Company name:
Created by:
Phone:

Date: 16/02/2019

Qty.	Description
1	**CR 10-9 A-FJ-A-E-HQQE**

Note! Product picture may differ from actual product

Product No.: 96500971

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 combined DIN-JIS flanges.

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

Further product details

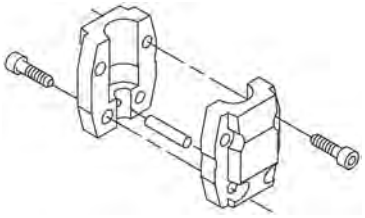
Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An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

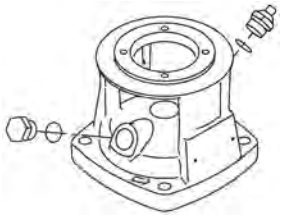
The colour code for the finished product is NCS 9000/RAL 9005.

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.

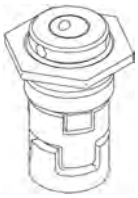
Primary seal:

- 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)

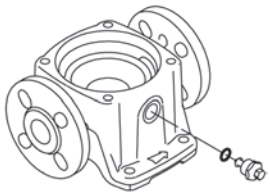
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



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 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:	-20 .. 120 °C
Liquid temperature during operation:	20 °C

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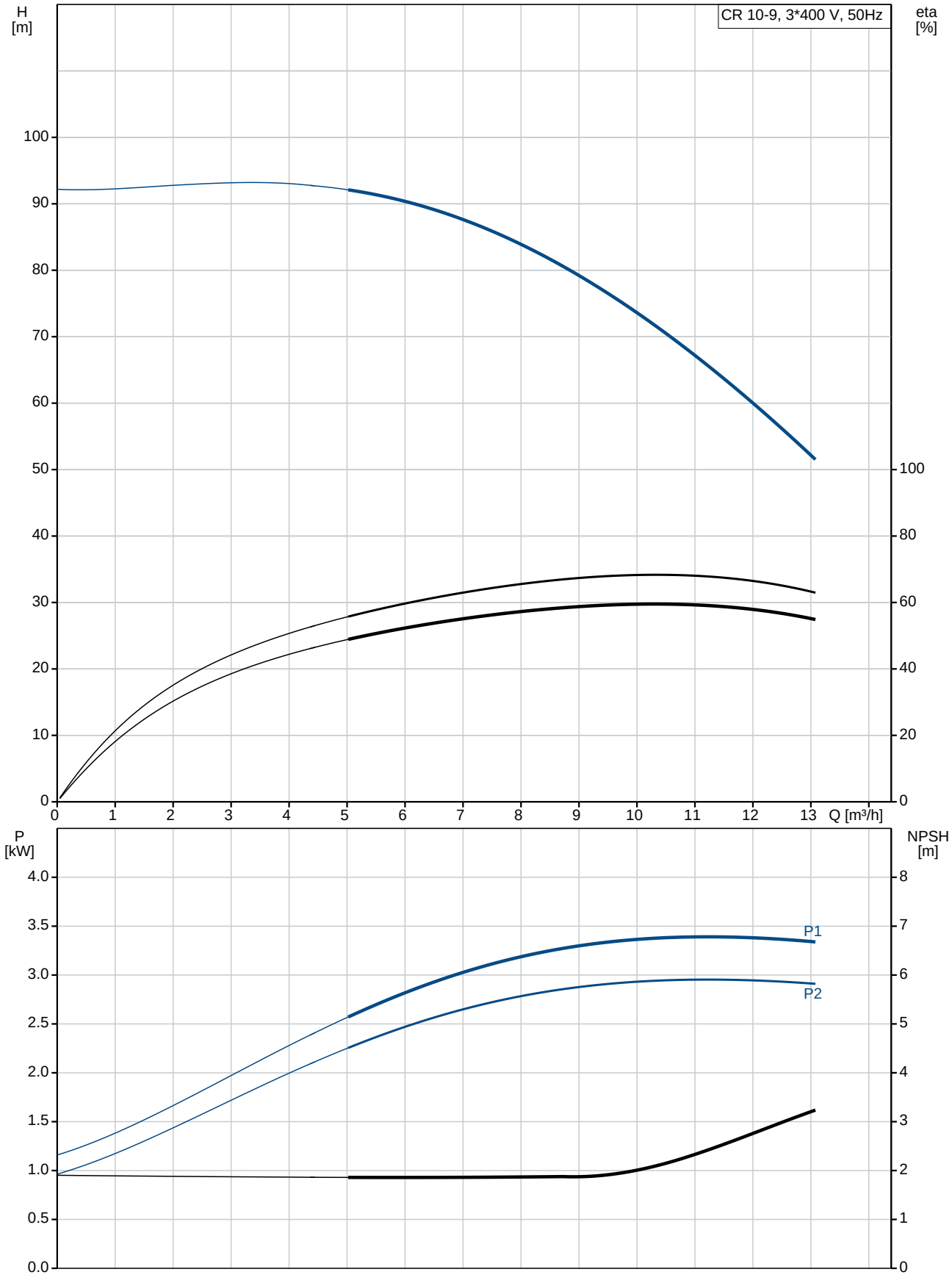
Date: 16/02/2019

Qty.	Description	
	Density:	998.2 kg/m³
	Technical:	
	Pump speed on which pump data are based:	2902 rpm
	Rated flow:	10 m³/h
	Rated head:	72.3 m
	Pump orientation:	Vertical
	Shaft seal arrangement:	Single
	Code for shaft seal:	HQQE
	Approvals on nameplate:	CE, EAC,ACS
	Curve tolerance:	ISO9906:2012 3B
	Materials:	
	Base:	Cast iron
		EN 1561 EN-GJL-200
		ASTM A48-25B
	Impeller:	Stainless steel
		EN 1.4301
		AISI 304
	Bearing:	SIC
	Installation:	
	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 / JIS
	Size of inlet connection:	DN 40
		1 1/2 inch
	Size of outlet connection:	DN 40
	Pressure rating for pipe connection:	PN 25
	Flange rating inlet:	300 lb
	Flange size for motor:	FT130
	Electrical data:	
	Motor standard:	IEC
	Motor type:	100LC
	IE Efficiency class:	IE3
	Rated power - P2:	3 kW
	Power (P2) required by pump:	3 kW
	Mains frequency:	50 Hz
	Rated voltage:	3 x 220-240D/380-415Y V
	Rated current:	11.0/6.30 A
	Starting current:	840-920 %
	Cos phi - power factor:	0.87-0.82
	Rated speed:	2900-2920 rpm
	Efficiency:	IE3 87,1%
	Motor efficiency at full load:	87.1 %
	Motor efficiency at 3/4 load:	88.0 %
	Motor efficiency at 1/2 load:	87.7 %
	Number of poles:	2
	Enclosure class (IEC 34-5):	55 Dust/Jetting
	Insulation class (IEC 85):	F
	Others:	
	Minimum efficiency index, MEI â‰¥:	0.70
	Net weight:	61 kg
	Gross weight:	65 kg
	Shipping volume:	0.13 m³

Company name:
Created by:
Phone:

Date: 16/02/2019

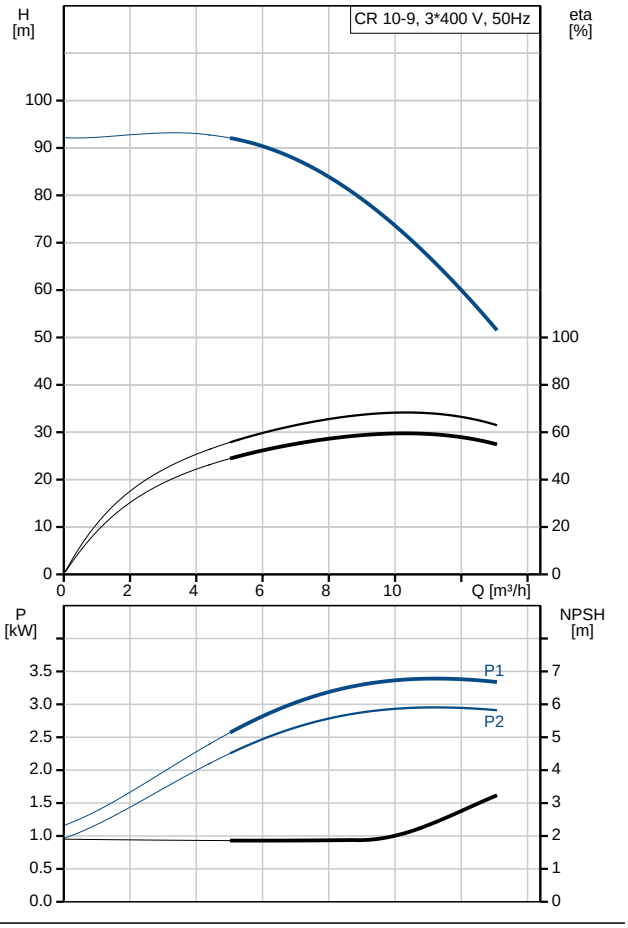
96500971 CR 10-9 A-FJ-A-E-HQQE 50 Hz

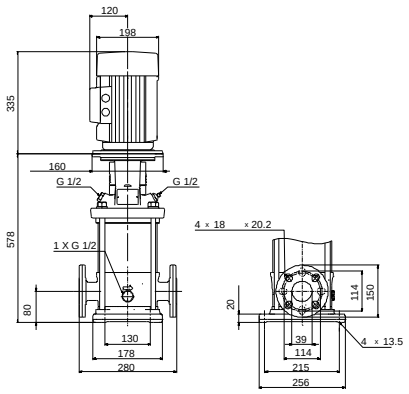


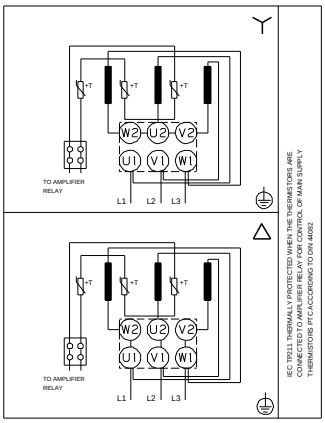
Company name:
Created by:
Phone:

Date: 16/02/2019

Description	Value
General information:	
Product name:	CR 10-9 A-FJ-A-E-HQQE
Product No:	96500971
EAN number:	5700396212777
Technical:	
Pump speed on which pump data are based:	2902 rpm
Rated flow:	10 m³/h
Rated head:	72.3 m
Head max:	91.8 m
Stages:	9
Impellers:	9
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
Materials:	
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
Installation:	
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 / JIS
Size of inlet connection:	DN 40
	1 1/2 inch
Size of outlet connection:	DN 40
Pressure rating for pipe connection:	PN 25
Flange rating inlet:	300 lb
Flange size for motor:	FT130
Connect code:	FJ
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-20 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m³
Electrical data:	
Motor standard:	IEC
Motor type:	100LC
IE Efficiency class:	IE3
Rated power - P2:	3 kW
Power (P2) required by pump:	3 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 220-240D/380-415Y V







Company name:
Created by:
Phone:

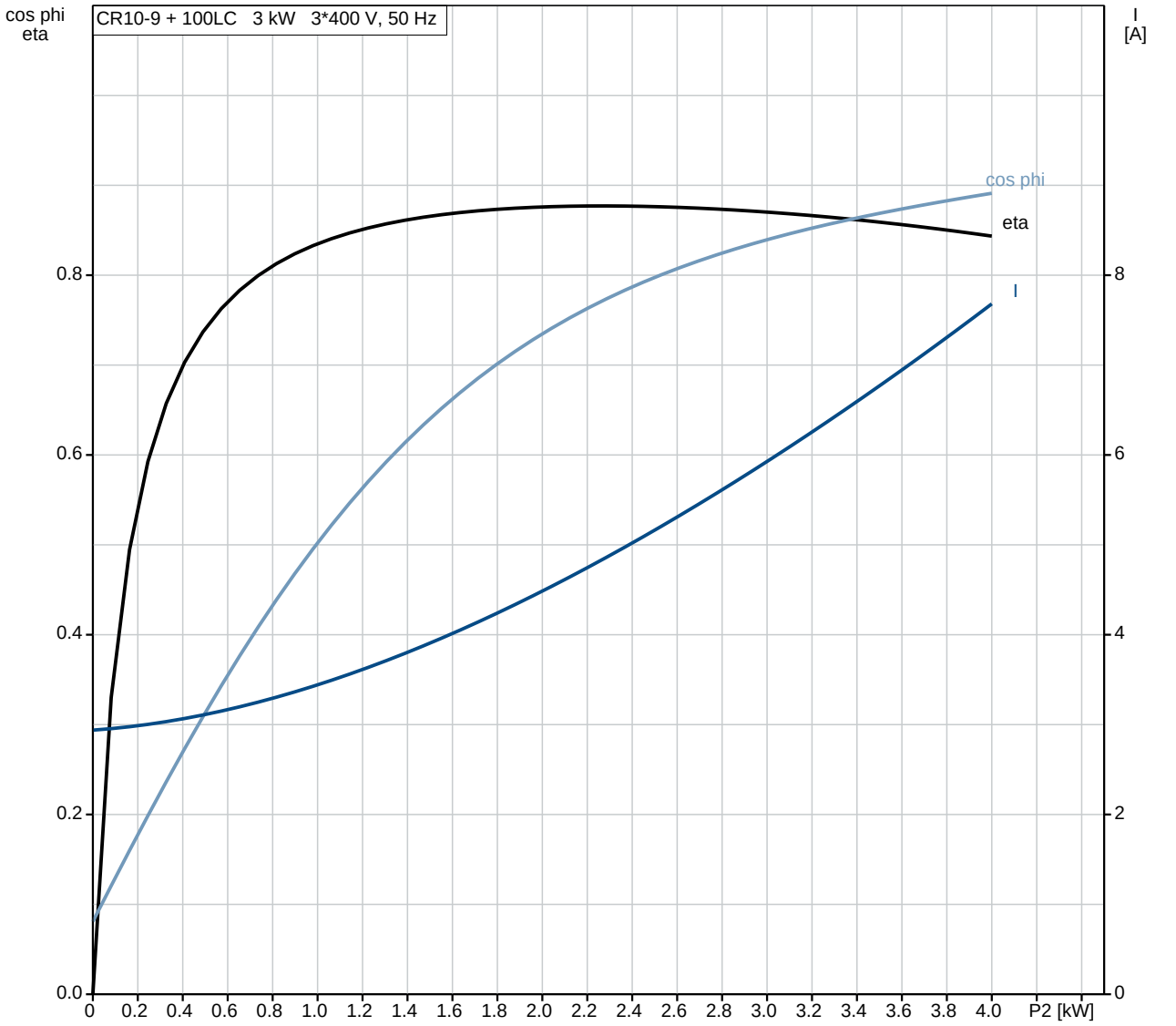
Date: 16/02/2019

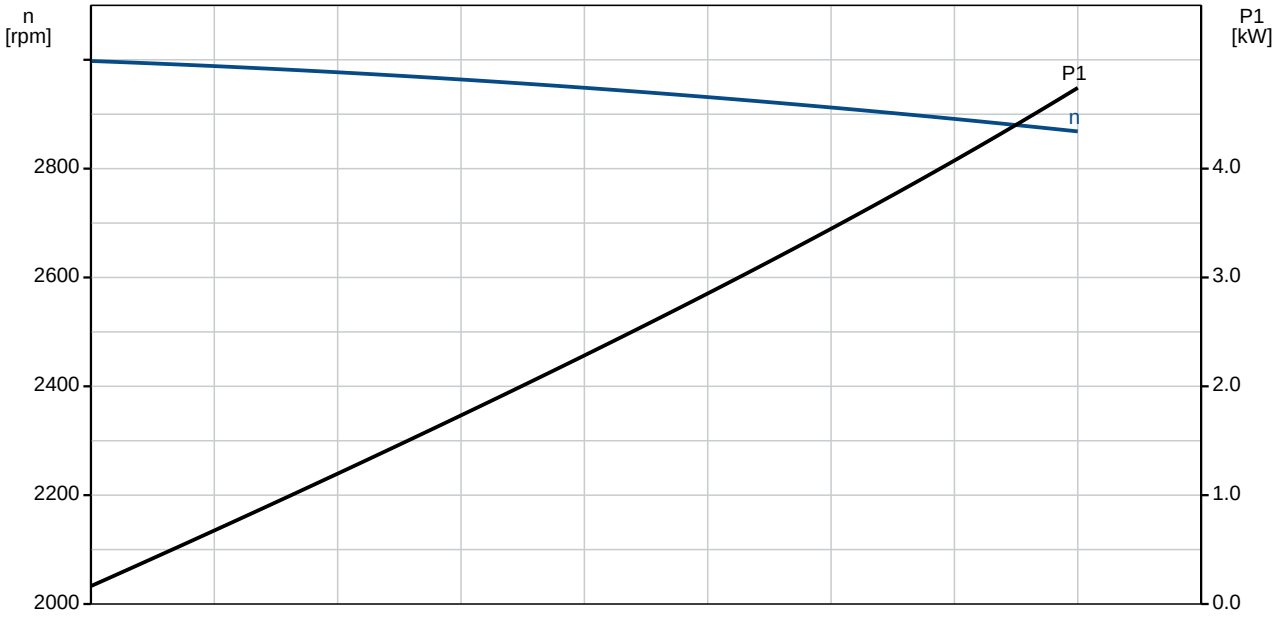
Description	Value
Rated current:	11.0/6.30 A
Starting current:	840-920 %
Cos phi - power factor:	0.87-0.82
Rated speed:	2900-2920 rpm
Efficiency:	IE3 87,1%
Motor efficiency at full load:	87.1 %
Motor efficiency at 3/4 load:	88.0 %
Motor efficiency at 1/2 load:	87.7 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U05510
Controls:	
Frequency converter:	NONE
Others:	
Minimum efficiency index, MEI â‰¥:	0.70
Net weight:	61 kg
Gross weight:	65 kg
Shipping volume:	0.13 m³

Company name:
Created by:
Phone:

Date: 16/02/2019

96500971 CR 10-9 A-FJ-A-E-HQQE 50 Hz

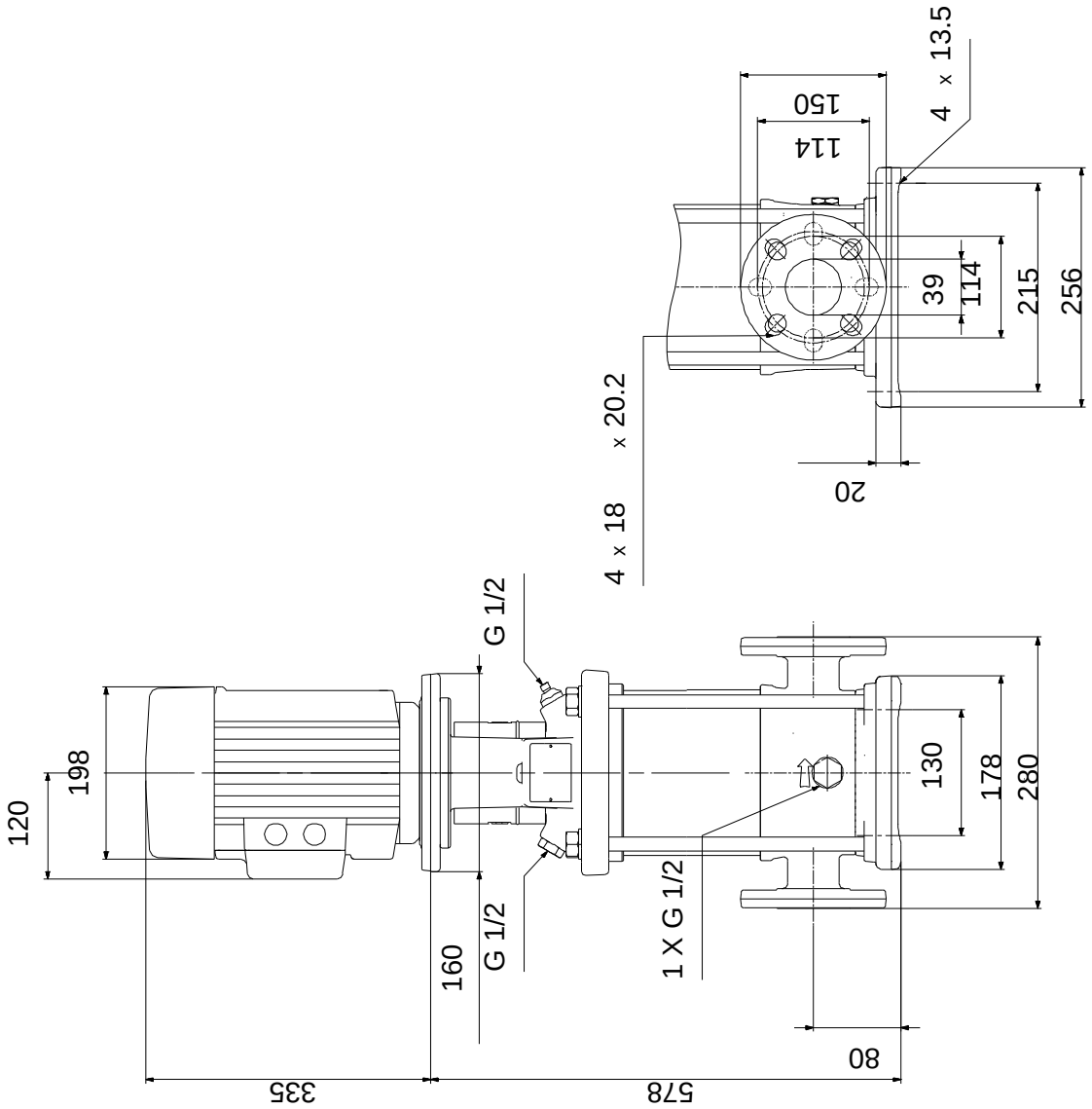




Company name:
Created by:
Phone:

Date: 16/02/2019

96500971 CR 10-9 A-FJ-A-E-HQQE 50 Hz

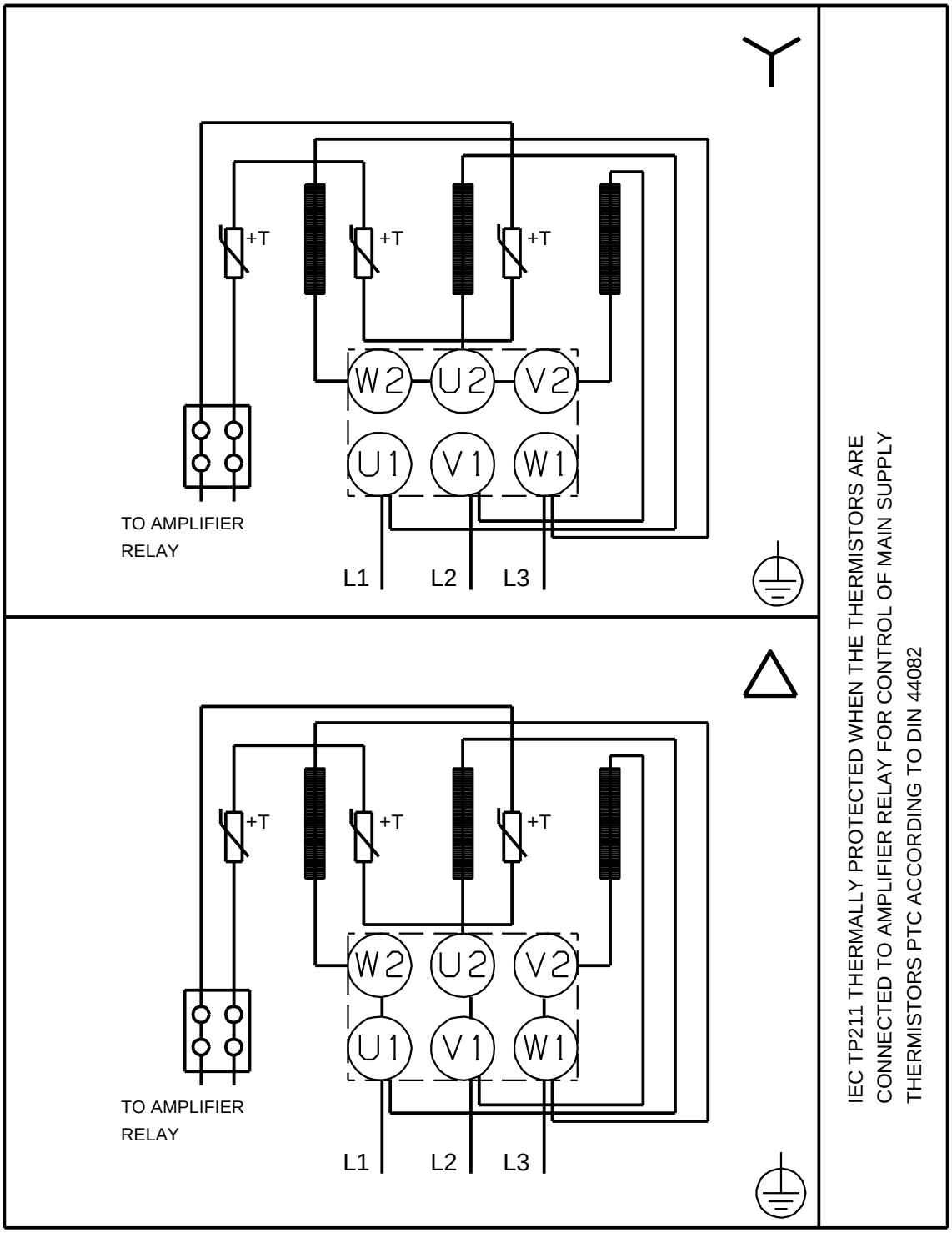


Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Company name:
Created by:
Phone:

Date: 16/02/2019

96500971 CR 10-9 A-FJ-A-E-HQQE 50 Hz

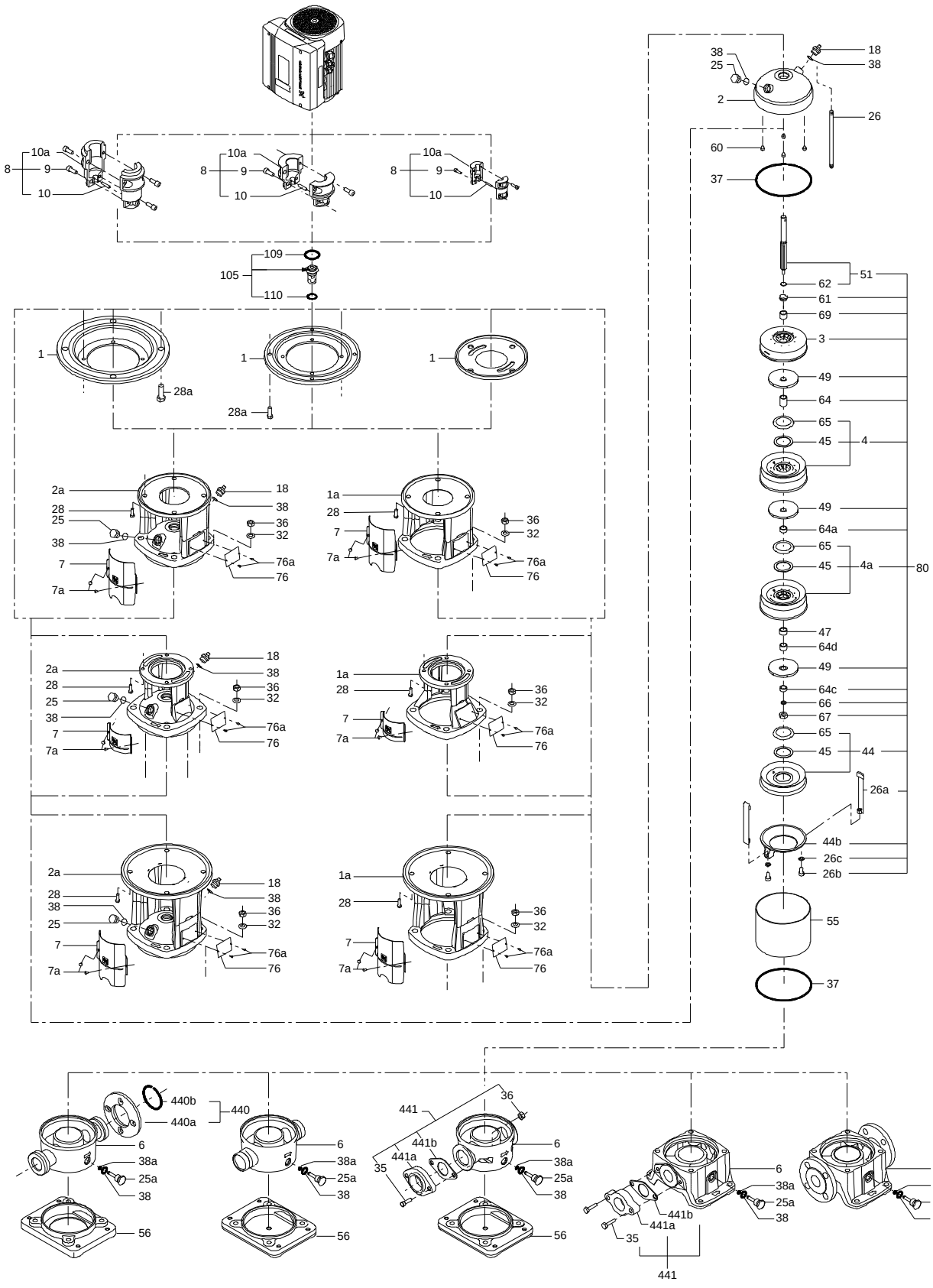


Note! All units are in [mm] unless others are stated.

Company name:
Created by:
Phone:

Date: 16/02/2019

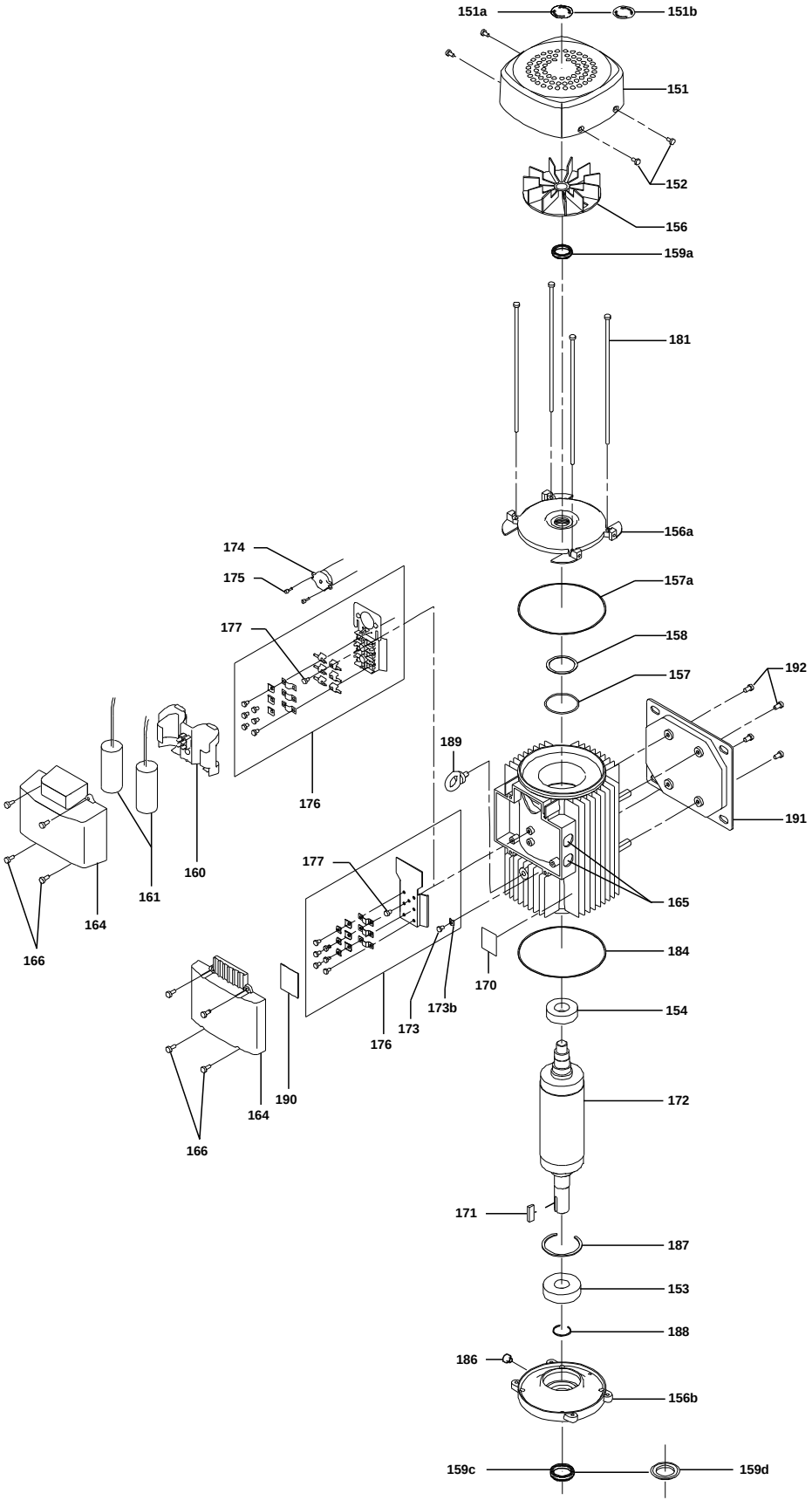
(tm069460 for MECR 10 standard)



Company name:
Created by:
Phone:

Date: 16/02/2019

(tm029184 0505)

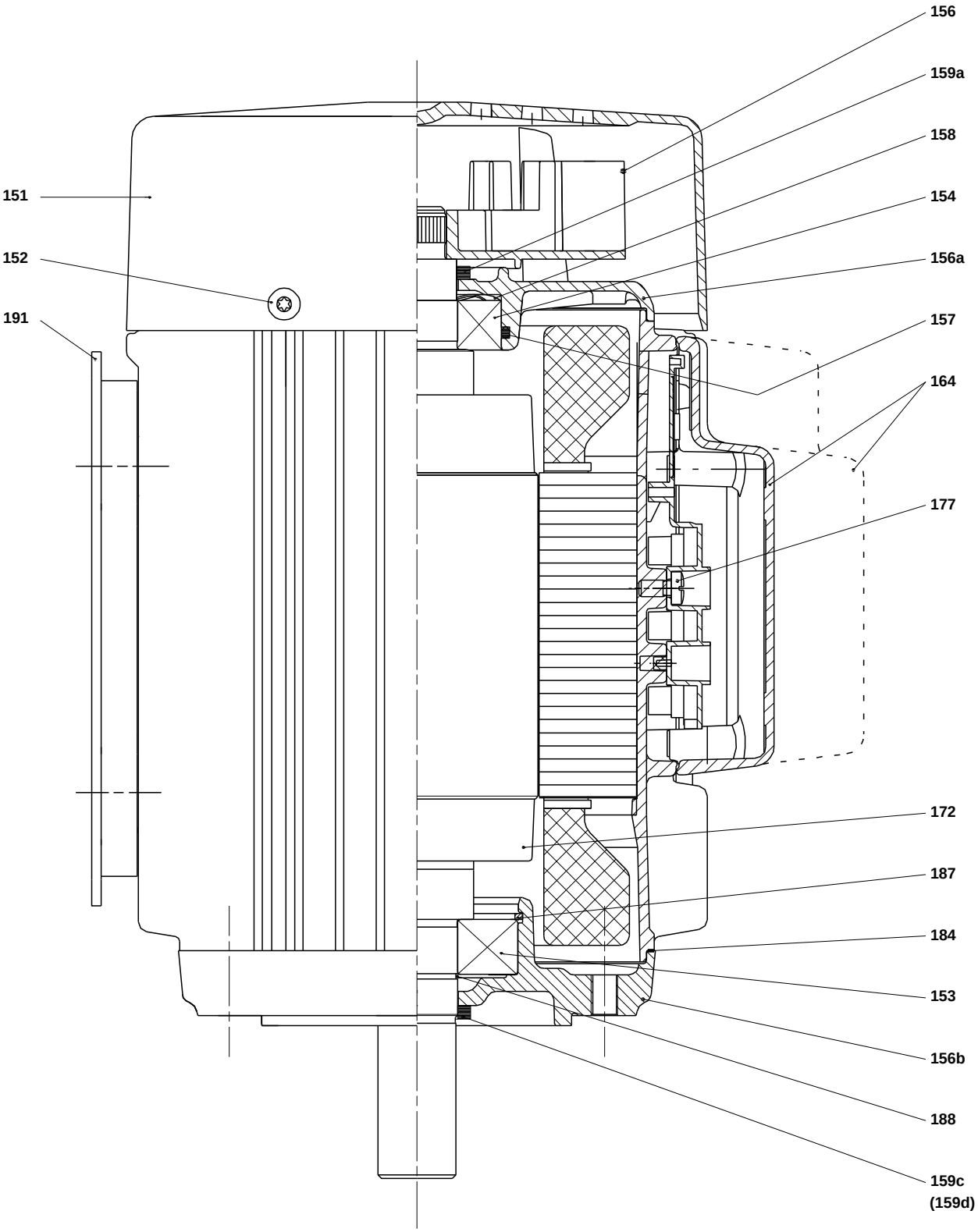


TM029184

Company name:
Created by:
Phone:

Date: 16/02/2019

(tm029178 2004)



TM029178

Company name:
Created by:
Phone:

Date: 16/02/2019

Spare parts CR 10-9, Product No. 96500971
Valid from 1.1.2011 (1152)

	Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
-		Kit, chamber stack			96508411	1	pcs
-	80	Chamber stack		Bearing type: SIC		1	
-	3	Top intermediate chamber					
		Spare, turbulence optimizer KP					
		Guide vane					
-	4a	Intermediate chamber cpl.					
		Guide cup					
		Bearing plate					
		Guide vane					
	3	Intermediate chamber					
	45	Neck ring cpl.					
	47	Bearing bush					
	65	Retainer					
-	4	Intermediate chamber cpl.					
		Guide cup					
		Guide vane					
	3	Intermediate chamber					
	45	Neck ring cpl.					
	65	Retainer					
	26a	Strap cpl.					
	26.c	Washer		Designation: DIN 125A			
				Thickness: 1,6			
	26.b	Hex head screw					
	44b	Inlet part					
-	44a	Inlet part cpl.					
		Guide cup					
		Inlet part					
	45	Neck ring cpl.					
	65	Retainer					
	47	Bearing ring					
	49	Impeller cpl.					
-	51	Shaft, spline, cpl.					
		Bar					
	62	Stop ring					
	64c	Spacing pipe		Length (mm): 12.7			
	64a	Spacing bush		Length (mm): 9.00			
	64.d	Spacer					
	64	Spacing pipe		Length (mm): 29.05			
	66	Wedge lock washer					
	67	Lock nut		Thread: M8			
	69	Spacing bush		Length (mm): 18.00			
-		Kit, coupling			96511350	1	pcs
		Adjusting fork				1	
	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			96509612	1	pcs
	7.a	Combi Slot Torx screw				4	
	7	Coupling guard				2	
-		Kit, gaskets			96509609	1	pcs

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Phone:

Date: 16/02/2019

	Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
		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			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		Material type: SIC	96511922	1	pcs
-	4a	Intermediate chamber cpl.				2	
		Sand Lifter					
		Guide cup					
		Bearing plate					
		Guide vane					
	3	Intermediate chamber					
	45	Neck ring cpl.					
	47	Bearing bush					
	65	Retainer					
	26.c	Washer		Designation: DIN 125A		2	
				Thickness: 1,6			
	26.b	Hex head screw				2	
	45	Neck ring cpl.				12	

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Company name:
Created by:
Phone:

Date: 16/02/2019

Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
47	Bearing ring				2	
62	Retaining ring				1	
64c	Spacing pipe		Length (mm): 12.7		1	
64a	Spacing bush		Length (mm): 9.00		2	
64.d	Spacer				2	
65	Retainer				12	
66	Wedge lock washer				1	
67	Lock nut		Thread: M8		1	
-	Motor			85903730	1	pcs
-	Kit, Ball bearing			96279795	1	
99a	Retaining ring					
99	Retaining ring					
111	Ball bearing					
111	Ball bearing					
157	O-ring		Diameter: 52			
			Material type: NBR			
			Thickness: 3			
158	Waved washer					
-	Kit, end shield			96279831	1	
156a	End shield					
157	O-ring		Diameter: 52			
			Material type: NBR			
			Thickness: 3			
158	Waved washer					
159a	Seal ring					
-	Kit, fan			96279757	1	
156	Fan					
159a	Seal ring					
-	Kit, fan cover			96279826	1	
151b	Label					
151	Fan cover					
152	Pan head thread forming screw					
-	Kit, flange			96279828	1	
156b	Flange					
156.c	Drain plug					
159.c	Seal ring					
-	Kit, retaining ring			96279799	1	
99	Retaining ring					
188	Retaining ring					
-	Kit, shaft seal			96279762	1	
159c	Seal ring					
159a	Seal ring					
-	Kit, staybolts			96279832	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			96279771	1	
164	Terminal box cover w/gasket					
166	Pan head thread forming screw					
2a	Pump head			98785091	1	pcs

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Company name:
Created by:
Phone:

Date: 16/02/2019

	Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
+	3	Bulk, Top intermediate chamber (3 pcs)			96538970	1	pcs
+	3	Top intermediate chamber			98415149	1	pcs
+	4a	Bulk, Intermediate chamber cpl. (10 pcs)			96538850	2	pcs
+	4a	Intermediate chamber cpl.			98371073	2	pcs
-	4	Intermediate chamber cpl.			98371071	6	pcs
	3	Intermediate chamber			98415145	1	
	65	Bulk, Retainer (20 pcs)			98354675	1	
	6	Base			98681110	1	pcs
	7.a	Bulk, Combi Slot Torx screw (1000 pcs)			96886324	4	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	Bulk, Drain plug (10 pcs)			96535881	1	pcs
	26a	Strap cpl.			98984430	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			98450265	4	pcs
	28	Bulk, Hex head screw (4 pcs)		Length (mm): 25	99335941	4	pcs
				Thread: M8			
	32	Bulk, Washer (100 pcs)		Designation: DIN 125 A	98923051	4	pcs
				Internal diameter: 17			
				Outer diameter: 30			
				Thickness: 3			
	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	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			98814595	1	pcs
+	44a	Inlet part cpl.			97973678	1	pcs
	47	Bulk, Bearing ring (10 pcs)			96538795	2	pcs
	49	Bulk, Impeller cpl. (10 pcs)			96538796	9	pcs
	49	Impeller cpl.			98394441	9	pcs
+	51	Shaft, spline, cpl.			98368613	1	pcs
	55	Outer sleeve			98450263	1	pcs
	60	Bulk, Spring (20 pcs)			96538963	4	pcs
	64c	Bulk, Spacing pipe (5 pcs)		Length (mm): 12.7	97980241	1	pcs
	64a	Bulk, Spacing bush (20 pcs)		Length (mm): 9.00	96538950	2	pcs
	64.d	Bulk, Spacer (20 pcs)			97516851	2	pcs
	64	Bulk, Spacing pipe (20 pcs)		Length (mm): 29.05	96535101	6	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)		Length (mm): 18.00	96538948	1	pcs
	76a	Bulk, Rivet (100 pcs)			96620489	1	pcs
	105	Bulk, Shaft seal (11 pcs)		Material type: HQQE	96538914	1	pcs