



# Service instructions

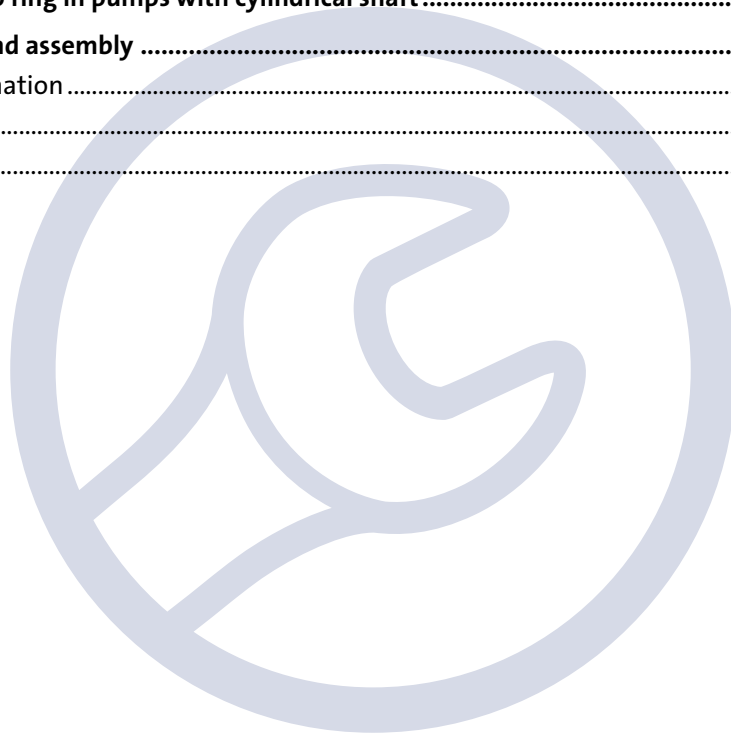
SP 11A - SP 14A

50/60 Hz

1/3~

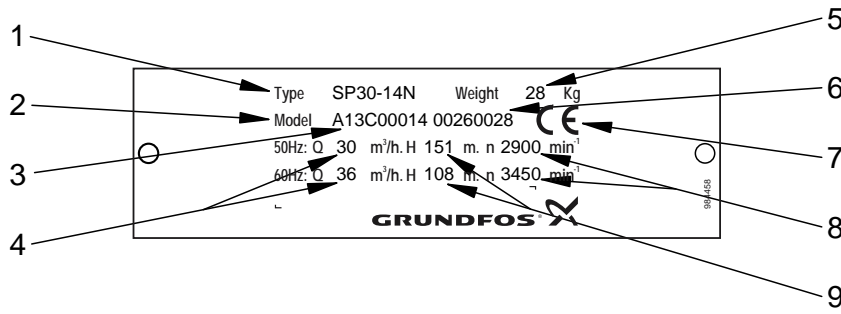
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# 1. Type identification

## 1.1 Nameplate



TM01 1861 2602

Pos.	Designation	Pos.	Designation
1	Type designation	5	Weight
2	Model	6	Serial number
3	Product number	7	CE mark
4	Rated flow rate	8	Speed
		9	Head at rated flow rate

## 1.2 Type key

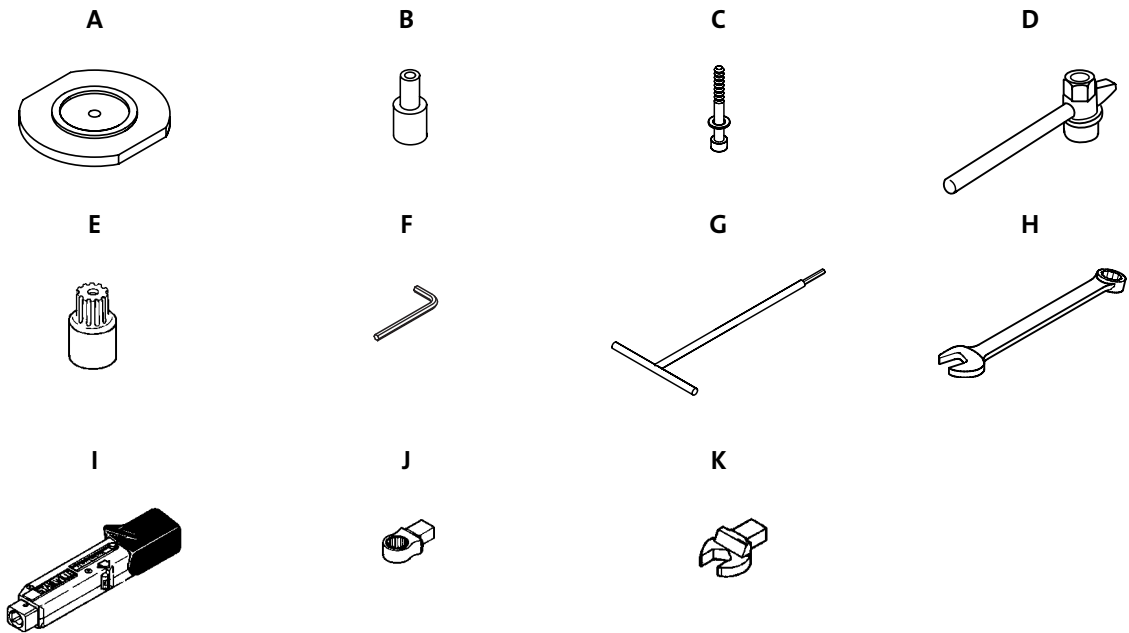
Example	SP	11	A	- 13
Submersible pump				
Rated flow rate in m <sup>3</sup> /h at maximum efficiency, 50 Hz				
Type range				
Number of stages				

## 2. Torques and lubricants

Pos.	Designation	Dimension	Torque [Nm]	Lubricant
11	Nut	27 mm	30	Gardolube L6034 or o-ring grease
19	Nut	M8	18	
19a	Nut	M8	18	
		M12	70	

Gardolube L6034, part no. SV9995 (1 l).

### 3. Service tools



#### Special tools

Pos.	Designation	Motor	For pos.	Description	Part no.
A	Mounting plate	4" - 6"	14, 14a		SV0049
B	Spacing pipe	4"		∅22 / ∅13.5 x ∅8.5 x 39	SV0008
		6"		∅22 / ∅10.5x71	SV0390
C	Screw with washer	4"		M8 x 65	SV0074
		6"		M8 x 110	SV0183
D	Spanner		11, 12	27 mm	SV0217
				4"	
E	Mounting punch		SP 11A		SV7926
			SP 14A		SV7924

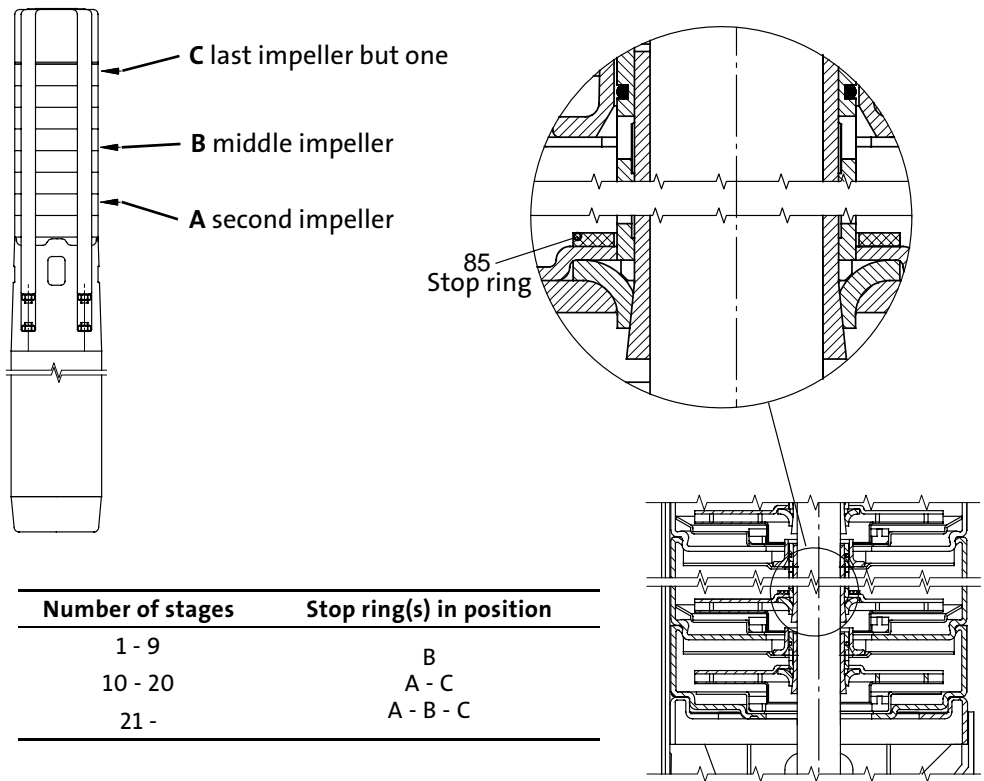
#### Standard tools

Pos.	Designation	Motor	For pos.	Description	Part no.
F	Hexagon key		C	6 mm	ID1204
G	Tee key		24	3 mm	SV0153
H	Ring/open-end spanner	4"	19a, 19	13 mm	SV0055
		6"	19a	19 mm	SV0054

#### Torque tools

Pos.	Designation	Motor	For pos.	Description	Part no.
I	Torque wrench			4-20 Nm, 9 x 12	SV0292
				20-100 Nm, 9 x 12	SV0269
J	Ring insert tool	4"	19a, 19	13 mm, 9 x 12	SV0294
		6"	19a	19 mm, 9 x 12	SV0271
K	Open-end insert tool		I, D/SP 11A	22 mm, 9 x 12	SV0619
			I, D/SP 14A		SV0622

## 4. Fitting the stop ring in pumps with cylindrical shaft



TM01 3710 4598

## 5. Dismantling and assembly

### 5.1 General information

If the pump is pulled out of the well, for instance due to reduced head/flow rate, it is important to check both the pump and the submersible motor.

Position numbers of parts (digits) refer to exploded views, sectional drawings and parts lists; position numbers of tools (letters) refer to [3. Service tools](#).

#### 5.1.1 Before dismantling

- Order the necessary service kits.
- Obtain a spare pump, if necessary.
- Disconnect the electricity supply to the motor.
- Close the isolating valves, if fitted.
- *Remove the electric cable in accordance with local regulations.*

#### 5.1.2 Before assembly

Gaskets and O-rings should always be replaced when the pump is overhauled.

- Clean and check all parts.
- Replace defective parts by new parts.

#### 5.1.3 During assembly

- Lubricate and tighten screws and nuts to the torque stated, [2. Torques and lubricants](#).

## 5.2 Dismantling

### 5.2.1 Removing the motor

#### 4" motor

1. Bend out the two flaps of the support pos. 18 holding the cable guard to the pump (used only for certain numbers of stages).
2. Free the cable guard from the two flaps of the suction interconnector pos. 14.
3. Push out the cable guard to free the recess of the cable guard from the suction interconnector and pull the cable guard upwards along the pump and free of the two flaps of the suction interconnector and the valve casing pos. 1.
4. Remove the nuts holding the pump and motor together.
5. Pull the pump body off the motor.

#### 6" motor

1. Remove one of the two straps pos. 17 close to the cable guard pos. 18.
2. Pull the cable guard holder free of the strap.
3. Remove the cable guard.
4. Remove the nuts holding the pump and motor together.
5. Pull the pump body off the motor.

### 5.2.2 Dismantling the pump body

1. Fit the mounting plate [pos. A](#) to the suction interconnector pos. 14 or 14a using the spacing pipe [pos. B](#) and the screw [pos. C](#). The recess of the mounting plate and that suction must fit into each other.
2. Tighten the mounting plate in a vice.
3. Remove the nuts pos. 19 together with the straps pos. 17 and the support pos. 18b, if fitted.
4. **Pumps up to and including p.c. 9603:**  
Remove the valve casing pos. 1, valve cup, retainer for valve seat with valve seat and top chamber pos. 4. If these parts are defective, replace them with valve casing complete pos. 1.
5. **Pumps as from p.c. 9604:**  
Remove the valve casing pos. 1 and chamber pos. 4.
6. Remove the split cone nut pos. 11 (right-hand thread) using the spanner [pos. D](#).
7. Knock the split cone pos. 12 down against and free of the impeller pos. 13 using the spanner [pos. D](#).
8. Remove the impeller pos. 13, split cone pos. 12 and the chamber pos. 9.
9. Dismantle the pump body in the following order:  
Nut, impeller, split cone and chamber until all chambers have been removed. Remove the stop ring pos. 85 before removing the second last impeller.
10. Loosen the guide pos. 25 from the recess of the suction interconnector.
11. Pull the strainer out of the suction interconnector.
12. Lift the suction interconnector pos. 14 or 14a off the mounting plate.
13. Remove the screw [pos. C](#) holding the shaft.

### 5.2.3 Removing the top bearing and valve seat

1. Replace the top bearing pos. 6 and bearing pos. 8 if they are damaged.  
Press the bearing together and push it out of the chamber.
2. Moisten new bearings with soapy water and press the home in the chambers.  
*Make sure that rubber edge of the bearing is pressed through the hub and holds the bearing to the chamber.*
3. **Pumps up to and including p.c. 9603:**  
Replace the valve seat pos. 3 if the rubber is hard or pressed together so that the valve cup touches the metal.  
Loosen the valve seat by Inserting a screwdriver between the valve seat and the bottom of the chamber.  
Clean the recess edge and press in a new valve seat. The rubber side must be upwards.  
Replace the valve casing, valve cup, valve seat or retainer for valve seat with valve casing complete pos. 1 if they are defective.

### 5.2.4 Removing the neck ring

Replace the neck ring pos. 7 if the rubber is hard or worn, as wear will result in a reduction of the pump performance.

1. Push the neck ring free of the chamber by inserting a screwdriver between the neck ring and the bottom of the chamber.
2. Clean the recess edge and press in a new neck ring. The text "This side up" must be upwards.

## 5.3 Assembly

### 5.3.1 Assembling the pump body

*Moisten the various rubber parts with soapy water before fitting them.*

1. Fit the pump shaft pos. 16 to the mounting plate [pos. A](#) using the spacing pipe [pos. B](#) and the screw [pos. C](#). *Make sure that the mounting plate is positioned correctly so that the recess fits the suction interconnector.*
2. Tighten the mounting plate [pos. A](#) in a vice.
3. Fit the strainer pos. 15 in the suction interconnector pos. 14. The inclined face on the outside of the strainer must face the cable opening of the suction interconnector.
4. Slide the suction interconnector pos. 14 over the shaft so that the recess of the suction interconnector engages with the recess of the mounting plate [pos. A](#).
5. Press the guide pos. 25 with neck ring over the strainer and home in the recess of the suction interconnector.
6. Fit the split cone pos. 12, impeller pos. 13 (with the skirt pointing towards the guide) and the split cone nut pos. 11.
7. Tighten the split cone nut by two turns (right-hand thread).
8. Press the impeller home using the spanner [pos. D](#).
9. Tighten the split cone nut pos. 11 with 30 Nm (27 mm), see [2. Tilspændingsmomenter og smøremidler](#).
10. When the second impeller has been fitted, fit the stop ring pos. 85 with the smaller recess facing the split cone.
11. Continue the assembly in the following order until the last impeller has been fitted:  
Chamber pos. 9 with neck ring and bearing, split cone pos. 12, impeller pos. 13 and split cone nut pos. 11.  
*For each section, make sure that the chamber and the impeller are fitted correctly before the nut is tightened.*
12. **Pumps up to and including p.c. 9603:**  
Fit the top chamber pos. 4 with bearing pos. 6, retainer for valve seat, valve seat, valve cup and valve casing pos. 1.  
**Pumps as from p.c. 9604:**  
Fit the top chamber pos. 4 and the valve casing complete pos. 1.  
Turn the valve casing so that the holes for the steel straining wire are located 180° opposite to the motor cable (cable opening in the suction interconnector) and that the slots for the straps are aligned to the points where the straps are attached to the suction interconnector.  
Lubricate the threads of the straps pos. 17 with Gardolube L6034 and fit the straps and nuts.
13. If the cable guard was fitted with the support pos. 18b, push the cable guard with support under the straps in the middle of the pump above the cable opening of the suction interconnector.
14. Fit and tighten the nuts pos. 19 diagonally to 18 Nm.
15. Remove the pump body from the mounting plate [pos. A](#).



### 5.3.2 Checking and fitting the pump body on the motor

1. Check the axial clearance.

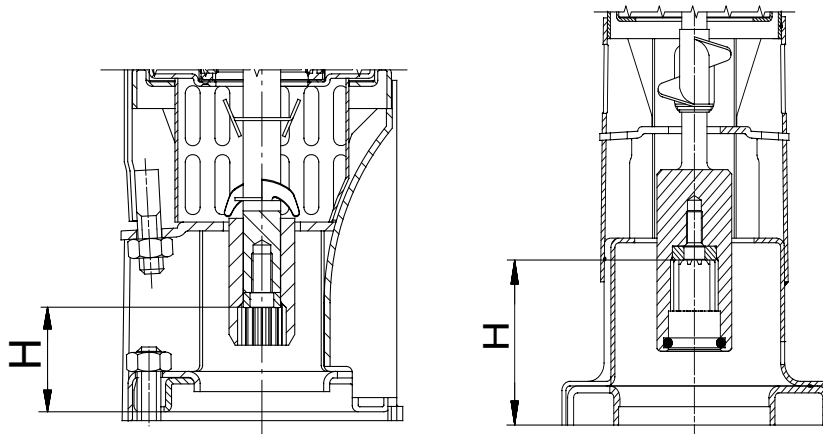


Fig. 1

TM01 6246 1999 - TM02 7027 2303

#### 4" motor

Shaft in bottom position:  $H = 37.15 +0/-1$  mm

Shaft in top position:  $H = 39.15 +1/-0$  mm

#### 6" motor

Shaft without coupling in bottom position:  $H = 78.1 +0/-1$  mm

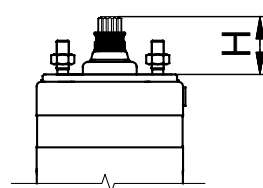
Shaft without coupling in top position:  $H = 80.1 +1/-0$  mm

Shaft with coupling in bottom position:  $H = 71.8 +0/-1$  mm

Shaft with coupling in top position:  $H = 73.8 +1/-0$  mm

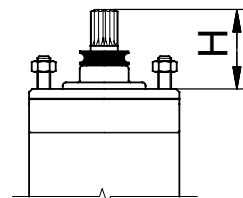
### 5.3.3 Pumps with separate coupling

1. Clean and fit the coupling and press it home against the pump shaft. The parallel key must be fitted correctly before the screws in the coupling are tightened.
2. If there is no axial clearance or it is lower than the measurement stated, the pump has not been assembled correctly, and it should be checked.
3. Check the shaft height of the motor before fitting the pump body. If the shaft height does not comply with the measurement stated, it should be adjusted, or it may be necessary to replace the axial bearing of the motor.



#### 4" motor

$38.15 \pm 0.15$  mm



#### 6" motor

$73 +0/-0.2$  mm

TM00 3003 3998 - TM01 6249 2099

Fig. 2

4. Fit the pump body to the motor so that the cable opening in the suction interconnector fits over the motor socket.

5. Lubricate and tighten the nuts pos. 19a holding the pump and motor together diagonally to 18 Nm (M8) or 70 Nm (M12), see [2. Torques and lubricants](#).
6. Position the motor cable up the side of the pump so that it lies flat without twisting.
7. Place the cable guard pos. 18 over the motor so that it engages with the flaps of the suction interconnector and the slits of the discharge piece, or fasten it in both ends with the screws pos. 18a.