

TP, TPE, TPD, TPED

Series 300, 50/60 Hz

Service instructions



CONTENTS

	Page
1. Symbols used in this document	2
2. Identification	3
2.1 Nameplate	3
2.2 Type key	3
3. Handling	5
4. Torques and lubricants	6
5. Service tools	7
5.1 Special tools	7
5.2 Standard tools	8
5.3 Torque tools	8
6. Dismantling and assembly	9
6.1 General Information	9
6.2 Dismantling	9
6.3 Replacing the wear rings	9
6.4 Assembly	9
7. Replacing the valve flap of TPD pumps	9
8. Exploded view	10

1. Symbols used in this document

**DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

**WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

**CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

The text accompanying the three hazard symbols DANGER, WARNING and CAUTION is structured in the following way:

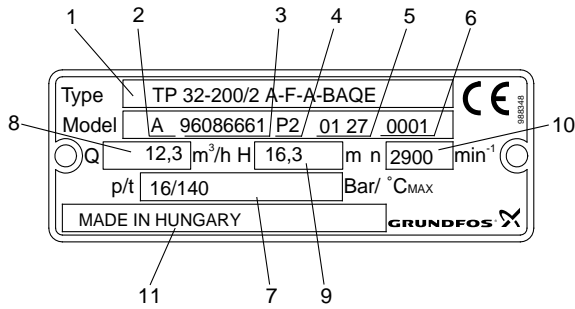
**SIGNAL WORD****Description of hazard**

Consequence of ignoring the warning.

- Action to avoid the hazard.

2. Identification

2.1 Nameplate



TM02 5752 3902

Pos.	Description
1	Type designation
2	Model
3	Product number
4	Place of production
5	Production year and week
6	Serial number
7	Maximum pressure and temperature
8	Rated flow rate
9	Head at rated flow rate
10	Speed
11	Country of production

Fig. 1 Example of nameplate

2.2 Type key

Example	TP	D	65	-550	/2	-A	-F	-A	-BAQE
Type range									
Twin-head pump									
Nominal diameter of suction and discharge flanges (DN)									
Maximum head [dm]									
Number of motor poles									
Pump version									
A = Basic version									
– Union connection with nut for G 1 1/2 or G 2									
– Flange connection to ISO 7005-2, PN 6, PN 10, PN 6/PN 10, PN 16 and PN 25									
– Mounting designation: IM 3001 (IM B 5)/IM 3011 (IM V 1)									
– The pump housing has tapped holes for mounting the pump on a base plate or bracket.									
I = PN 6 flange									
X = Used when codes do not fully cover the actual version.									
U = NEMA standard									
Pipe connection									
F = DIN flange									
J = JIS flange									
G = ANSI flange									
R = External thread									
Materials									
A = Basic version									
– Pump housing: grey cast iron EN-GJL-250, DIN W.-Nr. EN-JL1040									
– Motor stool: grey cast iron EN-GJL-250, DIN W.-Nr. EN-JL1040									
– Pump shaft: stainless steel DIN W.-Nr. 1.4436/DIN W.-Nr. 1.0037									
– Impeller: grey cast iron EN-GJL-200, DIN W.-Nr. EN-JL1030									
Z = TP Series 100 and 200: bronze pump housing and motor stool									
B = TP Series 300: bronze impeller									
Shaft seal and plastic/rubber parts, excluding the neck ring									
See section 2.2.1 Shaft seal .									

2.2.1 Shaft seal

Mechanical shaft seal with assembly length to EN 12756.

The following variants are available as standard:

Pump	Shaft diameter	Variant code
TP Series 300, flange	∅ 28	
	∅ 38	BAQE
	∅ 48	BQQE
	∅ 55	GQQE
	∅ 60	

2.2.2 Codes for shaft seal

The positions (1) - (4) cover four pieces of information about the shaft seal:

Example	(1)	(2)	(3)	(4)
Grundfos type designation				
Material, rotating seal face				
Material, stationary seat				
Material, secondary seal and other rubber and plastic parts, excluding the neck ring				

The following table explains the positions (1), (2), (3) and (4).

Position	Type	Short description of seal
(1)	A	O-ring seal with fixed driver
	B	Rubber bellows seal
	D	O-ring seal, balanced
	G	Bellows seal, type B, with reduced seal faces
	R	O-ring seal, type A, with reduced seal faces
Position	Type	Material
(2) and (3)	A	Carbon, metal-impregnated (antimony)
	B	Carbon, resin-impregnated
	U	Tungsten carbide
	Q	Silicon carbide
Position	Type	Material
(4)	E	EPDM
	F	FXM
	V	FKM

3. Handling

DANGER

Overhead load



- Death or serious personal injury
- The lifting eyes fitted to large pump motors can be used for lifting the pump head (motor, motor stool and impeller). The lifting eyes must not be used for lifting the entire pump.
 TPD: The centrally positioned thread of the pump housing must not be used for lifting purposes as the thread is placed below the centre of gravity of the pump.

Pumps fitted with motors smaller than 4 kW should be lifted by means of nylon straps. See fig. 1.

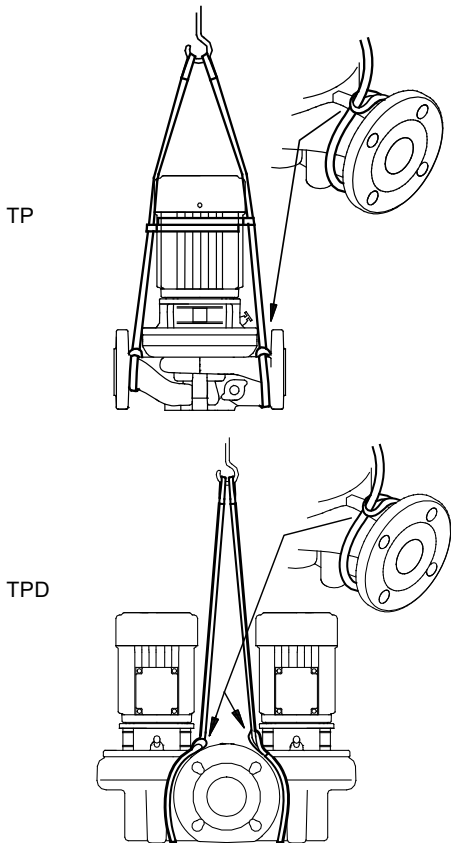


Fig. 1 Lifting the pump by means of nylon straps

Pumps fitted with motors of 4 kW and up should be lifted by means of nylon straps and shackles. See fig. 4.

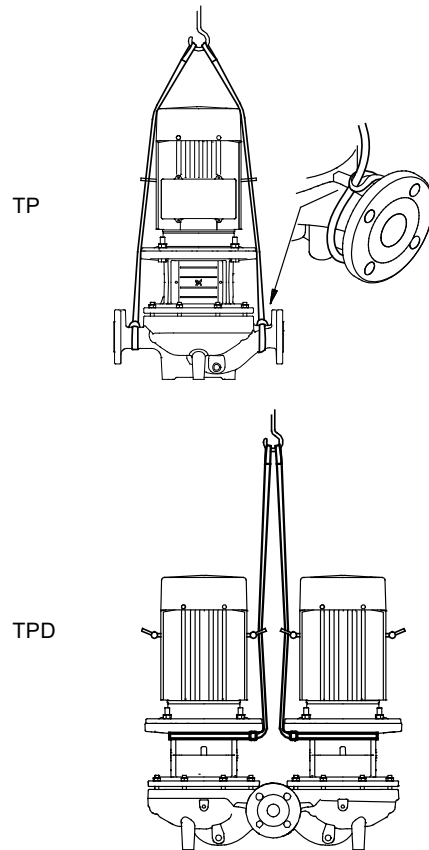


Fig. 2 Lifting the pump by means of nylon straps and shackles

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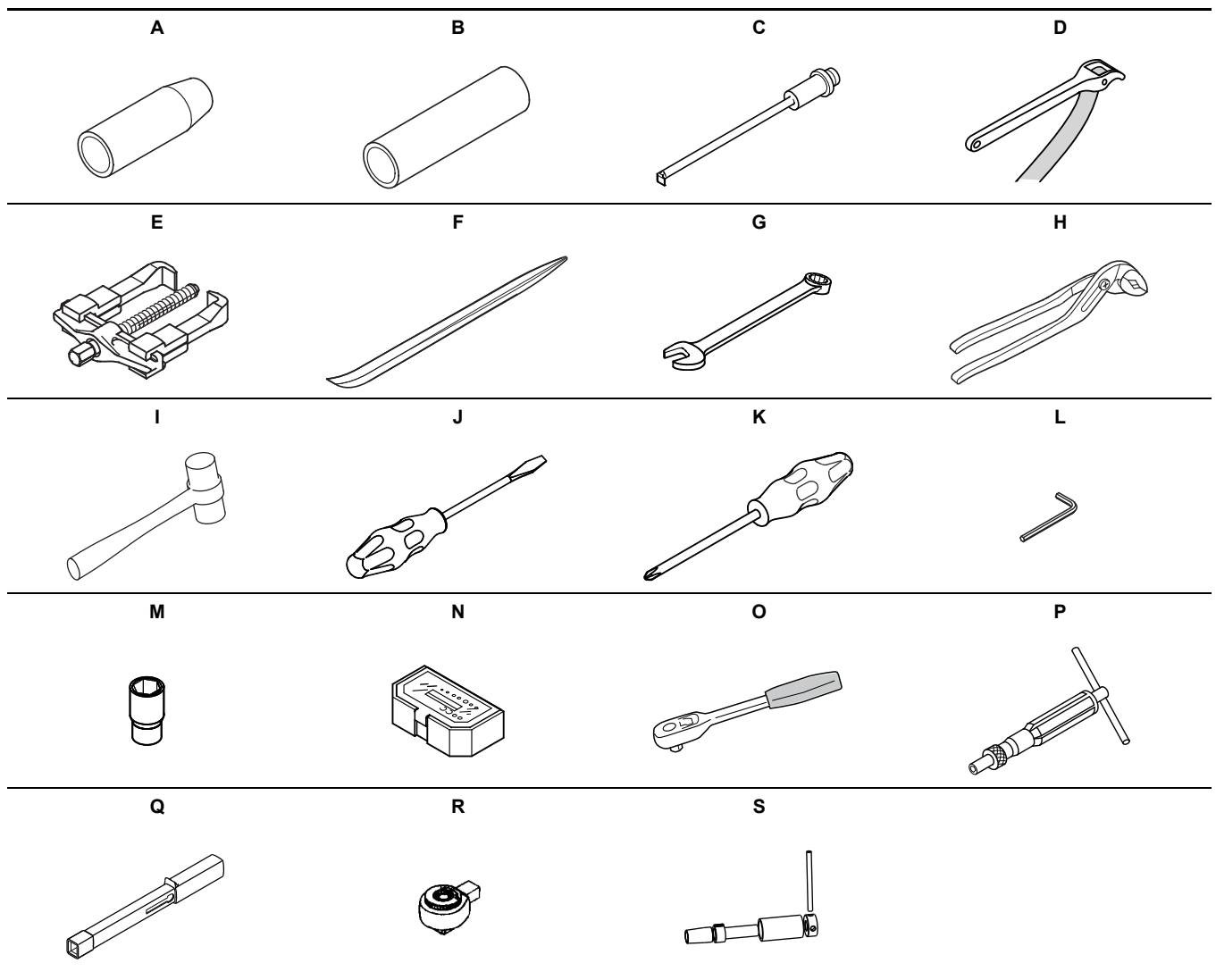
TM02 5502 3302 - TM02 5501 3302

4. Torques and lubricants

Pos.	Designation	Quantity TP/TPD	Dimensions	Torque [Nm]	Lubricant
7a	Screw	4/8	M6	6	Loctite 243
			M5	5	
9	Screw	2/4	M6	8	Loctite 243
			M8	15	
17	Vent screw	1/2	1/8"	8	Loctite 243
18	Pipe plug	2/2	1/4"	20	Loctite 243
19	Pipe plug	1/4	1/8"	10	Loctite 243
20	Pipe plug	2/4	3/8"	25	Loctite 243
26	Staybolt	6, 8, 10/12, 16, 20	M10	45	
36	Nut for pump housing	6, 8, 10/12, 16, 20	M10	45	
			M6	5	
36a	Nut for motor	4/8	M8	12	
			M12	40	
			M16	100	
51	Shaft	1/2			Rocol 22
67	Impeller nut	1/2	M14	40	
72a	O-ring/gasket	1/2			Rocol 22
105	Shaft seal	1/2			Soapy water
211	Screw	0/6	M6	6	
222	Pipe plug	0/1	1/8"	10	Loctite 243

Product	Product number
Loctite 243	V7137215
Rocol 22	00RM2924

5. Service tools



5.1 Special tools

Pos.	Designation	For poss.	Further information	Product number
A	Mounting bush	51	Ø 28	V7216304
			Ø 38	V7216305
			Ø 48	70007165
			Ø 55	70007166
			Ø 60	70007167
B	Punch	105	Ø 28	V7216306
			Ø 38	V7216307
			Ø 48	70007172
			Ø 55	70007173
C	Puller	45, 45b	Ø 60	70007174
			Ø 28	95046131
			Ø 38	95046132
S	Tool for shaft seal	105	Ø 48	95046133
			Ø 55	95046134
			Ø 60	95046135

5.2 Standard tools

Pos.	Designation	For pos.	Further information [mm]	Product number
D	Strap wrench	49		00SV0853
E	Puller	49		
F	Pinch bar	51		SV5201
G	Ring/open-end spanner	36, 36a, 67	17	SV0056
			19	SV0063
			22	00SV0186
			24	SV0122
			30	SV0073
			36	
H	Multigrip pliers	11		SV0150
I	Plastic hammer	2, 77		SV0349
J	Screwdriver	105		
K	Cross-recess screwdriver	7a		
L	Hexagon key	9, 9a	2.5	SV0277
			3	
			4	SV0278
			6	SV0196
			10	SV0033
M	Hexagon socket	36, 36a, 67	13	SV0413
			17	SV0417
			19	SV0419
			22	SV0422
			24	SV0424
			27	SV0427
			30	
			36	
			41	
			50	
N	Bits kit	7a, 9, 9a		SV2010
O	Ratchet handle	N		96777072

5.3 Torque tools

Pos.	Designation	For pos.	Further information	Product number
P	Torque screwdriver	N	1-6 Nm	SV0438
Q	Torque wrench	Q	9 x 12 mm - 4-20 Nm	SV2092
			9 x 12 mm - 20-100 Nm	SV0269
			14 x 18 mm - 40-200 Nm	SV0400
R	Ratchet insert tool	M	9 x 12 mm - 1/2"	SV0295
			14 x 18 mm	SV0401

6. Dismantling and assembly

6.1 General Information

Position numbers of parts (digits) refer to drawings and parts lists; position numbers of tools (letters) refer to section [5. Service tools](#).

Before dismantling

- Switch off the power supply.
- Close the isolating valves, if fitted, to avoid draining the piping system.
- Disconnect the power supply cable in accordance with local regulations.

Before assembly

- Order the necessary service kits.
- Clean and check all parts.
- Replace defective parts by new parts.

During assembly

- Lubricate and tighten screws and nuts according to section [4. Torques and lubricants](#).
- Always replace gaskets and O-rings.

6.2 Dismantling

1. Remove nuts (pos. 36) from pump housing (pos. 6).
2. Remove the pump housing. It may be necessary to use a plastic hammer (pos. I) or a pinch bar (pos. F) for separating the pump housing from motor stool (pos. 1a) or cover (pos. 77).
3. Remove O-ring (pos. 72a) from the motor stool/cover.
4. Hold the impeller with a strap wrench (pos. D) and slacken impeller nut (pos. 67). Remove the impeller nut, spring washer (pos. 66a) and washer (pos. 66) from the shaft.
5. Remove impeller (pos. 49) using a puller.
6. Remove key (pos. 11) from shaft (pos. 51).
7. Remove the spacer rings, if any, between impeller and shaft seal (pos. 105).

Shaft seal, types Bxxx and Dxxx

- Pull off the rotating shaft seal part using two screwdrivers.

Shaft seal, type Axxx

- Pull off the spring retainer using two screwdrivers and remove the seal ring with O-ring using two screwdrivers.

Pump with separate motor stool (pos. 1a) and clamped cover (pos. 77)

- Remove the cover.

Pump with separate motor stool (pos. 1a) and screw-fixed cover (pos. 77)

- Remove the screws holding cover and motor stool together, and pull off the cover.

Pump with integrated motor stool/cover (pos. 2)

1. Remove coupling guards (pos. 7) and the screws/nuts holding motor stool (pos. 28 and 36a) and motor together. Remove motor stool (pos. 2). It may be necessary to loosen the motor stool from the motor with a plastic hammer.
2. Remove the stationary shaft seal part by pushing it from the back.
3. Slacken screws (pos. 9) fixing pump shaft (pos. 51) on the motor shaft.
4. Remove the pump shaft. It may be necessary to loosen it with a pinch bar or similar tool.

6.3 Replacing the wear rings

Pump with bronze wear rings

1. Insert the hook of puller (pos. C) under wear ring (pos. 45 or 45b).
2. Knock the impact block against the puller end stop. Move the puller to another position under the wear ring.
3. Knock the new wear ring home with a piece of wood as a buffer.
4. Repeat steps 1 to 3 for the second wear ring of the pump.

6.4 Assembly

1. Lubricate the motor shaft with O-ring grease.
2. Push pump shaft (pos. 51) home on the motor shaft. Make sure that the pump shaft does not move when you release it.
3. Apply a drop of Loctite 243 to set screws (pos. 9) and tighten them into the pump shaft. See section [4. Torques and lubricants](#).
4. Fit motor stool (pos. 1a or 2) on the motor.
5. Fit and tighten screws/nuts (pos. 28 and 36a) in the motor stool. See section [4. Torques and lubricants](#).
6. Fit mounting bush (pos. A) on the pump shaft.

Pump with separate motor stool (pos. 1a) and clamped cover (pos. 77)

- Fit the cover on the motor stool.

Pump with separate motor stool (pos. 1a) and screw-fixed cover (pos. 77)

1. Fit the cover the motor stool and tighten it. See section [4. Torques and lubricants](#).
2. Spray soapy water on the pump shaft and the mounting bush.
3. Fit stationary shaft seal part (pos. 105) on the shaft. Do not touch the seal face with your fingers.
4. Press the stationary shaft seal part home with a punch (pos. B).

Shaft seal, all types

1. Spray soapy water on the rotating shaft seal part.
2. Press the rotating shaft seal part home with a punch (pos. B).
3. Fit spacer rings, if required, between shaft seal and impeller on the pump shaft.
4. Remove the mounting bush from the pump shaft.
5. Fit key (pos. 11) and impeller (pos. 49) on the shaft.
6. Fit washer (pos. 66), spring washer (pos. 66a) and impeller nut (pos. 67).
7. Hold the impeller with a strap wrench (pos. D) and tighten the impeller nut. See section [4. Torques and lubricants](#).
8. Fit O-ring (pos. 72a) on the cover and lubricate it.
9. Fit pump housing (pos. 6).
10. Fit the cover/motor stool on the pump housing and cross-tighten nuts (pos. 36). See section [4. Torques and lubricants](#).
11. Check that the pump shaft can rotate freely.
12. Fit coupling guards (pos. 7) and tighten the screws. See section [4. Torques and lubricants](#).

7. Replacing the valve flap of TPD pumps

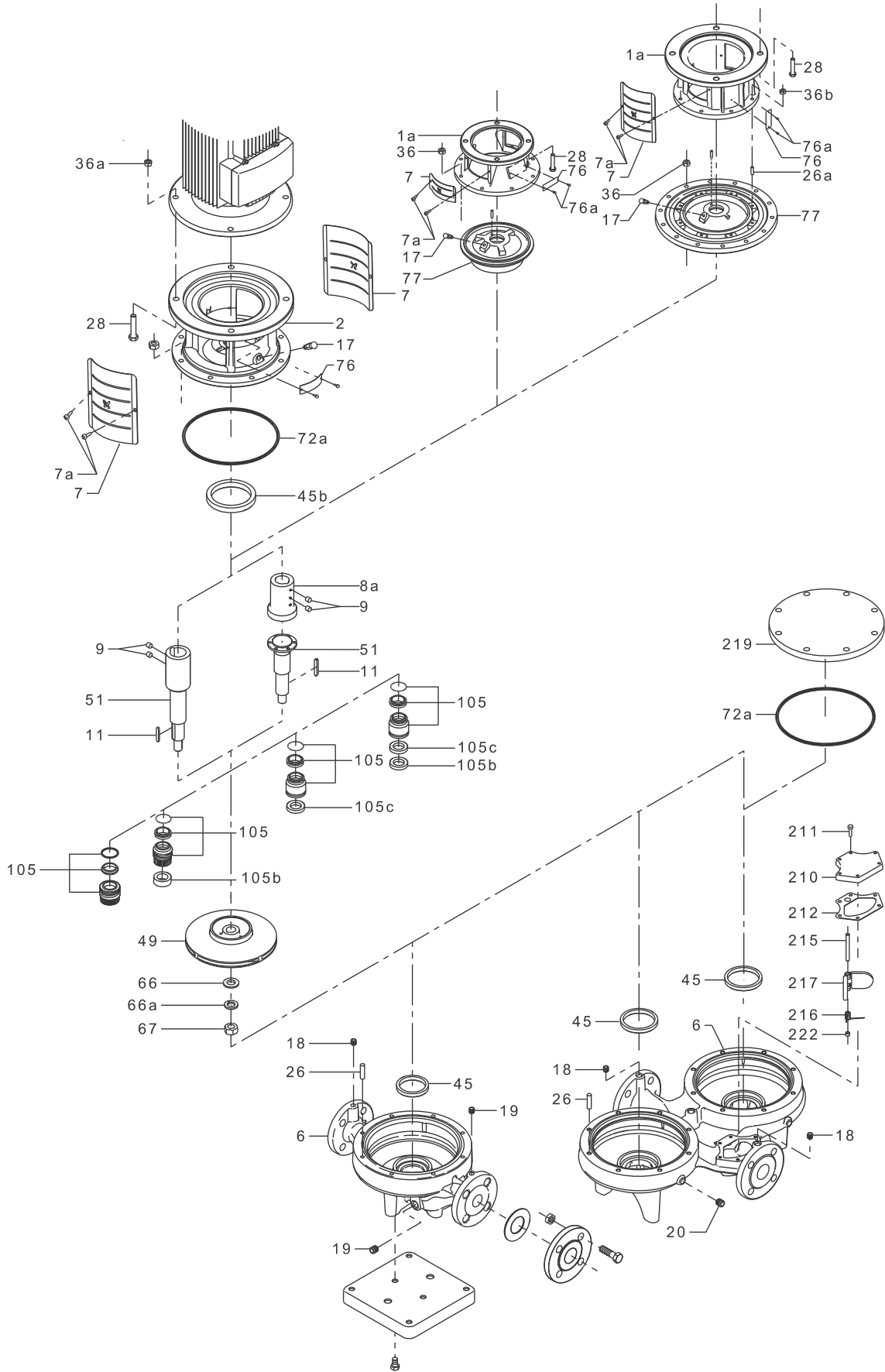
Dismantling

1. Remove screws (pos. 211).
2. Remove cover (pos. 210) with gasket (pos. 212).
3. Remove pipe plug (pos. 222).
4. Push out pin (pos. 215).
5. Remove valve (pos. 217).

Assembly

1. Assemble and fit the valve in the pump.
2. Press the assembly pin out using pin (pos. 215).
3. Fit pipe plug (pos. 222).
4. Fit gasket (pos. 212) and valve cover (pos. 210).
5. Fit and tighten screws (pos. 211). See section [4. Torques and lubricants](#).

8. Exploded view



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