

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.

Note! Disconnect the battery from the charger and wait 15 seconds before the next battery is connected, to reset the battery 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.

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



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

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 |

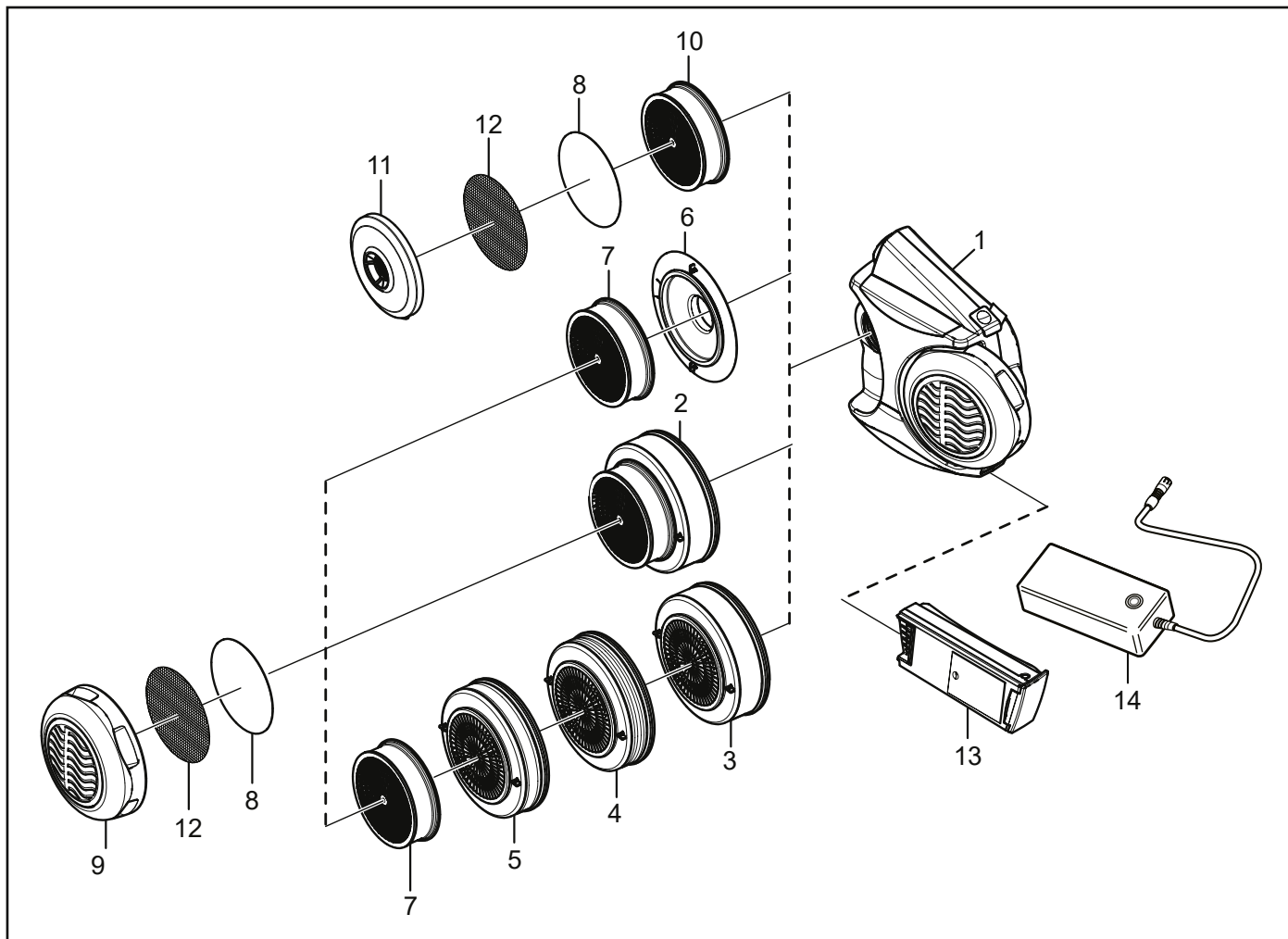
Troubleshooting schedule

| 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 flows freely through the hose and that the hose is in good condition |
| | 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 |



SR 500 EX

SYSTEM OVERVIEW

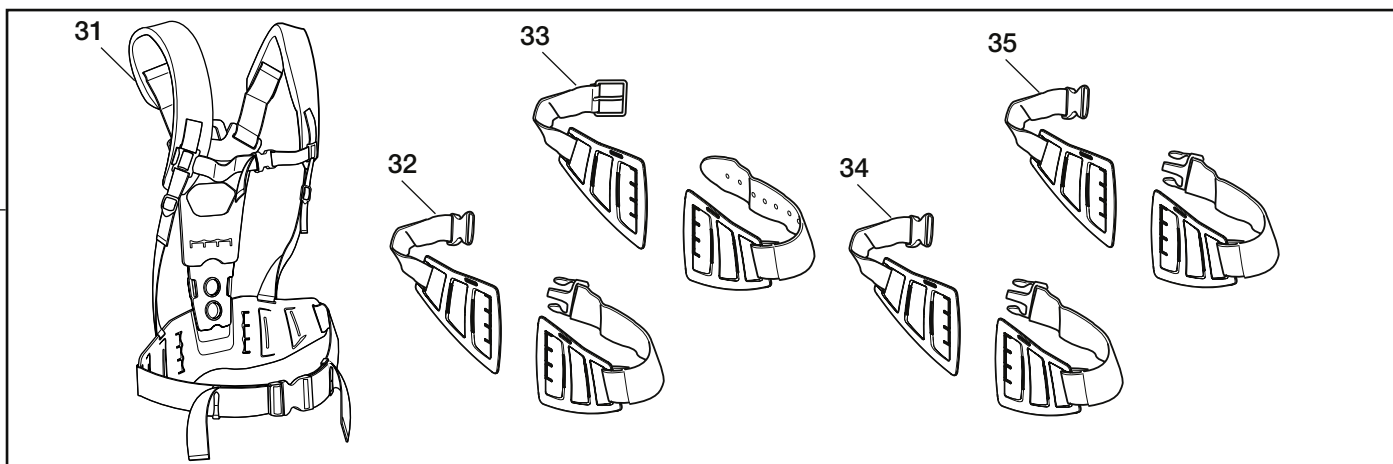
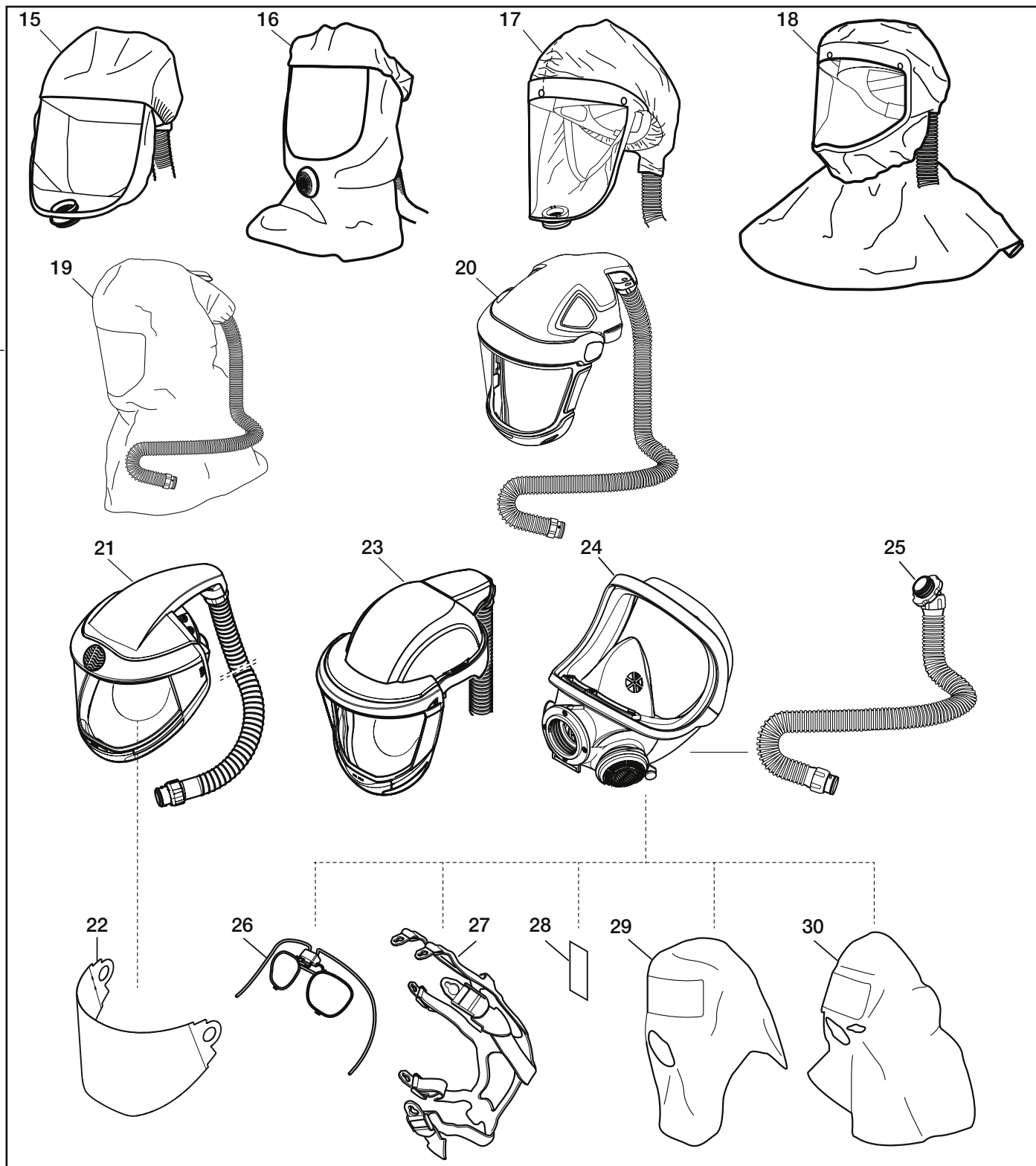


| No. | Description | Name | Art No. | ATEX code |
|-----|------------------------------------|------------|----------|-----------|
| 1. | Fan unit | SR 500 EX | R06-2001 | |
| 2. | Combined filter A1BE2K1-Hg-P3 R | SR 599 | H02-7312 | |
| 3. | Gas filter A1BE2K1 | SR 597 | H02-7212 | |
| 4. | Gas filter ABE1 | SR 515 | H02-7112 | |
| 5. | Gas filter A2 | SR 518 | H02-7012 | |
| 6. | Filter adapter | SR 511 | R06-0105 | |
| 7. | Particle filter P3 R | SR 510 | H02-1312 | |
| 8. | Pre-filter | SR 221 | H02-0312 | |
| 9. | Pre-filter holder | SR 512 EX | R06-2023 | |
| 10. | Particle filter P3 R | SR 710 | H02-1512 | |
| 11. | Pre-filter holder | | R01-0605 | A) |
| 12. | Steel net disc | SR 336 | T01-2001 | |
| 13. | Battery (NiMH) | SR 501 EX | R06-2002 | |
| | Battery, 3,0 Ah (Li-Ion) | SR 502 EX | R06-2070 | |
| 14. | Battery charger (NiMH) | SR 513 EX | R06-2003 | |
| | Battery charger (Li-Ion) | | R06-2081 | |
| 15. | Hood | SR 520 S/M | H06-0312 | B) |
| | Hood | SR 520 M/L | H06-0212 | B) |
| 16. | Hood | SR 530 | H06-0412 | B) |
| 17. | Hood | SR 562 | H06-5112 | B) |
| 18. | Hood | SR 561 | H06-5012 | B) |
| 19. | Hood | SR 601 | H06-5412 | B) |
| | Hood | SR 602 | H06-5512 | B) |

| No. | Description | Name | Art No. | ATEX code |
|-----|--|-----------|----------|-----------|
| 20. | Face shield | SR 570 | H06-6512 | B) |
| 21. | Face shield | SR 540 EX | H06-6012 | A) |
| 22. | Alt. Visor | SR 545 | T06-0502 | |
| 23. | Helmet with visor | SR 580 | H06-8012 | A) |
| 24. | Full face mask laminated glass visor | SR 200 | H01-1312 | B) |
| | Full face mask PC-visor | SR 200 | H01-1212 | A) |
| 25. | Breathing hose PU | SR 550 | T01-1216 | |
| | Breathing hose rubber | SR 551 | T01-1218 | |
| 26. | Spectacle frame for corrective lenses | SR 341 | T01-1201 | |
| 27. | Head harness rubber | SR 340 | T01-1215 | |
| 28. | Name label | SR 368 | R09-0101 | |
| 29. | Protective hood | SR 64 | H09-0301 | |
| 30. | Chemical hood | SR 345 | H09-1012 | |
| 31. | Harness EX | SR 552 EX | T06-2002 | |
| 32. | Belt cotton EX | SR 508 EX | R06-2148 | |
| 33. | Belt leather EX | SR 503 EX | T06-2149 | |
| 34. | Belt rubber EX | SR 504 EX | T06-2150 | |
| 35. | Belt PVC EX | | T06-2151 | |

A) Ex II 2 G Ex ib IIA T3 Gb / II 2 D Ex ib IIIC T195°C Db

B) Ex II 2 G Ex ib IIB T3 Gb / II 2 D Ex ib IIIC T195°C Db



The fan unit SR 500 EX is manufactured within a quality
management system accepted by
Notified Body 2849: INSPEC International B.V.,
Beechavenue 54-62, 1119 PW,
Schiphol-Rijk, The Netherlands



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The Sundström logo is located in the top left corner. It consists of the brand name "Sundström" in a white, sans-serif font, followed by a circular icon containing a stylized orange and white wave pattern.

Sundström

The background of the advertisement is a close-up, high-contrast photograph of a Sundström SR 500 respirator. The device is dark blue with two large, circular, textured filters on either side of the central body. A control panel at the top features a small digital display with green icons and a triangular warning symbol. The model number "SR 500" is visible on a small plate at the bottom center. The overall lighting is dramatic, with deep blues and highlights on the device's surfaces.

TRUST

by Sundström Safety

↑ Up to 5 years warranty

🔔 Notice for yearly service

📄 Documented service

TRUST – a service program to keep your fan unit in warranty and documented service, for longer lifetime and a safer work environment.

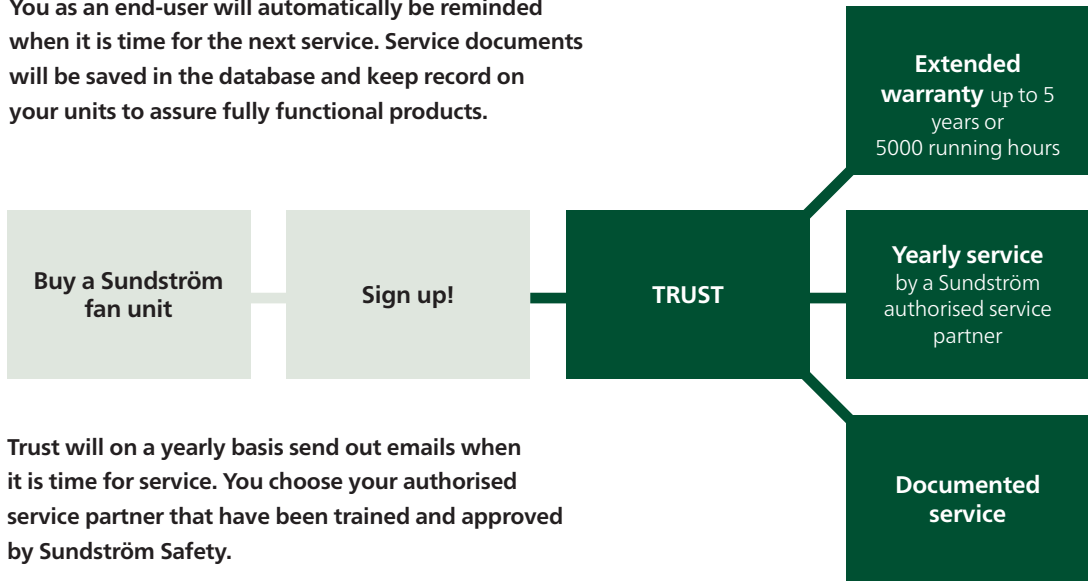
The prolonged service life gives a sustainable product and reduce the environmental impact.

SUSTAINABILITY *by* SUNDSTRÖM

Sign up for TRUST.

Servicing the Powered Air Purifying Respirators will enable you to get up to 5 years or 5000 running hours warranty, whichever happens first.

You as an end-user will automatically be reminded when it is time for the next service. Service documents will be saved in the database and keep record on your units to assure fully functional products.



Trust will on a yearly basis send out emails when it is time for service. You choose your authorised service partner that have been trained and approved by Sundström Safety.





Sign up and register your
Sundström fan unit.
srsafety.com/trust

TRUST

by **Sundström Safety**

SUNDSTRÖM SAFETY AB

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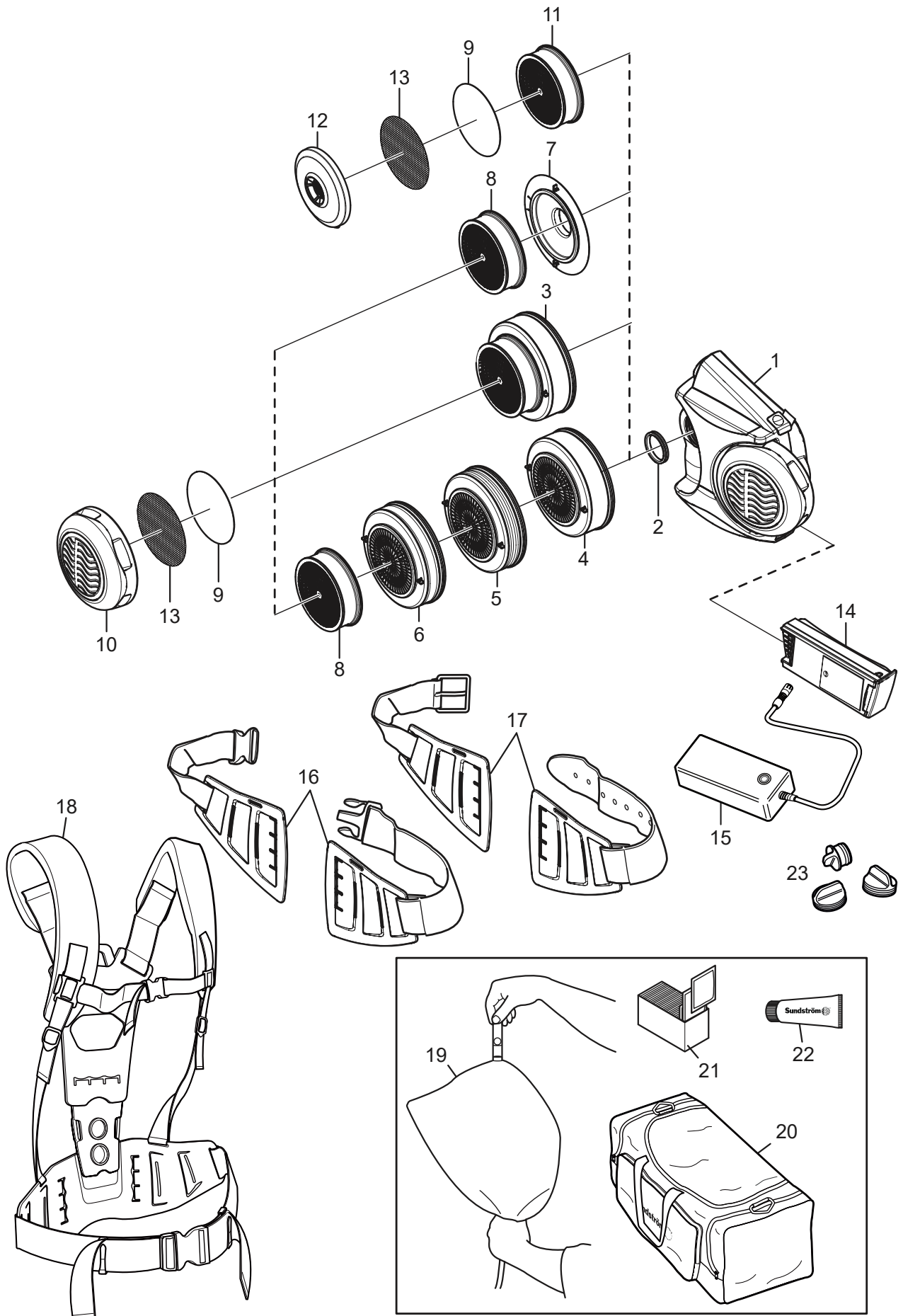
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SR 500 EX

EN

Spare parts / Accessories



| No. | Description | Ordering No. |
|-----|---|--------------|
| 1. | Fan unit SR 500 EX, bare | R06-2001 |
| 2. | Gasket | R06-0107 |
| 3. | Combined filter A1BE2K1-Hg-P3 R, SR 599 | H02-7312 |
| 4. | Gas filter A1BE2K1, SR 597 | H02-7212 |
| 5. | Gas filter ABE1, SR 515 | H02-7112 |
| 6. | Gas filter A2, SR 518 | H02-7012 |
| 7. | Filter adapter SR 511 | R06-0105 |
| 8. | Particle filter P3 R, SR 510 | H02-1312 |
| 9. | Pre-filter SR 221 | H02-0312 |
| 10. | Pre-filter holder SR 512 EX | R06-2023 |
| 11. | Particle filter P3 R, SR 710 | H02-1512 |
| 12. | Pre-filter holder | R01-0605 |
| 13. | Steel net disc SR 336 | T01-2001 |
| 14. | Battery SR 501 EX, 2,1 Ah (NiMh) | R06-2002 |
| | Battery SR 502 EX, 3,0 Ah (Li-Ion) | R06-2070 |
| 15. | Battery charger SR 513 EX (NiMh) | R06-2003 |
| | Battery charger (Li-Ion) | R06-2081 |
| 16. | Belt SR 508 EX | R06-2148 |
| | Rubber belt SR 504 EX | T06-2150 |
| | Belt PVC EX | T06-2151 |
| 17. | Leather belt SR 503 EX | T06-2149 |
| 18. | Harness SR 552 EX | T06-2002 |
| 19. | Flow meter SR 356 | R03-0346 |
| 20. | Storage bag SR 505 | T06-0102 |
| 21. | Cleaning wipes 50/box | H09-0401 |
| 22. | Vaseline tube | R06-2016 |
| 23. | Plug kit | R06-0703 |

Product leaflet

Product

Powered air purifying respirator

Model designation

SR 500 EX

Ordering No.

H06-2012

Product description

The SR 500 EX fan is explosion-proof and specially adapted for use in an explosive atmosphere. The SR 500 EX is included together with filters and head-tops in Sundström fan-assisted respiratory protective devices. The SR 500 EX can be used as an alternative to filter protections in all situations in which the latter are recommended. This applies particularly to situations in which the work is intensive, hot or of long-duration. The fan is equipped with filters and the filtered air is supplied through a breathing hose to the head-top. The latter is then pressurized, which prevents the surrounding pollutants from being admitted.

The SR 500 EX has the following characteristics:

- Explosion proof • Automatic control of the air flow • Same control button is used for starting, stopping and selection of operating conditions • Display with symbols for different operating conditions • Alarm with audible/visual signals if the air flow is obstructed • Li-Ion battery • Operating time of up to 12 hours • Charging time about 4 hours • Equipped with two filters/filter combinations • Can be used together with hoods SR 520, SR 530, SR 561, SR 562, SR 601, SR 602, face shield SR 540 EX, SR 570, helmet with visor SR 580 or full face mask SR 200.

Technical specification

| | SR 500 EX | EN 12941:1998 | EN 12942:1998 |
|--|---|---|--|
| Air flow rate | 175/225 l/min | ≥ 120 l/min | |
| Li-Ion battery | 18 V, 3.0 Ah | - | - |
| Operating times at 175/225 l/min: | | | |
| With particle filter P3 | 12 h/7 h | ≥ 4 h | ≥ 4 h |
| Weight with battery and P3 filter | ≈ 1 780 g | ≤ 3500 g | ≤ 3500 g |
| Service temperature | -10 to +40 °C, < 90 % RH | - | - |
| Storage temperature | -20 to +40 °C, < 90 % RH | - | - |
| Low flow warning level | < 175 l/min | ≤ 175 l/min | ≤ 175 l/min |
| Assigned Protection Factor¹ w hoods, SR 540 EX, SR 570, SR 580 | 40 (TH3) | - | - |
| Assigned Protection Factor¹ w SR 200 | 40 (TM3) | - | - |
| Nominal Protection Factor² w hoods, SR 540 EX, SR 570, SR 580 | 500 (TH3) | - | - |
| Nominal Protection Factor² w SR 200 | 2000 (TM3) | - | - |
| Approvals | Directive | Standards | Classification/markings |
| | PPE Regulation (EU) 2016/425 ATEX 2014/34/EU | EN 12941:1998 + A2:2008, EN 12942:1998 EN IEC 60079-0:2018, EN 60079-11:2012 | TH3/TM3 Ex II 2 G Ex ib IIA T3 Gb ³⁾ Ex II 2 G Ex ib IIB T3 Gb ⁴⁾ Ex II 2 D Ex ib IIIC T195°C Db ⁵⁾ Ex ib IIA T3 Gb ³⁾ , Ex ib IIB T3 Gb ⁴⁾ Ex ib IIIC T195°C Db ⁵⁾ |
| | IECEx Scheme | IEC 60079-0:2017, IEC 60079-11:2011 | |

1) Specified in BS EN 529 and applies generally to all approved fan-assisted respiratory protective devices, regardless of the test results.

2) According to EN 529:2005.

3) SR 500 EX together with shield SR 540 EX, helmet with visor SR 580 or full face mask SR 200 with PC visor.

4) SR 500 EX together with hoods SR 520, SR 530, SR 561, SR 562, SR 601, SR 602, shield SR 570 or full face mask SR 200 with glass visor.

5) SR 500 EX together with all Sundström head tops.

Key to EX marking

| | |
|---------------|---|
| Ex | ATEX Explosion protection mark. |
| II | ATEX Equipment group (explosive atmospheres other than mines with fire damp). |
| 2 G | ATEX Equipment category (2 = High level of protection for Zone 1, G = Gas). |
| 2 D | ATEX Equipment category (2 = High level of protection for Zone 21, D = Dust). |
| Ex | Explosion protected. |
| ib | Type of protection (Intrinsic safety). |
| IIA | Gas group (Propane). |
| IIB | Gas group (Ethylene). |
| IIIC | Dust material group (zone with conductive dust). |
| T3 | Temperature class, gas (maximum surface temperature +200°C). |
| T195°C | Temperature class, dust (maximum surface temperature +195°C). |
| Gb | Equipment Protection Level, gas (high protection). |
| Db | Equipment Protection Level, dust (high protection). |



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Head-tops, spare parts and accessories

| Item No. | Part |
|----------|---|
| 1. | Hood SR 561 |
| 2. | Hood SR 562 |
| 3. | Hood SR 520 M/L |
| 3. | Hood SR 520 S/M |
| 4. | Hood SR 530 |
| 5. | Hood SR 601 |
| 6. | Hood SR 602 |
| 8. | Face shield SR 540 EX |
| 9. | Face shield SR 570 |
| 10. | Full face mask SR 200, PC visor |
| 10. | Full face mask SR 200, glass visor |
| 11. | PU hose SR 550 for SR 200 |
| 11. | Rubber hose SR 551 for SR 200 |
| 12. | Helmet with visor SR 580 |
| 13. | Hose SR 541 for SR 540 |
| 14. | O-ring for breathing hose |
| 15. | Flat gasket for hose SR 541 |
| 16. | Flow meter SR 356 |
| 17. | Belt SR 508 EX |
| 17. | Belt PVC EX |
| 17. | Rubber belt SR 504 EX |
| 18. | Leather belt SR 503 EX |
| 19. | Harness SR 552 EX |
| 20. | Battery SR 502 EX, 3,0 Ah |
| 21. | Battery charger |
| 22. | Fan SR 500 EX, bare |
| 23. | Gasket for fan |
| 24. | Pre-filter holder SR 512 EX |
| 25. | Pre-filter SR 221 |
| 26. | Pre-filter holder |
| 27. | Particle filter P3 R, SR 510 |
| 28. | Filter adapter SR 511 |
| 29. | Particle filter P3 R, SR 710 |
| 30. | Gas filter A2, SR 518 |
| 31. | Gas filter ABE1, SR 515 |
| 32. | Gas filter A1BE2K1, SR 597 |
| 33. | Combined filter A1BE2K1-Hg-P3 R, SR 599 |
| 34. | Storage bag SR 505 |
| 35. | Steel net disc SR 336 |
| 36. | Vaseline tube |
| 37. | Plug kit |

Ordering No.

| |
|----------|
| H06-5012 |
| H06-5112 |
| H06-0212 |
| H06-0312 |
| H06-0412 |
| H06-5412 |
| H06-5512 |
| H06-6012 |
| H06-6512 |
| H01-1212 |
| H01-1312 |
| T01-1216 |
| T01-1218 |
| H06-8012 |
| R06-0501 |
| R06-0202 |
| R06-0506 |
| R03-0346 |
| R06-2148 |
| T06-2151 |
| T06-2150 |
| T06-2149 |
| T06-2002 |
| R06-2070 |
| R06-2081 |
| R06-2001 |
| R06-0107 |
| R06-2023 |
| H02-0312 |
| R01-0605 |
| H02-1312 |
| R06-0105 |
| H02-1512 |
| H02-7012 |
| H02-7112 |
| H02-7212 |
| H02-7312 |
| T06-0102 |
| T01-2001 |
| R06-2016 |
| R06-0703 |

