

**Date:** 15/02/2019

Qty. | Description

1 CR 3-33 A-FGJ-A-E-HQQE



Note! Product picture may differ from actual product

Product No.: 96516670

The pump head and base are in cast iron – all other wetted parts are in stainless steel. Pipe connection is via DIN flanges.

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

## Further product details

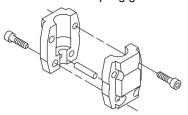
Steel, cast iron and aluminium components have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An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

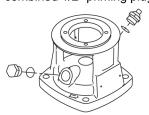
The colour code for the finished product is NCS 9000/RAL 9005.

#### **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.



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.



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Secondary seal material: EPDM (ethylene-propylene rubber)

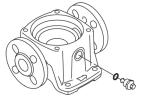
EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.



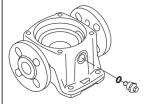
The shaft seal is screwed into the pump head.

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 combined drain plug and bypass valve. The pump is secured to the foundation by four bolts through the base plate.



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### 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**

#### Liquid:

Pumped liquid: Water Liquid temperature range: -20 .. 120 °C Liquid temperature during operation: 20 °C



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Density: 998.2 kg/m³

Technical:

Pump speed on which pump data are based: 2902 rpm

Rated flow: 3 m³/h
Rated head: 162.5 m
Code for shaft seal: HQQE
Approvals on nameplate: CE,TR

Curve tolerance: ISO9906:2012 3B

Materials:

Base: Cast iron

EN-JL1030 A48-30 B

Impeller: Stainless steel

EN 1.4301 AISI 304

Bearing: SIC

Installation:

Maximum ambient temperature: 60 °C

Max pressure at stated temp: 25 bar / 120 °C

25 bar / -20 °C

Type of connection: DIN

Size of inlet connection: DN 25 / DN 32 Pressure rating for pipe connection: PN 16 / PN 25

Flange size for motor: FT130

Electrical data:

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 220-240 D/380-415 Y 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 ≥: 0.7

Net weight: 55.3 kg

Gross weight: 59.9 kg

Shipping volume: 0.11 m³

Danish VVS No.: 385901033

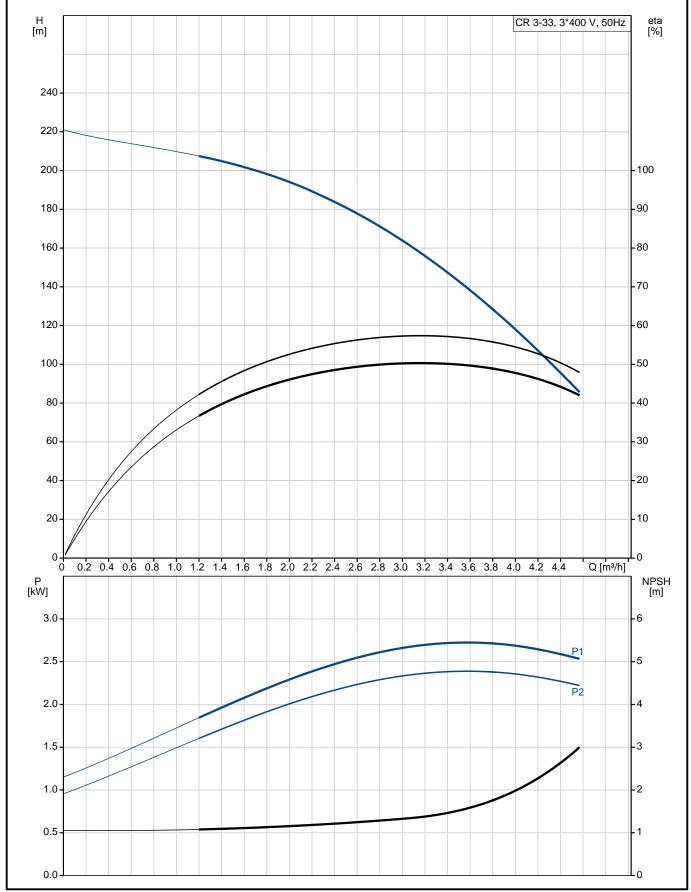
Swedish RSK No.: 5824843

Norwegian NRF no.: 9040235



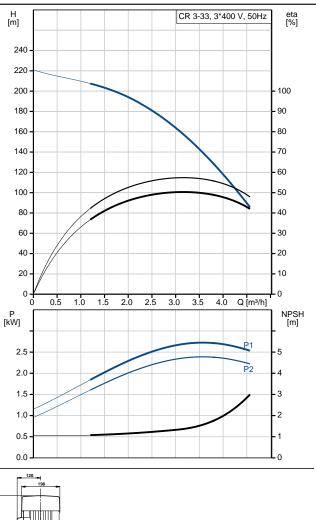
**Date:** 15/02/2019

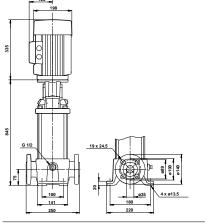
# 96516670 CR 3-33 A-FGJ-A-E-HQQE 50 Hz

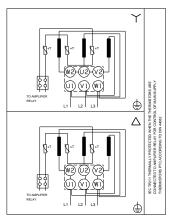




Description	Value
General information:	valuo
	CR 3-33
Product name:	A-FGJ-A-E-HQQE
Product No:	96516670
EAN number:	5700396747637
Technical:	
Pump speed on which pump data are	0000
based:	2902 rpm
Rated flow:	3 m³/h
Rated head:	162.5 m
Head max:	219.7 m
Stages:	33
Impellers:	33
Low NPSH:	N
Code for shaft seal:	HQQE
Approvals on nameplate:	CE,TR
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
Materials:	
Base:	Cast iron
	EN-JL1030
	A48-30 B
Impeller:	Stainless steel
· ·	EN 1.4301
	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
Installation:	•
Maximum ambient temperature:	60 °C
Max pressure at stated temp:	25 bar / 120 °C
	25 bar / -20 °C
Type of connection:	DIN
Size of inlet connection:	DN 25 / DN 32
Pressure rating for pipe connection:	PN 16 / PN 25
Flange size for motor:	FT130
Connect code:	FGJ
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-20 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m³
Electrical data:	
Motor type:	100LC
IE Efficiency class:	IE3
Rated power - P2:	3 kW
Power (P2) required by pump:	3 kW
Mains frequency:	50 Hz
	3 x 220-240 D/380-415
Rated voltage:	YV
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 %







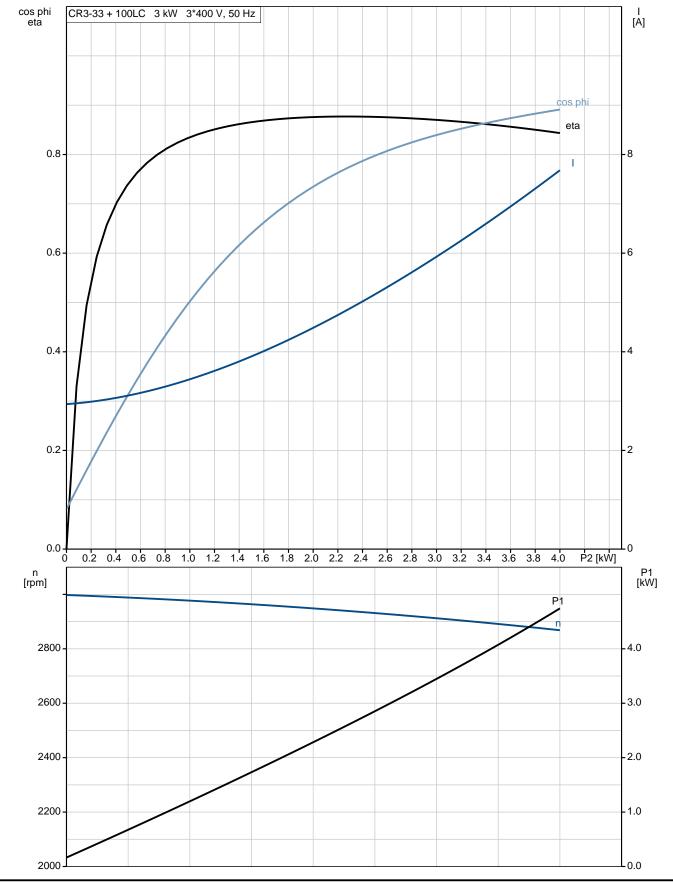


Description	Value
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U05510
Others:	
Minimum efficiency index, MEI ≥:	0.7
Net weight:	55.3 kg
Gross weight:	59.9 kg
Shipping volume:	0.11 m³
Danish VVS No.:	385901033
Swedish RSK No.:	5824843
Norwegian NRF no.:	9040235



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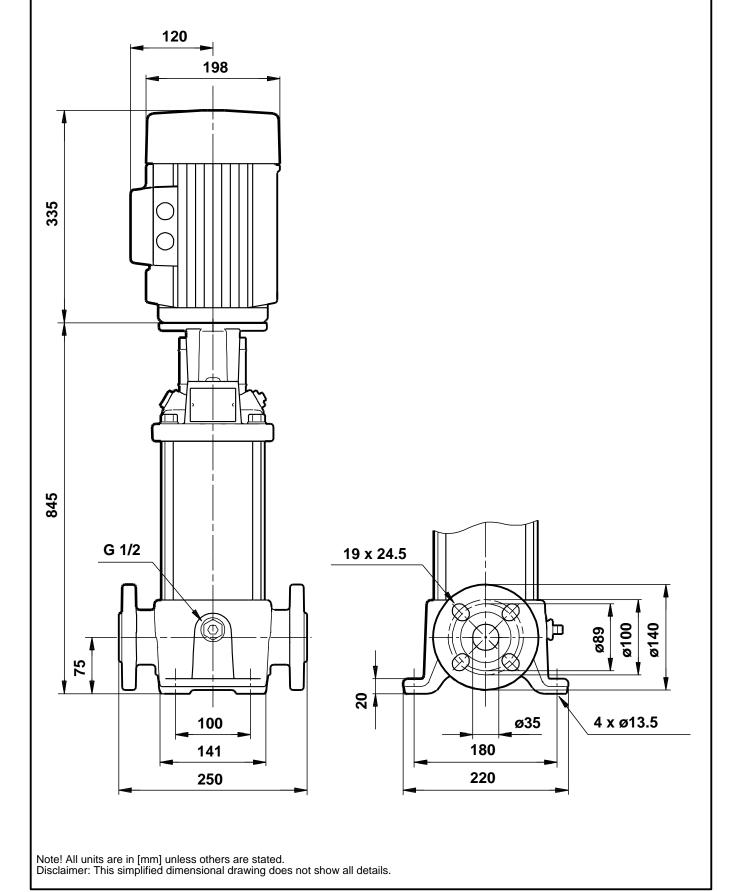
# 96516670 CR 3-33 A-FGJ-A-E-HQQE 50 Hz





**Date:** 15/02/2019

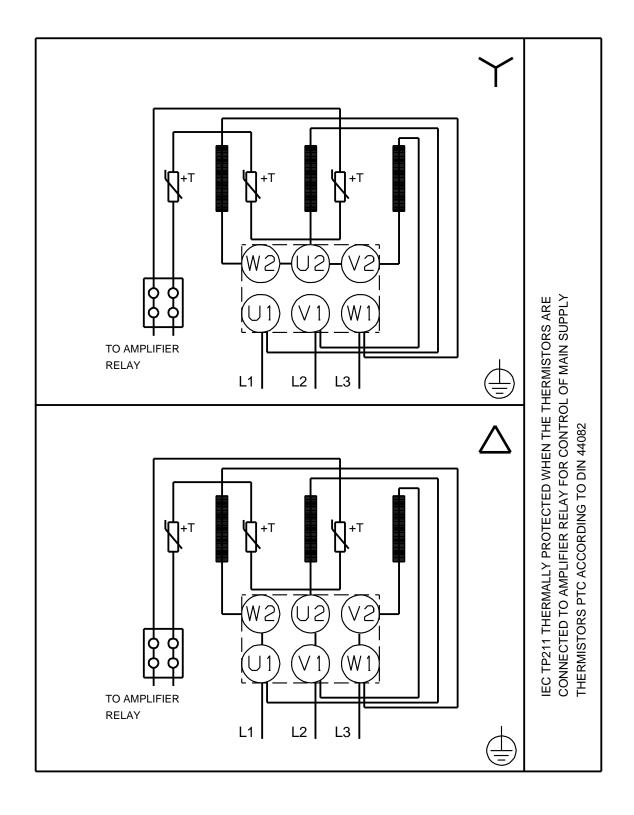
# 96516670 CR 3-33 A-FGJ-A-E-HQQE 50 Hz





**Date:** 15/02/2019

## 96516670 CR 3-33 A-FGJ-A-E-HQQE 50 Hz



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

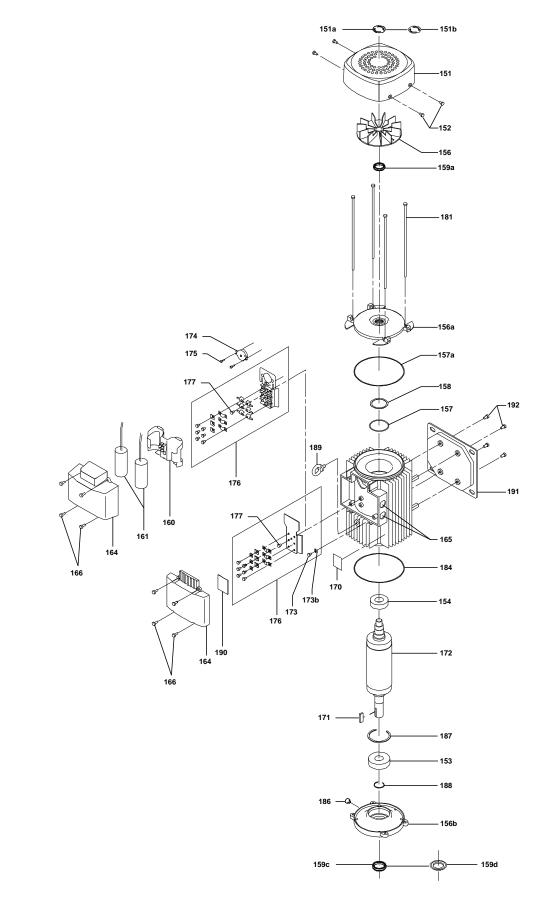


15/02/2019 Date: (TM069451 for SMCR standard)



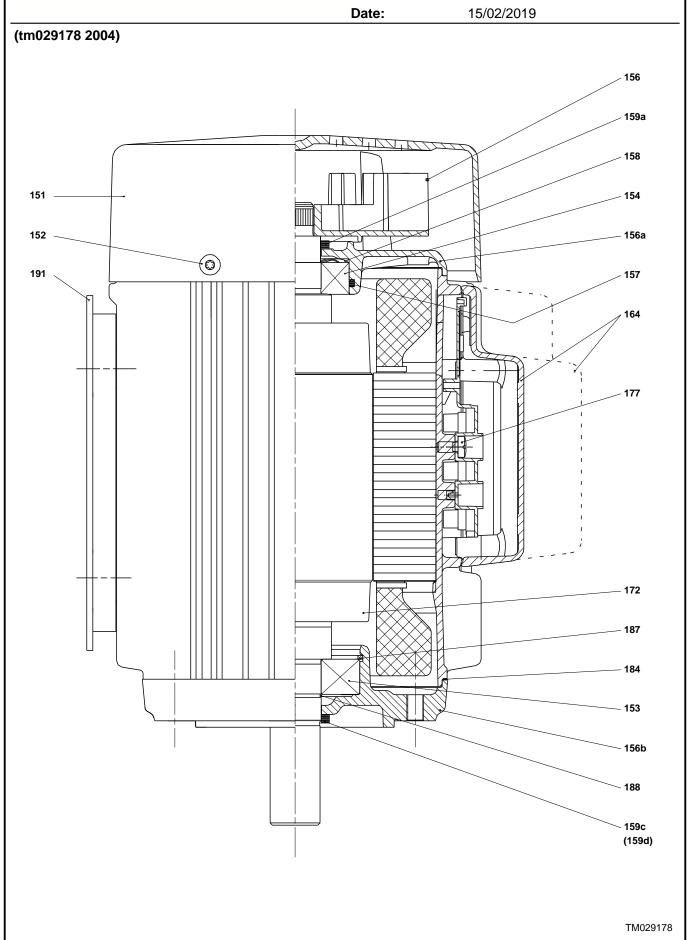
**Date:** 15/02/2019

(tm029184 0505)



TM029184







**Date:** 15/02/2019

# Spare parts CR 3-33, Product No. 96516670 Valid from 1.1.2011 (1152)

Pos	Description		Part no.	Qty		Ur
0	Kit, coupling		00415063	1		рс
9	Hex socket head cap screw	Designation: DIN 912			4	
		Length (mm): 25				
40	0 " 1 "	Thread: M8			_	
10a	Coupling half	D			2	
10	Shaft pin	Diameter: 5			1	
		Length (mm): 26				
	Kit, coupling guard		96505131	1		po
7.a	Combi Slot Torx screw				4	
7	Coupling guard				2	
	Kit, gaskets		96455090	1		po
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				
	Kit, plug		96505133	1		р
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	
50	O mily	Material type: EPDM			•	
		Thickness: 2,4				
38	O-ring	Diameter: 16,3			2	
50	O-IIIIg	Material type: EPDM			_	
		Thickness: 2,4				
	Kit, shaft seal HQQE		96455086	1		n
105	Shaft seal		30403000			po
105		Material type: HQQE  Material type: SILICON CARBIDE	06455004		1	_
10	Kit, wear parts	iviateriai type. SILICON CARBIDE	90400094			po
4a	Chamber w. bearing cpl.				4	
4a	Intermediate chamber					
45	Neck ring					
65	Neck ring retainer					
45	Neck ring				32	
47	Bearing ring, rotating				4	
64d	Spacing pipe	Internal diameter: 12,85			4	
		Outer diameter: 15,85				
		Length (mm): 4,50				
64c	Clamp, splined	Internal diameter: 8,5			1	



Pos	Description	Annotation Classification Data Part no. Qty Outer diameter: 15	/. U
GE.	Neck ring retainer	Outer diameter. 15	32
65 66	<u> </u>		1
67	Wedge lock washer Lock nut	Thread, MO	
-	Gasket	Thread: M8	1
441b		05000700 4	2
	Motor	85903730 1	po
	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	
	<del>- ····g</del>	Material type: NBR	
		Thickness: 3	
158	Waved washer	THICKNESS. 0	
159a	Seal ring		
1034		96279757	1
150	Kit, fan	96279757	ı
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	332.51.02	•
159a	Seal ring		
. 55u	Kit, staybolts	96279832	1
181	Pan head staybolt	90219032	•
101	Kit, terminal board	96279769	1
172-		902/9/09	1
173a	Base	Designation COMPLEONY TOP	
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	50219111	•
166	Pan head thread forming screw	00004400	
2a	Pump head	98681106 1	po
4a	Bulk, Chamber w. bearing cpl. (3 pcs)	98371208 4	po
4a	Bulk, Chamber w. bearing cpl. (5 pcs)	97690601 4	pc



	Pos	Description	Annotation	Classification Data	Part no.	Qty.	Unit
+	4a	Bulk, Chamber w. bearing cpl. (5 pcs)			97690590	4	pcs
+	4a	Chamber w. bearing cpl.			98371207	4	pcs
-	4	Bulk, Chamber cpl. (5 pcs)			97690020	28	pcs
	45	Bulk, Neck ring (24 pcs)			965361	94 1	
	65	Bulk, Retainer (24 pcs)			982700	)18 1	
+	4	Bulk, Chamber cpl. (10 pcs)			96547662	28	pcs
+	4	Chamber cpl.			98371206	28	pcs
+	5a	Bulk, Chamber cpl. (10 pcs)			98371205	1	pcs
+	5a	Chamber cpl.			96588148	1	pcs
	6	Base			96588146	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)		- 3 (	96547461	1	pcs
+	18	Air vent screw			95061351	1	pcs
	25	Bulk, Plug (10 pcs)			96536013		pcs
-	25a	Drain plug w/bypass valve			96588242		pcs
	38	Bulk, O-ring (10 pcs)		Diameter: 16,3	991988		•
		2 a, 2g (10 pos)		Material type: EPDM	00.000		
				Thickness: 2,4			
	38	Bulk, O-ring (50 pcs)		Diameter: 16,3	994127	727 1	
		Dain, o mig (66 p66)		Material type: EPDM	001127		
				Thickness: 2,4			
	26	Bulk, Staybolt (4 pcs)		Length (mm): 616	98698637	4	pcs
	20	Built, Glaybolt (4 pos)		Thread: M12	00000001	-	poo
	26	Staybolt		Length (mm): 616	98986335	1	pcs
	20	Glaybolt		Thread: M12	30300333	-	pcs
	28	Bulk, Hex head screw (4 pcs)		Length (mm): 25	99335941	4	pcs
	20	Built, Flex fledd solew (4 pos)		Thread: M8	00000041	-	poo
	36	Bulk, Nut (20 pcs)		Thread: M12	96620479	4	pcs
	37	Bulk, O-ring (24 pcs)		Till Cad. W12	96547656		pcs
	38	Bulk, O-ring (10 pcs)		Diameter: 16,3	99198815		pcs
	00	Baix, O mig (10 poo)		Material type: EPDM	00100010	_	poo
				Thickness: 2,4			
	38	Bulk, O-ring (50 pcs)		Diameter: 16,3	99412727	2	pcs
	00	Built, O fing (66 pee)		Material type: EPDM	00412121	_	poo
				Thickness: 2,4			
+	44a	Bulk, Guide vane cpl. (5 pcs)		11110K11C33. 2,4	96547659	1	pcs
F	44a 47	Bulk, Bearing ring, rotating (10 pcs)			97905743		pcs
	47	Bearing ring, rotating			96547649		pcs
	49	Bulk, Impeller cpl. (5 pcs)			98426771		pcs
	49	Bulk, Impeller cpl. (5 pcs)			98394269		· ·
	49	Bulk, Impeller cpl. (10 pcs)  Bulk, Impeller cpl. (24 pcs)			96547599		pcs
							pcs
	49	Impeller cpl.			98394415		pcs
	51	Shaft, spline, cpl.			98368528		pcs
	55	Outer sleeve			98811263		pcs
	60	Formed wire spring		latamat di 1 0 5	96547664	1	pcs
	64c	Bulk, Clamp, splined (5 pcs)		Internal diameter: 8,5	98496968	1	pcs
		B    0       (5:		Outer diameter: 15	007001		
	64a	Bulk, Spacing pipe (24 pcs)			96536198		pcs
	66	Bulk, Wedge lock washer (10 pcs)			96536157		pcs
	67	Bulk, Lock nut (10 pcs)		Thread: M8	98277008		pcs
	67	Bulk, Lock nut (10 pcs)		Thread: M8	98275969		pcs
+	105	Bulk, Shaft seal (15 pcs)		Material type: HQQE	96983415	1	pcs