fan cover				96279720	1	
151	Fan cover						
152	Pan head thread forming screw						
-	Kit, flange				96279854	1	
156b	Flange						
159c	Seal ring						
184	Gasket			Internal diameter: 114,80			
				Outer diameter: 121,20			
				Thickness: 0,25			
185	Pan head screw						
186	Drain plug						
-	Kit, shaft seal				96279722	1	
159c	Seal ring						
159a	Seal ring						
-	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.						
-	Motor				85901513	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	
156	Fan						
159a	Seal ring						
-	Kit, fan cover				96279720	1	
151	Fan cover						
152	Pan head thread forming screw						
-	Kit, flange				96279854	1	
156b	Flange						
159c	Seal ring						
184	Gasket			Internal diameter: 114,80			
				Outer diameter: 121,20			
				Thickness: 0,25			



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Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
185	Pan head screw					
186	Drain plug					
-	Kit, shaft seal			96279722	1	
159c	Seal ring					
159a	Seal ring					
-	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.					
2a	Pump head			98952899	1	pcs
-	4a Bulk, Intermediate chamber cpl. (10 pcs)			96538842	1	pcs
3	Bulk, Intermediate chamber (3 pcs)			96535086	1	
65	Bulk, Retainer for upper seal ring (20 pcs)			97699527	1	
65	Retainer for upper seal ring			96587913	1	
+ 4a	Intermediate chamber cpl.			98371109	1	pcs
6	Base			98681111	1	pcs
7.a	Bulk, Combi Slot Torx screw (1000 pcs)			96886324	4	pcs
10	Bulk, Shaft pin (10 pcs)		Diameter: 5 Length (mm): 26	96536473	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
25a	Bulk, Drain plug (10 pcs)			96535881	1	pcs
26a	Strap cpl.			98967067	2	pcs
26.c	Bulk, Washer (4 pcs)		Designation: DIN 125A Thickness: 1,6	99262704	2	pcs
26.c	Washer		Designation: DIN 125A Thickness: 1,6	96586880	2	pcs
26	Bulk, Staybolt (4 pcs)		Length (mm): 163 Thread: M16	98680984	4	pcs
26	Staybolt		Length (mm): 163 Thread: M16	98680982	4	pcs
32	Bulk, Washer (100 pcs)		Designation: DIN 125 A Internal diameter: 17 Outer diameter: 30 Thickness: 3	98923051	4	pcs
36	Bulk, Hex nut (20 pcs)		Thread: M16	96620480	4	pcs
37	Bulk, O-ring (20 pcs)			96538857	2	pcs
38a	Bulk, O-ring (10 pcs)		Diameter: 5,3 Material type: EPDM Thickness: 2,4	99198791	1	pcs
38	Bulk, O-ring (10 pcs)		Diameter: 16,3 Material type: EPDM Thickness: 2,4	99198815	2	pcs
38	Bulk, O-ring (50 pcs)		Diameter: 16,3 Material type: EPDM Thickness: 2,4	99412727	2	pcs
+ 44a	Inlet part cpl.			98818924	1	pcs
47	Bulk, Bearing ring (10 pcs)			96538795	1	pcs



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16/02/2019

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
+ 49	Bulk, Impeller cpl. (5 pcs)			98394287	1	pcs
+ 49	Impeller cpl.			98394448	1	pcs
+ 51	Shaft, spline, cpl.			98368605	1	pcs
55	Outer sleeve			98812619	1	pcs
60	Bulk, Spring (20 pcs)			96538963	4	pcs
64d	Bulk, Spacing bush (20 pcs)			96538947	1	pcs
64c	Bulk, Spacing pipe (5 pcs)		Length (mm): 12.7	97980241	1	pcs
64b	Bulk, Spacing bush (20 pcs)		Length (mm): 5.00	96535098	1	pcs
64a	Bulk, Spacing pipe (10 pcs)		Internal diameter: 17,5	98417487	1	pcs
			Length (mm): 17			
64	Bulk, Spacing pipe (20 pcs)		Length (mm): 29.05	96535101	1	pcs
66	Bulk, Wedge lock washer (10 pcs)			96536157	1	pcs
67	Bulk, Lock nut (10 pcs)		Thread: M8	98277008	1	pcs
76a	Bulk, Rivet (100 pcs)			96620489	2	pcs
105	Bulk, Shaft seal (11 pcs)		Material type: HQQE	96538914	1	pcs