

CR45-13-2 A-F-A-E-HQQE 3x400/690 50 HZ

Grundfos pump 96122820



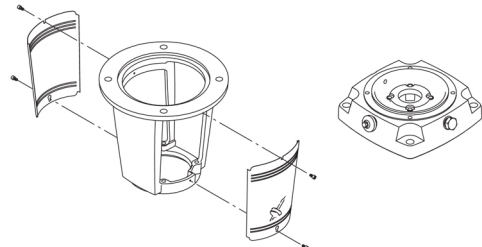
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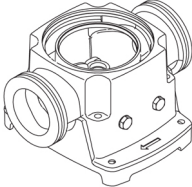
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info@lenntech.com

tel. +31 152 610 900

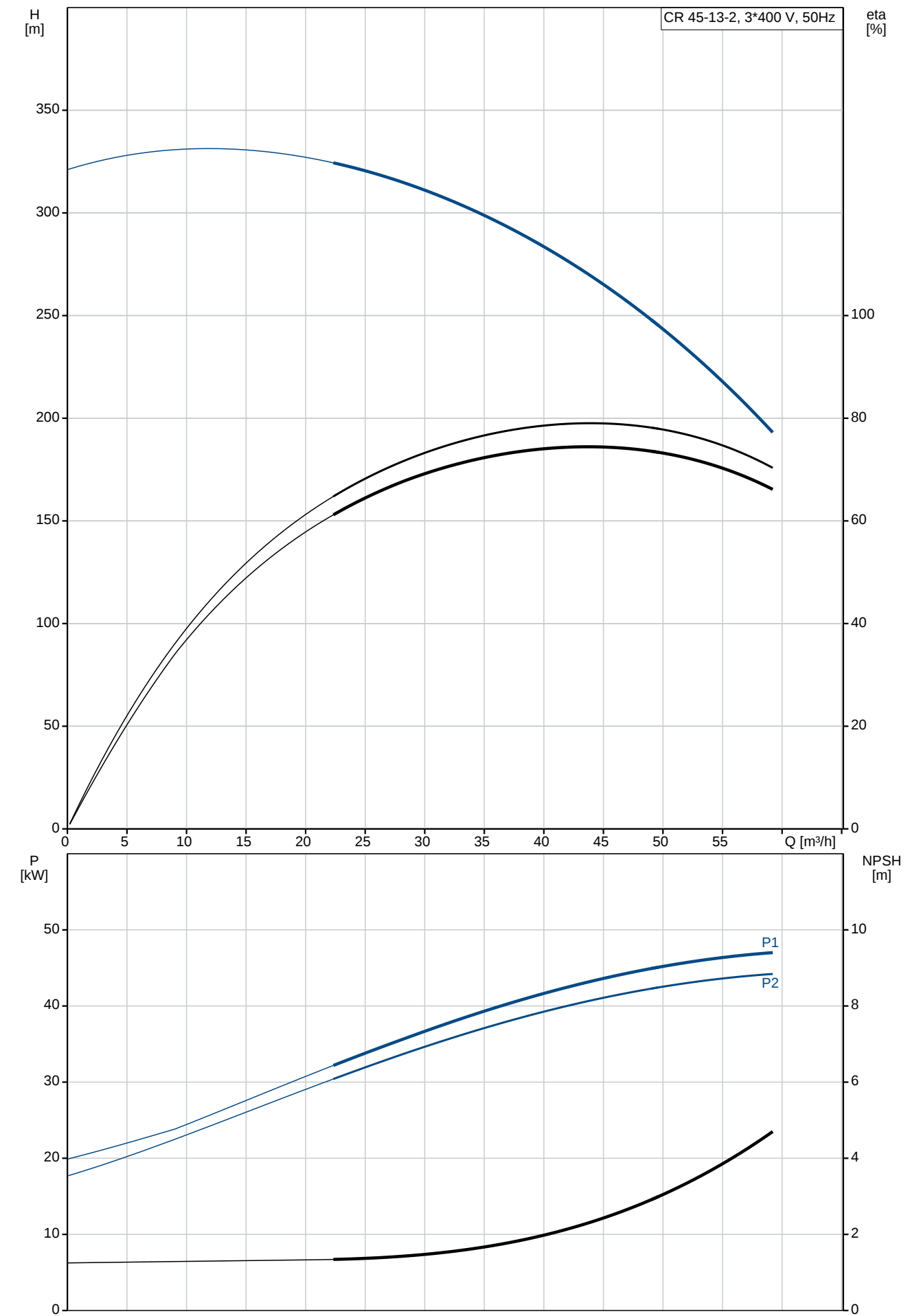
fax. +31 152 616 289

Position	Qty.	Description
	1	CR 45-13-2 A-F-A-E-HQQE  Product No.: On request 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 long split coupling connects the pump and motor shaft. It is enclosed in the motor stool by means of two coupling guards. The long coupling makes it possible to replace the shaft seal without removing the motor from the pump.  The motor stool connects the pump head and motor. 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. Secondary seal material: EPDM (ethylene-propylene rubber)

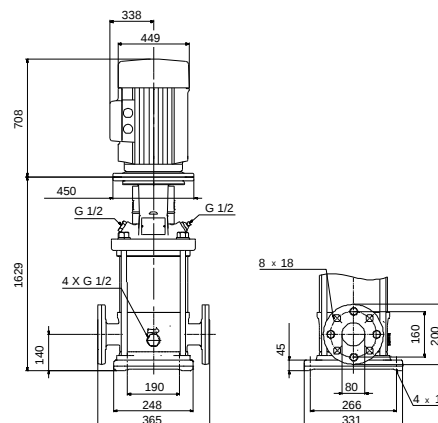
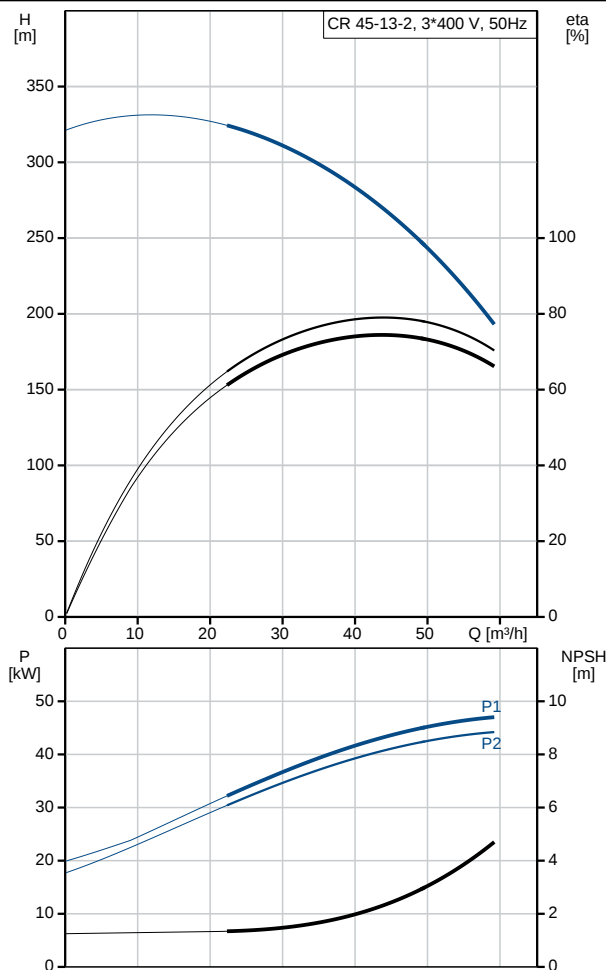
Position	Qty.	Description
		EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.  The shaft seal is retained in the pump head by a cover and screws. It can be replaced without removing the motor. The chambers and impellers are made of stainless-steel sheet. The chambers 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. Both the inlet and the outlet side of the base have two pressure gauge tappings. The pump is secured to the foundation by four bolts through the base plate. The flanges are fastened to the base by means of locking rings.  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. A variable speed drive makes adjustment of pump performance to any duty point possible. If the motor is to be connected to a variable speed drive, the pump must be ordered with an electrically insulated motor bearing. Technical data Controls: Frequency converter: NONE Liquid: Pumped liquid: Water Liquid temperature range: -30 .. 120 °C Liquid temperature during operation: 20 °C Density: 998.2 kg/m³ Technical: Rated flow: 45 m³/h Rated head: 262.6 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:

Position	Qty.	Description
		Base: Cast iron EN 1563 EN-GJS-500-7 ASTM A536 80-55-06 Impeller: Stainless steel EN 1.4301 AISI 304 Bearing: SIC Support bearing: Graflon Installation: Maximum ambient temperature: 55 °C Maximum operating pressure: 33 bar Max pressure at stated temp: 33 bar / 120 °C 33 bar / -30 °C Type of connection: DIN Size of inlet connection: DN 80 Size of outlet connection: DN 80 Pressure rating for pipe connection: PN 40 Flange size for motor: FF400 Electrical data: Motor standard: IEC Motor type: SIEMENS IE Efficiency class: IE3 Rated power - P2: 45 kW Power (P2) required by pump: 45 kW Mains frequency: 50 Hz Rated voltage: 3 x 380-420D/660-725Y V Rated current: 81,0-74,0/47,0-43,0 A Starting current: 690-690 % Cos phi - power factor: 0.89 Rated speed: 2960 rpm Efficiency: IE3 94,0% Motor efficiency at full load: 94.0-94.0 % Motor efficiency at 3/4 load: 94.5-94.5 % Motor efficiency at 1/2 load: 94.4-94.4 % 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: 464 kg Gross weight: 566 kg Shipping volume: 1.24 m³ Danish VVS No.: 385907132

On request CR 45-13-2 A-F-A-E-HQQE 50 Hz

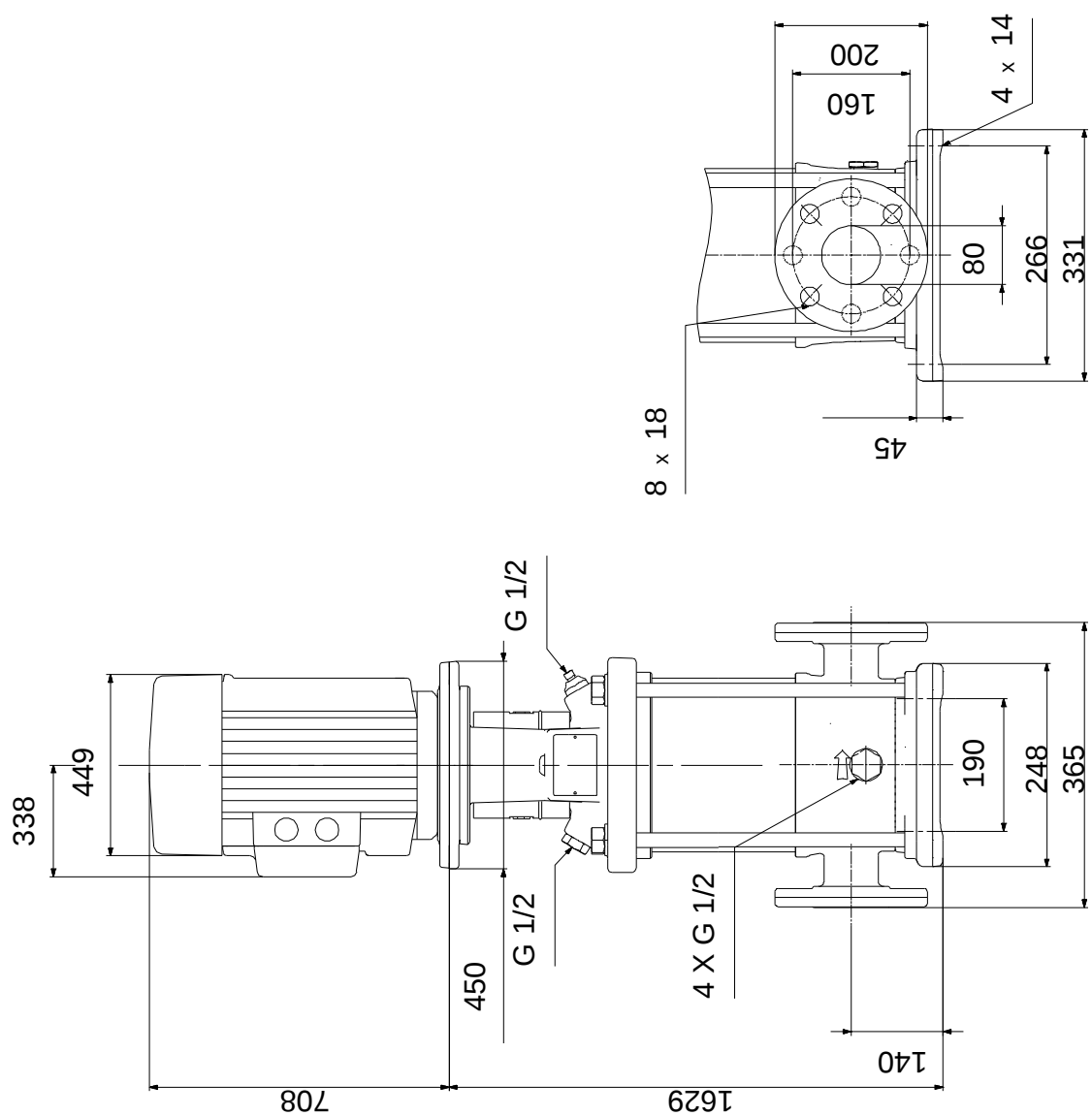


Description	Value
General information:	
Product name:	CR 45-13-2 A-F-A-E-HQQE
Product No:	On request
EAN number:	On request
Technical:	
Rated flow:	45 m ³ /h
Rated head:	262.6 m
Stages:	13
Impellers:	13
Number of reduced-diameter impellers:	2
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals on nameplate:	CE, EAC, ACS
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	B
Materials:	
Base:	Cast iron
	EN 1563 EN-GJS-500-7
	ASTM A536 80-55-06
Impeller:	Stainless steel
	EN 1.4301
	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
Support bearing:	Graflon
Installation:	
Maximum ambient temperature:	55 °C
Maximum operating pressure:	33 bar
Max pressure at stated temp:	33 bar / 120 °C
	33 bar / -30 °C
Type of connection:	DIN
Size of inlet connection:	DN 80
Size of outlet connection:	DN 80
Pressure rating for pipe connection:	PN 40
Flange size for motor:	FF400
Connect code:	F
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-30 .. 120 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m ³
Electrical data:	
Motor standard:	IEC
Motor type:	SIEMENS
IE Efficiency class:	IE3
Rated power - P2:	45 kW
Power (P2) required by pump:	45 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-420D/660-725Y V
Rated current:	81,0-74,0/47,0-43,0 A
Starting current:	690-690 %
Cos phi - power factor:	0.89
Rated speed:	2960 rpm
Efficiency:	IE3 94,0%
Motor efficiency at full load:	94.0-94.0 %
Motor efficiency at 3/4 load:	94.5-94.5 %
Motor efficiency at 1/2 load:	94.4-94.4 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting



Description	Value
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	81U15336
Controls:	
Frequency converter:	NONE
Others:	
Minimum efficiency index, MEI ≥:	0.7
Net weight:	464 kg
Gross weight:	566 kg
Shipping volume:	1.24 m ³
Danish VVS No.:	385907132

On request CR 45-13-2 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.

Exploded view



Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

Exploded view (TM057026 for MGE model H/I)



Parts list CR 45-13-2, Product No. On request
Valid from 2.3.2011 (1109)

Pos	Description	Annotation	Données de classification	Référence	Quantité	Unité
+	Motor				1	pcs
- 1	Basic unit				1	pcs
- 2a	Pump head cpl.				1	
2	Pump head				1	
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M10			
- 18	Air vent screw				1	
	Plug					
	Spindle					
23	Plug				1	
37	O-ring				1	
58	Cover				1	
60	Spring				4	
100	O-ring		Diameter: 16,3		2	
			Material type: EPDM			
			Thickness: 2,4			
- 6b	Base cpl.		Rubber type: EPDM		1	
	Bearing ring, stationary				1	
6	Base				1	
25	Plug				4	
31	Hex socket head cap screw				1	
32	Washer		Designation: DIN 125A		1	
			Internal diameter: 6,4			
			Outer diameter: 12,0			
			Thickness: 1,6			
37	O-ring				1	
38	O-ring		Diameter: 16,3		4	
			Material type: EPDM			
			Thickness: 2,4			
26	Staybolt		Length (mm): 1207		4	
			Thread: M16			
36	Hex nut		Thread: M16		4	
55	Outer sleeve		Outer diameter: 216,0		1	
			Length (mm): 1063,5			
66a	Washer		Designation: DIN 125 A		4	
			Internal diameter: 17			
			Outer diameter: 30			
			Thickness: 3			
- 1a	Motor stool cpl.				1	pcs
1a	Motor stool				1	
7	Coupling guard				2	
7a	Socket button head screw				4	
- 8	Coupling cpl.		Dimension: 22/55		1	
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M10			
10a	Coupling half				2	
28	Hex head screw		Length (mm): 60		4	
			Thread: M16			
28	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 50			
			Thread: M10			
32a	Washer		Designation: DIN 125 A		8	
			Internal diameter: 17			
			Outer diameter: 30			
			Thickness: 3			
36	Hex nut		Thread: M16		4	
- 76	Nameplate set				1	pcs

Pos	Description	Annotation	Données de classification	Référence	Quantité	Unité
76	Plate				1	
76a	Rivet				2	
- 105	Shaft seal		Material type: HQQE		1	pcs
	Adjusting fork				1	
109	O-ring				1	
110	O-ring		Diameter: 21,5		1	
			Material type: EPDM			
			Thickness: 4,25			
- 200	Flange cpl.				2	pcs
- 201	Flange				1	
201	Flange				1	
203	Lock ring				1	

Disclaimer: The information about the Grundfos pump in this document may be outdated.

Data may be subject to alterations without further notice.

Please contact us to verify the data above is still accurate/up-to-date.

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info@lenntech.com

<https://www.lenntech.com>

tel. +31 152 610 900

fax. +31 152 616 289