

## CR90-1 A-F-A-V-HQQV 3x400/690 50 HZ Grundfos pump 96124087




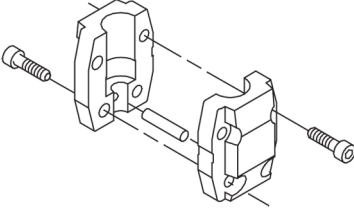
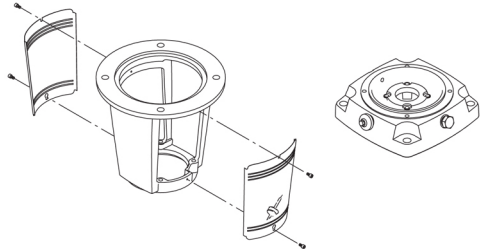
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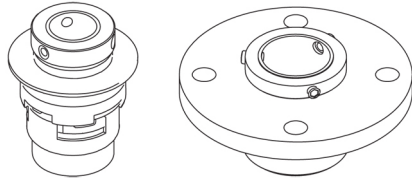
<https://www.lenntech.com/grundfos/CRFAM/96124087/CR-90-1-A-F-A-V-HQQV.html>

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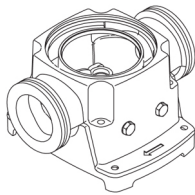
Position	Qty.	Description
	1	<p data-bbox="323 163 598 197"><b>CR 90-1 A-F-A-V-HQQV</b></p>  <p data-bbox="323 488 598 521">Product No.: On request</p> <p data-bbox="323 544 1428 656">Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). The pump head and base 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.</p> <p data-bbox="323 689 1053 723">The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p data-bbox="323 745 638 779"><b>Further product details</b></p> <p data-bbox="323 790 1444 891">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:</p> <ol data-bbox="323 902 813 1014" style="list-style-type: none"> <li>1) Alkaline-based cleaning.</li> <li>2) Zinc phosphating.</li> <li>3) Cathodic electro-deposition.</li> <li>4) Curing to a dry film thickness 18-22 my m.</li> </ol> <p data-bbox="323 1014 1029 1048">The colour code for the finished product is NCS 9000/RAL 9005.</p> <p data-bbox="323 1070 406 1104"><b>Pump</b></p> <p data-bbox="323 1115 1412 1171">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.</p>  <p data-bbox="323 1406 1452 1462">The motor stool connects the pump head and motor. The pump head has a combined 1/2" priming plug and vent screw.</p>  <p data-bbox="323 1731 1420 1832">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.</p> <p data-bbox="323 1843 470 1877">Primary seal:</p> <ul data-bbox="359 1877 917 1933" style="list-style-type: none"> <li>• Rotating seal ring material: silicon carbide (SiC)</li> <li>• Stationary seat material: silicon carbide (SiC)</li> </ul> <p data-bbox="323 1933 1428 1989">This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.</p> <p data-bbox="323 2000 893 2022">Secondary seal material: FKM (fluorocarbon rubber)</p> <p data-bbox="323 2022 1428 2078">FKM has excellent resistance to oils and chemicals. Above 90 °C, FKM should only be used in media without water.</p>



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.

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 .. 90 °C  
 Liquid temperature during operation: 20 °C  
 Density: 998.2 kg/m<sup>3</sup>

#### Technical:

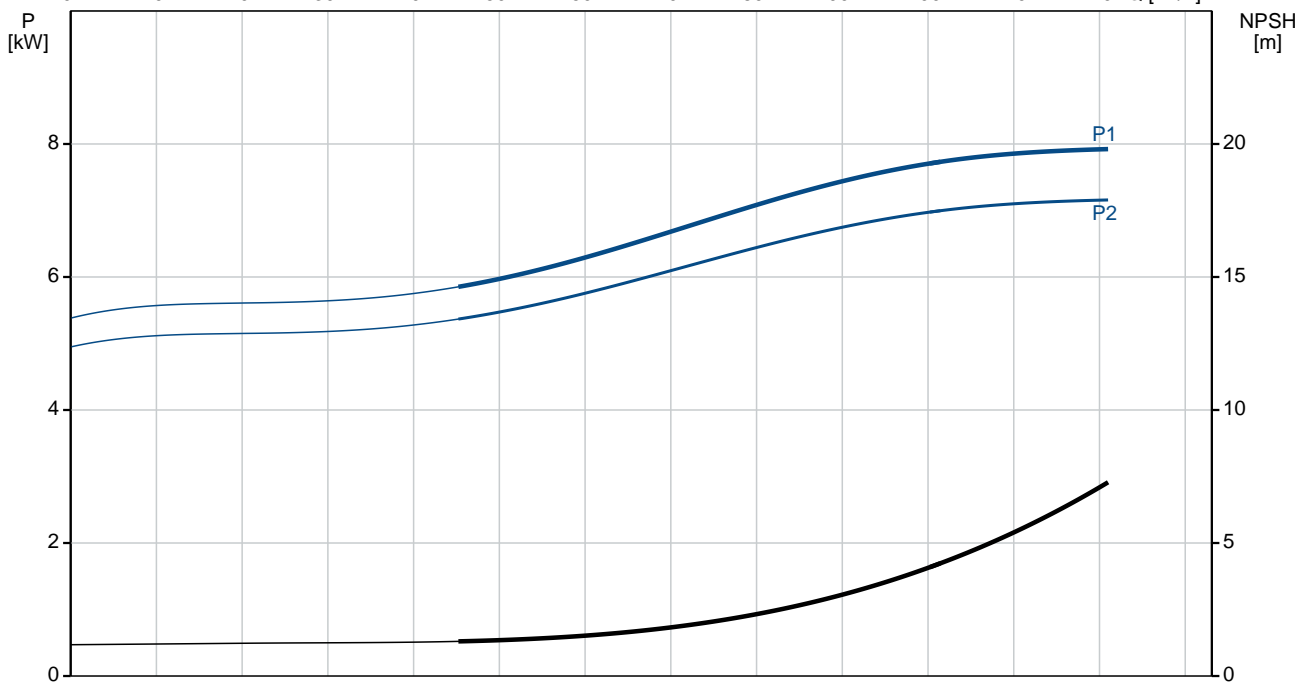
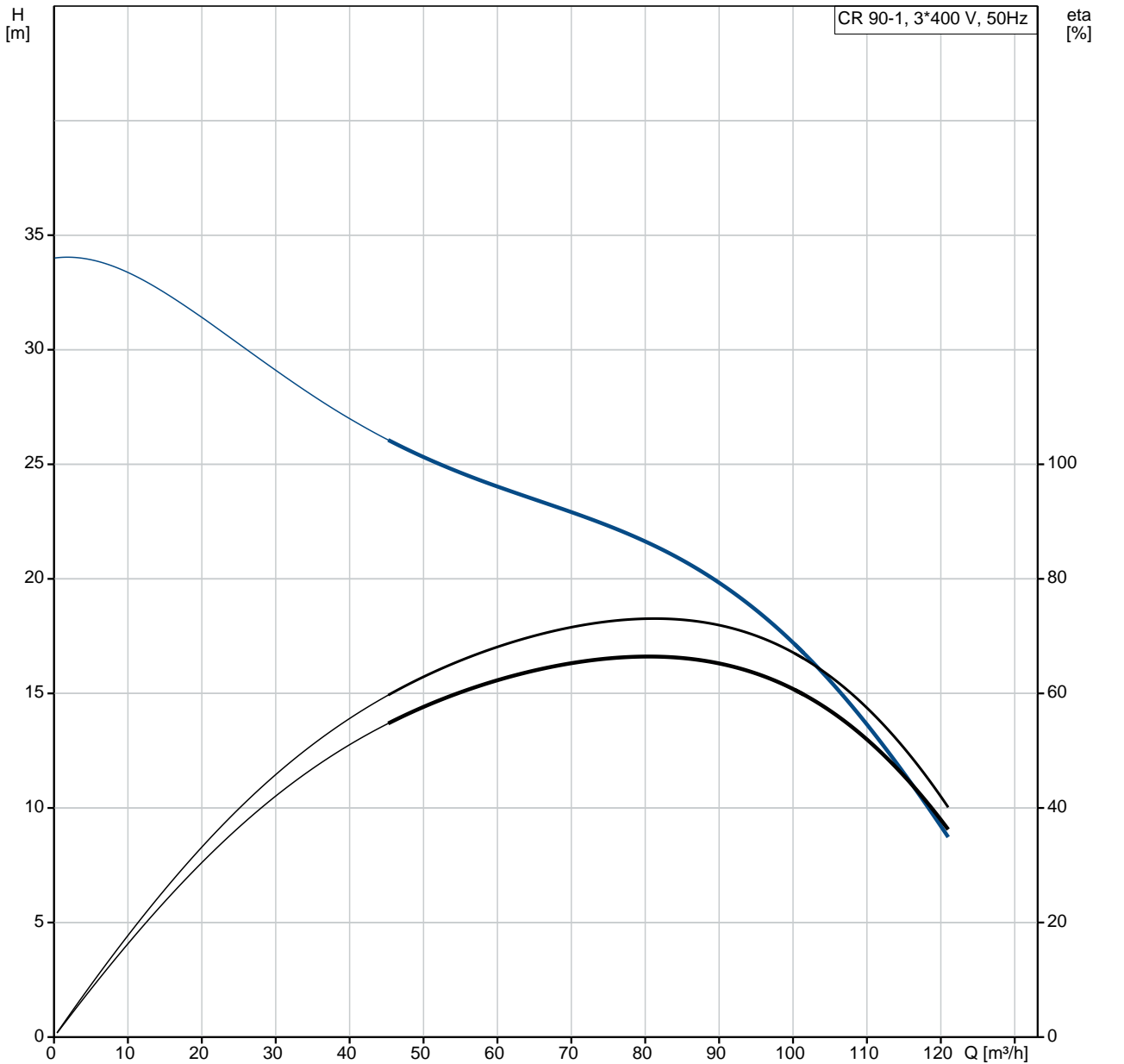
Rated flow: 90 m<sup>3</sup>/h  
 Rated head: 20.2 m  
 Pump orientation: Vertical  
 Shaft seal arrangement: Single  
 Code for shaft seal: HQQV  
 Approvals on nameplate: CE, EAC  
 Curve tolerance: ISO9906:2012 3B

#### Materials:

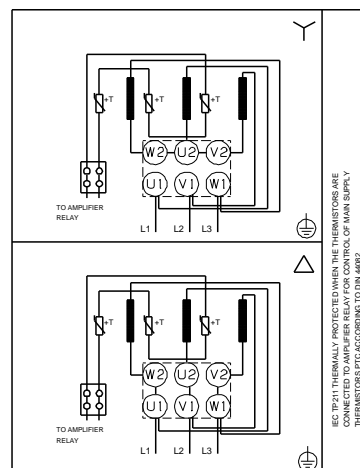
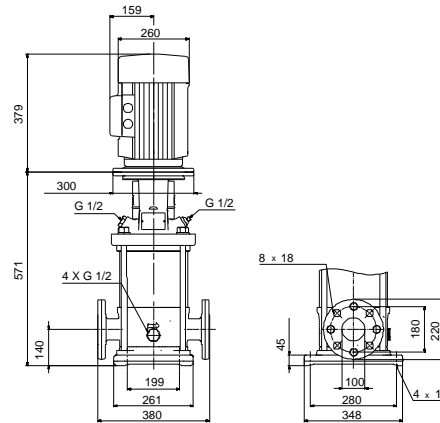
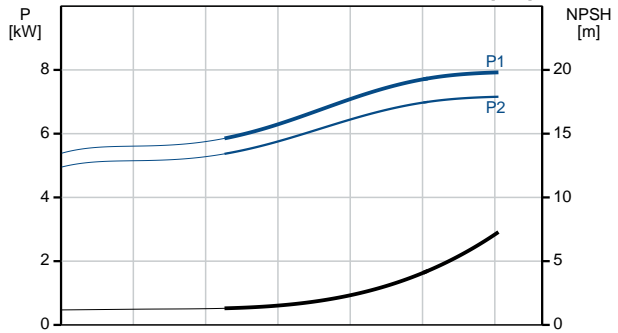
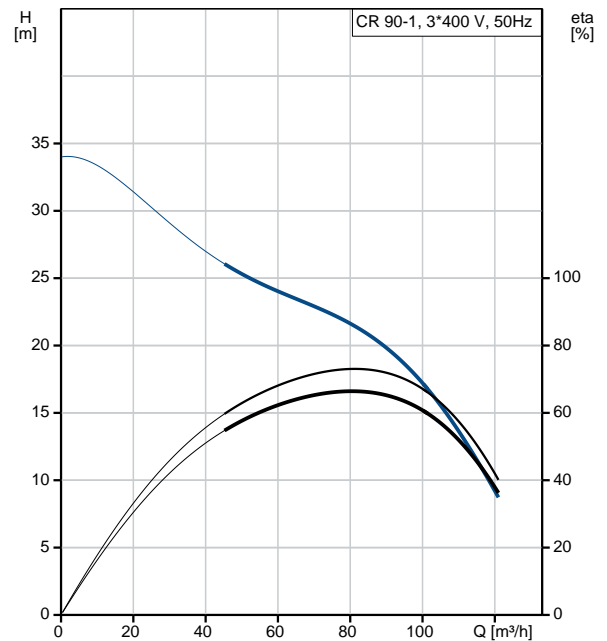
Base: Cast iron  
 EN 1563 EN-GJS-500-7  
 ASTM A536 80-55-06

Position	Qty.	Description
		<p>Impeller: Stainless steel EN 1.4301 AISI 304</p> <p>Bearing: SIC</p> <p>Support bearing: Graflon</p> <p><b>Installation:</b>  Maximum ambient temperature: 60 °C  Maximum operating pressure: 16 bar  Max pressure at stated temp: 16 bar / 90 °C  16 bar / -20 °C</p> <p>Type of connection: DIN  Size of inlet connection: DN 100  Size of outlet connection: DN 100  Pressure rating for pipe connection: PN 16  Flange size for motor: FF265</p> <p><b>Electrical data:</b>  Motor standard: IEC  Motor type: 132SB  IE Efficiency class: IE3  Rated power - P2: 7.5 kW  Power (P2) required by pump: 7.5 kW  Mains frequency: 50 Hz  Rated voltage: 3 x 380-415D/660-690Y V  Rated current: 14,4-14,0/8,30-8,10 A  Starting current: 780-910 %  Cos phi - power factor: 0.88-0.82  Rated speed: 2910-2920 rpm  Efficiency: IE3 90,1%  Motor efficiency at full load: 90.1-90.4 %  Motor efficiency at 3/4 load: 90.8 %  Motor efficiency at 1/2 load: 90.8 %  Number of poles: 2  Enclosure class (IEC 34-5): 55 Dust/Jetting  Insulation class (IEC 85): F</p> <p><b>Others:</b>  Minimum efficiency index, MEI : 0.70  Net weight: 117 kg  Gross weight: 140 kg  Shipping volume: 0.309 m³</p>

# On request CR 90-1 A-F-A-V-HQQV 50 Hz

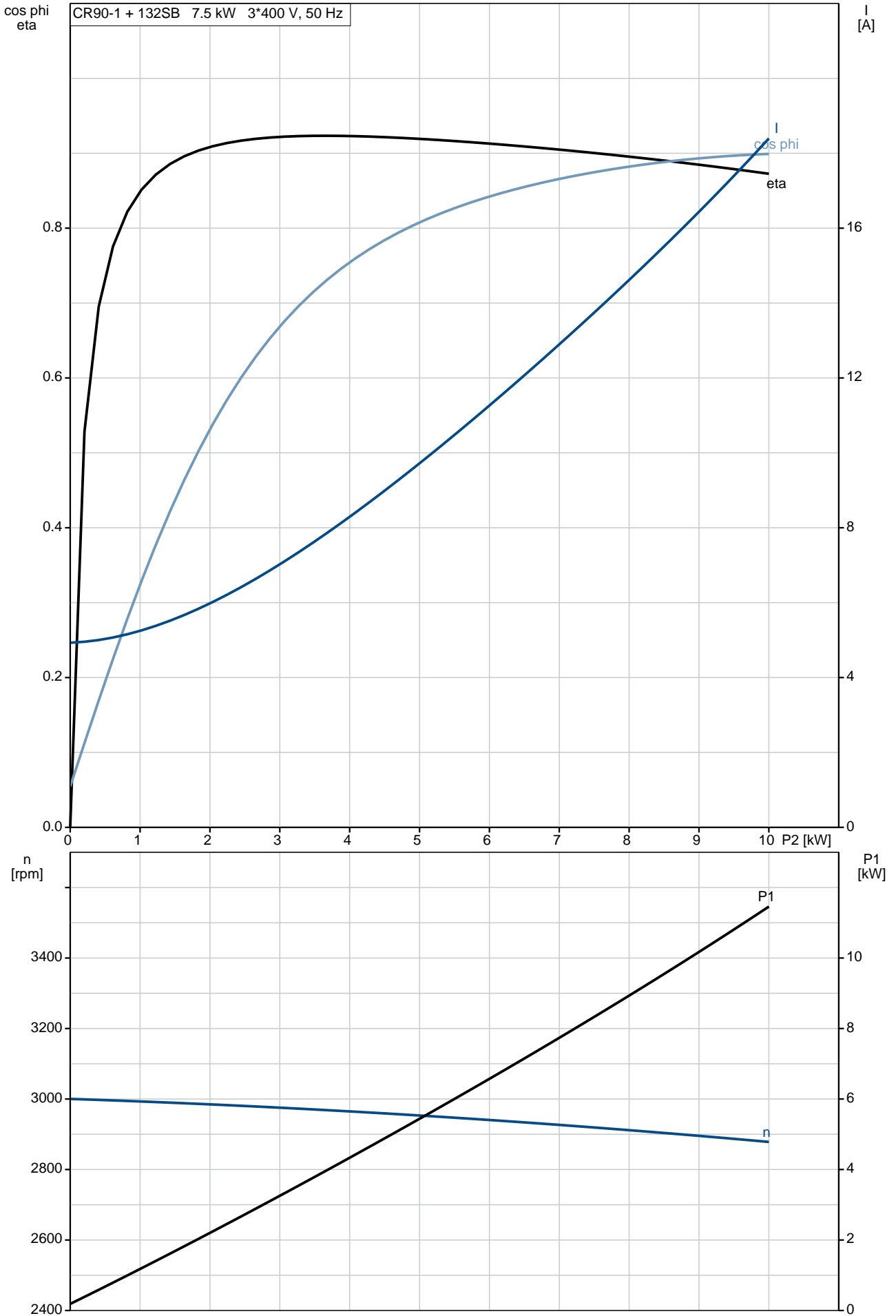


Description	Value
<b>General information:</b>	
Product name:	CR 90-1 A-F-A-V-HQQV
Product No:	On request
EAN number:	On request
<b>Technical:</b>	
Rated flow:	90 m <sup>3</sup> /h
Rated head:	20.2 m
Stages:	1
Impellers:	1
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQV
Approvals on nameplate:	CE, EAC
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	B
<b>Materials:</b>	
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:	V
Bearing:	SIC
Support bearing:	Graflon
<b>Installation:</b>	
Maximum ambient temperature:	60 °C
Maximum operating pressure:	16 bar
Max pressure at stated temp:	16 bar / 90 °C
	16 bar / -20 °C
Type of connection:	DIN
Size of inlet connection:	DN 100
Size of outlet connection:	DN 100
Pressure rating for pipe connection:	PN 16
Flange size for motor:	FF265
Connect code:	F
<b>Liquid:</b>	
Pumped liquid:	Water
Liquid temperature range:	-20 .. 90 °C
Liquid temperature during operation:	20 °C
Density:	998.2 kg/m <sup>3</sup>
<b>Electrical data:</b>	
Motor standard:	IEC
Motor type:	132SB
IE Efficiency class:	IE3
Rated power - P2:	7.5 kW
Power (P2) required by pump:	7.5 kW
Mains frequency:	50 Hz
Rated voltage:	3 x 380-415D/660-690Y V
Rated current:	14,4-14,0/8,30-8,10 A
Starting current:	780-910 %
Cos phi - power factor:	0.88-0.82
Rated speed:	2910-2920 rpm
Efficiency:	IE3 90,1%
Motor efficiency at full load:	90.1-90.4 %
Motor efficiency at 3/4 load:	90.8 %
Motor efficiency at 1/2 load:	90.8 %
Number of poles:	2
Enclosure class (IEC 34-5):	55 Dust/Jetting



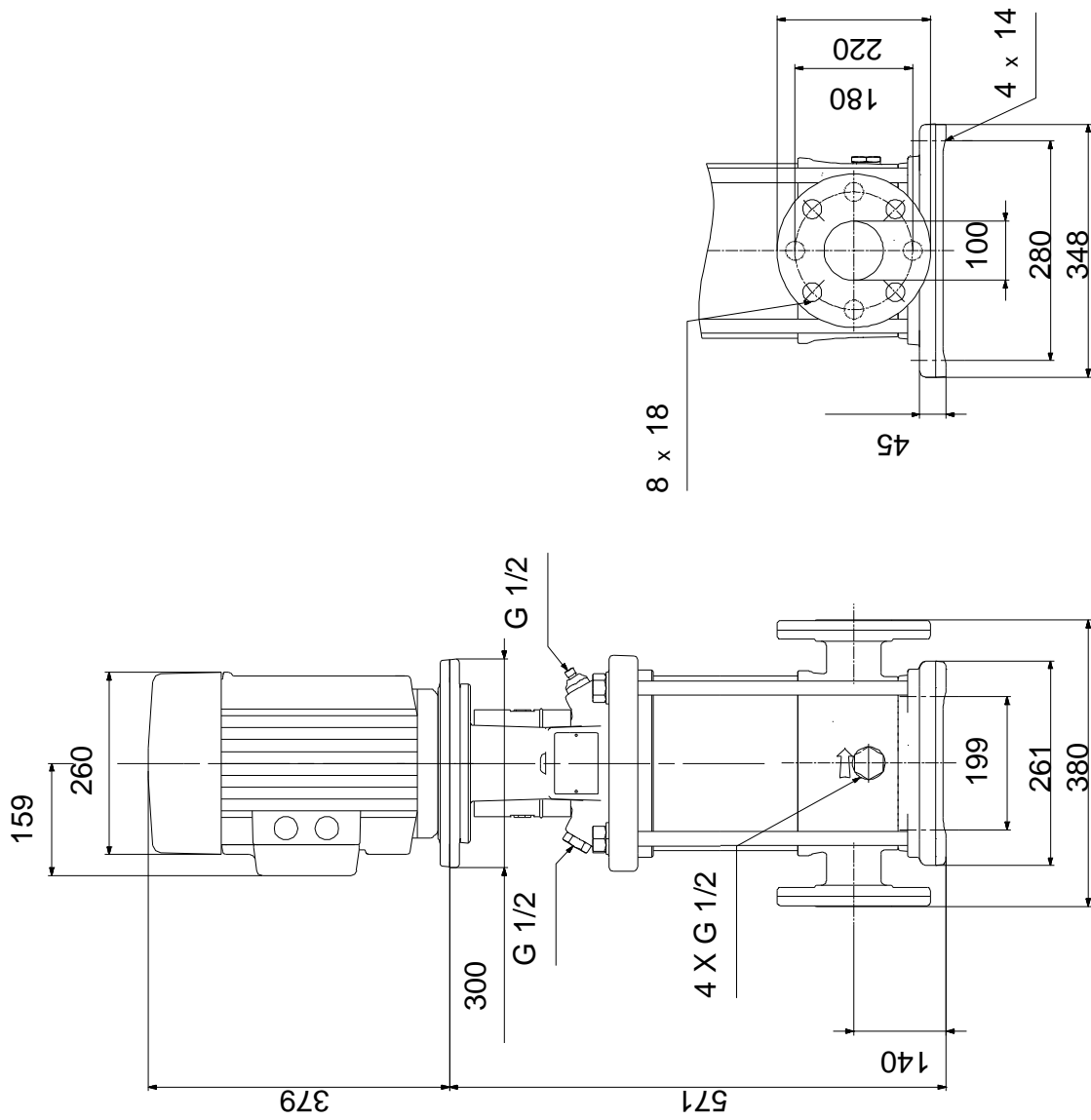
Description	Value
Insulation class (IEC 85):	F
Motor protec:	PTC
Motor No:	85U17522
<b>Controls:</b>	
Frequency converter:	NONE
<b>Others:</b>	
Minimum efficiency index, MEI :	0.70
Net weight:	117 kg
Gross weight:	140 kg
Shipping volume:	0.309 m <sup>3</sup>

# On request CR 90-1 A-F-A-V-HQQV 50 Hz



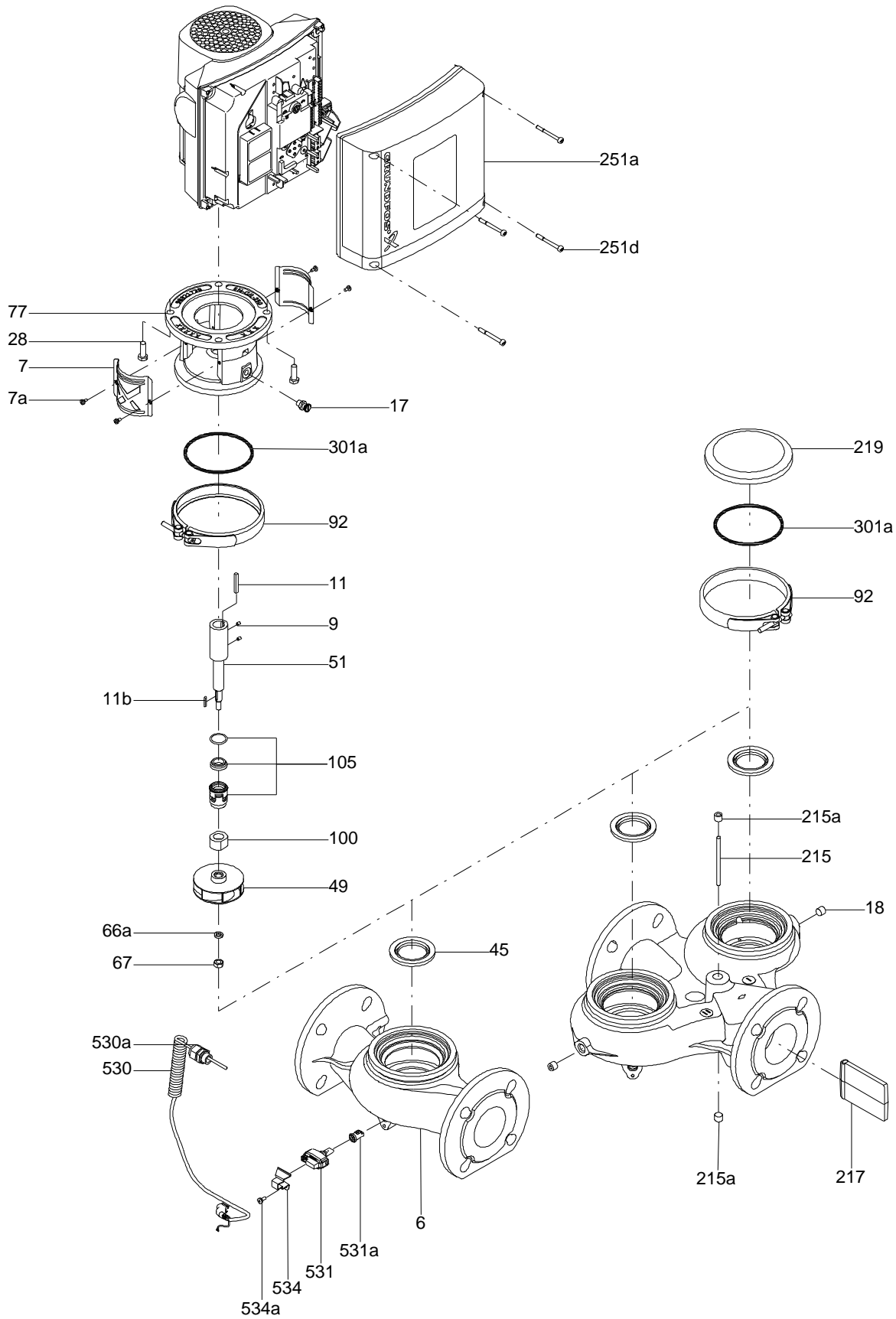


# On request CR 90-1 A-F-A-V-HQQV 50 Hz



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

Exploded view

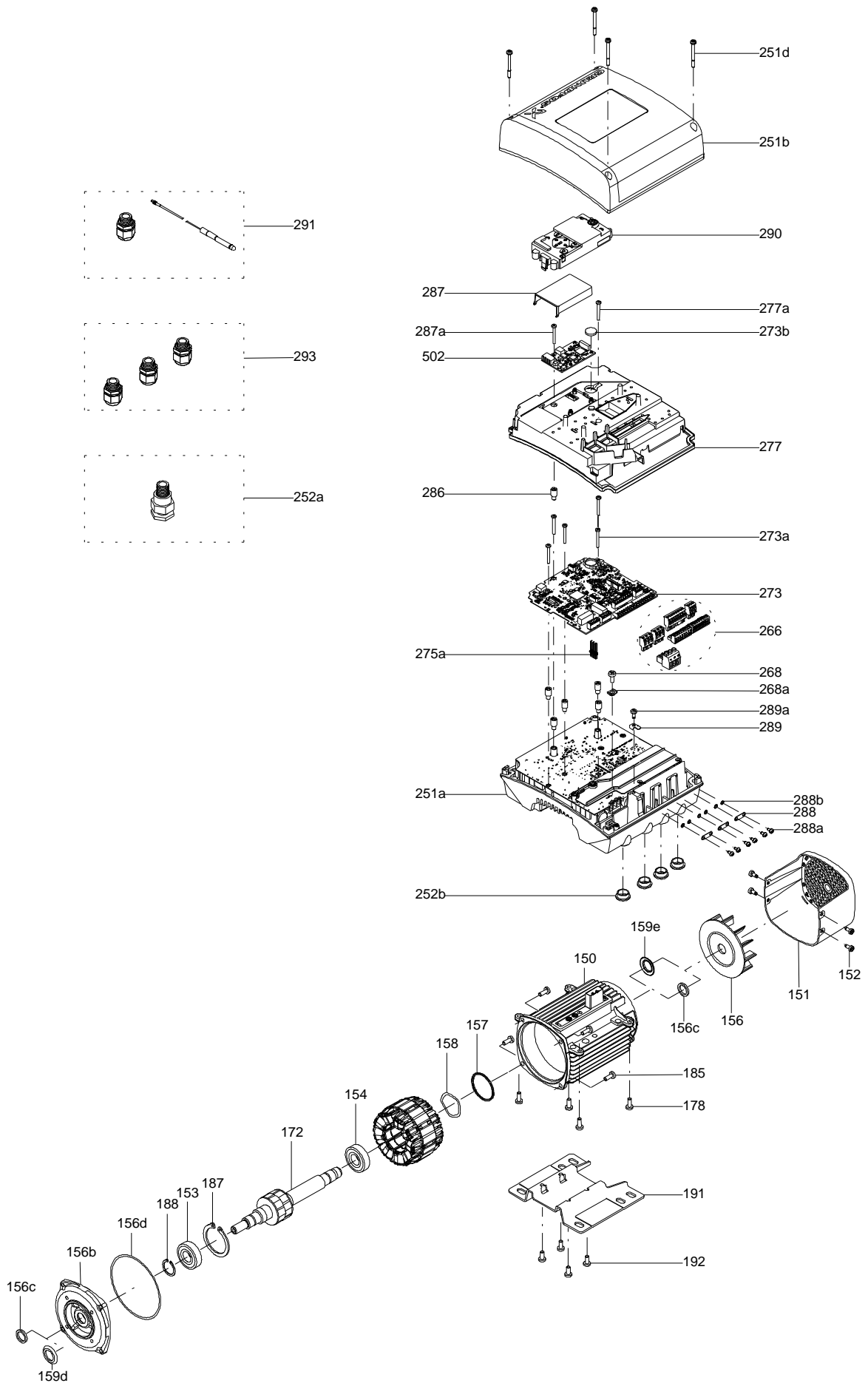


Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

Exploded view ( TM057026 for MGE model H/I )



**Parts list CR 90-1, Product No. On request**  
**Valid from 25.3.2011 (1112)**

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		Diameter: 255		1	
			Material type: FKM			
			Thickness: 4,00			
58	Cover				1	
60	Spring				4	
100	O-ring		Diameter: 16,3		2	
			Material type: FKM			
			Thickness: 2,4			
- 6b	Base cpl.		Rubber type: KFM		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		Diameter: 255		1	
			Material type: FKM			
			Thickness: 4,00			
38	O-ring		Diameter: 16,3		4	
			Material type: FKM			
			Thickness: 2,4			
26	Staybolt		Length (mm): 260		4	
			Thread: M16			
36	Hex nut		Thread: M16		4	
55	Outer sleeve		Outer diameter: 225,0		1	
			Length (mm): 115,5			
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: 22/38		1	
8	Coupling		Type: SPACER		1	
9	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 25			
			Thread: M10			
28	Hex socket head cap screw		Designation: DIN 912		4	
			Length (mm): 50			
			Thread: M10			
28a	Hex head screw		Length (mm): 45 MM		4	
			Thread: M12			
36a	Washer		Designation: DIN 125 A		8	
			Internal diameter: 13			

Pos	Description	Annotation	Données de classification	Référence	Quantité	Unité
			Outer diameter: 24			
			Thickness: 2,5			
66a	Nut		Thread: M12		4	
- 76	Nameplate set				1	pcs
76	Plate				1	
76a	Rivet				2	
- 105	Shaft seal		Material type: HQQV		1	pcs
	Adjusting fork				1	
109	O-ring		Diameter: 44,45		1	
			Material type: FKM			
			Thickness: 3,53			
110	O-ring		Diameter: 21,5		1	
			Thickness: 4,25			
- 200	Flange cpl.				2	pcs
201	Flange		Diameter: DN 100		1	
			Pressure: PN 16			
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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