

SQF

Installation and operating instructions



SQF

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English (GB) Installation and operating instructions

Original installation and operating instructions

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1. General information

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



Read this document before you install the product. Installation and operation must comply with local regulations and accepted codes of good practice.

1.1 Hazard statements

The symbols and hazard statements below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

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 hazard statements are structured in the following way:

SIGNAL WORD



Description of the hazard

Consequence of ignoring the warning

- Action to avoid the hazard.

1.2 Notes

The symbols and notes below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.



Observe these instructions for explosion-proof products.



A blue or grey circle with a white graphical symbol indicates that an action must be taken.



A red or grey circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.



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



Tips and advice that make the work easier.

1.3 Target group

These installation and operating instructions are intended for professional installers and for the operators of the product.

2. Receiving the product

2.1 Inspecting the product

On receipt of the product, do the following:

1. Check that the product is as ordered.
If the product is not as ordered, contact the supplier.
2. Check that no visible parts have been damaged.
If any visible parts have been damaged, contact the transport company.

2.2 Scope of delivery

The box contains the following items:

Quantity	Description
1	SQF pump
1	Installation and operating instructions for the SQF pump
1	Quick guide
1	Separate nameplate
(1)	Terminal kit (Optional. Market specific)

3. Installing the product

3.1 Location

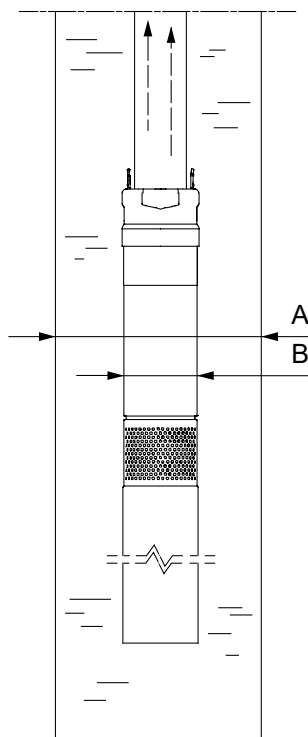


The motor must be installed below the water level.



The separate nameplate supplied with the product must be fixed close to the installation site.

3.1.1 Minimum space



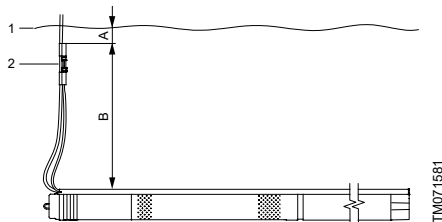
Product and borehole diameters

TM07 0055

Pos.	Description
A	<p>Minimum borehole diameter (recommended):</p> <ul style="list-style-type: none"> - Ø76 (3") for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5, SQF 3, SQF 5, SQF 7. - Ø105 (4") for SQF 3A, SQF 5A, SQF 7, SQF 9, SQF 14. <p>Borehole diameter should include: product diameter, well casing tolerance and borehole tolerance.</p>
B	<p>Product diameter:</p> <ul style="list-style-type: none"> - Ø74 (3") for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5, SQF 3, SQF 5, SQF 7. - Ø101 (4") for SQF 3A, SQF 5A, SQF 7, SQF 9, SQF 14.

3.1.2 Installation depths

- Maximum installation depth:
 - 150 m below the static water level, which is the level of water when the product is not in operation.
- Minimum installation depths:
 - Vertical installation: During startup and operation, the product, including the level sensor, must be completely submerged in water.
 - Horizontal installation: The level sensor must be installed at least 0.3 m below the dynamic water level, which is the level of water when the pump is in operation. Note that the level sensor must be completely submerged in water and lifted above the product.



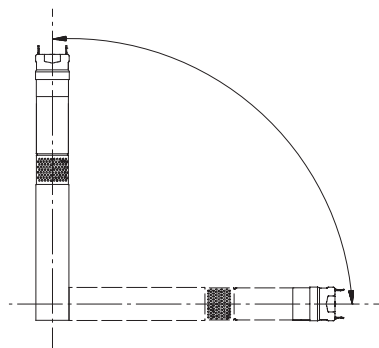
TM071581

Horizontal installation

Pos.	Description
1	Dynamic water level
2	Level sensor
A	Minimum 0.3 m above the level sensor
B	Cable length below level sensor: 0.3 - 0.6 m (product specific)

3.1.3 Position of the product

The pump is suitable for vertical as well as horizontal installation and any position in between.



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Pump positions



Never place the pump shaft below the horizontal plane.

3.2 Mechanical installation

WARNING

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

WARNING

Contamination when pumping drinking water

Death or serious personal injury



- Before the pump is used for supplying drinking water, flush the pump thoroughly with clean water.
- Do not use the pump for drinking water if the internal parts have been in contact with particles or substances not suitable for water intended for human consumption.



The pump must be installed according to national water regulations and standards.



Position the product horizontally on a solid support when you work on the product.



Fit a flow sleeve to avoid overheating of the motor, if you install the pump in one of these locations:

- in a wide borehole or basin
- horizontally.

3.2.1 Lifting the product

DANGER

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

WARNING

Electric shock

Death or serious personal injury



- Do not lift the product by the power cable.

CAUTION

Crushing of feet

Minor or moderate personal injury



- Wear safety shoes when moving the product.
- Use lifting equipment.

CAUTION

Sharp element

Minor or moderate personal injury



- Wear safety gloves.
- Use lifting equipment.



Observe local regulations concerning limits for manual lifting and handling.

1. Note the weight of the product stated on the pump and motor nameplates.
2. Follow one of these procedures according to the weight of the product and local regulations.
 - a. If manual lifting is allowed, grip the pump by the outlet chamber or attach lifting wires to the wire hooks.
 - b. If manual lifting is not allowed, attach lifting wires to the wire hooks and use appropriate lifting equipment. Remove the lifting wires before the product is lowered below ground level.

Related information

[5.1 Handling the product](#)

[5.2 Storing the product](#)

[8. Taking the product out of operation](#)

3.2.2 Cable termination kit

We recommend that you join the submersible drop cable and the motor cable by means of a Grundfos cable termination kit, type KM.

Cable termination kit, type KM

Cross-sectional area [mm ²]	Product number
1.5 to 6.0	96021473
> 6.0	Contact Grundfos

3.2.3 Connecting the pipes

WARNING

Pressurised system

Death or serious personal injury



- Design the system for the maximum pump pressure plus 10 % to avoid pipe burst.



We recommend that you install a pressure relief valve designed for the maximum pump pressure.



Minimum torque for fitting the first riser pipe section to the pump is 55 Nm.

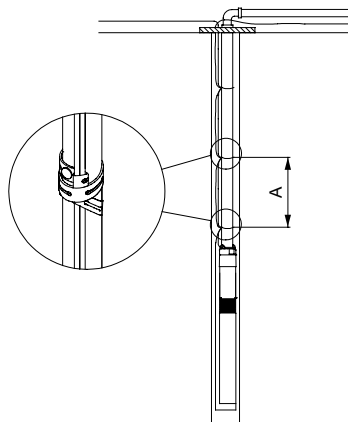
1. Fit the riser pipe to the pump. Grip the pump by the outlet chamber. Take care not to damage the cables.
 - a. If you use plastic pipes, use a compression coupling between the pump and the first pipe section.



Plastic pipes expand when they are loaded. Consider this fact in relation to the installation depth.

3.2.4 Fastening the drop cable to the riser pipe

1. Fit cable clips on the riser pipe for every 3 m.
 - a. If you use plastic pipes, leave some loose cable between the cable clips, as plastic pipes expand when loaded.



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Where to fit cable clips on the riser pipe

Pos.	Description
A	3 m

3.2.5 Lowering the pump into the borehole

DANGER

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

WARNING

Electric shock

Death or serious personal injury



- Do not lower the product by the power cable.



Use appropriate lifting equipment to lower the pump into the borehole or basin.



Observe local regulations concerning limits for manual lifting and handling.



We recommend that you secure the pump with an unloaded straining wire before lowering it into the borehole or basin.

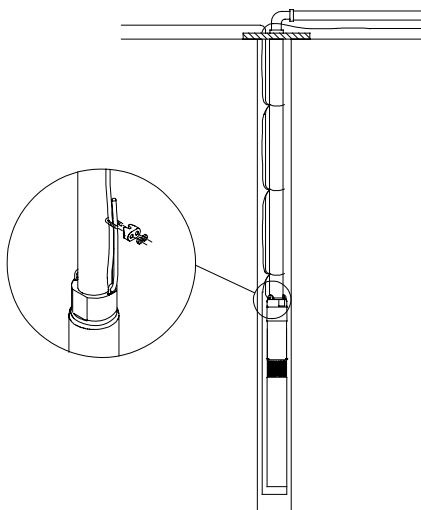
1. Note the weight of the product stated on the pump and motor nameplates.
2. Follow one of these procedures according to the weight of the product and local regulations:
 - a. If manual lifting is allowed, grip the pump by the outlet chamber or attach lifting wires to the wire hooks.
 - b. If manual lifting is not allowed, attach lifting wires to the wire hooks and use appropriate lifting equipment. Remove the lifting wires before the product is lowered below ground level.
3. Lower the pump carefully into the borehole or basin by holding on to the riser pipe. Take care not to damage the power cable and the submersible drop cable.
4. Fasten the drop cable to the riser pipe with cable clips as you connect the pipes.

Securing the pump with a straining wire



Do not use the straining wire to carry the load of both pump and riser pipe when you lower the pump or pull the pump out of the borehole.

1. Secure the pump with an unloaded straining wire.



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Straining wire

- Lower the pump to the required depth and complete the installation with a borehole seal.
- Loosen the straining wire so that it becomes unloaded and lock the straining wire to the borehole seal with wire locks.

3.3 Electrical connection

DANGER

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

DANGER

Electric shock

Death or serious personal injury



- The product must be earthed.
- Connect the product permanently to the fixed wiring via an external main switch with a minimum contact gap of 3 mm in all poles.

WARNING

Electric shock

Death or serious personal injury



- Do not lift the product by the power cable.



All electrical connections must be carried out by a qualified electrician in accordance with local regulations.



Check that the supply voltage and frequency correspond to the values stated on the nameplate.



If the power cable is damaged, it must be replaced by the manufacturer, the manufacturer's service partner or a similarly qualified person.



The cross-sectional area of the submersible drop cable must be large enough to meet the voltage requirements.



Never connect the product to an external frequency converter.

3.3.1 Residual-current circuit breakers

WARNING

Electric shock

Death or serious personal injury



- Use a suitable type of GFCI capable of handling earth fault currents with DC content (pulsating DC).

If the pump is connected to an electrical installation where a ground fault circuit interrupter (GFCI) is used for additional protection, this ground Fault Circuit Interrupter shall be able to trip when ground fault currents with DC content occur.

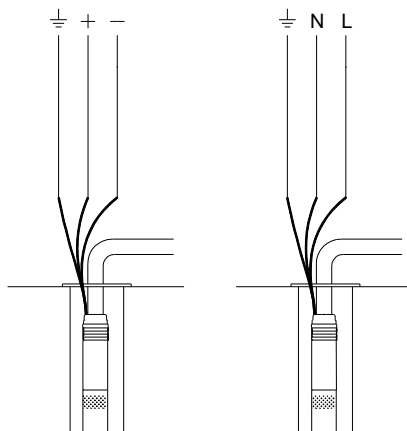
If national legislation requires a Residual Current Device (RCD) or equivalent in the electrical installation, this must be type B or better, due to the nature of the constant DC leakage current.

The residual-current circuit breaker must be marked like this:



Take into account the total leakage current of all the electrical equipment in the installation.

3.3.2 Wiring diagrams



Wiring diagrams for SQF

3.3.3 Motor protection

The product incorporates thermal protection against slow overloading and blocking. No external motor protection is required.

TMC66230

TM070523

Related information

6.1.1 Built-in motor protection

3.3.4 Controllers for SQF pumps

You can connect SQF pumps to the following controller types:

- CIU 903 (up to 2500 W)
- CU 200 (up to 1400 W)
- IO101
- IO102
- IO50.

3.3.5 Sizing the submersible drop cable

Before you install the pump, make sure to use the right cable size for the submersible drop cable.



The cross-section of the submersible drop cable must be large enough to meet the voltage requirements.

How to calculate the maximum cable length

If the power factor (PF) of the motor unit equals 1.0, you can use this equation to calculate the maximum cable length:

$$L_{MAX} = \frac{U \cdot \Delta U}{I \cdot 2 \cdot 100 \cdot \left(\frac{\rho}{q}\right)}$$

TM070522

Explanation of the equation

Symbol	Unit	Description
L_{MAX}	[m]	Maximum cable length
U	[V]	Supply voltage
ΔU	[%]	Maximum recommended voltage drop in percentage
I	[A]	Maximum motor current
ρ	[Ω mm ² /m]	Specific resistance of the cable
q	[mm ²]	Cross-sectional area of the individual wires in the submersible drop cable

Maximum motor current

The maximum motor current depends on the motor properties and electrical installation. According to IEC 60364-5-52:2009 the installation and cable must be dimensioned for a current that is higher than the maximum motor current.

Maximum recommended voltage drop

- According to IEC 60364-5-52:2009 for installation in domestic applications, the maximum recommended voltage drop is 5 % for cable lengths up to 100 m.
- For installation in industrial applications and in regions where the IEC standard is not applicable, local regulations may require that a different maximum value for voltage drop must be used for the calculation of the maximum cable length.

Specific resistance of the drop cables

The specific resistance of the drop cables supplied by Grundfos for SQ, SQE and SQF pumps is 0.02 Ω mm²/m.

Maximum cable lengths for Grundfos MSF 3 motors

Calculation of maximum cable length for the different motor sizes is based on a voltage drop of 5 % and a supply voltage of 240 V.

If the calculation above cannot be used, go to Grundfos Product Center for sizing.



Grundfos can supply submersible drop cables for any type of installation. Please contact Grundfos for more information.

4. Starting up the product

1. Make sure that the well can yield a quantity of water at least corresponding to the pump performance.
2. Submerge the pump completely in the water.
3. Switch on the power supply.
4. Check that the pump delivers water.
 - a. If the pump does not deliver water, see information on fault finding.

Related information

9. Fault finding the product

4.1 Resetting the product

1. Switch off the power supply for 1 minute. The pump is now reset.
2. Switch on the power and start the pump.

5. Handling and storing the product

5.1 Handling the product

See information on lifting the product.

Related information

[3.2.1 Lifting the product](#)

[8. Taking the product out of operation](#)

5.2 Storing the product



CAUTION

Crushing of feet

Minor or moderate personal injury

- Wear safety shoes when moving the product.

Storing a new product

Make sure that the storage temperature is within the permissible limits.

Storing a used product

If the product is not going to be used for a period of time, proceed as follows:

1. Disconnect the power supply to the product.
2. Lift the product carefully out of the borehole.
3. Disconnect the product from the outlet pipe.
4. Make sure that the storage temperature is within the permissible limits.

If the storage temperature is below zero, the motor must be filled with frost proof motor liquid. Contact a service workshop authorised by Grundfos. See the Grundfos service instruction by scanning the QR code.



<http://net.grundfos.com/qr/i/96547278>

Related information

[3.2.1 Lifting the product](#)

[8. Taking the product out of operation](#)

[10.2 Mechanical data](#)

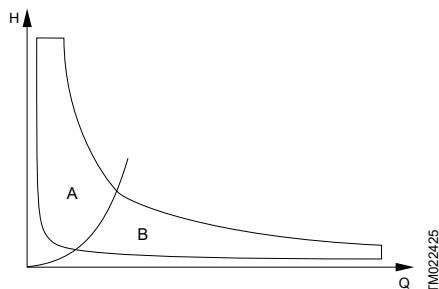
6. Product introduction

6.1 Product description

The SQF pump range comprises two pump technologies:

- helical rotor pump (3") for high heads and small flow rates
- centrifugal pump (3" and 4") for low heads and large flow rates.

The performance curves below illustrate the pump performance of the two pump models.



Performance ranges for helical rotor and centrifugal pumps

Pos.	Description
A	Helical rotor pump
B	Centrifugal pump
Q	/day

All pump types are available in two material variants:

- SQF is the standard version made of stainless steel DIN W.-Nr. 1.4301
- SQF-N is made of stainless steel DIN W.-Nr. 1.4401.

6.1.1 Built-in motor protection

The product incorporates protection of the motor against the following situations:

- dry running
- voltage surges up to 6000 V. In areas with high lightning intensity, external lightning protection is required.
- overvoltage
- undervoltage
- overtemperature.

In case of overload, the built-in overload protection will stop the pump for 5 minutes. After that period, the pump will automatically attempt to restart.

TM070145

Related information

3.3.3 Motor protection

6.1.2 Dry-running protection

If the pump is running and the liquid level in the borehole, tank or basin is drawn below the level sensor, the dry-running protection will stop the pump to ensure that it is not damaged. A level sensor fixed on the power cable ensures that the pump operation stops before dry running occurs.

After a stop caused by dry running, the pump is automatically reset when the level sensor is again submerged in the liquid, and the pump will restart after 5 minutes.

6.2 Intended use

This product is intended for the following applications:

- groundwater supply for private households, irrigation systems, and small waterworks
- liquid transfer in tanks
- pressure boosting.



Only use the product according to the specifications stated in these installation and operating instructions.

6.2.1 Drinking water

If the product is used for drinking water, the following precautions must be taken to avoid contamination:

- Before use, make sure that the product does not come into contact with dust or with chemicals not suitable for contact with drinking water, for example lubricants, greases, or oils.
- If the pump is used with potentially toxic liquids, it can no longer be used for drinking water.
- In case of maintenance, be sure to always use original parts to maintain the initial hygienic characteristics of the product.

6.3 Pumped liquids

The product is suitable for pumping clean, thin, non-aggressive and non-explosive liquids without solid particles or fibres.

Viscosity

Pumping liquids with a higher viscosity than that of water will cause head loss and a higher power consumption.

If liquids with a viscosity higher than that of water are to be pumped, please contact Grundfos.

pH value

5 to 9

Liquid temperature

Observe the maximum liquid temperature of 40 °C under all conditions to ensure sufficient cooling of the motor.

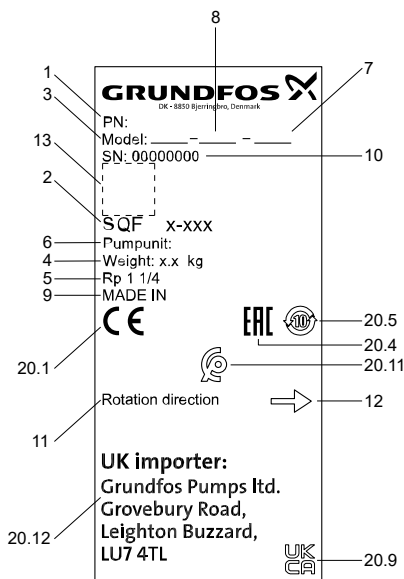
Maximum sand content

Sand in the liquid will reduce the life of the pump and increase the risk of blocking. The sand content of the pumped liquid must not exceed: 50 g/m³.

6.4 Identification

6.4.1 Nameplate for SQF 3" pumps for EU

Nameplate for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5. The nameplate is engraved into the pump sleeve.



Example of nameplate for a SQF 3" pump

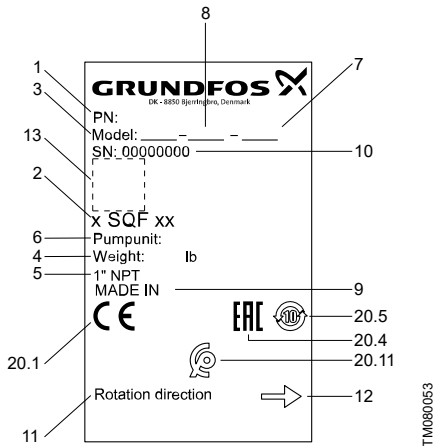
Pos.	Description
1	Product number
2	Type designation
3	Pump generation
4	Pump net weight
5	Type and size of connecting thread
6	Pump unit
7	Year/Week
8	P1= Factory code

TM080052

Pos.	Description
9	Production country
10	Serial number
11	Direction of rotation
12	Arrow for direction
13	Free area for 2D code
20.1	CE
20.11	Morocco
20.12	UK Importer address
20.4	EAC
20.5	CN RoHS
20.9	UKCA

6.4.2 Nameplate for SQF 3" pumps for USA

Nameplate for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5.
The nameplate is engraved into the pump sleeve.



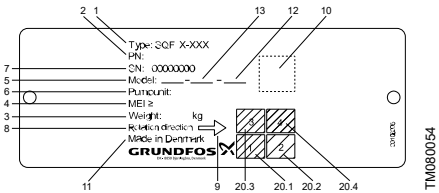
Example of nameplate for a SQF 3" pump

Pos.	Description
1	Product number
2	Type designation
3	Pump generation
4	Pump net weight
5	Type and size of connecting thread
6	Pump unit
7	Year/Week

Pos.	Description
8	P1= Factory code
9	Production country
10	Serial number
11	Direction of rotation
12	Arrow for direction
13	Free area for 2D code
20.1	CE
20.11	Morocco
20.4	EAC
20.5	CN RoHS

6.4.3 Nameplate for SQF 4" pumps

Nameplate for SQF 3A, SQF 5A, SQF 7, SQF 9, SQF 14. The nameplate is attached to the suction inter connector.



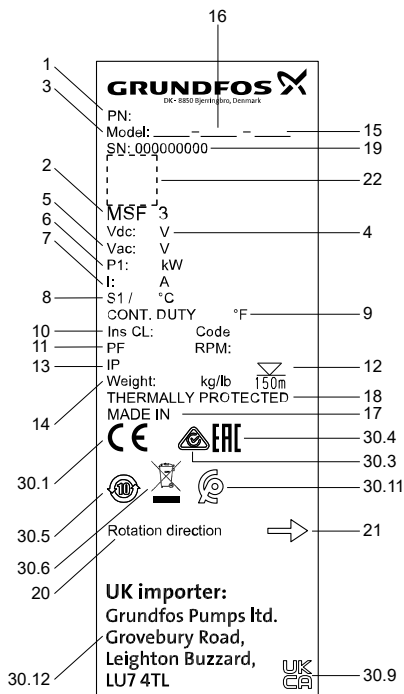
Example of nameplate for SQF 4" pump

Pos.	Description
1	Product number
2	Type designation
3	Pump net weight
4	MEI
5	Model
6	Pump unit
7	Serial number
8	Direction of rotation
9	Arrow for direction
10	Free area for 2D code
11	Production country
12	Year/Week
13	P1= Factory code

Pos.	Description
20.1	CE
20.2	EAC
20.3	CN RoHS
20.4	Morocco

6.4.4 Nameplate for MSF 3 motors

The nameplate is engraved into the motor sleeve.



TM080055

Example of nameplate for an MSF 3 motor

Pos.	Description
1	Product number
2	Type designation
3	Pump generation
4	Voltage DC [V]
5	Voltage AC [V]
6	Maximum input power [kW]
7	Maximum input current [A]

Pos.	Description
8	Maximum continuous operating temperature [°C]
9	Maximum continuous operating temperature [°F]
10	Insulation class
11	Power factor
12	Rated speed [min ⁻¹]
13	Enclosure class
14	Motor net weight [kg/lb]
15	Year/Week
16	P1= Factory code
17	Country of origin
18	Built-in temperature sensor
19	Serial number (8 digits from SAP)
20	Direction of rotation
21	Arrow for direction
22	Free area for 2D code
30.1	CE
30.11	Morocco
30.12	UK Importer address
30.3	RCM
30.4	EAC
30.5	CN RoHS
30.6	CE Weee & Battery No.
30.9	UKCA

6.4.5 Type key for SQF helical rotor pump

SQF 1.2 -2 x

Example

Code	Explanation
SQF	Type range
1.2	Rated flow rate [m ³ /h] at 3000 min ⁻¹
-2	Number of stages
	Blank = Stainless steel DIN W.-Nr. 1.4301
	N = Stainless steel DIN W.-Nr. 1.4401

6.4.6 Type key for SQF centrifugal pump

SQF 5A -3 x

Example

Code	Explanation
SQF	Type range
5A	Rated flow rate [m ³ /h] and pump generation
-3	Number of stages
	Blank = Stainless steel DIN W.-Nr. 1.4301
	N = Stainless steel DIN W.-Nr. 1.4401

6.4.7 Type key for MSF 3 motor

MSF -3 x

Code	Explanation
MSF	Type range
3	Motor diameter in inches
	- [] = Stainless steel EN 1.4301 - AISI 304
x	- N = Stainless steel EN 1.4401 - AISI 316

7. Service**DANGER****Electric shock**

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

DANGER**Magnetic field**

Death or serious personal injury



- Persons with pacemakers dismantling this product must exercise caution when handling the magnetic materials embedded in the rotor.

Service must be performed by Grundfos service engineers or at Authorised Grundfos service workshops.

Service kits and service tools are available from Grundfos. See the Grundfos service instruction by scanning the QR code.



<http://net.grundfos.com/qr/i/96547278>

7.1 Maintenance

The pumps are normally maintenance-free.

8. Taking the product out of operation

<http://net.grundfos.com/qr/i/96547278>

Related information

[3.2.1 Lifting the product](#)

[5.1 Handling the product](#)

[5.2 Storing the product](#)

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9. Fault finding the product

DANGER

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product.
- Make sure that the power supply cannot be switched on accidentally.

Fault finding and fault correction must be carried out by qualified persons.

Related information

4. Starting up the product

9.1 The pump does not run

Cause	Remedy
The fuses in the electric installation are blown.	Replace the blown fuses. If the new ones blow too, check that the electric installation was made correctly and that the submersible drop cable is OK. If fuses keep blowing, contact a local electrician.
No power supply.	Check the power source.
The motor protection has stopped the motor due to overload.	Remove any blockage of the pump or the motor causing the overload. Ensure sufficient power from the power source.
The pump or the submersible drop cable is defective.	Check that the electric installation was made correctly and that the submersible drop cable is OK. Contact the local service center to repair or replace the pump or the submersible drop cable.
Overvoltage or undervoltage has occurred.	Restore correct power supply. Check the specified voltage output from the power source.

9.2 The pump runs but delivers no flow

Cause	Remedy
Low power supply.	Ensure sufficient power from the power source.
The outlet valve is closed.	Open the outlet valve.
The non-return valve is stuck in closed position.	Remove the pump from the borehole and clean or replace the non-return valve.
The inlet strainer is clogged.	Remove the pump from the borehole and clean the inlet strainer.
The pump is defective.	The pump needs repair.

9.3 The pump runs at reduced performance

Cause	Remedy
The drawdown is larger than anticipated.	Lower the pump deeper into the borehole, throttle the pump or replace it with a smaller model to obtain a lower performance.
The outlet valve is partly closed or blocked.	Clean the outlet valve or replace it, if necessary.
The outlet pipe is partly clogged by impurities (ochre).	Clean the outlet pipe or replace it, if necessary.
The non-return valve is partly blocked.	Remove the pump from the borehole and clean or replace the non-return valve.
The pump and the riser pipe are partly clogged by impurities (ochre).	Remove the pump from the borehole. Clean or replace the riser pipe or the pump, if necessary.
The pump is defective.	Have the pump repaired or replaced.
Leakage in the pipes.	Repair or replace the pipes, if necessary.
Leakage in the riser pipe.	Repair or replace the riser pipe.
Low power has occurred.	Ensure sufficient power from the power source. Check the specified voltage output from the power source.

9.4 Frequent starts and stops

Cause	Remedy
The difference between start and stop level is too small.	Increase the differential.
Level sensor is activated.	Lower the pump deeper into the borehole, throttle the pump or replace it with a smaller model to obtain a lower performance.
The non-return valve is leaking or stuck half-open.	Remove the pump from the borehole and clean or replace the non-return valve, if necessary.
The supply voltage is unstable.	Ensure sufficient power from the power source. Check the specified voltage output from the power source.
Low power supply.	Ensure sufficient power from the power source.
The motor temperature is too high.	Check the water temperature and secure sufficient flow around the motor. If necessary, remove the pump from the borehole and add a flow sleeve for cooling.

9.5 How to check the power supply



DANGER

Electric shock

Death or serious personal injury

- Switch off the power supply before you start any work on the product.

1. See the Grundfos service instruction by scanning the QR code.



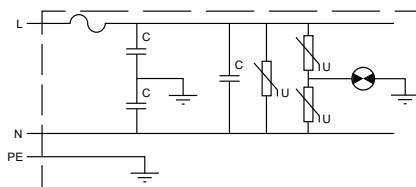
<http://net.grundfos.com/qr/i/96547278>

2. Follow the instructions for the relevant system issued in the Grundfos service instruction.

9.6 Megging



Do not meg an installation incorporating this product as the built-in electronics may be damaged.



10. Technical data

10.1 Operating conditions

Liquid temperature	Maximum 40 °C
pH value	5-9

10.2 Mechanical data

Storage temperature	-20 to +60 °C
Motor liquid	Type SML 3, frost-proof down to -20 °C
Motor cable	2 m, 3 x 1.5 mm ²
Pump outlet size	RP 1 and Rp 1 1/4

Pump diameter	74 mm (3") for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5, SQF 3, SQF 5, SQF 7
	101 mm (4") for SQF 3A, SQF 5A, SQF 7, SQF 9, SQF 14
Borehole diameter	Minimum 76 mm (3") for SQF 0.6, SQF 1, SQF 1.2, SQF 2.5, SQF 3, SQF 5, SQF 7
	Minimum 105 mm (4") for SQF 3A, SQF 5A, SQF 7, SQF 9, SQF 14
Installation depth	Maximum 150 m below static water level
	Minimum for vertical installation: Level sensor must be completely submerged in water.
	Minimum for horizontal installation: Level sensor positioned at least 0.3 m below the dynamic water level.
Net weight	Maximum 12.6 kg depending on the product type.

Related information

5.2 Storing the product

10.3 Electrical data

Supply voltage [V], DC application	30-300 VDC, PE (100-300 VDC for 2500W motor)
Supply voltage [V], AC application	1 x 90-240, - 10 % to + 6 %, PE
Operation via generator	As a minimum, the generator output must be equal to the motor P1 [kW] + 10%.
Frequency [Hz]	50 or 60
Starting current	The motor starting current is equal to the highest value stated on the motor nameplate.
Leakage current	Leakage current does not exceed 3.5 mA
Power factor	PF = 1

11. Disposing of the product

WARNING

Magnetic field

Death or serious personal injury



- Persons with pacemakers dismantling this product must exercise caution when handling the magnetic materials embedded in the rotor.

This product or parts of it must be disposed of in an environmentally sound way.

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.



The crossed-out wheeled bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

See also end-of-life information at www.grundfos.com/product-recycling.

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