Operating instruction

SR 500 EX

General information

Instructions for use for SR 500 EX should be read before use.

The SR 500 EX is a battery-powered fan unit that, together with filters and approved head top, is included in the Sundström fan-assisted respiratory protective device systems conforming to EN 12941/12942:1998.

Available head tops for the SR 500 EX are listed in Instructions for use.

When selecting filters and head top, the following are some of the factors that must be taken into account:

- Possible occurrence of explosive atmosphere
- Types of pollutants
- Concentrations
- Work intensity
- Protection requirements in addition to respiratory protective device.

The risk analysis should be carried out by a person who has suitable training and experience in the area.

Unpacking the SR 500 EX

Packing list:

- Fan unit SR 500 EX, bare
- Battery SR 501 EX
- Belt SR 508 EX
- Filter adapters SR 511, 2x
- Particle filters P3 R, SR 510, 2x
- Pre-filters SR 221, 10x
- Pre-filter holders SR 512 EX, 2x
- Flow meter SR 356
- Battery charger SR 513 EX
- User instructions
- Cleaning tissue SR 5226
- Vaseline tube
- Plug kit

1. Battery assembly and charging

1.1 New batteries must be charged before they are used for the first time.

On delivery, the battery fitted in the fan unit is provided with protective tape over the terminals.

The battery cover locks the battery. Raise the cover a few centimetres, push with the thumb resting on the battery and withdraw the battery.

1.2 Remove the tape and charge the battery.

1.3 Check that the gasket which is situated around the contact plate opening underneath the battery is intact.

1.4 Connect the battery to the battery charger. Connect the charger plug to a wall socket.
N.B. Main voltage 100-240 V

The charger carries out charging in four stages:

1. Yellow Led. Battery analyses and initiation.

2. Orange Led. The battery is being charged at maximum charging current.

3. Green – Yellow Intermittent flashing Led. Top of charging mode.

4. Green Led. Charging completed. Switches to maintenance charging mode.

When charging has been completed, pull the plug out of socket before separating the battery from charger.

1.5 Push the battery back into the battery compartment. Check that the battery has been pushed in as far as it will go and that its lock is operative

2. Maintenance of battery

For the longest lifetime, the battery SR 501 EX should have regular charging and discharging cycles. Best results are achieved with full discharge directly followed with a full charge

The battery can be deep discharged if it is not used for a longer time which may result in damage to the battery cells.

Prolonged maintenance charge could also lead to a premature wear out of the battery cells.

2.1 Check before use that the gasket around the opening to the battery terminals are undamaged.

Any dirt on the battery gasket is wiped off with a dry cloth. Relubricate the gasket with Vaseline to facilitate mounting.

2.2 During long-term storage a scheduled charging procedure is recommended, as follows:

• Store the battery at room temperature.

• Repeat charging after 6 to 8 weeks as long as the storage continues.

3. Assembly belt

3.1 Place the fan upside down. The belt should be mounted so that the belt is pointing upwards. Insert the three tongues of the belt half into the slot in the fan.

Begin to insert the upper tongue and then turn the belt into the fan.

3.2 Press down the three lips locking the belt half.

3.3 Correctly mounted belt.

4. Particle filter

4.1 Check that the gaskets in the filter mounting of the fan unit are in place and are in good condition.

4.2 Snap the filter onto the filter adapter.

4.3 Do not press onto the centre of the filter – it might damage the filter paper.

4.4 Screw the adapter into the filter mounting so far that the adapter will be in contact with the gasket.

Then turn it about 1/8 turn further in order to ensure a good seal.

4.5 Fit one pre-filter into the filter holder.

The pre-filter should have slipped under the shoulders in the pre-filter holder.

Press the filter holder onto the particle filter.

4.6 Correctly mounted pre-filter holder with particle filter.

5. Combined filters, Gas filter + particle filter

5.1 Snap the particle filter onto the gas filter.

5.2 The arrows on the particle filter must point towards the gas filter.

Do not press onto the centre of the filter it might damage the filter paper.

5.3 Check that the gaskets in the filter mounting of the fan unit are in place and are in good condition.

5. Combined filers, Gas filter + particle filter

The filters used must be of the same type,

i.e. two SR 510 P3 or two SR 518 A2/SR510 P3, etc.

When filters are changed, both filters/combined filters must be changed at the same time.

5.4 Fit one pre-filter, SR 221 into the filter holder.

Screw the filter combination into the filter mounting so far that the filter will be in contact with the gasket. Then turn it about 1/8 turn further in order to ensure a good seal. Press the filter holder onto the particle filter.

5.5 Correctly mounted pre-filter holder.

6. Operation/Performance

6.1 Start the fan by pressing the control button.

To switch of fan unit, keep the control button depressed for about two seconds.

6.2 After the button has been pressed, a programmed test will be run on the fan and the display will then light up, the audible signal will sound.

6.3 After the internal test, all symbols will be extinguished except the small green fan symbol. This indicates normal operating status with a flow of at least 175 l / min.

Operation/Performance

6.4 If the button is pressed again, boosted operating status will be activated, with a flow at least 225 l/min. This is indicated by the larger green fan symbol lighting up.
To revert to normal operation, press the control button once again.

6.5 When about 5% of the battery capacity is left, the fan will begin to initiate an alarm and the battery symbol will flash. The battery capacity is sufficient to allow the work to be concluded without undue haste. The work should then be interrupted and the wearer of the equipment should leave the site

7. Performance check, minimum flow

9.1 Check that the fan unit is complete, correctly mounted, thoroughly cleaned and undamaged.

Connect the hose from the head top to the fan unit and turn it about 1/8 of a turn clockwise.

9.2 Turn the flow meter bag inside out and the flow meter appears.

9.3 Place the head top in the flow meter bag and start the fan.

Grip the lower part of the bag in order to seal around the hose.
Grip around the measuring tube and hold the tube vertical.

The ball should now float level with or just over the 175 l/min marking.

If the minimum flow is not achieved, check that:

-The flow meter is vertical
-The ball moves freely
-The bag seals well around the hose

8. Performance check, alarms

The equipment is designed to provide a warning if the air flow is obstructed, and this should be checked in conjunction with the flow. Check before the equipment is taken into use.

N.B. If the minimum flow is not achieved or if the alarm signals do not operate as intended, the fan must not be used.

10.1 Cause a flow stoppage by still holding tightly the joint between the hose and the flow meter bag and then blocking off the flow meter outlet.

10.2 The fan will now initiate an alarm by audible and visual signals.

10.3 If the flow meter outlet is now unblocked and the air is allowed to flow freely, the alarm signals will cease within 10 – 15 seconds.

Switch off the fan and remove the head top from the flow meter bag.

9. Putting the equipment on

Before putting the equipment on, read carefully the user instructions for the head top.

After the filter has been fitted, a performance check has been carried out and the head top has been connected, the equipment can be put on.

11.1 Snap the two ends of the belt together.

After the buckles have been connected, tighten the belt so that it is comfortable.

11.2 The fan should be firmly in contact with the wearer's back in order to ensure optimum comfort and ergonomic benefits.

11.3 Put the belt ends in the clips on each side of the belt.

10. To change the particle filters

12.1 Change particle filter by bending the pre-filter holder from the filter adapter.

Bear in mind that both filters must be changed at the same time.

12.2 Grip the filter with one hand.
Place the thumb of the other hand on the underside of the adapter at the semicircular gap. Then prise out the filter.

12.3 Change pre filter by press it in the middle and then remove it.

To change the gas filters, combined filters

12.4 To change the gas filter: Unscrew the filter/combined filter. To change the gas filter, prise the particle filter off the gas filter.

12.5 As an alternative, the filter combination can be separated by means of the filter adapter.

Both filters/combined filters must be changed at the same time and must be of the same type and class.

11. Cleaning/Disinfection

Wipe the outside of the fan.

If necessary, spray the product with 70 % ethanol or isopropanol solution for disinfection.

13.1 The Plug kit is used for cleaning or decontamination of the fan unit and prevents dirt and water from entering the fan housing.

Disconnect the breathing hose and the filters and install the plugs.

13.2 In the event of heavy fouling, a soft brush or sponge wetted with a solution of water and dishwashing detergent can be used.

13.3 An SR 5226 cleaning wipe should be used for daily cleaning.

Cleaning/Disinfection

13.4 Clean the gasket on the battery.

N.B.! Check that the gasket which is situated around the contact plate opening underneath the battery is intact. If it´s not, change battery..

13.5 Clean the pre-filter holders inside and out.

13.6 Wipe the filter adapter clean.

Check that the sealing ridge for the particle filter is undamaged.

13.7 Wipe the belt clean.

12. Maintenance schedule

	Before use	After use	Annually
Inspection of battery gasket	•		
Visual inspection	•	•	
Performance check	•		•
Cleaning		•	
Change of fan gaskets			•

14.1 The gasket has a groove all round and is fitted on a flange below the threads in the filter mounting.

Remove the old gasket.

14.2 Fit the new gasket onto the flange. Check that the gasket is in place all round.

Troubleshooting schedule

Fault	Reason	Action
The fan unit fails to start	Battery discharged	Recharge battery
	Fan-battery contact problems	Bend/adjust/clean the battery terminals. Check that there are two terminals. Check the contact rivets on the fan.
	Battery faulty	New battery, test another battery Measure the voltage which should be 13 – 17 V
	Charger faulty, fails to charge the battery.	Make a visual check and make sure that there is no dirt on the contacts to the charger or battery. A new battery charger.
	Fan motor/electronic fault	Send the fan unit for repair
Yellow battery symbol flashes	Battery discharged	Recharge the battery

Troubleshooting schedule

Fault	Reason	Action
Red triangle flashes on the display and the fan sounds	Filters clogged	Change the pre-filters Change the particle filters
	Hose damaged	Check that the air flowes freely through the hose and that the hose is in good contition
	Valves	Check that the exhalation valves with membranes are fitted to your head top.
Irregular air flow	Filter clogged Incorrect combination No filters mounted	Check that there are filters in the fan unit and that they are of the same type. i.e. SR 518 A2 + SR 510 P3