

# SMG

50/60 Hz DIN/ANSI

Service instructions





# SMG

---

## English (GB)

Service instructions .....	4
----------------------------	---

## Original service instructions

## Table of contents

<b>1.</b>	<b>Symbols used in this document</b>	<b>4</b>
<b>2.</b>	<b>Identification</b>	<b>5</b>
2.1	Nameplate	5
2.2	Type key	6
<b>3.</b>	<b>Tools</b>	<b>6</b>
<b>4.</b>	<b>Torques and lubricants</b>	<b>7</b>
<b>5.</b>	<b>Oil types and quantity</b>	<b>8</b>
<b>6.</b>	<b>Dismantling and assembling the product</b>	<b>8</b>
6.1	General information	8
6.2	Dismantling the product	8
6.3	Assembling the product	10
<b>7.</b>	<b>Testing the AL05 Ex leakage sensor</b>	<b>11</b>
<b>8.</b>	<b>Winding resistance and stator sizes</b>	<b>12</b>
<b>9.</b>	<b>Sectional drawings</b>	<b>13</b>
9.1	SMG.09.xx - SMG.40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]	13
9.2	SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]	14
9.3	SMG.140.xx - 180.xx [DIN] / SMG.220.xx [ANSI]	15
<b>10.</b>	<b>Exploded drawings</b>	<b>16</b>
10.1	SMG.09.xx - 40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]	16
10.2	SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]	17
10.3	SMG.140.xx - 180.xx [DIN] / SMG.220.xx [ANSI]	18
<b>11.</b>	<b>Document quality feedback</b>	<b>19</b>

## 1. Symbols used in this document



Warning

If these safety instructions are not observed, it may result in personal injury.



Warning

These instructions must be observed for explosion-proof pumps. We recommend that you also follow these instructions for standard pumps.

Caution

If these safety instructions are not observed, it may result in malfunction or damage to the equipment.

Note

Notes or instructions that make the job easier and ensure safe operation.

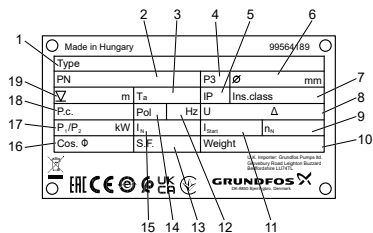
## 2. Identification

This section shows the nameplate, the type key and the codes that can appear in the variant code.



As codes can be combined, a code position may contain more than one code (letter).

### 2.1 Nameplate



Nameplate

Pos.	Description
1	Type designation
2	Product number and serial number
3	Liquid temperature range
4	Production site
5	Enclosure class according to IEC
6	Propeller diameter
7	Insulation class
8	Rated voltage
9	Rated speed, propeller
10	Weight
11	Starting current
12	Frequency
13	Safety factor
14	Number of poles
15	Rated current
16	Power factor
17	Motor power P1/P2
18	Production code
19	Maximum installation depth

TM062568

## 2.2 Type key

### 50 and 60 Hz

Example: SMG.15.55.342.Ex.5.1B.

Code	Explanation
S	Type range SMG
M	Version Mixer
G D	Drive Gear-driven Direct-driven
P2 15	Motor output power P2 Code from type designation/10 [kW] 1.5 kW
55	Propeller diameter 55 cm
[-]	Applications All applications
342	Propeller speed 342 min <sup>-1</sup>
[-] Ex	Explosion protection Non-explosion-proof Explosion-proof
5 6	Frequency 50 Hz 60 Hz
0B 1B 0K 1K 0P 1P 0Z 1Z	Supply voltage and starting method 400-415 V, DOL 400-415 V, Y/D 380 V, DOL 380 V, Y/D 440-480 V, DOL 440-480 V, Y/D Special, DOL Special, Y/D
[-] A B	Generation First generation Second generation Third generation

### 60 Hz ANSI

Example: SMG.55.25.396.6.0P.

Code	Explanation
S	Type range SMG
M	Version Mixer
G	Drive Gear-driven
P2 55	Motor output power P2 Code from type designation/10 [hp] 5.5 hp
25	Propeller diameter 25 inches
[-]	Applications All applications
396	Propeller speed 396 rpm
[-] Ex	Explosion protection Non-explosion-proof Explosion-proof
6	Frequency 60 Hz
0P 1P 0Z 1Z	Supply voltage and starting method 440-480 V, DOL 440-480 V, Y/D Special, DOL Special, Y/D
[-] A B	Generation First generation Second generation Third generation

## 3. Tools

Description	Gear-driven mixers		Product number	
Socket	TMFS6	Propeller	SMG.09-40 50/60 Hz SI SMG.12-55 60 Hz ANSI	95035457
		Bearings in gear head	SMG.09-40 50/60 Hz SI SMG.12-55 60 Hz ANSI	95035458
	TMFS8	Propeller	SMG.48-120 50/60 Hz SI SMG.75-160 60 Hz ANSI	96257444
		Bearings in gear head	SMG.48-120 50/60 Hz SI SMG.75-160 60 Hz ANSI	95035454
	TMFS10	Propeller	SMG.140-180 50/60 Hz SI SMG.220 60 Hz ANSI	95035455
		Bearings in gear head	SMG.140-180 50/60 Hz SI SMG.220 60 Hz ANSI	95035456
TMFT 36	Bearing-fitting tool kit		All	97905585

## 4. Torques and lubricants

Pos.	Description	Quantity	Dimensions	Torque		Lubricant
				[Nm]	[ft-lbs]	
1008	Screw		M6	8.8	6.5	Loctite 243
			M8	21.4	15.8	
			M10	44	32.5	
			M12	74	54.6	
			M16	183	135	
1020	Motor flange	1				Loctite MR 5923
1021	Screw			By hand		
1022	O-ring	2				Loctite MR 5923
1023	Terminal box cover	1				Loctite MR 5923
1024	Screw		M6	8.8	6.5	Loctite 243
			M8	21.4	15.8	
			M10	44	32.5	
			M12	74	54.6	
			M16	183	135	
1025	O-ring	1				Loctite MR 5923
1028	Screw			By hand		
1041	Screw	1	M6	8.8	6.5	Loctite 511
			M8	21.4	15.8	
			M10	44	32.5	
			M12	74	54.6	
			M16	183	135	
1044	Screw			By hand		
1049	Water-in-oil sensor	1				Loctite 511
1052	Plug	1		8	6	PTFE tape
1064	Screw		M4	3	2.2	Loctite 243
			M5	5.9	4.4	
			M6	10	7.4	
			M8	25	18.4	
			M10	49	36.1	
			M12	85	62.7	
1090	Slotted nut	1		70	51.6	
1097	Wear ring	1				Loctite 648
1098	Shaft seal	Stationary part	Outside			Soapy water or cream
			Seal face			Loctite 7063
		Rotating part	Inside			Soapy water or cream
1099	Screw		M6	8.8	6.5	Loctite 243
			M8	21.4	15.8	
			M10	44	32.5	
			M12	74	54.6	
			M16	183	135	
1102	Plug			By hand		PTFE tape
1104	Lip seal	Outside and inside				Shell Cassida grease
1106	Slotted nut			70	51.6	
1111	Screw		M6	8.8	6.5	Loctite 511
			M8	21.4	15.8	
			M10	44	32.5	
			M12	74	54.6	
			M16	183	135	
1158	Nut			30	22.1	

## 5. Oil types and quantity

### 50/60 Hz DIN

Type	Gear casing [l] ISO VG 68
SMG.09-40.xx	1.2
SMG.48-120.xx	2.5
SMG.140-180.xx	4.0

### 60 Hz ANSI

Type	Gear casing [fl oz] ISO VG 68
SMG.12-55.xx	40.6
SMG.75-160.xx	84.5
SMG.220.xx	135

## 6. Dismantling and assembling the product

### WARNING



Before starting service work, remove the fuses or switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

Disconnect the power supply cable in accordance with local regulations.



Make sure that all rotating parts have stopped moving.

### WARNING



All regulations applying to mixers or flowmakers installed in potentially explosive environments must be observed.

Make sure that no work is carried out in potentially explosive environment.

Before starting any work on mixers or flowmakers used in liquids which could constitute a hazard to health, carry out thorough cleaning and venting of mixer or flowmaker, tank, etc. according to local regulations.

### Spare parts

Replace defective parts by new parts. Motor parts must not be reconditioned by machining, retapping, welding, etc.

### 6.1 General information

Position numbers of parts (digits) refer to sections Sectional drawings and Exploded drawings.

#### Before assembling the product

- Clean and check all parts.
- Replace defective parts by new parts.
- Order the necessary service kits.
- Always replace gaskets and O-rings.

#### During assembly

- Lubricate and tighten screws and nuts according to section [4. Torques and lubricants](#).

#### Related information

[4. Torques and lubricants](#)

### 6.2 Dismantling the product

#### 6.2.1 Propeller

1. Remove the plug (pos. 1102).
2. Remove the plug (pos. 1101) and drain the oil into a suitable container.
3. Remove the screw (pos. 1111), the washer (pos. 1110), the hub cover (pos. 1109) and the O-ring (pos. 1108).
4. Remove the outer slotted nut (pos. 1106) with a suitable tool.
5. Remove the inner slotted nut (pos. 1106).
6. Gently tap on the back of the propeller with a plastic hammer to remove it from the shaft.



### 6.2.2 Sealing system of propeller hub and gear casing

1. Remove the lip seals (pos. 1104) from the inside of the hub.
2. Remove the key (pos. 1105) from the shaft.

**Caution** Take care not to damage the surface of the wear ring.

3. Remove the rotating shaft seal part (pos. 1098) from the gear shaft (pos. 1093).
4. Gently tap on the side of the wear ring to remove it from the gear casing.
5. Remove the stationary shaft seal part (pos. 1098) from the wear ring.
6. Remove the intermediate ring (pos. 1095) from the wear ring.

These pumps have no intermediate ring:

**Note** SMG.48.xx - 120.xx [DIN]  
SMG.75.xx - 160.xx [ANSI].

### 6.2.3 Motor and cable

1. Place the motor in horizontal position with the terminal box upwards.
2. Remove the screws (pos. 1024).
3. Cut with a knife along the terminal box cover (pos. 1023) to protect the paint.
4. Remove the terminal box cover and the O-ring (pos. 1025).
5. Write down the numbers on the wires to ensure correct connection.
6. Disconnect the cable conductors from the motor windings including the screw (pos. 1028).
7. Remove the cable relief (pos. 1009) from the cable (pos. 1001).
8. Cut with a knife between the terminal box and the cable flange (pos. 1002) to protect the paint.
9. Remove the screws (pos. 1008), the cable flange (pos. 1002) and the cable (pos. 1001).
10. Remove the small cable seal (pos. 1006), the thrust washer (pos. 1005), the large cable seal (pos. 1004), the cable guide (pos. 1003) and the cable flange (pos. 1002) with the O-ring (pos. 1007).
11. Place the motor in vertical position with the shaft upwards.
12. Remove the screws (pos. 1021).
13. Cut with a knife between the motor flange (pos. 1020) and the motor housing (pos. 1017) to protect the paint.
14. Screw two screws into the threaded holes of the motor flange to separate the motor flange and motor housing.
15. Remove the motor flange with rotor (pos. 1019) from the motor housing.

**Note** Take care not to damage the wires of the water-in-oil sensor (pos. 1049).

16. Remove the locking ring (pos. 1051) and the spacer ring (pos. 1050).
17. Remove the rotating shaft seal part (pos. 1048).
18. Remove the rotor flange (pos. 1020) from the rotor.
19. Push the stationary shaft seal part (pos. 1048) out of the motor flange (pos. 1020).
20. Remove the water-in-oil sensor (pos. 1049).
21. Remove the seal washer (pos. 1173) from the water-in-oil sensor.
22. Place the motor in horizontal position.
23. Remove the compensation disc (pos. 1038) from the N-end of the motor housing.
24. Remove the bearings (pos. 1039 and 1047) from the rotor shaft (pos. 1019).

25. Remove the O-ring (pos. 1022) from the motor flange.
26. Remove the nut (pos. 1158), the spring washer (pos. 1045) and the screw (pos. 1044) from the motor housing and mark the position of the stator.
27. Remove the stator from the motor housing.

**Note** Take care not to damage any wires.

### 6.2.4 Gear casing

1. Cut with a knife between the motor housing (pos. 1017) and the gear casing (pos. 1088) to protect the paint.
2. Remove the screws (pos. 1021).
3. Lift the unit with a crane and knock the motor housing free of the gear casing.
4. Remove the gear casing.
5. Remove the planet carrier (pos. 1067) and the sun wheel (pos. 1060).
6. Remove the O-ring (pos. 1022) from the motor flange (pos. 1020).
7. Remove the shaft seal (pos. 1048) from the motor flange.
8. Remove the screws (pos. 1064) from the ring gear (pos. 1062).
9. Remove the ring gear.

#### SMG.09.xx - 40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]

1. Remove the locking ring (pos. 1089) from the gear shaft (pos. 1093).
2. Unlock the lock washer (pos. 1091).
3. Remove the slotted nut (pos. 1090).
4. Remove the lock washer (pos. 1091).

#### SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]

1. Remove the locking ring (pos. 1089) from the gear shaft (pos. 1093).
2. Remove the slotted nut (pos. 1090).

#### SMG.140.xx - 180.xx [DIN] / SMG.220.xx [ANSI]

1. Unlock the lock washer (pos. 1091).
2. Remove the slotted nut (pos. 1090).
3. Remove the lock washer (pos. 1091).

#### All types

1. Knock the shaft out of the gear casing using a plastic hammer. The inner bearing ring (pos. 1092) is removed at the same time.
2. Remove the outer bearing rings (pos. 1092 and 1094).
3. Remove the inner bearing rings (pos. 1094) from the shaft by means of a puller.

### 6.2.5 Stator

1. Remove the nut (pos. 1046) from the motor housing (pos. 1017).
2. Remove the screw (pos. 1044) from the motor housing.
3. Disconnect the stator wires from the motor housing and pull the stator (pos. 1018) out of the motor housing.

## 6.3 Assembling the product

### 6.3.1 Motor

**Note** Make sure that the rotor is positioned correctly.

**Caution** Do not use a hammer.

- Heat the bearings (pos. 1039 and 1047) and fit them on the ends of the rotor shaft.

**Caution** If you use a bearing heater, make sure that the temperature does not exceed 80 °C (176 °F).

**Note** Use a hydraulic press if a bearing heater is not available.

- Fit the seal washer (pos. 1173) on the water-in-oil sensor (pos. 1049) and lubricate the washer and threads with Loctite 511.
- Fit the water-in-oil sensor into the motor flange (pos. 1020) and tighten it a little by hand.

**Note** Keep the wires of the water-in-oil sensor away from the bearing, for instance by means of a plastic strip.

- Lubricate the groove for the O-ring (pos. 1022) on the motor side of the motor flange (pos. 1020) with Loctite MR 5923.
- Fit and lubricate the O-ring with Loctite MR 5923.
- Insert the rotor (pos. 1019) into the motor flange (pos. 1020).
- Place the rotor with the motor flange upwards.
- Fit the stationary shaft seal part (pos. 1048) into the motor flange (pos. 1020).
- Clean the shaft and the seal face of the shaft seal.
- Fit the rotating shaft seal part (pos. 1048) on the stationary shaft seal part.
- Fit the spacer ring (pos. 1050) and the locking ring (pos. 1051).
- Fit and lubricate the O-ring with Loctite MR 5923.
- Insert the stator into the motor housing (pos. 1017).

**Note** Make sure that the fixation holes for alignment are positioned correctly.

**Caution** Take care not to damage any wires.

- Fit the screw (pos. 1044), the spring washer (pos. 1045) and the nut (pos. 1158), and tighten the nut. See section [Torques and lubricants](#).

- Lead the wires into the terminal box.

- Place the motor housing (pos. 1017) in vertical position.

- Fit the compensation disc (pos. 1038) into the N-end of the motor housing.

- Insert the rotor into the motor housing. Connect the wires of the water-in-oil sensor (pos. 1049) before the rotor is fully inserted.

**Note** Align the motor flange with the water-in-oil sensor pointing downwards/away from the terminal box.

- Fit the screws (pos. 1021) and tighten them a little by hand.

- Place the motor in horizontal position.

- Fit the cable flange (pos. 1002) and the O-ring (pos. 1007) on the cable (pos. 1001).

- Lubricate the O-ring with soapy water or cream and fit it into the cable flange.

- Fit the cable guide (pos. 1003), the large cable seal (pos. 1004), the thrust washer (pos. 1005) and the small cable seal (pos. 1006) on the cable (pos. 1001).

- Lubricate the complete seal unit with soapy water or cream and insert it into the terminal box.

- Lubricate the threads of the screws (pos. 1008) with Loctite 243.

- Fit the screws into the cable flange and tighten them. See section [Torques and lubricants](#).

- Fit the cable relief (pos. 1009) on the cable.

**Note** Make sure that you have enough cable in the terminal box before tightening the cable relief.

- Fit the screw (pos. 1028) and the lock washer (pos. 1029).

- Connect the wires according to the notes you made during dismantling. Secure connections with terminal tubes and shrink-on sleeves.

- Remove the screw (pos. 1041) and the washer (pos. 1040) from the motor housing.

- Wrap PTFE tape around the plug (pos. 1052).

- Fit the plug into the motor housing and tighten it. See section [Torques and lubricants](#).

- Lubricate the screw (pos. 1041) with Loctite 511 and fit the washer (pos. 1040) on the screw.

- Fit the screw into the motor housing (pos. 1017) and tighten it. See section [Torques and lubricants](#).

- Lubricate the groove in the terminal box cover (pos. 1023) with Loctite MR 5923.

- Fit and lubricate the O-ring with Loctite MR 5923.

- Fit the terminal box cover (pos. 1023).

- Lubricate the threads of the screws (pos. 1024) with Loctite 243 and tighten the screws. See section [Torques and lubricants](#).

#### Related information

##### [4. Torques and lubricants](#)

### 6.3.2 Gear casing

- Fit the ring gear (pos. 1062) into the gear casing (pos. 1088).
- Lubricate the threads of the screws (pos. 1064) with Loctite 243 and tighten the screws. See section [Torques and lubricants](#).
- Fit the outer bearing ring (pos. 1092) into the gear casing.
- Heat the inner bearing ring (pos. 1094) using a bearing heater and fit it on the shaft.

**Caution** If you use a bearing heater, make sure that the temperature does not exceed 80 °C (176 °F).

**Note** Use a hydraulic press if a bearing heater is not available.

- Fit the shaft (pos. 1093) into the gear casing.

- Heat the inner bearing ring (pos. 1092) using a bearing heater and fit it on the shaft.

#### SMG.09.xx - 40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]

- Fit the lock washer (pos. 1091) and the slotted nut (pos. 1090) on the shaft, and tighten the slotted nut. See section [Torques and lubricants](#).
- Lock the slotted nut with the lock washer.
- Fit the locking ring (pos. 1089).

#### SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]

- Fit the slotted nut (pos. 1090) on the shaft, and tighten the slotted nut. See section [Torques and lubricants](#).
- Fit the locking ring (pos. 1089).

#### SMG.140.xx - 180.xx [DIN] / SMG.220.xx [ANSI]

- Fit the lock washer (pos. 1091) and the slotted nut (pos. 1090) on the shaft, and tighten the slotted nut. See section [Torques and lubricants](#).
- Lock the slotted nut with the lock washer.

#### All types

- Wrap PTFE tape around the plug (pos. 1101).
- Fit the plug into the gear casing and tighten it.
- Fit the sun wheel (pos. 1060).

- Lubricate the O-ring with oil and fit it on the shaft.

**Note** Check that the shaft seal (pos. 1048) is intact and that the shaft can rotate freely.

- Fit the planet carrier (pos. 1067 or 1083) and place the gear casing on the motor flange.
- Lubricate the threads of the screws (pos. 1099) with Loctite 243 and fasten the gear casing on the motor flange. See section [Torques and lubricants](#).
- Apply a new coat of paint if the coat is damaged.

#### Related information

##### 4. [Torques and lubricants](#)

#### 6.3.3 Sealing system of propeller hub and gear casing

- Lubricate the wear ring (pos. 1097) with Loctite 648 and fit it into the propeller end of the gear casing.
- Insert the intermediate ring (pos. 1095) into the wear ring if the version requires an additional ring.
- Lubricate the stationary shaft seal part (pos. 1098) with soapy water or cream and fit it into the wear ring.
- Remove surplus soapy water or cream and clean the surface of the stationary part by means of Loctite 7063.
- Remove the inner ring from the rotating shaft seal part and fit the rotating shaft seal part (pos. 1098).
- Lubricate the inner lip seal (pos. 1104) with Shell Cassida grease and fit it into the hub with the open side pointing away from the hub.
- Lubricate the inner lip seal with Shell Cassida grease, and fit and lubricate the outer lip seal.
- Fit the key (pos. 1105) into the gear shaft.
- Lubricate the shaft with Shell Cassida grease and fit the hub on the shaft.
- Fit the slotted nut on the shaft with the chamfered end pointing away from the hub and tighten it. See section [Torques and lubricants](#).
- Fit the other slotted nut on the shaft with the chamfered end towards the hub and tighten it. See section [Torques and lubricants](#).
- Fill the hub top partly with gear oil. See section [Oil types and quantity](#).
- Fit the hub cover (pos. 1109).
- Lubricate the threads of the screw (pos. 1111) with washer (pos. 1110) with Loctite 511.
- Fit the screw and tighten it. See section [Oil types and quantity](#).
- Wrap PTFE tape around the plug (pos. 1101).
- Fit the plug into the gear casing and tighten it.
- Fill the gear casing with oil through the hole for the plug (pos. 1102). See section [Oil types and quantity](#).
- Wrap PTFE tape around the plug (pos. 1102).
- Fit the plug into the gear casing and tighten it.
- Apply a new coat of paint if the coat is damaged.

#### Related information

##### 4. [Torques and lubricants](#)

##### 5. [Oil types and quantity](#)

#### 6.3.4 Cable entry

- Fit the cable flange (pos. 1002) and the O-ring (pos. 1007) on the cable (pos. 1001).
- Lubricate the O-ring with soapy water or cream and fit it into the cable flange.
- Fit the cable guide (pos. 1003), the large cable seal (pos. 1004), the thrust washer (pos. 1005) and the small cable seal (pos. 1006) on the cable (pos. 1001).

- Lead the cable into the terminal box on the motor housing (pos. 1017).

**Caution** Make sure that the cable entry is fitted correctly in the cable hole of the motor housing.

- Fit the screws (pos. 1008) with the washers into the cable flange and cross-tighten the screws. See section [Torques and lubricants](#).
  - Lubricate the groove for the O-ring (pos. 1025) with Loctite MR 5923 and fit the O-ring.
  - Fit the cable relief (pos. 1009) on the cable.
  - Connect the wires according to the notes you made during dismantling. Secure connections with terminal tubes and shrink-on sleeves.
  - Fit the earth conductor and the washer (pos. 1029) on the screw (pos. 1028).
  - Fit the screw into the terminal box on the motor housing and tighten it.
- Caution** Take care not to damage any wires.
- Fit the cable clamp with the conical shape upwards using the screws and the washers.
  - Apply a new coat of paint if the coat is damaged.

#### Related information

##### 4. [Torques and lubricants](#)

## 7. Testing the AL05 Ex leakage sensor

#### WARNING



If the sensor has been or is to be incorporated in an explosion-proof product, you must not carry out the tests described below. The intrinsically safe sensor (EN 60079-11) loses the explosions-proof aspect if it is connected to non-intrinsically safe devices.

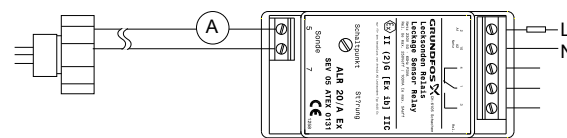
The AL05 Ex leakage sensor is integrated in a submerged agitator and connected to the ALR 20/A Ex leakage sensor relay via two wires. The relay supplies the sensor with power and receives a current signal from the sensor. The signal depends on the amount of water in the gear oil.

The current signal decreases as the amount of water in the oil increases and is compared to a manually adjustable switching point. If the switching point is exceeded, the relay switches to fault mode.

In case of a short circuit or a cable breakage the relay also automatically switches to fault mode.

#### Leakage sensor with relay

In order to test the sensor and the relay, measure the current flowing through the sensor and compare it to the values in the table below.



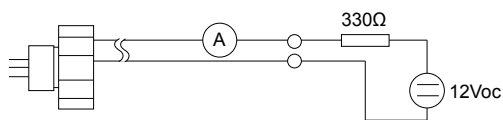
TM064366

	Current measured [mA]	Cause	Status of relay
< 0.5	No current	Cable breakage	Fault
0.5 - 5	Low current	Water in the oil	Fault
5-11	Normal value	A little or no water in the oil	Depends on the switching point of the relay.
> 11	Too high current	The power supply cable is short-circuited.	Fault

### Leakage sensor without relay

If no relay is available or the sensor is to be tested separately, you can replace the relay by a direct-current supply of 12 V. In this case a 330 Ω resistor must be added to the circuit.

Now, the measured current is comparable to the table above.



TM064367

## 8. Winding resistance and stator sizes

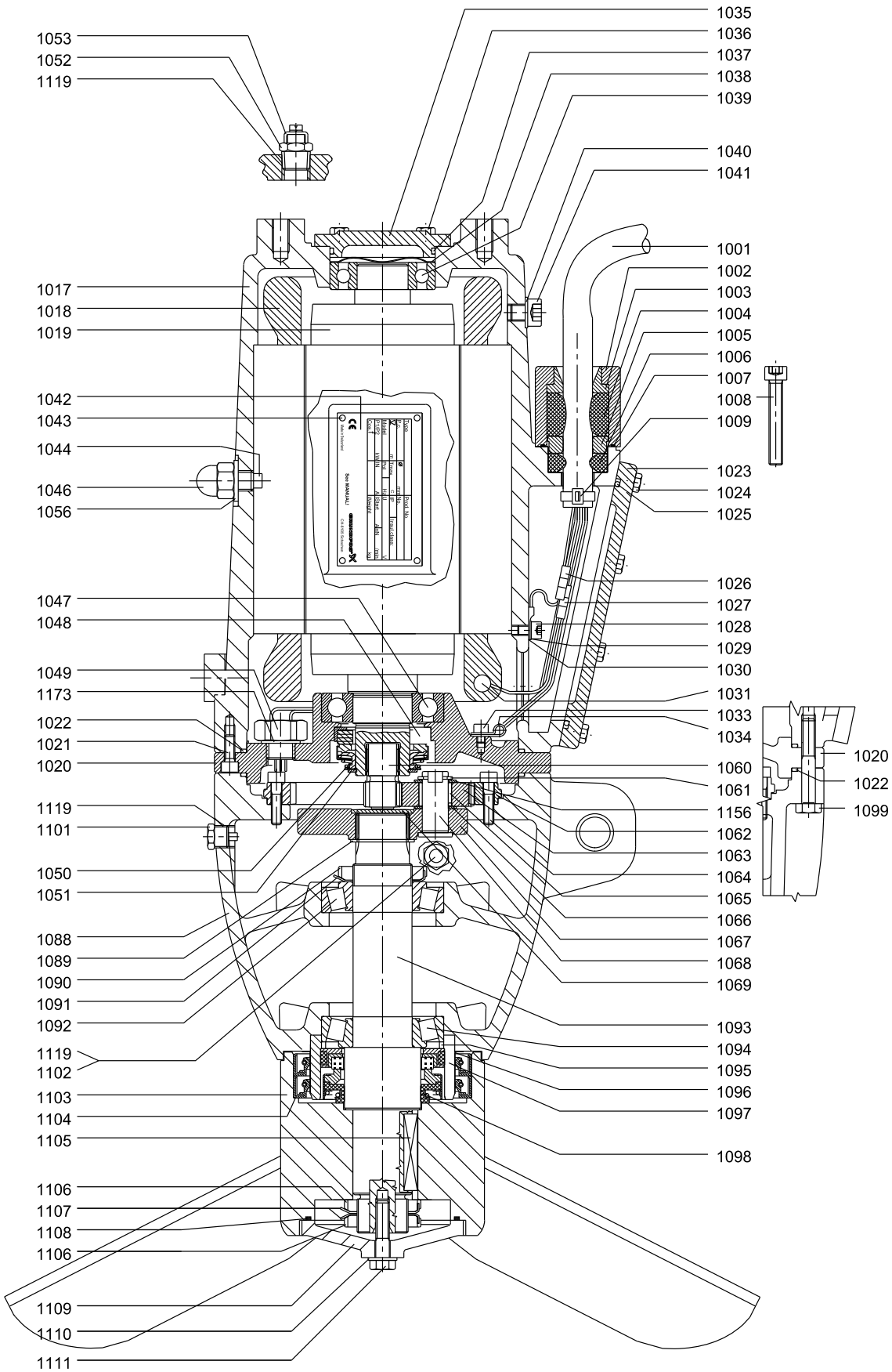
Product type			Stator winding				No-load current **			Connection	Product number	
50 Hz	60 Hz	60 Hz ANSI	Poles	Winding resistance *	Length	Outer diameter	Inner diameter	50 Hz, 400 V	60 Hz, 380 V	60 Hz, 460 V		Motor kit
				[Ω]	[mm]	[mm]	[mm]	[A]	[A]	[A]		
	-	-										
SMG.09.55	SMG.09.55	SMG.12.22										
SMG.12.63	SMG.12.63	SMG.16.25	6	4.0	125	155	100	2.2	1.5	1.9	Y	95039700
SMG.16.63	SMG.12.63	SMG.22.25										
SMG.20.71	SMG.20.71	SMG.27.28										
SMG.25.71	SMG.25.71	SMG.34.28	4	5.1	155	155	100	2.8	1.8	2.5	Δ	95039701
SMG.30.71	SMG.33.71	SMG.44.28										
SMG.36.71	SMG.38/40.71	SMG.55.28										
SMG.48.73												
SMG.56.86	SMG.56.86	SMG.75.34	4	1.3	185	200	125	8.4	5.1	6.9	Δ	95039702
SMG.70.86	SMG.70.86	SMG.95.34										
SMG.85.86	SMG.95.86	SMG.130.34										
SMG.110.86	SMG.120.86	SMG.160.34	4	0.74	280	200	125	12.9	8.2	10.6	Δ	95039703
SMG.140.90												
SMG.180.90	SMG.160.90	SMG.220.35	4	0.40	270	240	150	18.8	11.6	14.6	Δ	95039704

\* Resistance of one phase winding without power supply cable. Tolerances: ± 0.2 for values greater than 1 and ± 0.1 for values less than 1.

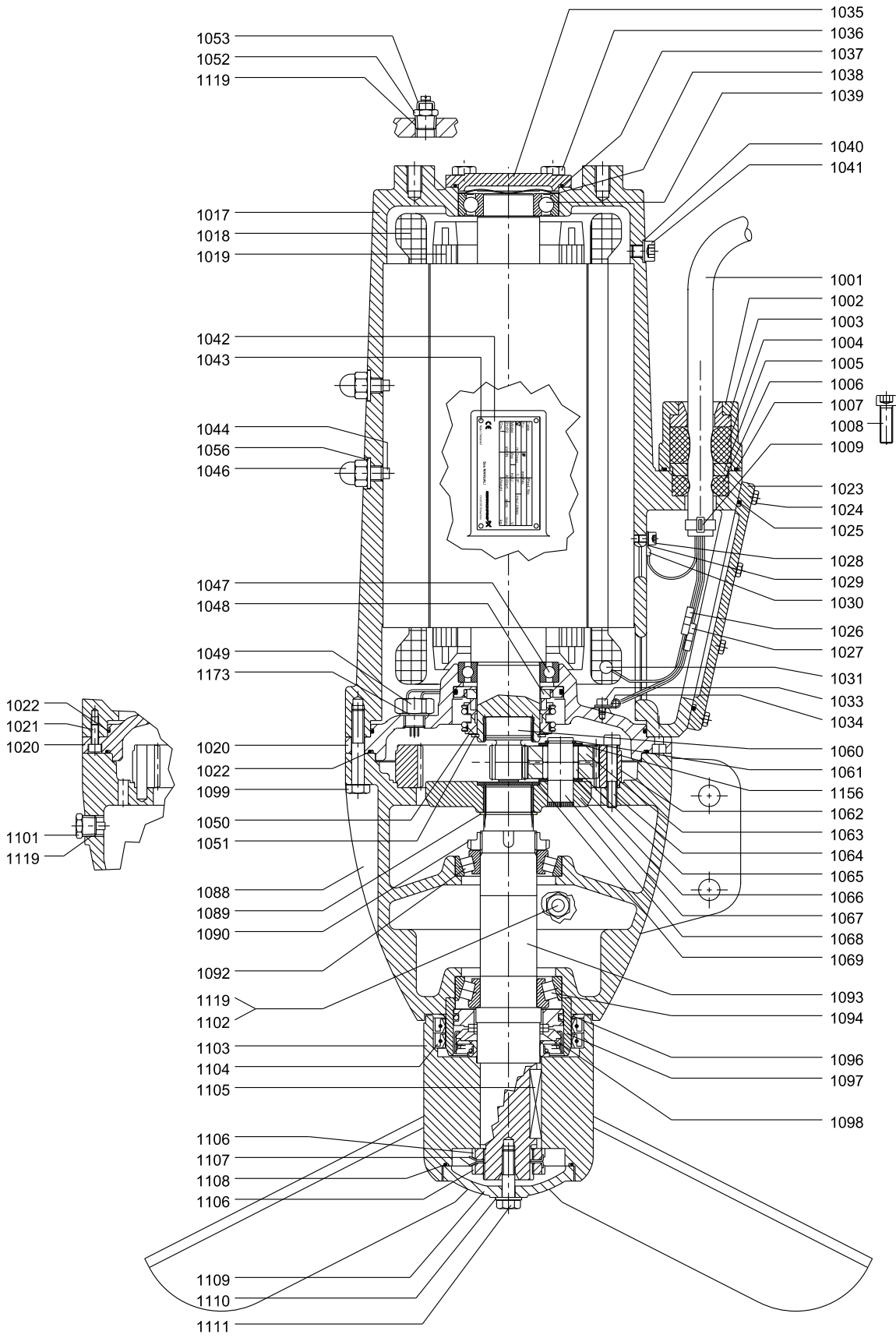
\*\* No-load current at a specific power supply (± 10 %).

### 9. Sectional drawings

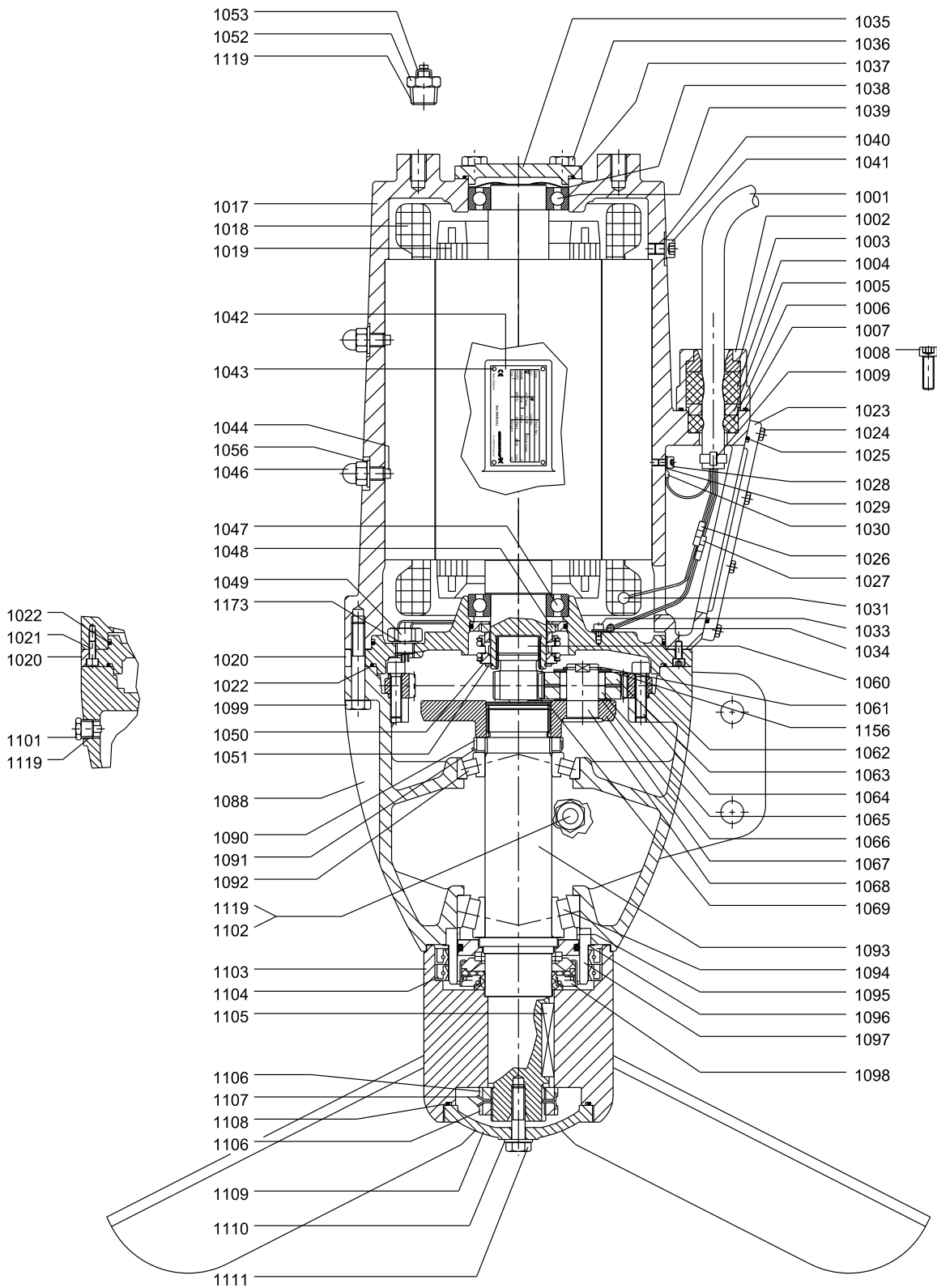
#### 9.1 SMG.09.xx - SMG.40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]



9.2 SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]

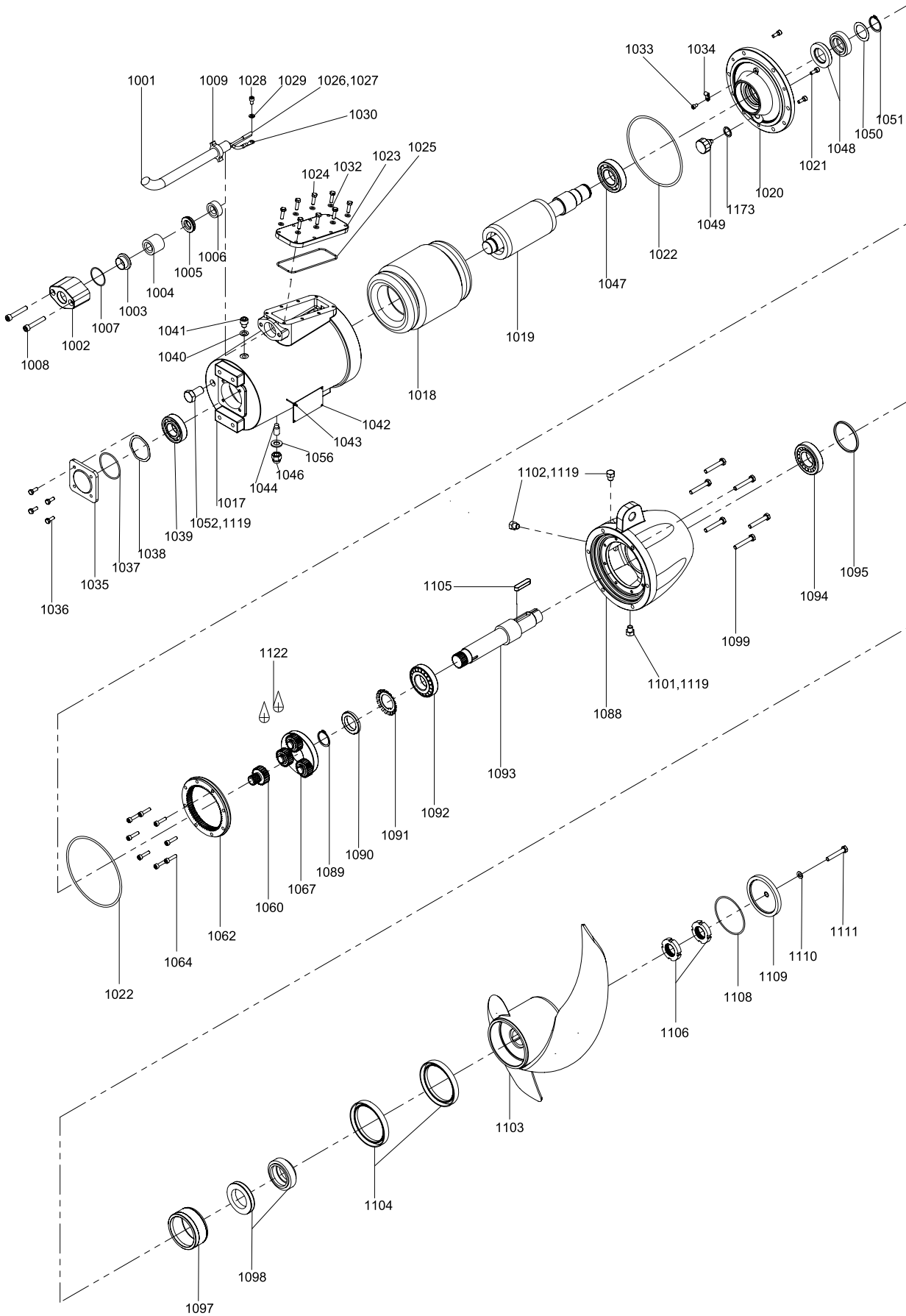






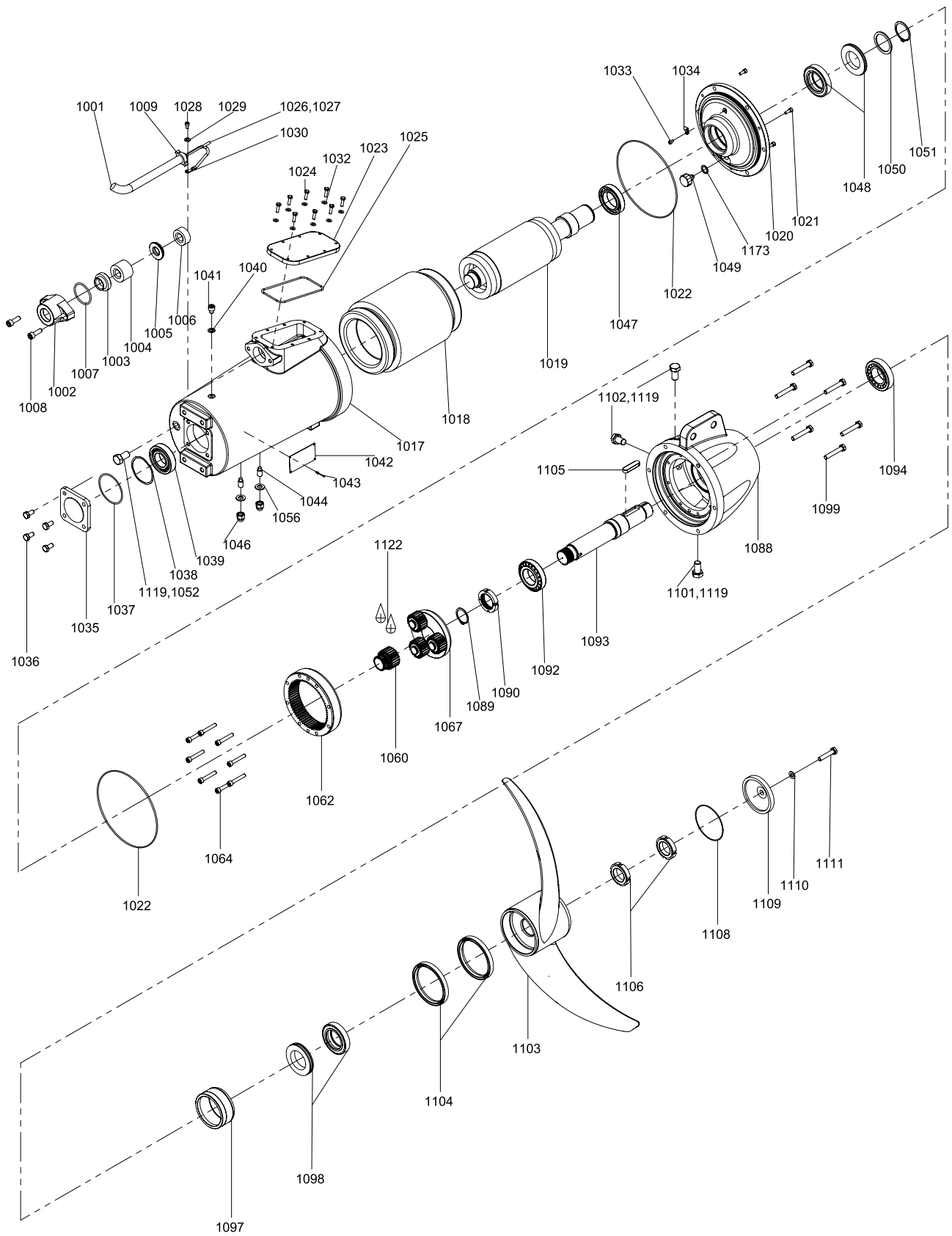
## 10. Exploded drawings

### 10.1 SMG.09.xx - 40.xx [DIN] / SMG.12.xx - 55.xx [ANSI]





10.2 SMG.48.xx - 120.xx [DIN] / SMG.75.xx - 160.xx [ANSI]



TM062484



## 11. Document quality feedback

To provide feedback about this document, scan the QR code using your phone's camera or a QR code app.



[Click here to submit your feedback](#)

**Argentina**

Bombas GRUNDFOS de Argentina S.A.  
Ruta Panamericana km. 37.500 Indust  
1619 - Garin Pcia. de B.A.  
Tel.: +54-3327 414 444  
Fax: +54-3327 45 3190

**Australia**

GRUNDFOS Pumps Pty. Ltd.  
P.O. Box 2040  
Regency Park  
South Australia 5942  
Tel.: +61-8-8461-4611  
Fax: +61-8-8340-0155

**Austria**

GRUNDFOS Pumpen Vertrieb Ges.m.b.H.  
Grundfosstraße 2  
A-5082 Grödig/Salzburg  
Tel.: +43-6246-883-0  
Fax: +43-6246-883-30

**Belgium**

N.V. GRUNDFOS Bellux S.A.  
Boomsesteenweg 81-83  
B-2630 Aartselaar  
Tel.: +32-3-870 7300  
Fax: +32-3-870 7301

**Bosnia and Herzegovina**

GRUNDFOS Sarajevo  
Zmaj od Bosne 7-7A  
BiH-71000 Sarajevo  
Tel.: +387 33 592 480  
Fax: +387 33 590 465  
www.ba.grundfos.com  
E-mail: grundfos@bih.net.ba

**Brazil**

BOMBAS GRUNDFOS DO BRASIL  
Av. Humberto de Alencar Castelo Branco,  
630  
CEP 09850 - 300  
São Bernardo do Campo - SP  
Tel.: +55-11 4393 5533  
Fax: +55-11 4343 5015

**Bulgaria**

Grundfos Bulgaria EOOD  
Slatina District  
Iztochna Tangenta street no. 100  
BG - 1592 Sofia  
Tel.: +359 2 49 22 200  
Fax: +359 2 49 22 201  
E-mail: bulgaria@grundfos.bg

**Canada**

GRUNDFOS Canada inc.  
2941 Brighton Road  
Oakville, Ontario  
L6H 6C9  
Tel.: +1-905 829 9533  
Fax: +1-905 829 9512

**China**

GRUNDFOS Pumps (Shanghai) Co. Ltd.  
10F The Hub, No. 33 Suhong Road  
Minhang District  
Shanghai 201106 PRC  
Tel.: +86 21 612 252 22  
Fax: +86 21 612 253 33

**Columbia**

GRUNDFOS Colombia S.A.S.  
Km 1.5 vía Siberia-Cota Conj. Potrero  
Chico,  
Parque Empresarial Arcos de Cota Bod. 1A.  
Cota, Cundinamarca  
Tel.: +57(1)-2913444  
Fax: +57(1)-8764586

**Croatia**

GRUNDFOS CROATIA d.o.o.  
Buzinski prilaz 38, Buzin  
HR-10010 Zagreb  
Tel.: +385 1 6595 400  
Fax: +385 1 6595 499  
www.hr.grundfos.com

**Czech Republic**

GRUNDFOS Sales Czechia and Slovakia  
s.r.o.  
Čajkovského 21  
779 00 Olomouc  
Tel.: +420-585-716 111

**Denmark**

GRUNDFOS DK A/S  
Martin Bachs Vej 3  
DK-8850 Bjerringbro  
Tel.: +45-87 50 50 50  
Fax: +45-87 50 51 51  
E-mail: info\_GDK@grundfos.com  
www.grundfos.com/DK

**Estonia**

GRUNDFOS Pumps Eesti OÜ  
Peterburi tee 92G  
11415 Tallinn  
Tel.: + 372 606 1690  
Fax: + 372 606 1691

**Finland**

OY GRUNDFOS Pumput AB  
Trukkikuja 1  
FI-01360 Vantaa  
Tel.: +358-(0) 207 889 500

**France**

Pompes GRUNDFOS Distribution S.A.  
Parc d'Activités de Chesnes  
57, rue de Malacombe  
F-38290 St. Quentin Fallavier (Lyon)  
Tel.: +33-4 74 82 15 15  
Fax: +33-4 74 94 10 51

**Germany**

GRUNDFOS GMBH  
Schlüterstr. 33  
40699 Erkrath  
Tel.: +49-(0) 211 929 69-0  
Fax: +49-(0) 211 929 69-3799  
E-mail: infoservice@grundfos.de  
Service in Deutschland:  
kundendienst@grundfos.de

**Greece**

GRUNDFOS Hellas A.E.B.E.  
20th km. Athinon-Markopoulou Av.  
P.O. Box 71  
GR-19002 Peania  
Tel.: +0030-210-66 83 400  
Fax: +0030-210-66 46 273

**Hong Kong**

GRUNDFOS Pumps (Hong Kong) Ltd.  
Unit 1, Ground floor, Siu Wai industrial  
Centre  
29-33 Wing Hong Street & 68 King Lam  
Street, Cheung Sha Wan  
Kowloon  
Tel.: +852-27861706 / 27861741  
Fax: +852-27858664

**Hungary**

GRUNDFOS Hungária Kft.  
Tópark u. 8  
H-2045 Törökbálint  
Tel.: +36-23 511 110  
Fax: +36-23 511 111

**India**

GRUNDFOS Pumps india Private Limited  
118 Old Mahabalipuram Road  
Thoraiakkam  
Chennai 600 097  
Tel.: +91-44 2496 6800

**Indonesia**

PT GRUNDFOS Pompa  
Graha intrub Lt. 2 & 3  
Jln. Cililitan Besar No.454. Makasar,  
Jakarta Timur  
ID-Jakarta 13650  
Tel.: +62 21-469-51900  
Fax: +62 21-460 6910 / 460 6901

**Ireland**

GRUNDFOS (Ireland) Ltd.  
Unit A, Merrywell Business Park  
Ballymount Road Lower  
Dublin 12  
Tel.: +353-1-4089 800  
Fax: +353-1-4089 830

**Italy**

GRUNDFOS Pompe Italia S.r.l.  
Via Gran Sasso 4  
I-20060 Truccazzano (Milano)  
Tel.: +39-02-95838112  
Fax: +39-02-95309290 / 95838461

**Japan**

GRUNDFOS Pumps K.K.  
1-2-3, Shin-Miyakoda, Kita-ku  
Hamamatsu  
431-2103 Japan  
Tel.: +81 53 428 4760  
Fax: +81 53 428 5005

**Kazakhstan**

Grundfos Kazakhstan LLP  
7' Kyz-Zhibek Str., Kok-Tobe micr.  
KZ-050020 Almaty Kazakhstan  
Tel.: +7 (727) 227-98-55/56

**Korea**

GRUNDFOS Pumps Korea Ltd.  
6th Floor, Aju Building 679-5  
Yeoksam-dong, Kangnam-ku, 135-916  
Seoul, Korea  
Tel.: +82-2-5317 600  
Fax: +82-2-5633 725

**Latvia**

SIA GRUNDFOS Pumps Latvia  
Deglava biznesa centrs  
Augusta Deglava ielā 60  
LV-1035, Rīga,  
Tel.: + 371 714 9640, 7 149 641  
Fax: + 371 914 9646

**Lithuania**

GRUNDFOS Pumps UAB  
Smolensko g. 6  
LT-03201 Vilnius  
Tel.: +370 52 395 430  
Fax: +370 52 395 431

**Malaysia**

GRUNDFOS Pumps Sdn. Bhd.  
7 Jalan Peguam U1/25  
Glenmarie industrial Park  
40150 Shah Alam, Selangor  
Tel.: +60-3-5569 2922  
Fax: +60-3-5569 2866

**Mexico**

Bombas GRUNDFOS de México  
S.A. de C.V.  
Boulevard TLC No. 15  
Parque industrial Stiva Aeropuerto  
Apodaca, N.L. 66600  
Tel.: +52-81-8144 4000  
Fax: +52-81-8144 4010

**Netherlands**

GRUNDFOS Netherlands  
Veluwezoom 35  
1326 AE Almere  
Postbus 22015  
1302 CA ALMERE  
Tel.: +31-88-478 6336  
Fax: +31-88-478 6332  
E-mail: info\_gnl@grundfos.com

**New Zealand**

GRUNDFOS Pumps NZ Ltd.  
17 Beatrice Tinsley Crescent  
North Harbour Industrial Estate  
Albany, Auckland  
Tel.: +64-9-415 3240  
Fax: +64-9-415 3250

**Norway**

GRUNDFOS Pomper A/S  
Stramsveien 344  
Postboks 235, Leirdal  
N-1011 Oslo  
Tel.: +47-22 90 47 00  
Fax: +47-22 32 21 50

**Poland**

GRUNDFOS Pompy Sp. z o.o.  
ul. Klonowa 23  
Baranowo k. Poznania  
PL-62-081 Przeźmierowo  
Tel.: (+48-61) 650 13 00  
Fax: (+48-61) 650 13 50

**Portugal**

Bombas GRUNDFOS Portugal, S.A.  
Rua Calvet de Magalhães, 241  
Apartado 1079  
P-2770-153 Paço de Arcos  
Tel.: +351-21-440 76 00  
Fax: +351-21-440 76 90

**Romania**

GRUNDFOS Pompe România SRL  
S-PARK BUSINESS CENTER, Clădirea  
A2, etaj 2  
Str. Tipografilor, Nr. 11-15, Sector 1, Cod  
013714  
Bucuresti, Romania  
Tel.: 004 021 2004 100  
E-mail: romania@grundfos.ro

**Serbia**

Grundfos Srbija d.o.o.  
Omladinskih brigada 90b  
11070 Novi Beograd  
Tel.: +381 11 2258 740  
Fax: +381 11 2281 769  
www.rs.grundfos.com

**Singapore**

GRUNDFOS (Singapore) Pte. Ltd.  
25 Jalan Tukang  
Singapore 619264  
Tel.: +65-6681 9688  
Fax: +65-6681 9689

**Slovakia**

GRUNDFOS s.r.o.  
Prievozská 4D 821 09 BRATISLAVA  
Tel.: +421 2 5020 1426  
sk.grundfos.com

**Slovenia**

GRUNDFOS LJUBLJANA, d.o.o.  
Leskoškova 9e, 1122 Ljubljana  
Tel.: +386 (0) 1 568 06 10  
Fax: +386 (0) 1 568 06 19  
E-mail: tehnika-si@grundfos.com

**South Africa**

GRUNDFOS (PTY) LTD  
16 Lascelles Drive, Meadowbrook Estate  
1609 Germiston, Johannesburg  
Tel.: (+27) 10 248 6000  
Fax: (+27) 10 248 6002  
E-mail: Igradidge@grundfos.com

**Spain**

Bombas GRUNDFOS España S.A.  
Camino de la Fuenteçilla, s/n  
E-28110 Algete (Madrid)  
Tel.: +34-91-848 8800  
Fax: +34-91-628 0465

**Sweden**

GRUNDFOS AB  
Box 333 (Lunnagårdsgatan 6)  
431 24 Mölndal  
Tel.: +46 31 332 23 000  
Fax: +46 31 331 94 60

**Switzerland**

GRUNDFOS Pumpen AG  
Bruggacherstrasse 10  
CH-8117 Fällanden/ZH  
Tel.: +41-44-806 8111  
Fax: +41-44-806 8115

**Taiwan**

GRUNDFOS Pumps (Taiwan) Ltd.  
7 Floor, 219 Min-Chuan Road  
Taichung, Taiwan, R.O.C.  
Tel.: +886-4-2305 0868  
Fax: +886-4-2305 0878

**Thailand**

GRUNDFOS (Thailand) Ltd.  
92 Chaloein Phrakiat Rama 9 Road  
Dokmai, Pravej, Bangkok 10250  
Tel.: +66-2-725 8999  
Fax: +66-2-725 8998

**Turkey**

GRUNDFOS POMPA San. ve Tic. Ltd. Sti.  
Gebze Organize Sanayi Bölgesi  
İhsan dede Caddesi  
2. yol 200. Sokak No. 204  
41490 Gebze/ Kocaeli  
Tel.: +90 - 262-679 7979  
Fax: +90 - 262-679 7905  
E-mail: satis@grundfos.com

**Ukraine**

ТОВ "ГРУНДФОС УКРАЇНА"  
Бізнес Центр Європа  
Столичне шосе, 103  
м. Київ, 03131, Україна  
Tel.: (+38 044) 237 04 00  
Fax: (+38 044) 237 04 01  
E-mail: ukraine@grundfos.com

**United Arab Emirates**

GRUNDFOS Gulf Distribution  
P.O. Box 16768  
Jebel Ali Free Zone, Dubai  
Tel.: +971 4 8815 166  
Fax: +971 4 8815 136

**United Kingdom**

GRUNDFOS Pumps Ltd.  
Grovebury Road  
Leighton Buzzard/Beds. LU7 4TL  
Tel.: +44-1525-850000  
Fax: +44-1525-850011

**U.S.A.**

Global Headquarters for WU  
856 Koomey Road  
Brookshire, Texas 77423 USA  
Phone: +1-630-236-5500

**Uzbekistan**

Grundfos Tashkent, Uzbekistan  
The Representative Office of Grundfos  
Kazakhstan in Uzbekistan  
38a, Oybek street, Tashkent  
Tel.: (+998) 71 150 3290 / 71 150 3291  
Fax: (+998) 71 150 3292

<b>98845054 0723</b>
ECM: 1366849