SB, SBA

Installation and operating instructions



English (GB) Functional profile and user manual

Original installation and operating instructions

These installation and operating instructions describe Grundfos SB and SBA.

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.

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



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.



Make sure that the system in which the pump is incorporated is designed for the maximum pump pressure.



This pump has been evaluated for use with water only.

1. General information

1.1 Symbols used in this document

DANGER Indicates a not avoided

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

\triangle

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

CAUTION

WARNING



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



Tips and advice that make the work easier.



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



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.

2. Receiving the product

2.1 Inspecting the packaging

Before installation, check that the pump is as ordered, and that no visible parts have been damaged.

If components are damaged or missing, contact your local Grundfos sales company.

2.2 Scope of delivery

- Pump
- non-return valve. SB only
- adapter
- floating inlet strainer, variant with side inlet only
- installation and operating instructions
- quick guide.

3. Installing the product



Observe local regulations concerning limits for manual lifting or handling.

CAUTION



Crushing of feet

Minor or moderate personal injury

Use safety shoes when handling the pump.

DANGER

Electric shock



Death or serious personal injury Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

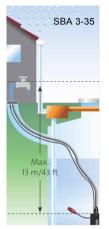
3.1 Location

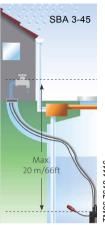
Install SBA pumps so that the height between the pump and the highest tapping point does not exceed these values:

SBA 3-35: 13 metres.

SBA 3-45: 20 metres.

Connect SB pumps to an external controller.





TM06 7648 4116

Fia. 1 Highest tapping point, SBA

3.2 Pump with float switch and side inlet

If you install the pump in a well, the minimum dimensions of the well must be as shown in fig. 2.



Fig. 2 Minimum installation dimensions

3.3 Connecting the outlet hose or pipe

The adapter enables the connection of a hose matching 3/4" or 1" external pipe thread. Cut the adapter so that it matches the hose diameter. You can also connect a pipe directly to the pump.

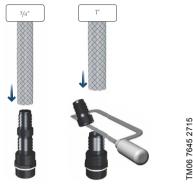


Fig. 3 Adapter

3.4 Non-return valve

Connect the non-return valve to the SB pump. The non-return valve has G 1" threads for connection to the adapter or the pipe.



Fig. 4 Non-return valve

3.5 Pump position

Use the pump in the vertical position as shown in fig. 5.

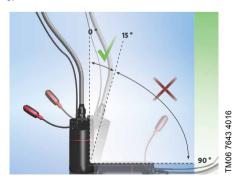


Fig. 5 Pump position

3.6 Mechanical installation

3.6.1 Lifting the product



Do not lift the product by the power supply cable. Lift the product by means of a rope.



Fig. 6 Lifting the pump

3.7 Electrical connection

DANGER

Electric shock

Death or serious personal injury



TM06 7646 4016

The protective earth of the socket outlet must be connected to the protective earth of the pump. The plug must therefore have the same PE connection system as that of the socket outlet. If not, use a suitable adapter.

FM06 7524 4016



We recommend that you fit the permanent installation with a residual-current circuit breaker, RCCB, with a tripping current less than 30 mA.

DANGER

Electric shock

Death or serious personal injury



If the pump is used for cleaning or other maintenance of swimming pools, garden ponds or similar places, make sure that the pump is supplied through a residual-current circuit breaker, RCCB, with a tripping current of 30 mA.

DANGER

Electric shock



Death or serious personal injury

- Connect pumps that are delivered without cable and/or plugs to an external main switch with a minimum contact gap of 3 mm in all poles.



Make sure that there is at least 3 metres free cable above the liquid level.

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

3.7.1 Motor protection

The pump has a built-in thermal switch and requires no additional motor protection.

When the motor has cooled to normal temperature, it restarts automatically.

3.7.2 Connecting to external controller

SB

SB pumps must be connected to an external controller. We recommend a Grundfos Pressure Manager: net.grundfos.com/gr/i/97506325

SBA

SBA pumps have an integrated control unit.

3.7.3 Alternative power supply

The pumps can be powered by a generator or other alternative power supplies, provided that the requirements for the power supply are fulfilled. See section 9. Technical data.

3.7.4 Power supply failure

In case of a power supply failure, the pump restarts automatically when power returns and runs for at least 10 seconds.

4. Starting up the product

WARNING



Flammable material

Death or serious personal injury

Do not use the pump for flammable liquids, such as diesel oil, petrol or similar liquids.

DANGER

A

Electric shock

Death or serious personal injury

- Do not use the pump in swimming pools, garden ponds or similar places if there are people in the water.
- 1. Open a tap in the system.
- 2. Switch on the power supply.
- 3. Check that the pump is running and water is coming out of the tap.
- 4. Check that the pump is running and pressure is being built up in the system.
- 5. Close the tap.
- Check that pressure has been built up in the system.
- 7. Check that the pump stops after a few seconds.



Connect SB pumps to an external controller.

4.1 SBA starting and stopping conditions

When water is consumed in the water supply system, the pump starts when the starting conditions are fulfilled. This happens for example when a tap is opened which makes the pressure in the system drop. The control unit stops the pump again when consumption stops, that is when the tap is closed.

Starting conditions

The pump starts when one of the following conditions is fulfilled:

- · The flow rate is higher than minimum flow rate.
- The pressure is lower than the start pressure.

Stopping conditions

The pump stops with a time delay of 10 seconds when the flow rate is lower than the minimum flow rate.

The start pressure and minimum flow rate values are shown in section *9. Technical data*.

5. Handling and storing the product

5.1 Handling the product



Do not lift the product by the power supply cable. Lift the product by means of a rope. Do not drop or shake the product.

5.2 Storing the product

Store the product indoors in a dry and dust-free environment. Protect the product from vibrations. Storage temperature: -10 to +40 °C.

5.3 Frost protection

It the pump is not used during periods of frost, drain the pump and the pipe system before you take the pump out of operation.

6. Product introduction

6.1 Product description

The pumps are submersible booster pumps for pumping clean water. The pumps are especially suitable for rainwater applications and small private wells.

The pumps are available in two main versions:

- with integrated inlet strainer with 1 mm mesh
- with side inlet which includes a flexible inlet hose with floating inlet strainer with 1 mm mesh.

Both versions are available with or without float switch. The float switch can be used for automatic operation or dry-running protection of the pump.

SB pumps must be connected to an external controller. We recommend a Grundfos Pressure Manager: net.grundfos.com/gr/i/97506325

The SBA pump is a complete submersible booster pump. The pump has a built-in control unit, eliminating the need for a controller.

The pump has built-in protection against overheating.

6.2 SBA functions

The built-in control unit incorporates dry-running protection that automatically stops the pump in case of dry running.

The dry-running protection functions differently during priming and operation.

6.2.1 Dry running during priming

If the control unit does not detect any pressure and flow within 5 minutes after it has been connected to a power supply and the pump has started, the dryrunning function is activated and the pump stops.

6.2.2 Dry running during operation

If the control unit does not detect any pressure and flow within 40 seconds during normal operation, the dry-running function is activated and the pumps stops.

6.2.3 Resetting of dry-running alarm

If a dry-running alarm has been activated, you can restart the pump manually by switching off the power supply, wait for 2 minutes and reconnecting power. If the control unit does not detect any pressure and flow within 40 seconds after restarting, the dry-running alarm is reactivated.

6.3 Pumped liquids

Mains water and rainwater.

Thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres that may attack the pump mechanically or chemically.

6.4 Identification

6.4.1 Nameplate

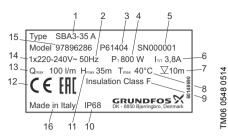


Fig. 7 Example of nameplate

Pos.	Description
1	Product type
2	Frequency [Hz]
3	Production code. The last four digits indicate the year and week of manufacture.
4	Power input [W]
5	Serial number
6	Full-load current [A]
7	Maximum installation depth [m]
8	Maximum liquid temperature [°C]
9	Motor insulation class
10	Enclosure class
11	Maximum head [m]
12	Approval marks
13	Maximum flow rate [I/min.]
14	Supply voltage [V]
15	Product number
16	Country of origin

7. Maintaining the product

DANGER

Electric shock



Death or serious personal injury

If the power supply cable is damaged, it must be replaced by the manufacturer, his service agent or similarly qualified persons in order to avoid hazard.

Clean the strainer every fall with a brush and a water jet when needed. In normal operation, the pump does not require any specific maintenance.

8. Fault finding the product

DANGER



Electric shock

Death or serious personal injury
- Switch off the power supply before starting any work on the product.

See also the quick guide.

Fault		Cause		Remedy		
1.	The pump does not a) run.		The fuses in the electrical installation are blown.	Replace the fuses. If the new fuses blow too, check the electrical installation and the power supply cable.		
		b)	The residual-current circuit breaker, RCCB, has tripped.	Cut in the circuit breaker.		
		c)	No power supply.	Contact the power supply company.		
	the power supply due to overload. 1. Switch of		Check if the pump is blocked. 1. Switch off the power supply to the pump.			
		2. Remove figures 3. Try to tu		2. Remove the rubber plug (25). See figures 1 and 2 on pages 11 and 12.		
				Try to turn the pump shaft with a screwdriver.		
				4. If the pump shaft is stuck, follow the instructions in point 1, h.		
				Note: Remember to refit the rubber plug (25).		
		e)	The pump or the power supply cable is defective.	Repair or replace the pump or cable.		
		f)	The float switch is in dry-running position.	Check the water level and the float switch for free movability. Note: If the tank is empty, and the float switch is often in this position, install a larger tank.		
		g)	SBA: The dry-running protection of the pump has stopped the pump.	Check the water level. Switch off the power supply and wait 2 minutes before switching it back on.		
		h)	The pump is blocked.	Check and clean the pump. 1. Switch off the power supply to the pump.		
				Remove the eight screws (84b) with a cross-head screwdriver.		
				3. Remove the pump base (56). See figures 1 and 2 on pages 11 and 12.		
				4. Clean the inlet strainer and hydraulic parts with a brush and a water jet.		
				Reassemble the pump.		

	The pump runs but gives no water.	a)			
	gives no water.	α,	The outlet valve is closed.	Open the valve.	
	gives no water.	b)	No water or too low water level in tank.	Increase the installation depth of the pump. The maximum installation depth is 10 metres. Reduce the pump performance, or replace the pump by a pump with a lower performance.	
		c)	The non-return valve is stuck in its closed position.	Pull out the pump, and clean or replace the valve.	
		d)	The inlet strainer is clogged.	Pull out the pump, and clean the inlet strainer with a brush and a water jet.	
			The pump is defective.	Repair or replace the pump.	
	The pump runs at reduced performance.	a)	The valves in the outlet pipe are partly closed or blocked.	Check and clean or replace the valves.	
		b)	The outlet pipe is partly blocked by impurities.	Clean or replace the pipe.	
		c)	The non-return valve in the outlet pipe is partly blocked.	Clean or replace the valve.	
		d)	The pump and outlet pipe are partly blocked by impurities.	Pull out the pump. Check and clean or replace the pump. Clean the pipes.	
		e)	The inlet strainer is clogged.	Clean the inlet strainer.	
		f)	The pump is defective.	Repair or replace the pump.	
		g)	Leakage in the pipework.	Check and repair the pipework.	
		h)	The outlet pipe is defective.	Replace the outlet pipe.	
		i)	Undervoltage has occurred.	Check the power supply.	
	Frequent starts and stops.	a)	The float switch has not been adjusted correctly.	Adjust the float switch to ensure suitable time between the cutting-in and cutting-out of the pump.	
		b)	The non-return valve is leaking or stuck half-open.	Clean or replace the non-return valve. See figures 1 and 2 on pages 11 and 12. SB: (149) SBA: (151)	
		c)	The supply voltage is unstable.	Check the power supply.	
		d)	The motor temperature is too high.	Check the water temperature.	
		e)	The pump is blocked.	Check and clean the pump. 1. Switch off the power supply to the pump.	
				Remove the eight screws (84b) with a cross-head screwdriver.	
				3. Remove the pump base (56). See figures 1 and 2 on pages 11 and 12.	
				4. Clean the inlet strainer and hydraulic parts with a brush and a water jet. 5. Reassemble the pump.	
		f)	Leakage in the pipework.	Check and repair the pipework.	

9. Technical data

9.1 Operating conditions

9.1.1 Maximum flow rate

SB: 3 m³/h.

SBA: 3 m³/h.

9.1.2 Maximum head

SB 3-25: 25 m.

SB 3-35: 35 m.

SB 3-45: 45 m.

SBA 3-35: 35 m.

SBA 3-45: 45 m.

9.1.3 Liquid temperature

0 to 40 °C.

9.1.4 Start pressure

SBA 3-35: 1.5 bar.

SBA 3-45: 2.2 bar.

9.1.5 Minimum flow rate

SBA 3-35: 1.0 l/min.

SBA 3-45: 1.0 l/min.

9.1.6 Frequency of starts and stops

Maximum 20 starts per hour.

9.2 Mechanical data

9.2.1 Cable length

15 m.

9.2.2 Maximum installation depth

10 m.

9.2.3 Enclosure class

IP68.

9.2.4 Insulation class

F.

9.3 Electrical data

SBA	Voltage	Frequency	P1 [kW] [hp]		_ I _{1/1}
SBA	[V]	[Hz]			[Ä]
3-35	1 x 230	50	0.80	1.07	3.8
3-45	1 X 230		1.05	1.41	4.8
3-35	1 x 115	- 60	0.91	1.22	8.6
3-45	IXIIS		1.07	1.43	9.9
3-35	1 x 230		0.74	0.99	3.4
3-45	1 X 230		0.90	1.20	4.1

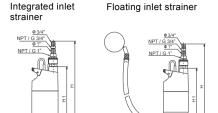
9.3.1 Speed

50 Hz: 2800 min⁻¹.

60 Hz: 3400 min⁻¹.

9.4 Dimensions

Ø150



TM04 6243 5109 - TM04 6928 1210

Ø150

Fig. 8 SB pump with integrated and with floating inlet strainer

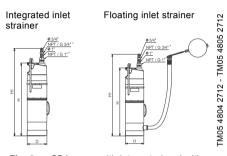


Fig. 9 SBA pump with integrated and with floating inlet strainer

Pump type	H [mm]	H1 [mm]	D [mm]
SB 3-25	537	370	
SB 3-35	559	392	
SB 3-45	584	417	Ø150
SBA 3-35	559	392	
SBA 3-45	584	417	_

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.

Subject to alterations.

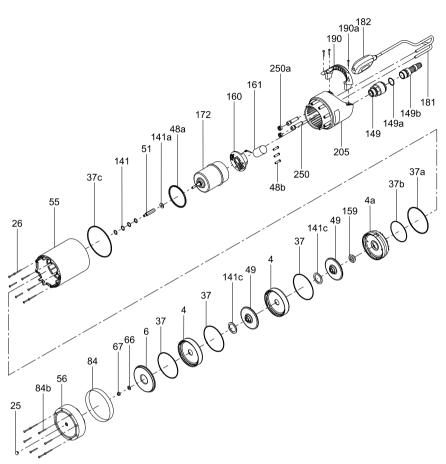


Fig. 1 SB pump

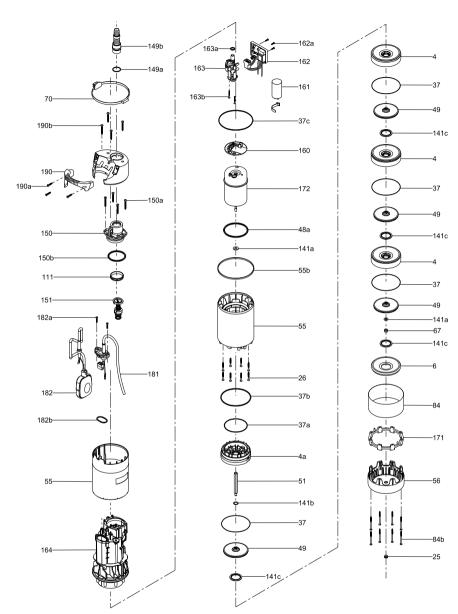


Fig. 2 SBA pump

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