

16/02/2019

Qty. | Description

1

CRN 10-16 A-P-A-E-HQQE



Product No.: 96501284

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.

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:

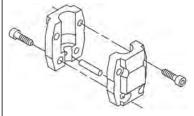
1) Alkaline-based cleaning.

- 2) Zinc phosphating.
- Cathodic electro-deposition.
- 4) Curing to a dry film thickness 18-22 my m.

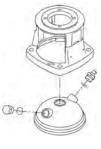
The colour code for the finished product is NCS 9000/RAL 9005.

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 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.



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)



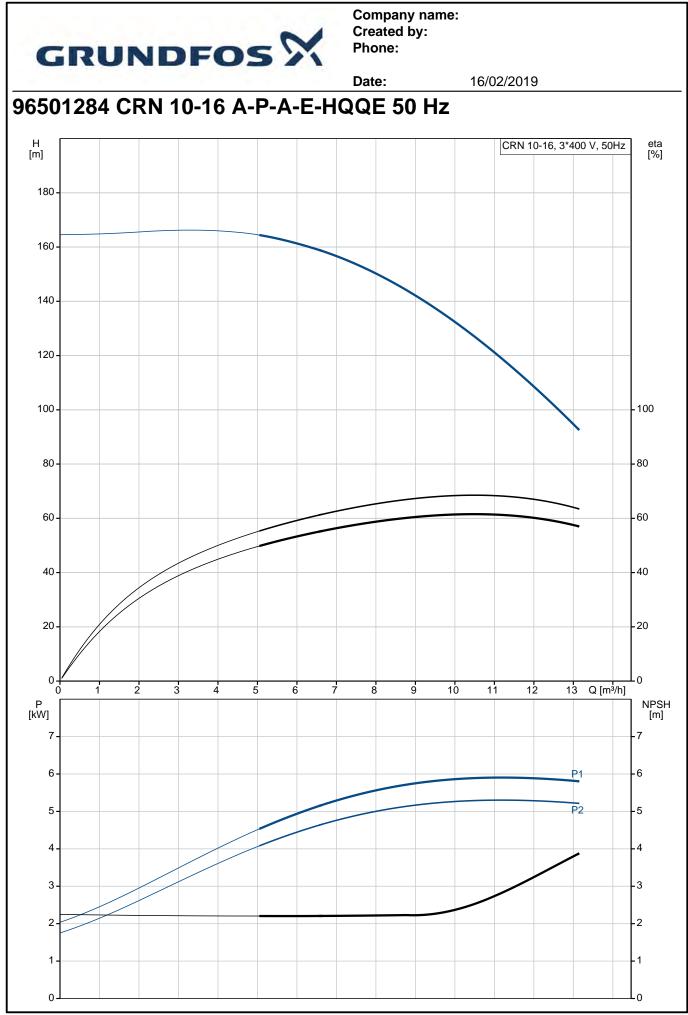
Qty. Description

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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 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. Motor 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). Motor-mounting designation in accordance with IEC 60034-7: IM B 5 (Code I) / IM 3001 (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: NONE Frequency converter: Liquid: Pumped liquid: Water Liquid temperature range: -20 .. 120 °C Liquid temperature during operation: 20 °C Density: 998.2 kg/m³



			Date:	16/02/2019	
•	Description				
	Technical:				
	Pump speed on which pump dat	a are based: 2919	rpm		
	Rated flow:	10 m³/h			
	Rated head:	129.4 m			
	Pump orientation:	Vertical			
	Shaft seal arrangement:	Single			
	Code for shaft seal:	HQQE			
	Approvals on nameplate:	CE, EAC,ACS			
		ISO9906:2012 3B			
	Curve tolerance:	1203300:2012 3B			
	Materials:				
	Base:	Stainless steel			
		EN 1.4408			
		AISI 316			
	Impeller:	Stainless steel			
		EN 1.4401			
		AISI 316			
	Bearing:	SIC			
	Dealing.	010			
	Installation:				
	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			
	Dressure rating for pipe connect				
	Pressure rating for pipe connect Flange size for motor:	FF265			
		11200			
	Electrical data:				
	Motor standard:	IEC			
	Motor type:	132SC			
	IE Efficiency class:	IE3			
	Rated power - P2:	5.5 kW			
	Power (P2) required by pump:	5.5 kW			
	Mains frequency:	50 Hz			
	Rated voltage:	3 x 380-415D V			
	Rated current:	11 A			
		1080-1180 %			
	Starting current:				
	Cos phi - power factor:	0.87-0.82			
	Rated speed:	2920-2940 rpm			
	Efficiency:	IE3 89,2%			
	Motor efficiency at full load:	89.2 %			
	Motor efficiency at 3/4 load:	90.0 %			
	Motor efficiency at 1/2 load:	89.6 %			
	Number of poles:	2			
	Enclosure class (IEC 34-5):	55 Dust/Jetting			
	Insulation class (IEC 85):	F			
	Others:				
	Uners:	%.¥· 0.70			
	Minimum efficiency index, MEI â				
	Minimum efficiency index, MEI â Net weight:	92 kg			
	Minimum efficiency index, MEI â Net weight: Gross weight:	92 kg 114 kg			
	Minimum efficiency index, MEI â Net weight:	92 kg			



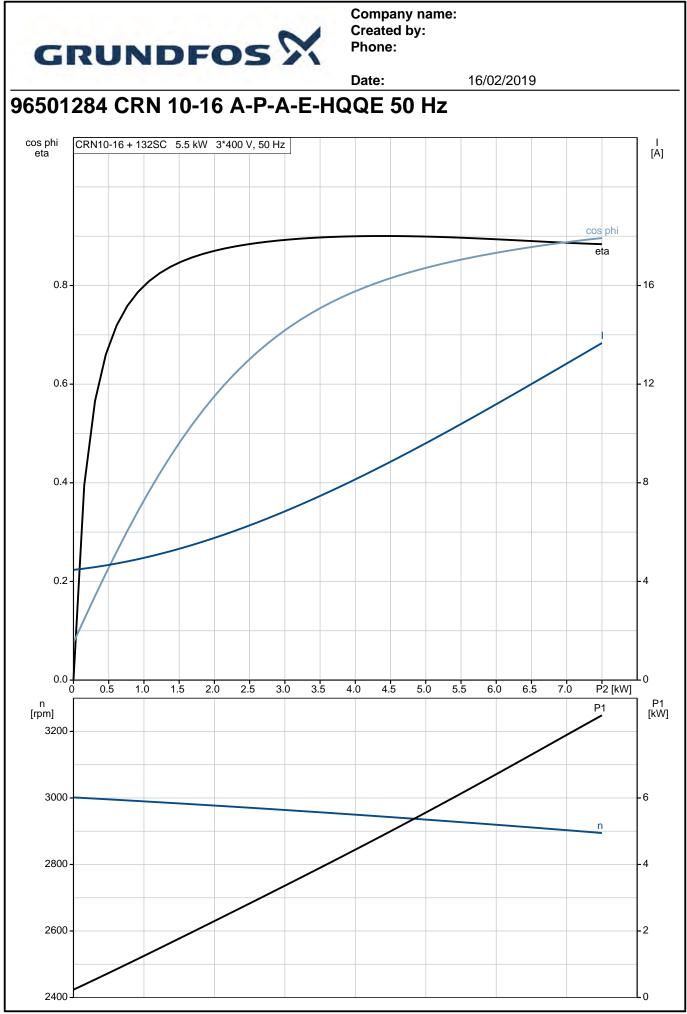


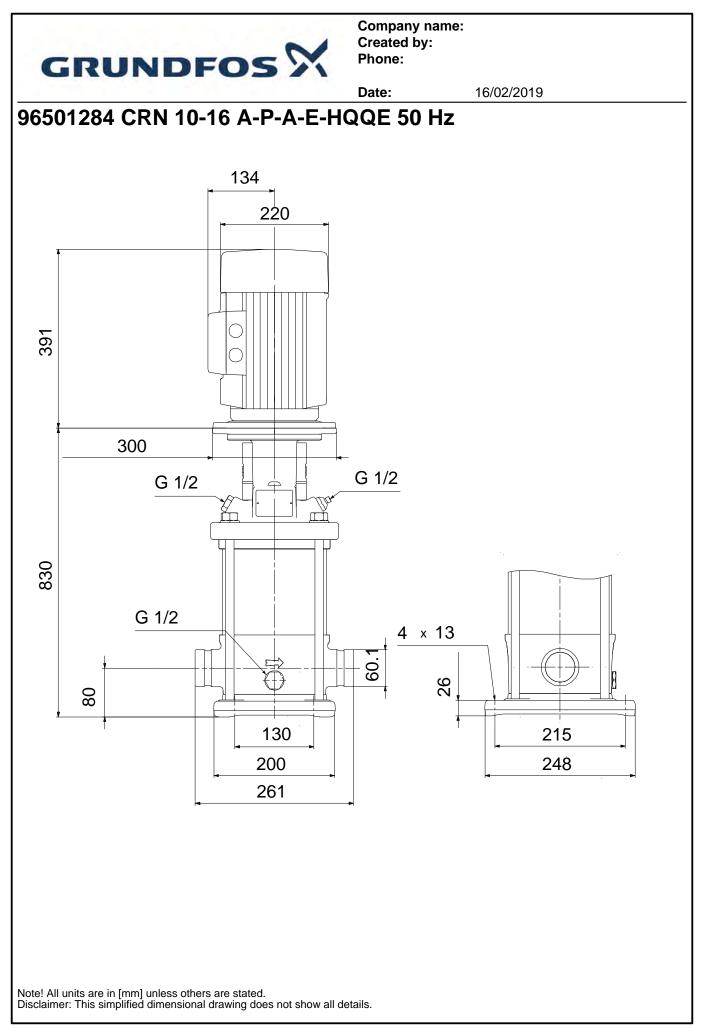
		Date:	16/02/2019
Description	Value	H [m]	CRN 10-16, 3*400 V, 50Hz [%]
General information:	Value	180 -	
Product name:	CRN 10-16 A-P-A-E-HQQE	160 -	
Product No:	96501284		
EAN number:	5700396219035	140 -	
Technical:			
Pump speed on which pump data are based:	2919 rpm	120 -	
Rated flow:	10 m³/h	100 -	
Rated head:	129.4 m		
Head max:	163 m	80 -	
Stages:	16		
Impellers:	16	60 -	60
Number of reduced-diameter impellers:	0	40	40
Low NPSH:	Ν	40 -	40
Pump orientation:	Vertical	20 -	
Shaft seal arrangement:	Single	20	
Code for shaft seal:	HQQE	0	0
Approvals on nameplate:	CE, EAC,ACS	ó ź	4 6 8 10 12 Q [m³/h]
Curve tolerance:	ISO9906:2012 3B	P [kW]	NPSH [m]
Pump version:	A		
Model:	A	6 -	P1 - 6
Materials:		5 -	P2 -5
Base:	Stainless steel	4 -	4
	EN 1.4408	3-	3
	AISI 316		
Impeller:	Stainless steel	2-	-2
	EN 1.4401	1 -	1
	AISI 316	0	o
Material code:	A	1 34	
Code for rubber:	E	220	_
Bearing:	SIC		-
Installation:			
Maximum ambient temperature:	60 °C	331	
Maximum operating pressure:	25 bar		
Max pressure at stated temp:	25 bar / 120 °C	300	
	25 bar / -20 °C	G 1/2	<u>G 1/2</u>
Type of connection:	PJE		
Size of inlet connection:	DN 50	830	
	2 inch	<u>G 1/2</u>	
Size of outlet connection:	DN 50		
	2 inch		
Pressure rating for pipe connection:	PN 50	130 200	215
Flange size for motor:	FF265	261	
Connect code:	Р		
Liquid:			Y
Pumped liquid:	Water		
Liquid temperature range:	-20 120 °C	₿ ^{+⊤} № ^{+⊤} ₿	3-r
Liquid temperature during operation:	20 °C		
Density:	998.2 kg/m³		
Electrical data:			
Motor standard:	IEC	RELAY L1 L2 L	
Motor type:	132SC		
IE Efficiency class:	IE3		
Rated power - P2:	5.5 kW	₿** ∎ ₿** ■	The first state of the state of
Power (P2) required by pump:	5.5 kW		
Mains frequency:	50 Hz	1 🛱 MM	
Rated voltage:	3 x 380-415D V	TO AMPLIFIER RELAY	
Rated current:	11 A		

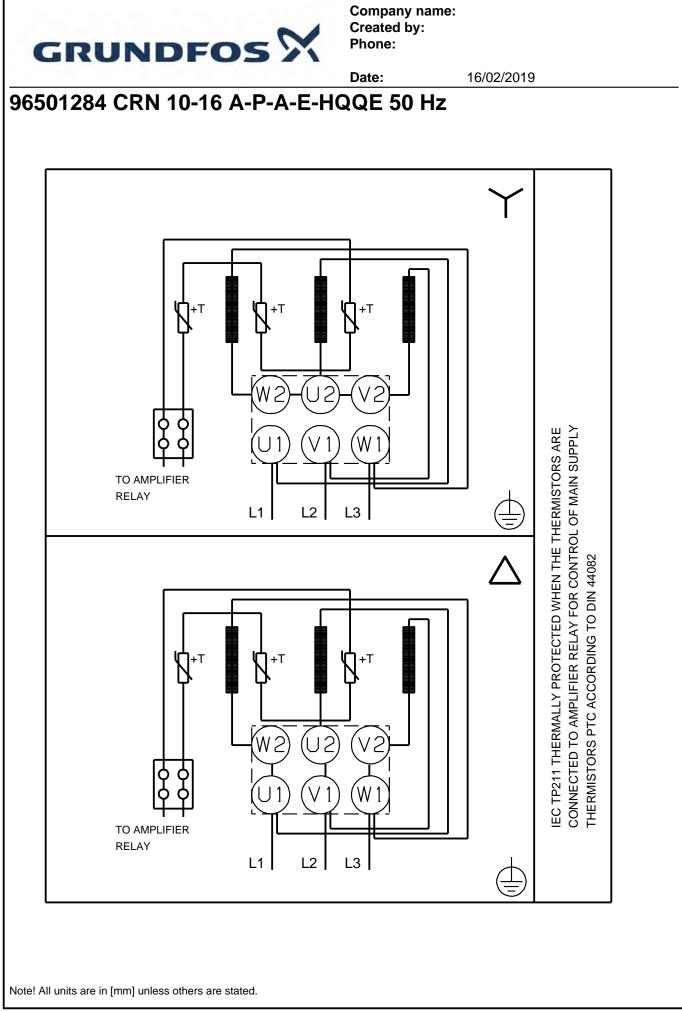
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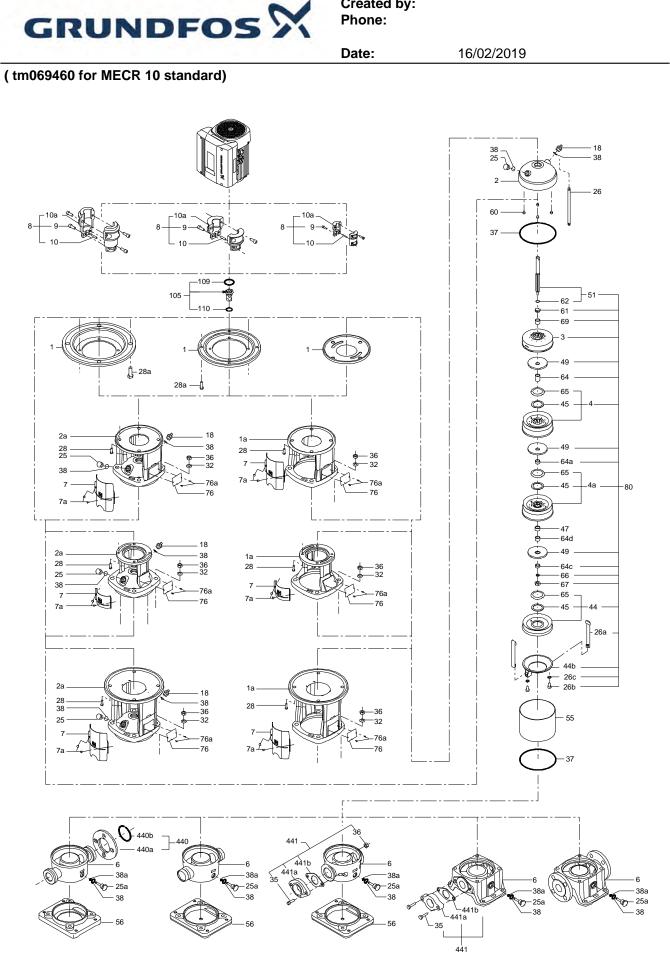
		Date:	16/02/2019
Description	Value		
Starting current:	1080-1180 %		
Cos phi - power factor:	0.87-0.82		
Rated speed:	2920-2940 rpm		
Efficiency:	IE3 89,2%		
Motor efficiency at full load:	89.2 %		
Motor efficiency at 3/4 load:	90.0 %		
Motor efficiency at 1/2 load:	89.6 %		
Number of poles:	2		
Enclosure class (IEC 34-5):	55 Dust/Jetting		
Insulation class (IEC 85):	F		
Motor protec:	PTC		
Motor No:	85U17417		
Controls:			
Frequency converter:	NONE		
Others:			
Minimum efficiency index, MEI ≥:	0.70		
Net weight:	92 kg		
Gross weight:	114 kg		
Shipping volume:	0.321 m ³		
Danish VVS No.:	385913160		



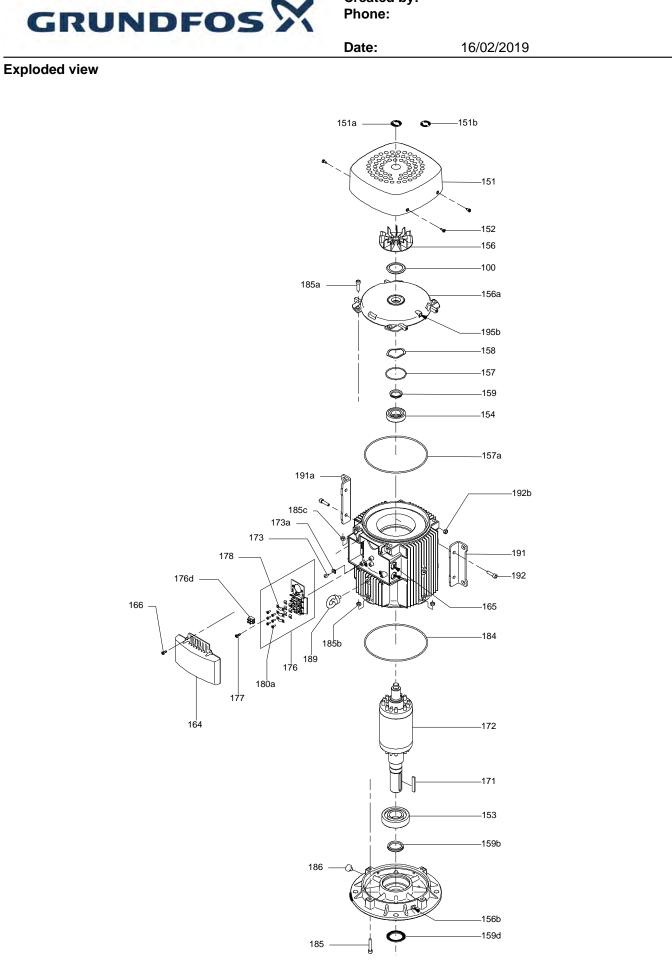






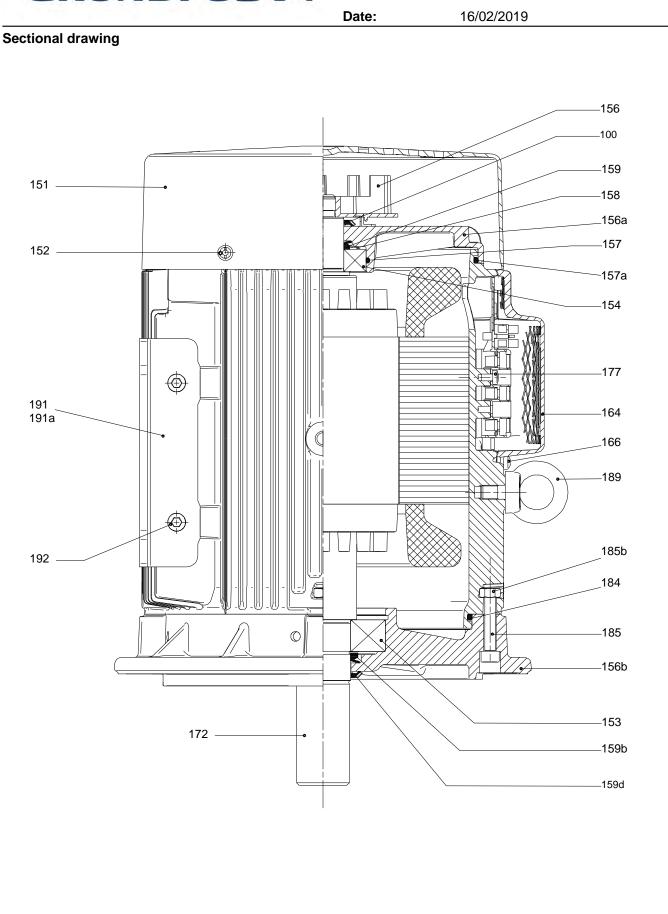


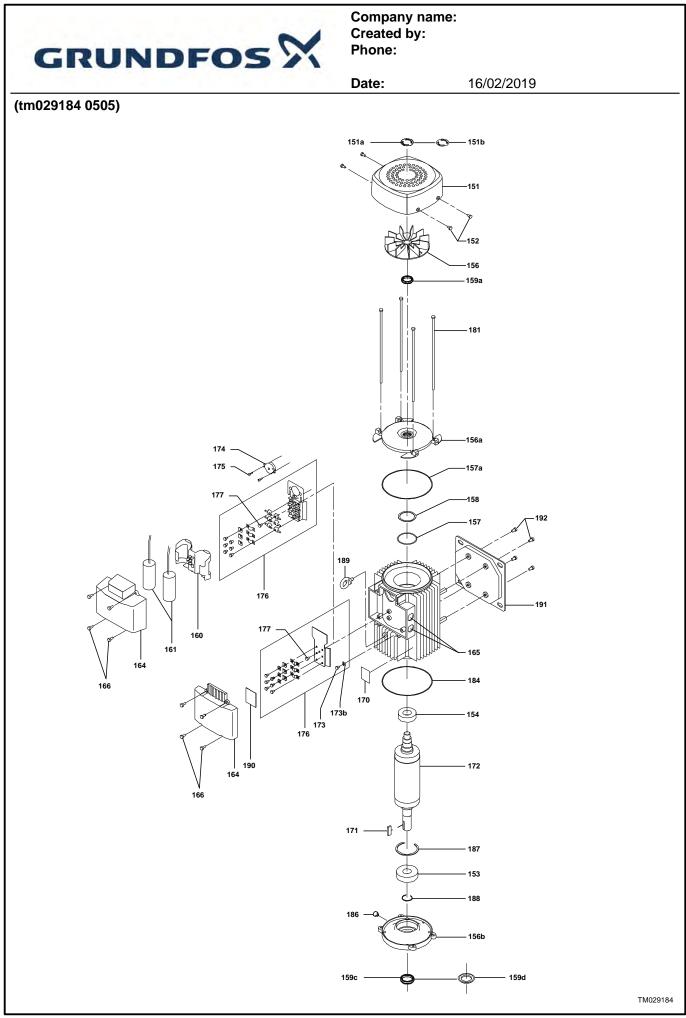






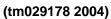
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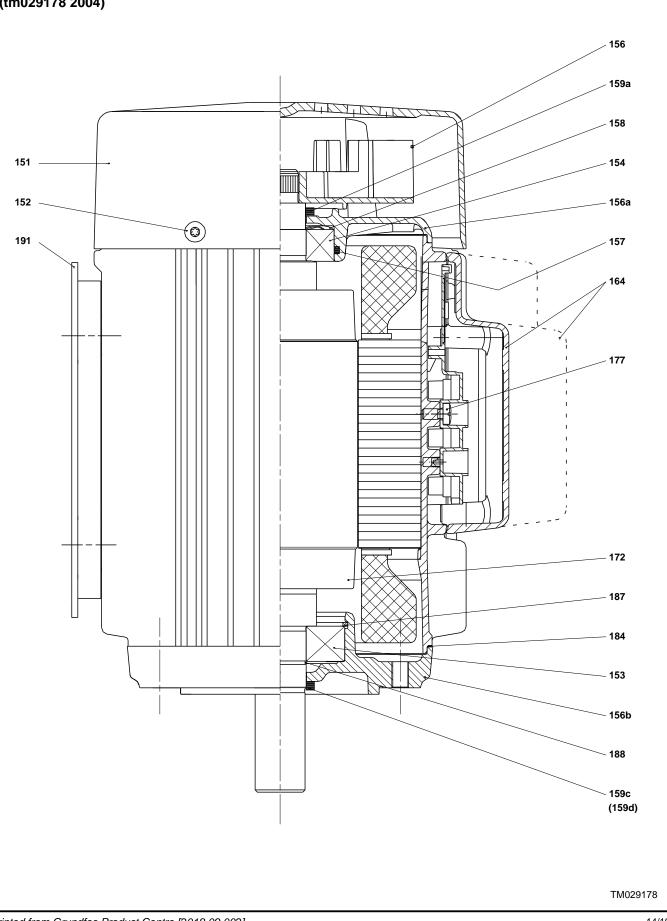






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Spare parts CRN 10-16, Product No. 96501284 Valid from 1.1.2011 (1152)

Pos	Description	Annotation	Classification Data	Part no.	Qty.	
	Kit, chamber stack			96491732	1	pcs
80	Chamber stack				1	
3	Top intermediate chamber					
	Guide vane					
	Cover plate					
3	Top intermediate chamber					
4a	Intermediate chamber cpl.					
	Sand Lifter					
	Guide cup					
	Bearing plate					
	Guide vane					
3	Intermediate chamber					
45	Neck ring cpl.					
47	Bearing bush					
65	Retainer					
4	Intermediate chamber cpl.					
3	Intermediate chamber					
45	Neck ring cpl.					
65	Retainer					
00 26a	Strap cpl.					
26a 26.c	Washer		Designation: DIN 1254			
∠0.C	VV ASI IEI		Designation: DIN 125A			
001			Thickness: 1,6			
26.b	Hex head screw					
44b	Inlet part					
44a	Inlet part cpl.					
	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		č , <i>i</i>			
67	Lock nut		Thread: M8			
69	Spacing bush		Length (mm): 18.00			
	Kit, coupling			96511351	1	pcs
	Adjusting fork				. 1	•
8	Coupling				1	
9	Hex socket head cap screw		Designation: DIN 912		1	
5			Length (mm): 25			
			Thread: M10			
10a	Coupling half		THEAU. WIT			
			Diameter: 5			
10	Shaft pin					
			Length (mm): 26	00500040		
7	Kit, coupling guard			96509613		pcs
7.a	Combi Slot Torx screw				4	
7	Coupling guard				. 2	
	Kit, gaskets			96509609	1	pcs



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			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
	C C		Material type: EPDM		
			Thickness: 2,4		
38	O-ring		Diameter: 16,3		1
	- 5		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
	c		Material type: EPDM		•
			Thickness: 2,4		
38	O-ring		Diameter: 16,3		2
	C mig		Material type: EPDM		-
			Thickness: 2,4		
	Kit, shaft seal HQQE			96511844	1 pcs
	Emery cloth			20011011	1
	Grinding device				1
105	Shaft seal		Material type: HQQE		1
100	Kit, wear parts		matonar type. Haa	96511925	
4a	Intermediate chamber cpl.			00011020	3
.u	Sand Lifter				U
	Guide cup				
	Bearing plate				
	Guide vane				
3	Intermediate chamber				
5 45					
	Neck ring cpl.				
47	Bearing bush				
65 20 a	Retainer		Designation: DIN (05)	N	0
26.c	Washer		Designation: DIN 1254	4	2
	Llouis and		Thickness: 1,6		^
26.b 45	Hex head screw Neck ring cpl.				2
					19



os	Description	Annotation Classification Data	Part no. Qty. Unit
17	Bearing ring		3
62	Retaining ring		1
64c	Spacing pipe	Length (mm): 12.7	1
64a	Spacing bush	Length (mm): 9.00	3
64.d	Spacer		3
65	Retainer		19
66	Wedge lock washer		1
67	Lock nut	Thread: M8	1
	Motor		85904020 1 pcs
	Kit, bearing cpl.		96279803 1
111	Ball bearing	Designation: 620	
153	Angular-contact bearing		
157	O-ring	Diameter: 62	
	C	Material type: NBR	
		Thickness: 3	
158	Waved washer		
	Kit, end shield		96279790 1
156a	End shield		
157	O-ring	Diameter: 62	
	g	Material type: NBR	
		Thickness: 3	
158	Waved washer	THICKICSS. O	
159a	Seal ring		
1554	Kit, eyebolt		96279825 1
189	Eyebolt		30273023
103	Kit, fan		96279758 1
156	Fan		90279758
159c	Seal ring		
159c	Seal ring		
1594			06070756 1
151b	Kit, fan cover Label		96279756 1
1510	Fan cover		
151			
152	Pan head thread forming screw		06070784 4
156b	Kit, flange Flange		96279784 1
1500 159.c	-		
186	Drain plug		00070001 1
407	Kit, retaining ring		96279801 1
187	Retaining ring		
188	Retaining ring		00070704 4
450-1	Kit, shaft seal		96279764 1
159d	Seal ring		
159c	Seal ring		00070700 1
101	Kit, staybolts		96279793 1
181	Pan head staybolt		
170	Kit, terminal board		96279769 1
173a	Base	.	
173	Pan head thread forming screw	Designation: CO	
176	Slot cheese head screw	Designation: CO	INBI 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		

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Pos	Description	Annotation	Classifi	cation Data		y. Unit
	Motor				85901556 1	pcs
	Kit, bearing cpl.				96279803	1
111	Ball bearing			Designation: 62	206.2Z.C3.SYN	
153	Angular-contact bearing					
157	O-ring			Diameter: 62		
-	- 5			type: NBR		
			Thickne			
158	Waved washer		THICKIE	33. 5		
100					00070700	4
. = 0	Kit, end shield				96279790	1
156a	End shield					
157	O-ring			Diameter: 62		
				type: NBR		
			Thickne	ss: 3		
158	Waved washer					
159a	Seal ring					
	Kit, eyebolt				96279825	1
189	Eyebolt					
	Kit. fan				96279758	1
156	Fan				50213130	•
159c	Seal ring					
159a	Seal ring				A	
	Kit, fan cover				96279756	1
151b	Label					
151	Fan cover					
152	Pan head thread forming screw					
	Kit, flange				96279784	1
156b	Flange					
159.c	Seal ring					
186	Drain plug					
100	Kit, retaining ring				96279801	1
407					90279001	1
187	Retaining ring					
188	Retaining ring					
	Kit, shaft seal				96279764	1
159d	Seal ring					
159c	Seal ring					
	Kit, staybolts				96279793	1
181	Pan head staybolt					
	Kit, terminal board				96279769	1
173a	Base					
173	Pan head thread forming screw			Designation: C	OMBI TORX T25	
176	Slot cheese head screw			-	OMBI TORX T25	
170	SIDE CHEESE HEAD SCIEW			-		
			-	(mm): 10		
	<u> </u>		Thread:	IVI5		
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				002.0112	-
166	Pan head thread forming screw					
					00014054 4	P 2 2
1a	Pump head				98914854 1	pcs
1	Flange				99104283 1	pcs
2	Pump cover				98481138 1	pcs
3	Top intermediate chamber				98371084 1	pcs
4a	Intermediate chamber cpl.				98371088 3	pcs
4	Intermediate chamber cpl.				98371086 12	pcs



			Date:	16/02/2019		
l	Pos	Description Annota	tion Classification Data	Part no.	Qty.	Unit
(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
2	25	Bulk, Plug (10 pcs)		96536013	1	pcs
2	26a	Strap cpl.		98969439	2	pcs
2	26.c	Bulk, Washer (4 pcs)	Designation: DIN 125A	99262704	2	pcs
			Thickness: 1,6			
1	26.c	Washer	Designation: DIN 125A	96586880	2	pcs
			Thickness: 1,6			
	26	Staybolt		98982886	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			
4	44b	Inlet part		98814593	1	pcs
	44a	Inlet part cpl.		98890953	1	pcs
4	47	Bulk, Bearing ring (10 pcs)		96538795	3	pcs
4	49	Impeller cpl.		98459841	16	pcs
+	51	Shaft, spline, cpl.		98368641	1	pcs
ļ	55	Outer sleeve		98812645	1	pcs
;	56	Base plate		98824711	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	3	pcs
(64.d	Bulk, Spacer (20 pcs)		97516851	3	pcs
(64	Bulk, Spacing pipe (20 pcs)	Length (mm): 29.05	96535101	12	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