SRG

50 Hz

Installation and operating instructions

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English (GB) Installation and operating instructions

Original installation and operating instructions

These installation and operating instructions describe Grundfos SRG 50 Hz recirculation pumps.

Sections 1-5 give the information necessary to be able to unpack, install and start up the product in a safe way.

Sections 6-10 give important information about the product, as well as information on service, fault finding, and disposal of the product.

CONTENTS

Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

Warning

The use of this product requires experience with and knowledge of the product.

Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety.

Children must not use or play with this product.

1. General information

This booklet includes instructions for installing, starting-up and servicing Grundfos 50 Hz recirculation pumps, type SRG, designed for transfer of liquids of low to medium viscosity (≤ 500 mPas) from one tank to another.

1.1 Symbols used in this document

Warning

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

Warning

If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.

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. Safety instructions

Warning

Before starting work on the product, make sure that the fuses have been removed or the mains switch has been switched off. Make sure that the power supply cannot be accidentally switched on.

Warning

These safety instructions as well as the instructions in each individual section must be followed when transporting, storing, handling and operating the pump.

The pump must be installed, connected, started up and serviced by qualified persons.

Beware of rotating parts.

Make sure that persons cannot accidentally fall into the tank, e.g. by installing a cover or railing.

Receiving the product

Warning

Make sure that the pump cannot roll or fall over.

Warning

Before attempting to lift or otherwise handle the individual components of the pump, observe any local regulations that set limits for the weight of the components to be lifted manually by individuals, i.e. handled without the use of lifting equipment.

Installing the product

Warning

Make sure the power supply to the control cabinet has been switched off.

Warning

Before making any electrical connections, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

Warning

When adjusting the relay, beware of electric voltage.

Starting-up the product

Warning

When loosening the oil level screw, note that pressure may have built up in the chamber.

Do not remove the screw until the pressure has been fully relieved.

Warning

Make sure that no persons can fall into the tank.

Servicing the product

Warning

Before starting work on the pump, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

All rotating parts must have stopped moving.

Warning

If a pump has been used for a liquid which is injurious to health or toxic, it will be classified as contaminated.

Warning

When loosening the oil level screw, note that pressure may have built up in the chamber.

Do not remove the screw until the pressure has been fully relieved.

Fault finding the product

Warning

Before starting any work on the pump, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

All rotating parts must have stopped moving.

3. Receiving the product

3.1 Transporting the product

The individual components of the pump must be packed carefully to prevent any damage to the surface protection during transportation.

Warning

Make sure that the pump cannot roll or fall over.

Warning

Before attempting to lift or otherwise handle the individual components of the pump, observe any local regulations that set limits for the weight of the components to be lifted manually by individuals, i.e. handled without the use of lifting equipment.

All lifting equipment must be rated for the purpose and checked for damage before any attempts to lift the components are made. The lifting equipment rating must under no circumstances be exceeded.

3.2 Inspecting the product

On delivery, the pump and any accessories supplied with it must be checked for transport damage. This also applies when the equipment is delivered to the installation site.

If the pump or any accessories have been damaged during transportation, contact your local Grundfos company before continuing to install the equipment. Do not dismantle a damaged new component for further inspection, unless instructed by your local Grundfos company.

The packaging material must be disposed of according to local regulations.

3.3 Storing the product

The pump must be stored in a dry location in which the temperature is not subject to major fluctuations.

If the pump has been stored for more than one year, the gearbox oil must be changed. The oil must be changed even if the pump has never been in use. This is necessary because of natural aging of mineral oil lubricants.

4. Installing the product

During installation, the pump must only be lifted when using the suspension point.

The lifting equipment supplied with the pump as well as the wire used for lifting and lowering the pump into the tank must not be used as universal lifting equipment.

Never hang the pump by the supply cable.

Caution Never let the pump run while hanging in the lifting equipment.

4.1 Positioning

Correct positioning of the pump is essential to ensure trouble-free operation and long life. The following guidelines must be observed:

- If more pumps are installed in the same tank, they must not generate opposite flows.
- The distance from the centre of the pump to the tank bottom (H_{min}) must be equal to the impeller diameter. See fig. 1.
- The distance from the top of the pump rack to the liquid surface (H_{ABOVE}) must fulfil one of the following two requirements:
  - For pumps with vortex shield, the distance must at least be equal to the impeller diameter.
  - For pumps without vortex shield, the distance must at least be equal to 1.5 times the impeller diameter. See fig. 1.

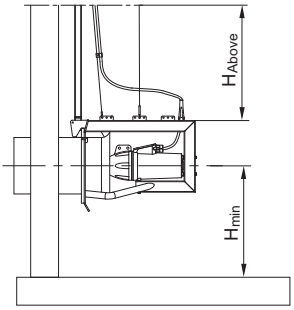

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Fig. 1 Distance to liquid surface and tank bottom

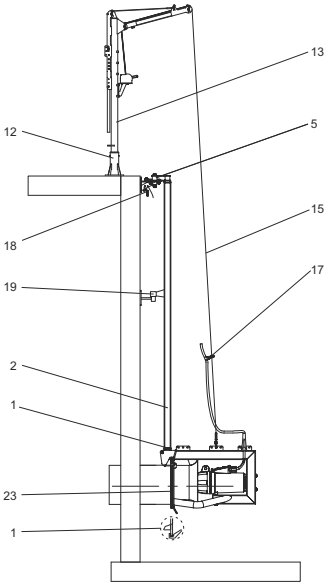

Fig. 2 Open installation

Pos.	Designation
1	Bottom fixation bracket and guide claws on connection flange*
2	Column profile
5	Top fixation bracket
12	Crane foot
13	Crane with winch and lifting wire
15	Lifting wire incl. wire clamp
17	Cable clamp
18	Cable sock, incl. shackle ∅10
19	Intermediate fixation bracket
23	Connection flange

* Guide claws are only available for SRG.xx.80.

4.2 Torques

All nuts and screws used for the installation must be made of stainless steel.

Use grease (Alu-paste) together with a spring washer or lock nut; otherwise, use Loctite or a similar product for lubrication and locking.

All stainless-steel nuts and screws must be tightened to the following torques:

	Screws F-Class 70 [Nm]	Screws F-Class 80 [Nm]
M6	8.8	11.8
M8	21.4	28.7
M10	44	58
M12	74	100
M16	183	245
M20	370	494

4.3 Mechanical installation

See section *4.2 Torques* and fig. 2.

1. Weld the connection flange to the cast-in pipe end in the tank.
2. Weld the profile section to the connection flange and pipe end. Place it in position 12 o'clock.

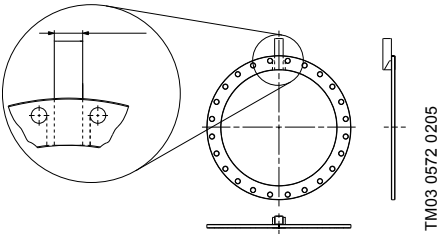

Fig. 3 Profile section on connection flange

3. SRG.xx.80.xx: Weld the guide claws to the connection flange. See fig. 4.

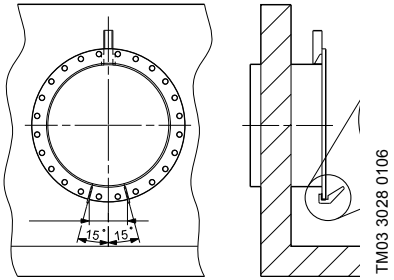

Fig. 4 Position of guide claws

4. Drill the holes for the mounting screws for the top fixation bracket in the concrete.
5. Mount the screws and fit the top fixation bracket.
6. Depending on the length of the column profile, weld the turnable part of an intermediate fixation bracket to the column profile.

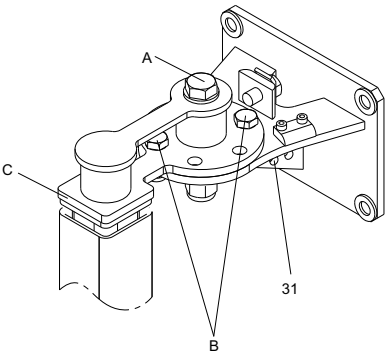

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Fig. 5 Top fixation

7. Position and align the column profile with the profile section on the connection flange. Shorten the column profile (pos. 2) to the correct length to match the position of epoxy insulator (pos. C) at the top fixation bracket. A gap of 5 to 10 mm between collar of epoxy and column profile is optimal. See fig. 5.
8. Remove the epoxy insulator and the turnable metal part by removing the centre screw (pos. A) and the two fixation screws (pos. B).
9. Adapt the outside of the square epoxy insulator to the inside of the column profile. The epoxy insulator must fit tightly inside the column profile.
10. Place the column profile on the profile section on the connection flange and mount the top end with the epoxy insulator and the turnable metal part on the already installed top fixation bracket. Tighten the three screws (pos. A) and (pos. B) in the desired position. It is possible to adjust the angle in steps of 7.5 °.
11. Fit an intermediate fixation bracket to the turnable part welded on to the profile tube in step 6. Drill holes in the tank wall, fit screws in the bracket and tightening the screws.
12. Drill the holes for the mounting screws for the crane foot in the concrete.
13. Mount the crane foot and fit and tighten the screws.
14. Mount the lifting wire on the pump rack using the shackle. See fig. 6.

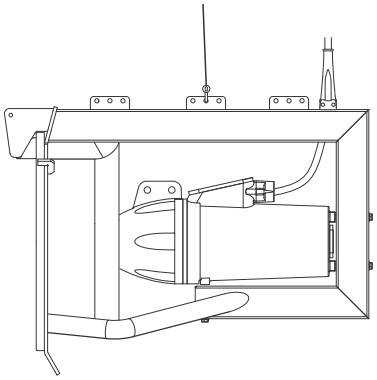

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Fig. 6 Mounting of lifting wire on the pump rack

15. Mount the top end of the safety wire to the hole (pos. 31, fig. 5) of the top fixation bracket by means of a shackle. The other end of the safety wire ends in a shackle through which the lifting wire must run.

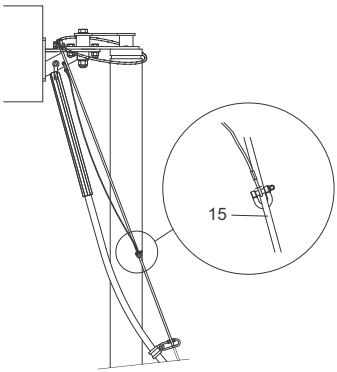

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Fig. 7 Safety wire

16. Fix the power supply cable to the lifting wire by means of a cable clamp approx. 0.8 m above the pump. This will prevent the cable from falling down and becoming entangled in the impeller during operation. Connect the cable clamp to the lifting wire above the wire clamp by means of a snap hook. See fig. 8. Attach the power supply cable to the lifting wire by means of cable clamps placed at 1 m intervals.

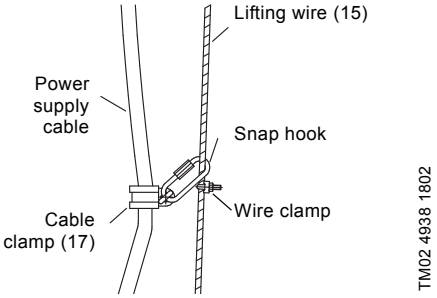

Fig. 8 Attaching the power supply cable to the lifting wire

17. Position the crane in the foot and mount the lifting wire in the drum of the winch.

Caution Always leave at least three turns of wire on the drum. Otherwise the wire may break loose from the drum fixation.

Note Follow the separate installation and operating instructions for cranes.

18. Lift the complete pump (pump rack with motor) using the crane and slide it over the column profile.
19. Slowly lower the pump into the tank and down to position on the connection flange.
20. Mount the cable sock (pos. 18) to the top fixation bracket using the shackle, and pull the motor cable through it to the desired position. See fig. 9. The power supply cable should be slightly tightened.

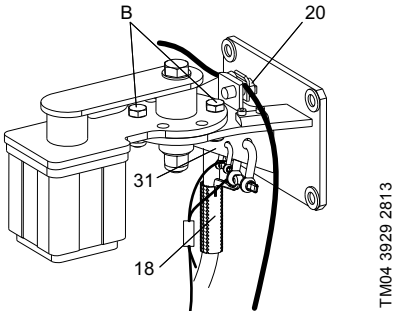

Fig. 9 Top fixation bracket with lifting and safety wires and cable sock

Caution Remove the lifting wire from the crane before starting the pump.

21. Remove the lifting wire from the winch and fit it to the wire clamping (pos. 20) on the top fixation bracket.

Use the lifting wire as a relief for the power supply cable. For this reason, the lifting wire must always be tightened.

Warning

Make sure the power supply to the control cabinet has been switched off.

22. Connect the power supply cable to the terminals in the control cabinet.

4.4 Electrical connection

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

All national and local regulations relating to safety and accident prevention must be observed.

Warning

Before making any electrical connections, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

The supply voltage and frequency are marked on the pump nameplate. Make sure that the pump is suitable for the power supply available at the installation site.

The pump is supplied complete with a power supply cable of 10 m (standard length, suitable for up to 7 m deep tanks). Standard cable lengths are 10 and 15 m, longer cables are available on request. See section *6.2 Identification*.

The motor is marked either with a Y (star) or Δ (delta). Make this connection in an external control panel using conductors 1 to 6 of the power supply cable.

Figure 10 shows a schematic drawing of these star and delta connections. See also section *4.4.2 Wiring diagrams*.

If the pump is connected in delta during operation, the pump can be started in a star-delta connection.

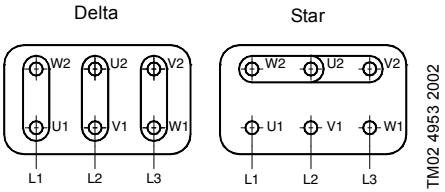

Fig. 10 Schematic drawing of delta and star connection

4.4.1 Starting method

Continuous operation

We recommend star-delta starting, soft starter or frequency converter throughout the entire power range.

Intermittent operation

Start via softstarter or frequency converter is mandatory throughout the entire power range.

4.4.2 Wiring diagrams

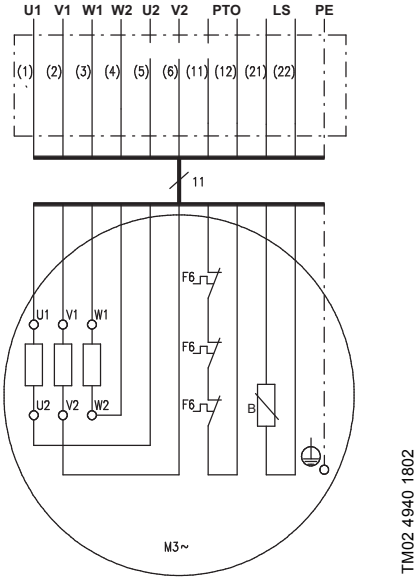

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Fig. 11 Three thermal switches (PTO)

Terminals	Description
1, 2, 3, 4, 5, 6	Ends of the three stator windings (U1, U2, V1, V2, W1, W2)
11, 12	Thermal switches (F6)
21, 22	Leak sensor in gearbox (B)

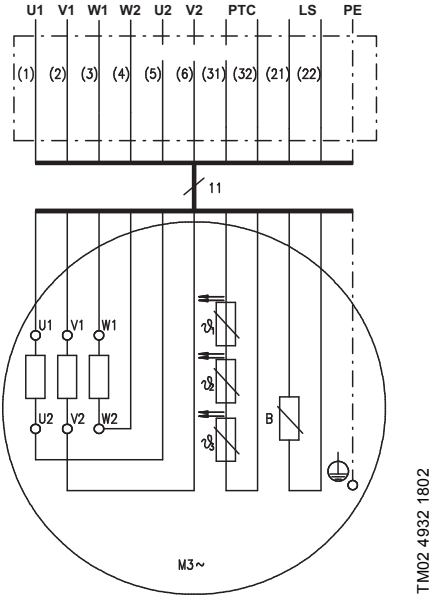

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Fig. 12 Three PTC sensors

Terminals	Description
1, 2, 3, 4, 5, 6	Ends of the three stator windings (U1, U2, V1, V2, W1, W2)
31, 32	PTC sensors (according to DIN 44 081) (ϑ1, ϑ2, ϑ3)
21, 22	Leak sensor in gearbox (B)

4.4.3 Direction of rotation

When the electrical connections have been carried out, check that the impeller is rotating in the correct direction. When viewed from the motor, the impeller must rotate clockwise. An arrow on the motor housing shows the correct direction of rotation.

If the impeller rotates in the wrong direction, interchange two phases of the mains supply (L1, L2, L3).

4.4.4 Frequency converter operation

All SRG pumps are designed for frequency converter operation for energy saving and for soft start. For frequency converter operation, please observe the following information:

- Requirements must be fulfilled.
- Recommendations ought to be fulfilled.
- Consequences must be considered.

4.4.5 Requirements

- Peak voltage and dU/dt must be in accordance with the table below. The values stated are maximum values supplied to the motor terminals. The cable influence has not been taken into account. See the frequency converter data sheet regarding the actual values and the cable influence on the peak voltage and dU/dt.

3x400V 50 Hz:

Product type	Maximum repetitive peak voltage [V]	Maximum dU/dt [V/µs]
SRG.xx.30 SRG.35.50	1500	15000
SRG.xx.xx	1000	3000

- In case the above values are too high, a dU/dt filter could prevent the voltage peaks.
- The thermal protection of the motor must be connected.
- Do not exceed the frequency indicated on the nameplate. Otherwise, there is a risk of motor overload.
- Local regulations or standards must be fulfilled.

4.4.6 Recommendations

- Do not reduce the motor speed to less than 30 % of the rated speed.
- Do not set any slip compensation, as it may lead to an over speed and therefore to motor overload.
- Set the frequency converter U/f ratio to a linear relation, and use the data from the motor nameplate for settings about rated current, power, voltage and frequency.
- Use input and output filters on the frequency converter. See data sheet for the frequency converter used.
- Keep the power cable as short as possible. The peak voltage will increase with the length of the power cable. See data sheet for the frequency converter used.
- Use a screened power cable if there is a risk that electrical noise can disturb other electrical equipment. See data sheet for the frequency converter used.
- Ramp-up and ramp-down time must be at least 5-10 seconds.

4.4.7 Consequences

When operating the product via a frequency converter, please be aware of these possible consequences:

- The locked-rotor torque will be lower. How much lower will depend on the frequency converter type. See the installation and operating instructions for the frequency converter used for information on the locked-rotor torque available.
- The working condition of bearings and shaft seal may be affected. The possible effect will depend on the application. The actual effect cannot be predicted.
- The acoustic noise level may increase. See the installation and operating instructions for the frequency converter for advice as to how to reduce the acoustic noise.

4.5 Electrical protection

4.5.1 Motor protection

The pumps are provided with the following type of motor protection:

Standard SRG pumps incorporate three bimetallic PTO thermal switches (PTO = Protection Thermique á Ouverture). See fig. 11.

Function of thermal switches

The motor is protected against overheating by three thermal switches connected in series, one switch in each winding.

When the maximum winding temperature is reached, the switch will open the circuit and stop the motor.

When the windings have cooled to normal temperature, the switch will close the circuit and the motor can be restarted. Manual restarting is necessary.

See wiring diagram in fig. 11.

Thermal switches (F6)

- Two conductors (terminals 11 and 12).
- Maximum operating voltage of switch: 250 V.
- Maximum switching current: 2.5 A at cos φ = 1.
- Cutting-out temperature: 150 °C.

Function of PTC sensors (optional)

The motor is protected against overheating by three thermal sensors connected in series, one in each winding. When overheated, the motor will stop. Automatic restarting is not permitted in such cases. This requires a thermistor trigger unit with a reconnection suppressor in the control circuit of the motor contactor.

See wiring diagram in fig. 12.

$\vartheta 1$, $\vartheta 2$, $\vartheta 3$: PTC sensors:

- Two conductors (terminals 31 and 32).
- Maximum voltage at the terminals: $U_{max.}$ = 2.5 V (AC/DC).
- Resistance between terminals 31 and 32:
  - at room temperature R = 150 to 750 Ω.
  - at cutting-out temperature (130 °C) R ≥ 4000 Ω.

Note

For transmission tests at terminals 31 and 32, the test voltage must not exceed 2.5 V (AC/DC).

Use an ohmmeter for the test.

4.5.2 Gearbox protection

The gearbox is monitored for the ingress of water by a leak sensor incorporated in the gearbox.

If the monitoring function is required, the leak sensor must be connected to a Grundfos relay, type ALR-20/A.

The ALR-20/A relay must be ordered separately. Product number: 96489569.

Note

The cable between the relay and the pump must not be longer than 50 m.

For a longer distance, use an additional, screened cable. An external alarm indicator, if any, must be connected to the potential-free outputs, terminals 1 and 3 or 4, respectively. Maximum load: 250 V, 5 A.

When the ALR-20/A-Ex relay is connected, a current of up to 10 mA will flow through the leak sensor (terminals 5 and 7 in fig. 13 connected to wires 21 and 22). If water penetrates into the oil chamber, the relay will trigger an alarm signal and/or switch off the motor.

See wiring diagram in fig. 11 or 12.

Leak sensor

- Two conductors (terminals 21 and 22).
- Maximum operating voltage: Approx. 12 V.
- Maximum current: 1 to 10 mA.

Warning

When adjusting the relay, beware of electric voltage.

To adjust the sensitivity of the ALR-20/A relay, proceed as follows:

1. Turn adjusting screw (pos. a) on the relay until indicator light (pos. b) illuminates.
2. Turn the adjusting screw in the opposite direction until the indicator light goes out.
3. Continue to turn the adjusting screw 60 ° (same direction as instep 2).

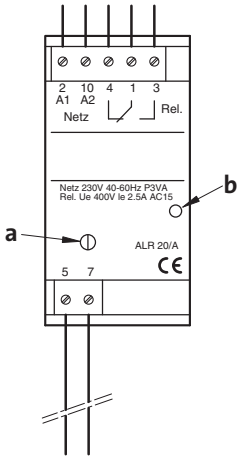

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Fig. 13 Adjusting the relay

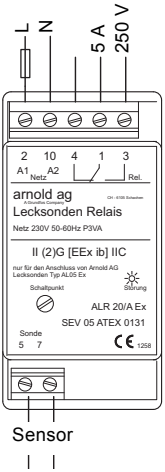

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Fig. 14 ALR-20/A relay connections

Note Do not check the leak sensor with an ohmmeter or other measuring instruments. The leak sensor is an electronic component.

4.5.3 Overload relays

The motor must be protected against overload via a thermal delay relay according to local regulations. The relay must be adjusted to the rated current stated on the nameplate.

In the case of star-delta starting, the adjustable value is to be I_N x 0.58.

Incorporate electro-thermal all-pole triggers in all six mains conductors (U1, V1, W1 and U2, V2, W2).

4.6 Protection against electro-chemical corrosion

Two different metals or alloys cause electro-chemical corrosion if they are connected by an electrolyte. This applies if more than one pump is installed in the same tank. We recommend the following additional protection:

- galvanic separation of the earth conductor from the neutral conductor
- galvanic separation of the mains supply by means of an isolation transformer
- anode kit.

The earth conductor must be separated in such a way as to ensure that no direct current can flow through it. It must still function as a protective conductor. This can be achieved with a limiting unit (polarization cell or anti-parallel diode) or an isolation transformer.

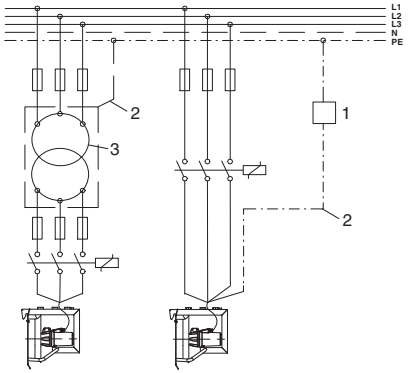

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Fig. 15 Protection from electro-chemical corrosion

Pos.	Designation
1	Limiting unit
2	Earth conductor
3	Isolation transformer

Caution When using an isolation transformer, the ratio between starting current and rated current (I_A/I_N) must not be altered.

5. Starting-up the product

Check the oil level in the gearbox before starting up the pump. The oil must fill up between 50 and 75 % of the gearbox.

Warning

When loosening the oil level screw, note that pressure may have built up in the chamber.

Do not remove the screw until the pressure has been fully relieved.

If required, fill oil into the gearbox through the oil filling hole (pos. 2 in fig. 16). For oil quality and quantity, see section *7.3 Oil*.

If the pump has been in stock for a period before startup, see section *7.2 Service chart*.

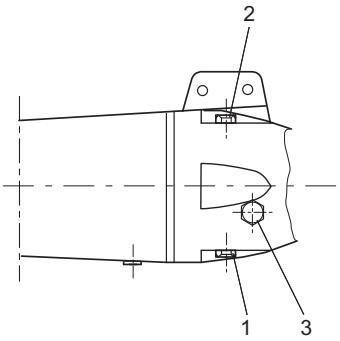

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Fig. 16 Oil check and oil filling

Checks before startup

1. Check that the impeller is rotating in the correct direction. See section *4.4.3 Direction of rotation*.
2. Make sure that the pump is completely submerged in the liquid.

Caution The pump must always be submerged during operation.

3. Make sure that there are no solid objects in the tank.

Warning

Make sure that no persons can fall into the tank.

6. Product introduction

Grundfos recirculation pumps, type SRG, are designed for transfer of liquids of low to medium viscosity from one tank to another.

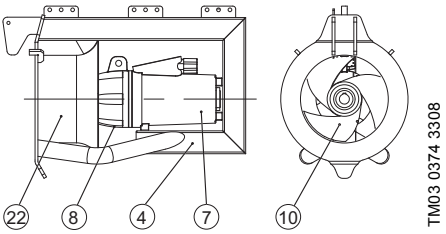

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Fig. 17 SRG pump

Pos.	Description
4	Pump rack
7	Motor
8	Gearbox
10	Impeller
22	Hydraulic inlet

6.1 Applications

Grundfos SRG recirculation pumps are used for the pumping of return sludge in sewage treatment plants and for other pump applications involving a high flow rate and low head. The pumps are designed for continuous operation (S1).

In order not to overload the pumps and expose them to corrosion, the following limitations must be observed.

Liquid temperature	5-40 °C
pH value	4-10
Maximum dry solids content	1.5 %
Maximum dynamic viscosity	500 mPas
Maximum density	1060 kg/m^3
Chloride content	≤ 200 mg/l (stainless steel 1.4301)

6.2 Identification

6.2.1 Type key

Example	SRG	70.	30.	814.	25.		5.	1D.	A

Type range
SRG: Submersible recirculation pump with gearbox

Motor output power, P2
Code from type designation/10 [kW]
70: 7 kW

Impeller diameter [cm]
30: 30 cm

Impeller speed [min^{-1}]
814: 814 min^{-1}

Impeller blade pitch [°]
25: 25 °

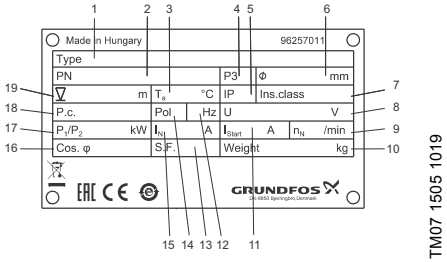
Explosion protection
[ ]: Non-explosion-proof

Frequency
5: 50 Hz
6: 60 Hz

Voltage and starting method
0A: 400 V, DOL
1A: 400 V, Y/D
0B: 400-415 V, DOL
1B: 400-415 V, Y/D
0V: 415 V, DOL
1V: 415 V, Y/D
0Z: Special, DOL
1Z: Special, Y/D

Generation
[ ]: First generation
A: Second generation
B: Third generation

6.2.2 Nameplate



TM07 1505 1019

Fig. 18 Nameplate

The nameplate is located on the motor housing. The details on the nameplate are required for ordering of spare parts.

Pos.	Description
1	Type designation
2	Product number
3	Liquid temperature range
4	Production site
5	Enclosure class according to IEC
6	Impeller diameter
7	Insulation class
8	Rated voltage
9	Rated speed (impeller)
10	Weight
11	Starting current
12	Frequency
13	Safety factor
14	Number of poles
15	Rated current
16	Power factor
17	Motor power P_1/P_2
18	Production code
19	Maximum installation depth

Fix the additional nameplate supplied with the pump in a visible position at the installation site.

7. Servicing the product

Warning

Before starting work on the pump, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

All rotating parts must have stopped moving.

Before starting any work on a pump used in liquids which could constitute a hazard to health, thorough cleaning and venting of the pump, tank, etc. must be carried out according to local regulations.

Damaged parts must always be replaced by new approved parts. Do not recondition motor parts by machining, retapping, welding, etc.

7.1 Contaminated pump

Warning

If a pump has been used for a liquid which is injurious to health or toxic, it will be classified as contaminated.

If Grundfos is requested to service the pump, Grundfos must be contacted with details about the pumped liquid, etc. before the pump is returned for service. Otherwise Grundfos can refuse to accept the pump for service.

Possible costs of returning the pump are paid by the customer.

However, any application for service (no matter to whom it may be made) must include details about the pumped liquid if the pump has been used for liquids which are injurious to health or toxic.

7.2 Service chart

	Type	Service instructions	Lubrication	Inspection
Electric motor	All	Keep the motor housing clean (otherwise cooling is affected). The motor housing may only be dismantled by Grundfos.	The roller bearings are maintenance-free. They must be replaced if they get noisy.	
Power supply cable	All			Check the power supply cable twice a year for surface damage, strain, kinks, etc. If damaged, the cable must be replaced by Grundfos.
Gearbox	All	In case of wear, replace lip seal and wear ring. If the oil contains water, replace the shaft seal.	Change the oil whenever it contains water or is contaminated. Change the oil at least every two years. If refilling is required, see section *7.3 Oil*.	If the shaft seal housing is not monitored for the ingress of water, we recommend that you make inspections every 6 months.
Impeller	All			Check the impeller regularly for wear and tear. Remove any material wound round the impeller, such as ropes, threads, etc. which may cause uneven running and oscillation of the installation. In case of strong turbulence, cleaning is absolutely necessary.
Winch	All	Spray the winch with a protective coating of oil at regular intervals to prevent corrosion.	The gear teeth and the bearing bushes must be lubricated twice a year with an all-purpose grease.	
Lifting wire	All	Regular oiling or greasing increases the life of the wire.		Check the wire regularly and always before using the winch. Replace the wire, if required.
Screws	All	Always check that all screws in the pump rack are properly tightened.	When tightening the screws, renew the threadlocker if necessary.	

7.3 Oil

7.3.1 Oil quality

Gear oil designation according to DIN 51502: ISO VG 68.

7.3.2 Oil quantity

Type	Gearbox [l]
SRG.08.30.526.	1.2
SRG.10.30.606.	
SRG.13.30.678.	
SRG.16.30.745	
SRG.18.30.806.	
SRG.30.30.517.	
SRG.40.30.593.	
SRG.50.30.684.	
SRG.60.30.752.	
SRG.70.30.814.	
SRG.35.50.257.	
SRG.50.50.291.	2.5
SRG.65.50.343.	
SRG.80.50.378.	
SRG.100.50.412.	
SRG.70.80.263.	
SRG.100.80.303.	
SRG.120.80.323.	4.0
SRG.130.80.340.	2.5
SRG.130.80.375.	
SRG.160.80.355.	4.0
SRG.200.80.388.	
SRG.240.80.417.	

7.4 Changing the oil

Place the pump in a horizontal position on supports and place a pan underneath to collect the oil.

Warning

When loosening the oil level screw, note that pressure may have built up in the chamber. Do not remove the screw until the pressure has been fully relieved.

1. Remove the screw (pos. 2). See fig. 19.
2. Loosen and remove the oil drain screw (pos. 1), and allow the oil to drain from the chamber into a glass. Leave the oil in the glass for approx. 10 minutes and check if it contains water. If the oil contains water, the shaft seal must be replaced.

Note: Used oil must be disposed of in accordance with local regulations.

3. Clean and refit the oil drain screw (pos. 1).
4. Fill oil into the oil chamber through the filling hole (pos. 2). Quantity according to section *7.3.2 Oil quantity*.
5. Refit the screw (pos. 2).

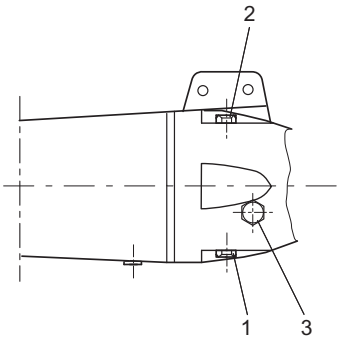


Fig. 19 Position of oil drain and oil filling screws

8. Fault finding the product

Warning

Before starting any work on the pump, make sure that the fuses have been removed or the mains switch has been switched to off. Make sure that the power supply cannot be accidentally switched on.

All rotating parts must have stopped moving.

Fault	Cause	Remedy
1. The pump does not start.	a) No power supply or supply failure.	Call an electrician.
	b) Power supply cable is faulty.	Call an electrician.
	c) Control system is faulty.	Call an electrician.
	d) Impeller cannot rotate freely.	Clean the impeller and check manually that it can rotate freely.
	e) Stator windings are faulty.	Contact Grundfos.
	f) Motor has cut out because of overheating.	Wait until the motor has cooled and attempt to restart the pump.
	g) Different phase voltages.	Call an electrician.
	h) Overload relay is set too low or is faulty.	Check the overload relay. Set the relay to the rated current. See section *4.5.3 Overload relays*.
	i) Leak sensor has cut out the pump.	Contact Grundfos.
	j) Humidity in motor.	Contact Grundfos.
2. Pump starts, but stops immediately.	a) Stator windings are faulty.	Contact Grundfos.
	b) Different phase voltages.	Call an electrician.
	c) Overload relay is set too low or is faulty.	Check the overload relay. Set the relay to the rated current. See section *4.5.3 Overload relays*.
	d) Leak sensor has cut out the pump.	Contact Grundfos.
	e) Humidity in motor.	Contact Grundfos.
3. No liquid or inadequate quantity is pumped even if the motor is running.	a) Impeller rotates in the wrong direction.	Interchange two phases of the mains supply.
	b) Pump runs on two phases.	1. Check the electrical connections. 2. Replace faulty fuses. 3. Call an electrician.
	c) Internal parts are worn.	Contact Grundfos.
	d) Impeller dirty or damaged.	Clean the impeller and inspect for any wear.
4. Pump runs unevenly and makes noise.	a) Internal parts are worn.	Contact Grundfos.
	b) Impeller dirty or damaged.	Clean the impeller and inspect for any wear.
	c) Faulty motor or gearbox roller bearings.	Contact Grundfos.
	d) Oscillations caused by the installation (resonance).	Check installation design.

Fault	Cause	Remedy
5. High current and power consumption.	a) Wrong voltage supply or supply failure.	Call an electrician.
	b) Power supply cable is faulty.	Call an electrician.
	c) Control system is faulty.	Call an electrician.
	d) Impeller cannot rotate freely.	Clean the impeller and check manually that it can rotate freely.
	e) Stator windings are faulty.	Contact Grundfos.
	f) Pump runs on two phases.	1. Check the electrical connections. 2. Replace faulty fuses. 3. Call an electrician.
	g) Internal parts are worn.	Contact Grundfos.
	h) Faulty motor or gearbox roller bearings.	Contact Grundfos.

9. Technical data

9.1 General technical data

Voltage tolerance	- 10 %/+ 6 % of nameplate value
Enclosure class	IP68
Insulation class	H
Maximum installation depth	20 m below liquid level
Maximum number of starts per hour	20
Length of power supply cable	10 and 15 m (standard)*
Wire length on all winches	10 m (standard)

* Other cable lengths are available on request.

9.2 Motor

Maximum installation depth	20 m below the liquid surface
Maximum number of starts per hour	20
Enclosure class	IP68
Insulation class	H
Material, motor housing	Cast iron, grade 25 (EN-GJL-250)

9.3 Gearbox

Type	Planetary gearbox
Gears	Hardened and ground steel
Monitoring of shaft seal	Leak sensor incorporated in gearbox
Drive-end bearings	Two tapered roller bearings
Material, gear casing	Cast iron, grade 25 (EN-GJL-250)

9.4 Shaft seals

SRG	Two lip seals and one mechanical shaft seal made of tungsten carbide/tungsten carbide or SiC/SiC

9.5 Impeller

Number of blades	3	
Nominal diameter	SRG.xx.30.xxx SRG.xx.50.xxx SRG.xx.80.xxx	300 mm 500 mm 800 mm
Construction	Self-cleaning, optimum flow design	
Material	Stainless steel	1.4404 or 1.4581

9.6 Sound pressure level

The sound pressure level of the pump is lower than 70 dB(A).

10. Disposing of the product

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

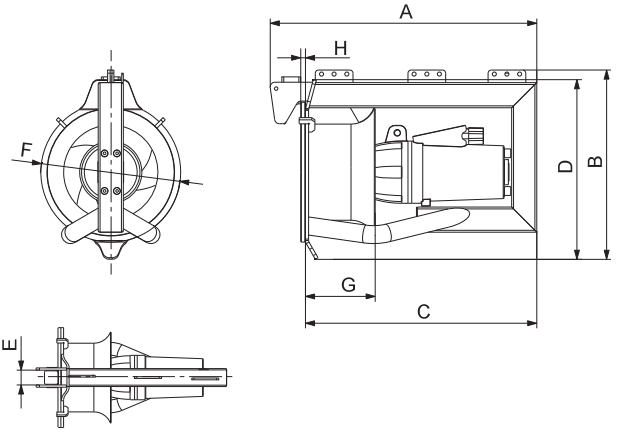
1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

The crossed-out wheelie 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.

Dimensions and weights

Pump

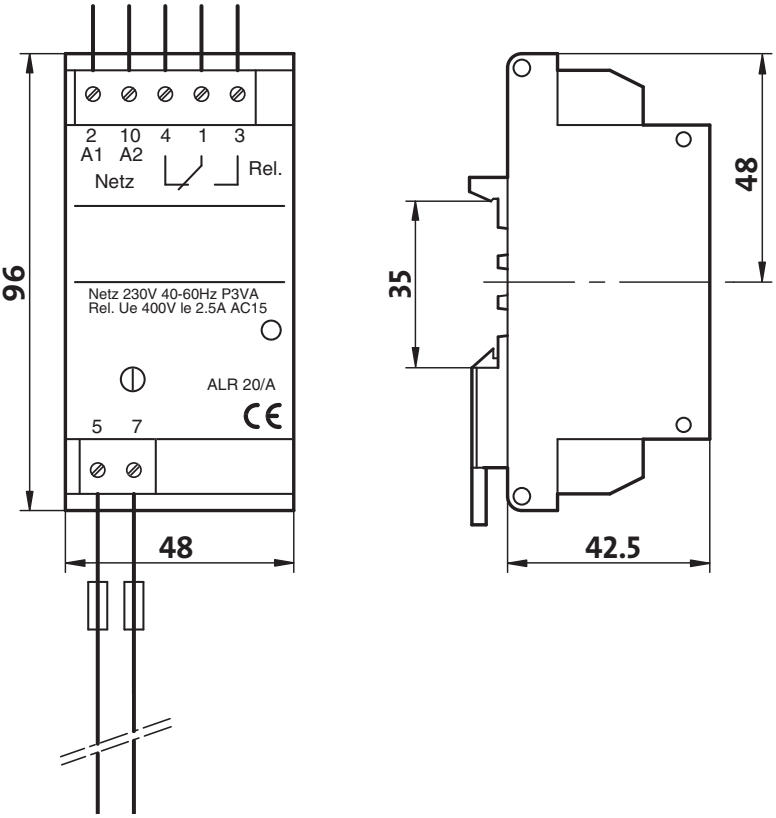


TM02 9450 2604

50 Hz

Pump type	P_2 [kW]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Weight [kg]
SRG.08.30.526.	0.8	848	602	736	571	66	445	220	15	109
SRG.10.30.606.	1.0									
SRG.13.30.678.	1.3									
SRG.16.30.745	1.6									
SRG.18.30.806.	1.8									
SRG.30.30.517.	3.0	848	602	736	571	66	445	220	15	112
SRG.40.30.593.	4.0									
SRG.50.30.684.	5.0									
SRG.60.30.752.	6.0	848	602	736	571	66	445	220	15	120
SRG.70.30.814.	7.0									
SRG.35.50.257.	3.5	910	835	757	824	66	670	230	25	150
SRG.50.50.291.	5.0	1119	855	996	824	66	670	230	25	240
SRG.65.50.343.	6.5									
SRG.80.50.378.	8.0									256
SRG.100.50.412.	10.0									
SRG.70.80.263.	7.0	1129	1237	1006	1225	66	1015	267	25	334
SRG.100.80.303.	10.0									350
SRG.120.80.323.	12.0	1181	1257	1058	1225	66	1015	267	25	430
SRG.130.80.340.	13.0	1129	1237	1006						350
SRG.130.80.375.	13.0	1181	1257	1058						430
SRG.160.80.355.	16.0	1129	1237	1006						350
SRG.200.80.388.	20.0	1181	1257	1058	1225	66	1015	267	25	430
SRG.240.80.417.	24.0									

ALR-20/A relay



TM02 8867 0904

Declaration of conformity

GB: EU declaration of conformity
We, Grundfos, declare under our sole responsibility that the product SRG, to which the declaration below relates, is in conformity with the Council Directives listed below on the approximation of the laws of the EU member states.

DE: EU-Konformitätserklärung
Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt SRG, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt.

EE: EÜvastavusdeklaratsioon
Meie, Grundfos, kinnitame ja kanname ainuisikulist vastutust selle eest, et toode SRG, mille kohta all olev deklaratsioon käib, on kooskõlas Nõukogu Direktiividega, mis on nimetatud all pool vastavalt vastuvõetud õigusaktidele ühtlustamise kohta EÜ liikmesriikides.

FR: Déclaration de conformité UE
Nous, Grundfos, déclarons sous notre seule responsabilité, que le produit SRG, auquel se réfère cette déclaration, est conforme aux Directives du Conseil concernant le rapprochement des législations des États membres UE relatives aux normes énoncées ci-dessous.

HR: EU deklaracija sukladnosti
Mi, Grundfos, izjavljujemo s punom odgovornošću da je proizvod SRG, na koja se izjava odnosi u nastavku, u skladu s direktivama Vijeća dolje navedenih o usklađivanju zakona država članica EU-a.

IT: Dichiarazione di conformità UE
Grundfos dichiara sotto la sua esclusiva responsabilità che il prodotto SRG, al quale si riferisce questa dichiarazione, è conforme alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri UE.

NL: EU-conformiteitsverklaring
Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat product SRG, waarop de onderstaande verklaring betrekking heeft, in overeenstemming is met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EU-lidstaten.

PT: Declaração de conformidade UE
A Grundfos declara sob sua única responsabilidade que o produto SRG, ao qual diz respeito a declaração abaixo, está em conformidade com as Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da UE.

RS: Deklaracija o usklađenosti EU
Mi, kompanija Grundfos, izjavljujemo pod punom vlastitom odgovornošću da je proizvod SRG, na koji se odnosi deklaracija ispod, u skladu sa dole prikazanim direktivama Saveta za usklađivanje zakona država članica EU.

SE: EU-försäkran om överensstämmelse
Vi, Grundfos, försäkrar under ansvar att produkten SRG, som omfattas av nedanstående försäkran, är i överensstämmelse med de rådsdirektiv om inbördes närmande till EU-medlemsstaternas lagstiftning som listas nedan.

SK: ES vyhlásenie o zhode
My, spoločnosť Grundfos, vyhlasujeme na svoju plnú zodpovednosť, že produkt SRG, na ktorý sa vyhlásenie uvedené nižšie vzťahuje, je v súlade s ustanoveniami nižšie uvedených smerníc Rady pre zblíženie právnych predpisov členských štátov EÚ.

CN: 欧盟符合性声明
我们，格兰富，在我们的全权责任下声明，产品 SRG，即该合格证所指之产品，欧盟使其成员国法律趋于一致的以下理事会指令。

CZ: Prohlášení o shodě EU
My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobek SRG, na který se toto prohlášení vztahuje, je v souladu s níže uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

DK: EU-overensstemmelseserklæring
Vi, Grundfos, erklærer under ansvar at produktet SRG som erklæringen nedenfor omhandler, er i overensstemmelse med Rådets direktiver der er nævnt nedenfor, om indbyrdes tilnærmelse til EU-medlemsstaternes lovgivning.

ES: Declaración de conformidad de la UE
Grundfos declara, bajo su exclusiva responsabilidad, que el producto SRG al que hace referencia la siguiente declaración cumple lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la UE.

GR: Δήλωση συμμόρφωσης ΕΕ
Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι το προϊόν SRG, στο οποίο αναφέρεται η παρακάτω δήλωση, συμμορφώνεται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ.

HU: EU megfelelőségi nyilatkozat
Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) SRG termék, amelyre az alábbi nyilatkozat vonatkozik, megfelel az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

LT: ES atitikties deklaracija
Mes, Grundfos, su visa atsakomybe pareiškiame, kad produktas SRG, kuriam skirta ši deklaracija, atitinka žemiau nurodytas Tarybos Direktyvas dėl ES šalių narių įstatymų suderinimo.

PL: Deklaracja zgodności UE
My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasz produkt SRG, którego deklaracja niniejsza dotyczy, jest zgodny z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

RO: Declaraţia de conformitate UE
Noi Grundfos declarăm pe propria răspundere că produsul SRG, la care se referă această declaraţie, este în conformitate cu Directivele de Consiliu specificate mai jos privind armonizarea legilor statelor membre UE.

RU: Декларация о соответствии нормам ЕС
Мы, компания Grundfos, со всей ответственностью заявляем, что изделие SRG, к которому относится нижеприведённая декларация, соответствует нижеприведённым Директивам Совета Евросоюза о тождественности законов стран-членов ЕС.

SI: Izjava o skladnosti EU
V Grundfosu s polno odgovornostjo izjavljamo, da je izdelek SRG,na katerega se spodnja izjava nanaša, v skladu s spodnjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic EU.

TR: AB uygunluk bildirgesi
Grundfos olarak, aşağıdaki bildirim konusu olan SRG ürünlerinin, AB üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tüm sorumluluğun bize ait olduğunu beyan ederiz.

– Machinery Directive (2006/42/EC)
  Standard used: EN ISO 12100: 2010
– Low Voltage Directive (2014/35/EU), applies only products with sensor and relay:
  Standards used: IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016
– Electromagnetic compatibility (EMC) Directive (2014/30/EU), applies only products with sensor and relay:
  Standards used: EN 61000-6-3:2007+ A1:2011, EN 61000-6-2:2005
– RoHS Directives (2011/65/EU and 2015/863/EU).
  Standard used : EN 50581:2012

This EU declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions publication number 98826127

Székesfehérvár, 30th af April 2019

Róbert Kis
Senior Manager
WWL Program Engineering
GRUNDFOS Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro, Denmark

Person authorised to compile the technical file and empowered to sign the EU declaration of conformity.

RUS

SRG

Руководство по эксплуатации

Руководство по эксплуатации на данное изделие является составным и включает в себя несколько частей:
Часть 1: настоящее «Руководство по эксплуатации».
Часть 2: электронная часть «Паспорт. Руководство по монтажу и эксплуатации» размещенная на сайте компании Грундфос. Перейдите по ссылке, указанной в конце документа.
Часть 3: информация о сроке изготовления, размещенная на фирменной табличке изделия.

Сведения о сертификации:

Насосы типа SRG сертифицированы на соответствие требованиям Технических регламентов Таможенного союза: ТР ТС 004/2011 «О безопасности низковольтного оборудования»; ТР ТС 010/2011 «О безопасности машин и оборудования»; ТР ТС 020/2011 «Электромагнитная совместимость технических средств».

Сертификат соответствия:

№ ТС RU C-DK.АИ30.В.01917, срок действия до 15.09.2020 г.

Выдан:

Органом по сертификации продукции «ИВАНОВО-СЕРТИФИКАТ» ООО «Ивановский Фонд Сертификации».
Адрес: 153032, Российская Федерация, г. Иваново, ул. Станкостроителей, д.1.

KAZ

SRG

Пайдалану бойынша нұсқаулық

Атаулы өнімге арналған пайдалану бойынша нұсқаулық құрамалы болып келеді және келесі бөлімдерден тұрады:
1 бөлім: атаулы «Пайдалану бойынша нұсқаулық»
2 бөлім: Грундфос компаниясының сайтында орналасқан электронды бөлім «Төлқұжат, Құрастыру және пайдалану бойынша нұсқаулық». Құжат соңында көрсетілген сілтеме арқылы өтіңіз.
3 бөлім: өнімнің фирмалық тақташасында орналасқан шығарылған уақыты жөніндегі мәлімет

Сертификаттау туралы ақпарат:

SRG типті сорғылары «Төмен вольты жабдықтардың қауіпсіздігі туралы» (ТР ТС 004/2011), «Машиналар және жабдықтар қауіпсіздігі туралы» (ТР ТС 010/2011) «Техникалық заттардың электрлі магниттік сәйкестілігі» (ТР ТС 020/2011) Кеден Одағының техникалық регламенттерінің талаптарына сәйкес сертификатталды.

Сәйкестік сертификат:

№ ТС RU C-DK.АИ30.В.01917, жарамдылық мерзімі 15.09.2020 жылға дейін
«Иваново Сертификаттау Қоры» ЖШҚ «ИВАНОВО-СЕРТИФИКАТ» өнімді сертификациялау бойынша органымен берілген.
Мекен-жайы: 153032, Ресей Федерациясы, Иванов облысы, Иваново қ., Станкостроителей көш., 1 үй.

KG

SRG

Пайдалануу боюнча колдонмо

Аталган жабдууну пайдалануу боюнча колдонмо курамдык жана өзүнө бир нече бөлүкчөнү камтыйт:
1-Бөлүк: «Пайдалануу боюнча колдонмо»
2-Бөлүк: «Паспорт. Пайдалануу жана монтаж боюнча колдонмо» электрондук бөлүгү Грундфос компаниянын сайтында жайгашкан. Документтин аягында көрсөтүлгөн шилтемеге кайрылыңыз.
3-Бөлүк: жабдуунун фирмалык тактасында жайгашкан даярдоо мөөнөтү тууралуу маалымат.

Шайкештик жөнүндө декларация

SRG түрүндөгү соргучтар Бажы Биримдиктин Техникалык регламенттин талаптарына ылайыктуу тастыкталган: ТР ТБ 004/2011 «Төмөн вольттук жабдуунун коопсуздугу жөнүндө»; ТР ТБ 010/2011 «Жабдуу жана машиналардын коопсуздугу жөнүндө»; ТР ТБ 020/2011 «Техникалык каражаттардын электрмагниттик шайкештиги».

Шайкештик сертификаты:

№ ТС RU C-DK.АИ30.В.01917, 15.09.2020 ж. чейин жарамдуу.

Берилген:

«ИВАНОВО-СЕРТИФИКАТ» өндүрүмдү тастыктаган ЖЧК «Ивановский Фонд Сертификации» органы менен.
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ARM

SRG

Շահագործման ձեռնարկ
Տվյալ սարքավորման շահագործման ձեռնարկը բաղկացած է մի քանի մասերից.
Մաս 1. սույն «Շահագործման ձեռնարկ»:
Մաս 2. էլեկտրոնային մաս. այն է՝ «Անձնագիր: Մոնտաժման և շահագործման ձեռնարկ» տեղադրված «Գրունդֆոս». Անցեք փաստաթղթի վերջում նշված հղումով.
Մաս 3. տեղեկություն արտադրման ամսաթվի վերաբերյալ՝ նշված սարքավորման պիտակի վրա:

Տեղեկություններ հավաստագրման մասին՝
SRG տիպի պոմպերը սերտիֆիկացված են համաձայն Մաքսային Միության տեխնիկական կանոնակարգի պահանջների՝ ТР ТС 004/2011 «Ցածրավոլտ սարքավորումների վերաբերյալ», ТР ТС 010/2011«Մեքենաների և սարքավորումների անվտանգության վերաբերյալ» ; ТР ТС 020/2011 «Տեխնիկական միջոցների էլեկտրամագնիսական համատեղելիության վերաբերյալ»:
Համապատասխանության հավաստագիր՝
№ ТС RU C-DK.АИ30.В.01917, գործողության ժամկետը մինչև՝ 15.09.2020թ.
Տրված է՝
«ԻՎԱՆՈՎՈ-ՍԵՐՏԻՖԻԿԱՏ» ապրանքների սերտիֆիկացման մարմնի կողմից:
«Իվանովոյի Սերտիֆիկացման հիմնադրամ» ՍՊԸ :
Հասցե՝ 153032, Ռուսաստանի Դաշնություն, քաղաք Իվանովո, Ստանկոստրոիտելների փողոց, տուն 1:

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