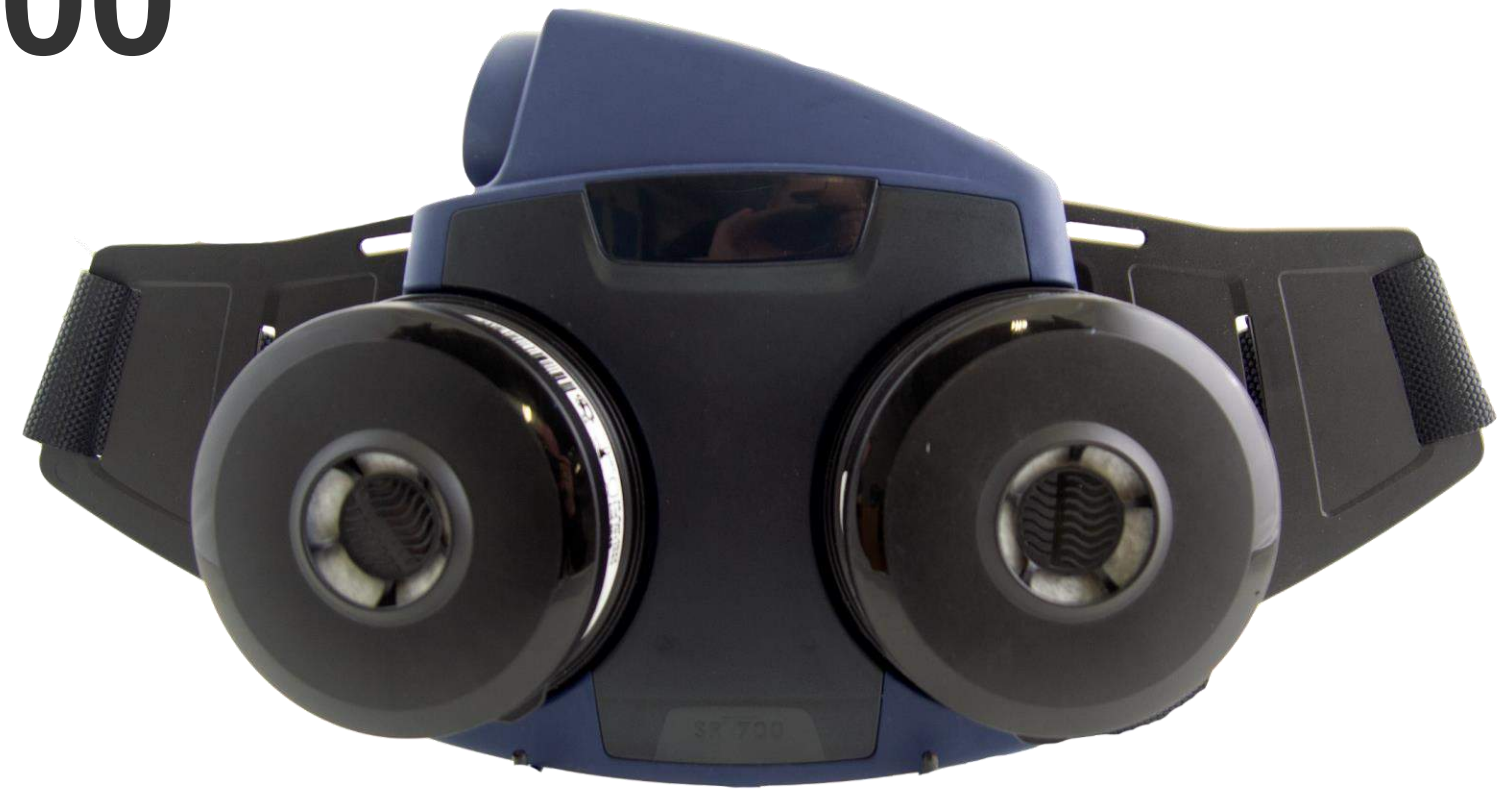
Operating instructions

# SR 700



# General information

Instructions for use for SR 700 should be read before use.

The SR 700 is a battery-powered fan that is included, together with the particle filter and approved head top, in the Sundström respiratory protective system conforming to EN 12941/12942:1998

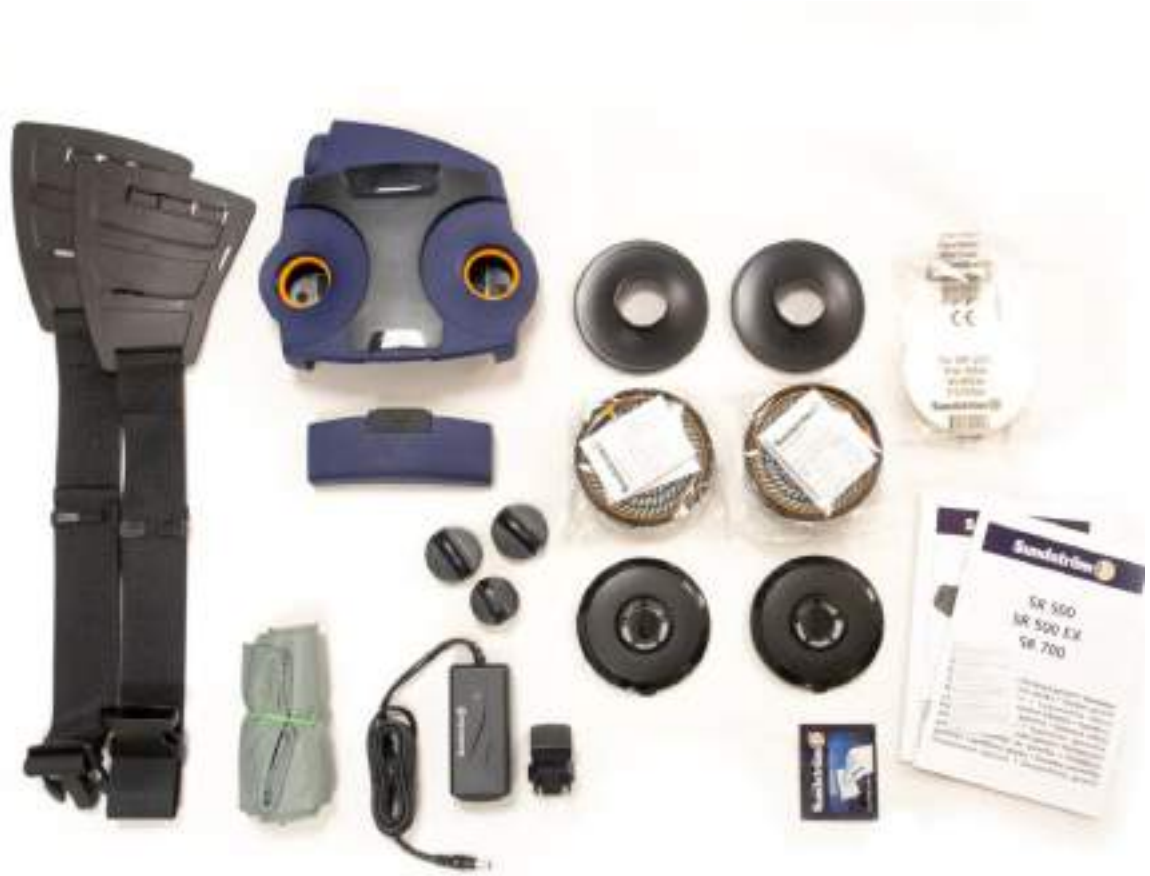
Available head tops for the SR 700 are listed in Instructions for use.

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

- Types of pollutants
- Concentrations
- Work load
- Protection requirements in addition to respiratory protection

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

# Unpacking the SR 700



**Packing list:**

- Fan unit SR 700
- Battery SR 701
- Battery charger SR 713
- Belt SR 508
- Particle filter SR 510 P3 R, 2x
- Filter adapters, 2x
- Pre-filter holders, SR 511, 2x
- Pre-filters, SR 221, 10x
- Flow meter SR 356
- User instruction
- Cleaning tissue SR 5226
- Plug kit, 3pcs

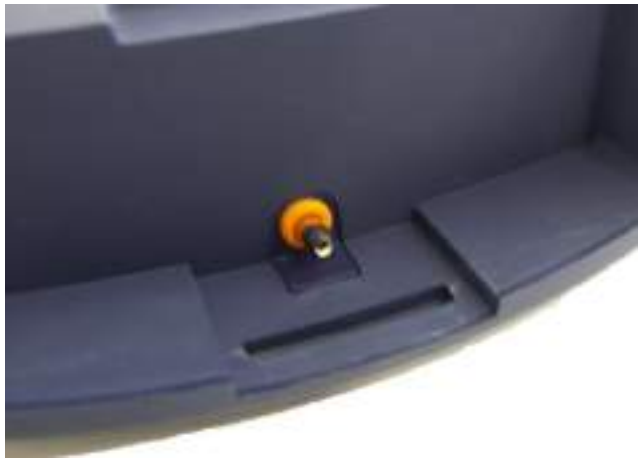
# 1. Assembly, battery

**1.1** Attach the plug to the AC adapter.

**1.2** Remove and charge the battery.

The charger carries out charging automatically in three stages.

1. Orange LED
2. Yellow LED
3. Green LED



**1.3** Check that the gasket round the charge contact in the fan unit is in place and is in good condition.

**1.4** Push the battery back into the battery compartment.

# 2. Assembly belt

**2.1** Assemble the belt by pressing together the two halves of the buckle.

**2.2** 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.

**2.3** Press down the three lips locking the belt half.

**2.4** Correctly mounted belt.

# 3. Particle filter

The fan unit may be used with only particle filters P3 R, model number SR 510 with filter adapter or SR 710, which provides protection against all types of particles, both solid and liquid.

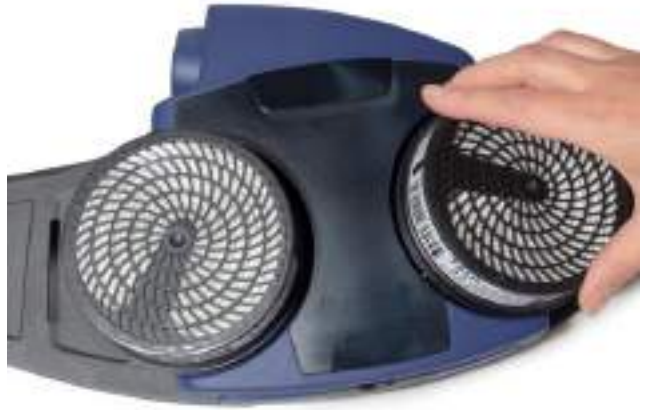
Read carefully the user instructions accompanying the filters.

**Note!**

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

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

**3.2** If particle filter SR 510 are used, snap it on the filter adapter without pressing onto the center of the filter.



**3.3** Screw the filter into the filter mounting so far that the adapter will be in contact with the gasket. Then turn it about 1/8 of a turn further in order to ensure a good seal

**3.4** Fit one pre-filter SR 221 into the pre-filter holder. Press the pre-filter holder onto the particle filter

The pre-filters SR 221 protect the main filter against excessively fast clogging. The pre-filter holders also protect the main filters against handling damage.

**3.5** Correctly mounted pre-filter holder with particle filter.

# 4. Operation/Performance

**4.1** Start the fan by pressing the control button.

**4.2** The symbols on the display will light up and the sound signal will sound. The fan starts in normal operating status. (175 l/min).

**4.3** If the button is pressed again, the flow will increase to 225 l/min, and this is indicated by the large fan symbol lighting up.
If the control button is pressed again, the fan flow rate will revert to 175 l/min and the small fan symbol will again light up.

# 5. Warning system/alarm signals

**5.1 In the event of air flow obstructions**
A pulsating sound signal will be heard.
The red warning triangle of the display will flash.
Action: Immediately interrupt the work, leave the area, and inspect the equipment.

**If the particle filters are clogged**
A continuous sound signal will be heard for five seconds. The red warning triangle in the display will flash. The warning triangle will flash continuously, whereas the sound signal will be repeated at intervals of 80 seconds.
Action: Immediately interrupt the work, leave the area and change the filter.

**5.2 If the battery capacity is lower than 5 %**
A sound signal will be repeated twice at intervals of two seconds.
The yellow battery symbol of the display will flash. The battery symbol will flash continuously, whereas the other signals are repeated at intervals of 30 seconds until about one minute remains before the battery would be fully discharged. The sound signal then changes to an intermittent signal.
Action: Immediately interrupt the work, leave the area and change/charge the battery.

# 6. Performance check, minimum flow

**6.1** Check that the fan unit is complete, correctly mounted, thoroughly cleaned and undamaged

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

**6.2** Turn the flow meter bag inside out so that the transparent measuring tube is on the outside.

*Note. If the bag is turned with the measuring tube inwards, it can be used as a storage bag.*

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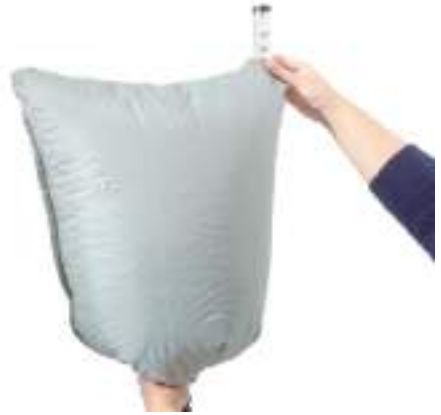


**6.3** Place the head top in the flow meter bag and start the fan unit.

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.

# 7. 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**.

**7.1** 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.

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

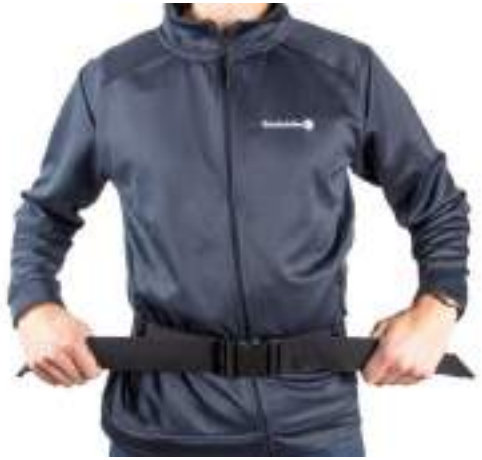
**7.3** If the flow meter outlet is now unblocked and the air is allowed to flow freely, the alarm signals will cease within 10 – 15 seconds.

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

# 8. 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.**



**8.1** Snap the two ends of the belt together.

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

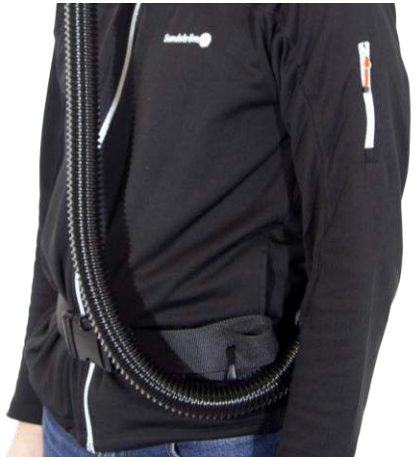
**8.2** The fan should be firmly in contact with the wearer's back in order to ensure optimum comfort and ergonomic benefits.

**8.3** Put the belt ends in the clips on each side of the belt.

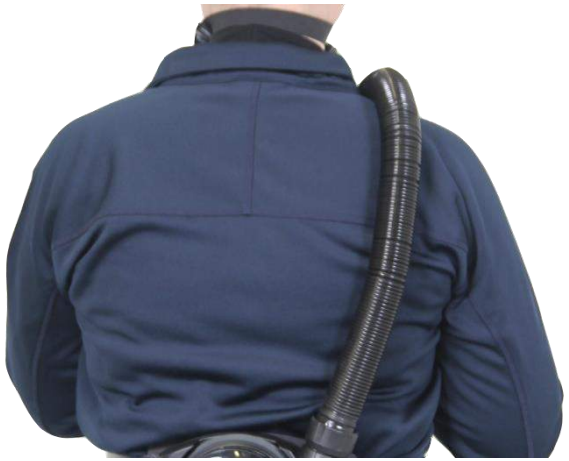
Start the fan.

Put the head top on.

**8.5** Make sure that the breathing hose runs along your back and is not twisted

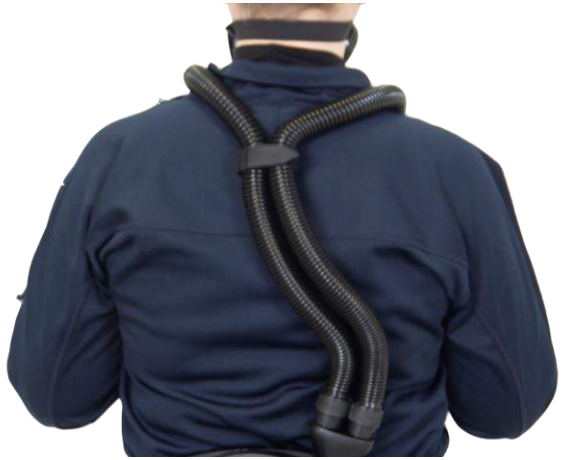


**8.6** Note that when a full face mask SR 200 is used, the hose should run along your waist and up along the chest.



When a half mask SR 900 is used, the hose should run along your back and over your shoulders.

Hose SR 951



Hose SR 952

# 9. To change the particle filters

**9.1** Unscrew the filters. Release the filter holders.

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

**9.2** Remove the filter adapter from SR 510.

**9.3** Change the pre-filters in its holders. Clean, as necessary.

**9.4** Fit new filters.

# 10. Cleaning/Disinfection

**10.1** 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.

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

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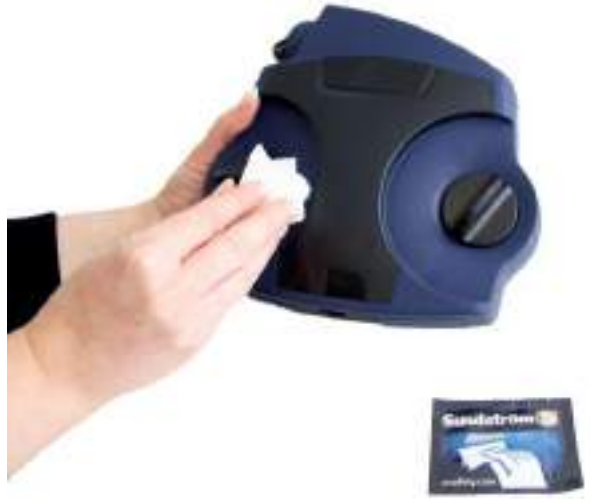
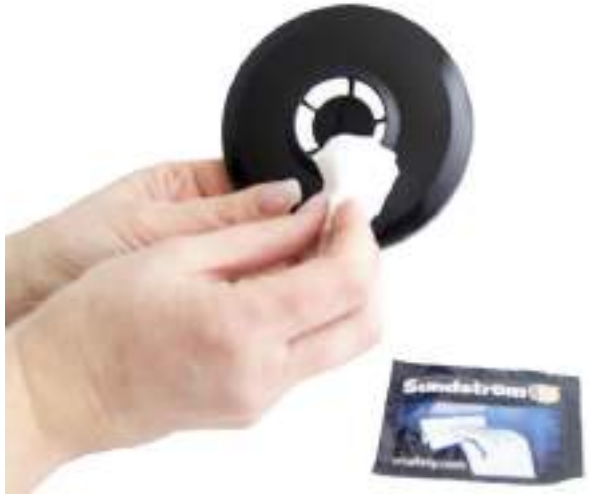


**10.3** A SR 5226 cleaning wipe should be used for daily cleaning.

**Wipe the outside of the fan.**

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

# Cleaning/Disinfection



**10.4** Clean the pre-filter holders inside and out.

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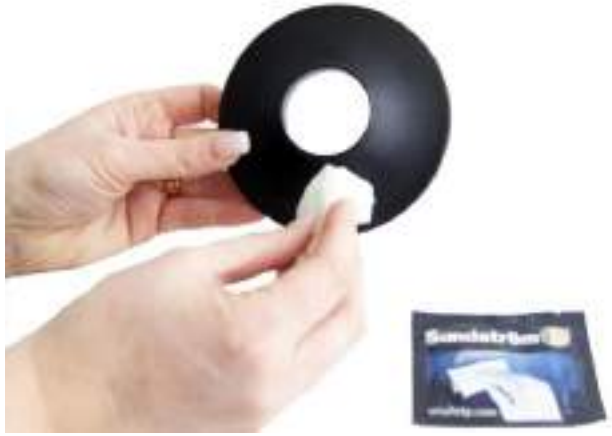
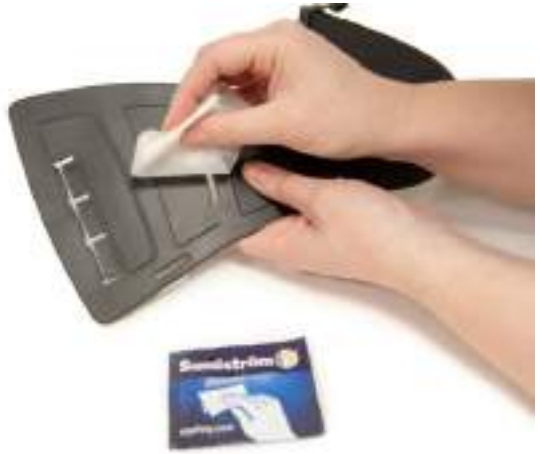


**10.5** Wipe the filter adapter clean.

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



**10.6** Wipe the belt clean.

# 11. Maintenance schedule

| | Before use | After use | Annualy |
|---|---|---|---|
| Visual inspection | ● | ● | |
| Performance check | ● | | ● |
| Cleaning | | ● | |
| Change of fan gaskets | | | ● |

The following schedule shows the recommended minimum maintenance procedures required in order to ensure that the equipment is always in functional condition.

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

Remove the old gasket.

**11.2** 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 | Clean the contact on the battery and fan unit. |
| | Battery faulty | New battery, test another battery<br>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.<br>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

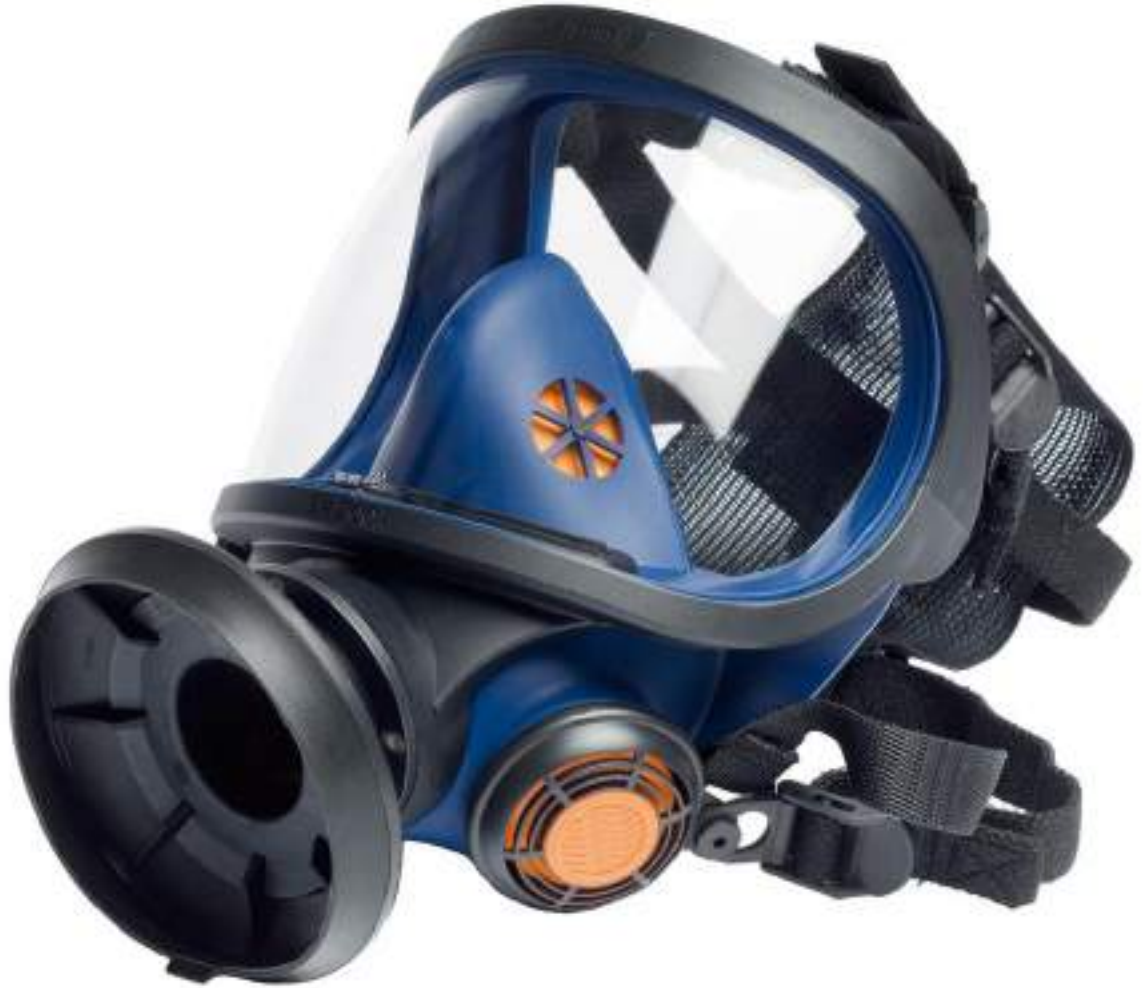
| Fault | Reason | Action |
|---|---|---|
| Red triangle flashes on the display and the fan sounds | Filters clogged | Change the pre-filters<br>Change the particle filters |
| | Hose damaged | Check that the air flowes freely through the hose and that the hose is in good contition |
| | Valves | Check that the exhalation valves with membranes are fitted to your head top. |
| Irregular air flow | Filter clogged<br>No filters mounted | Check that there are filters in the fan unit |

Sundström

## Operation instruction

# SR 200

## Full face mask



# General information

Instructions for use for SR 200 should be read before use.

The SR 200 full face mask can be used in three different configurations:

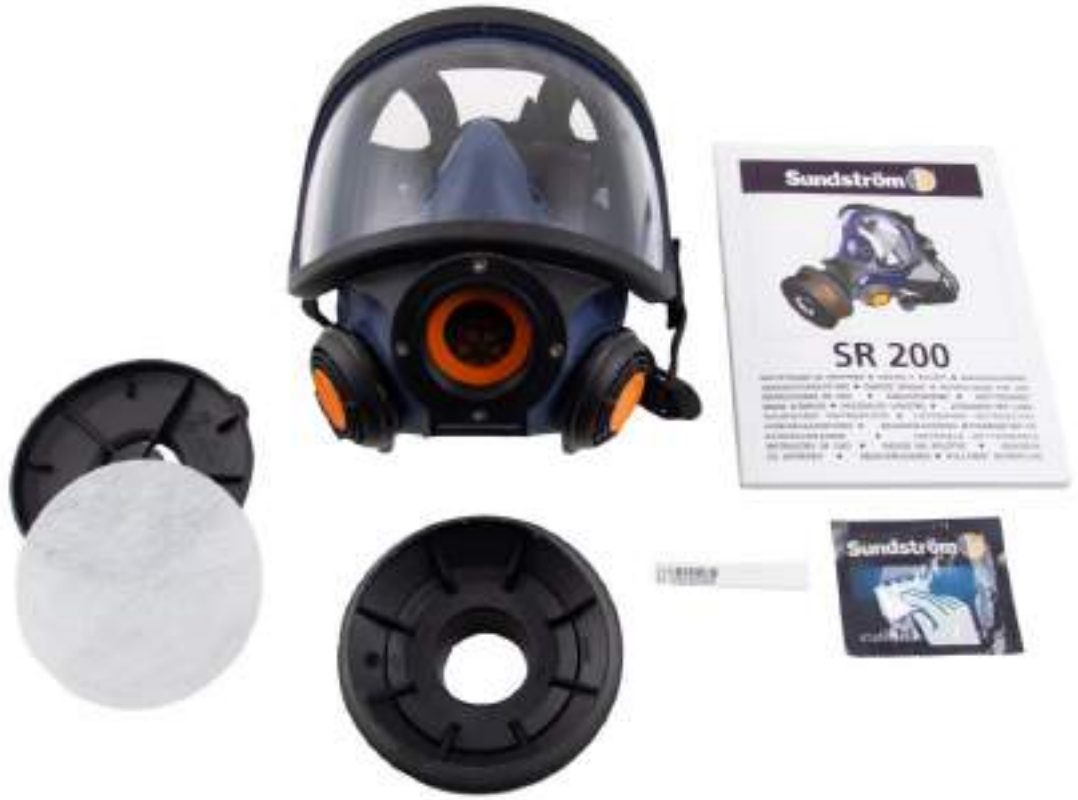
- Together with filters from the Sundström filter range in accordance with EN 136:1998.
- Together with fan unit SR 500, SR 500 EX or SR 700 in accordance with EN 12942:1998, class TM3.
- Together with compressed air attachment SR 307 in accordance with EN 14594:2005 class 3A/3B.

When selecting equipment for SR 200 some of the factors that should be considered are as follows:

- Type of pollutant
- Concentrations
- Work intensity
- Protection requirements in addition to respiratory protective advice.

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

# Unpacking SR 200




**Packing list**

- Full face mask
- Filter adapter
- Pre-filter
- Pre-filter holder
- Cleaning tissue
- ID-tag
- User instructions

# 1. Filter

**1.1** In environments in which both gases and particles occur, such as in spray painting, gas and particle filters must be combined.

**1.2** Place the particle filter on top of the cartridge. Grasp both protective elements. Squeeze hard until you hear the particle filter snap onto the gas filter.

**1.3** Check that you have selected the right filter and that the use-by date has not been passed. (Specified on the filter and is valid provided that the filter packaging is unopened.)

**1.4** Place a coin it in the space between the lower lip of the particle filter and the small tab molded into the side of the gas filter. Push firmly and twist the coin until the filter pops off.

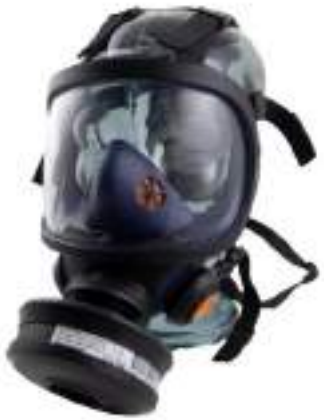
# 2. Fit the filter in a mask

**2.1** Fit the filter/combined filter in the filter adapter so that the arrows on the filter point towards the user’s face. Carefully check that the edge of the filter is in the internal groove of the filter mounting all around.

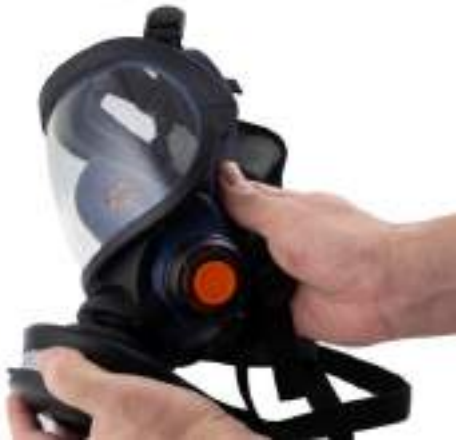
**2.2** Fit pre-filter SR 221 in the pre-filter holder and press it into place on the filter.

**2.3** Turn the filters into the mask. Screw until the thread reaches the seal at the bottom of the filter connection, then another 45 degrees.

# 3. Inspection before use



**3.1** Check that the mask is complete, correctly assembled and thoroughly cleaned.



**3.2** Check the mask body, membranes, valve seats and head harness for wear, cuts, cracks, missing parts, and other defects.

**3.3** Check the head harness

**3.4** Check that the appropriate filter is intact.

# 4. Putting the mask on

**4.1** Slacken the four elastic straps by moving the strap holders forward, at the same time pulling the straps.

**4.2** Slacken the upper two inelastic straps by opening the buckles.

**4.3** Move the head harness upwards, place your chin in the facepiece chin support and pull the head harness over your head.

**4.4** Tension the elastic straps in pairs by pulling the free strap ends towards the rear. Adjust the fit of the mask on your face, so that it fits firmly but comfortably. Adjust the lengths of the upper pair of straps and fix by means of the buckles.

# 5. Fit check

**5.1** Place the pre-filter holder to the filter. Put the mask on. Place the palm of your hand lightly over the hole on the pre-filter holder to make it tight. NOTE! Do not push so hard that the respirator´s shape is affected. Take a deep breath and hold your breath for about 10 s. If the mask is tight, it will be pressed against your face. If any leakage is detected, check the inhalation and exhalation valves or adjust the straps of head harness. Repeat the fit check until there is no leakage.

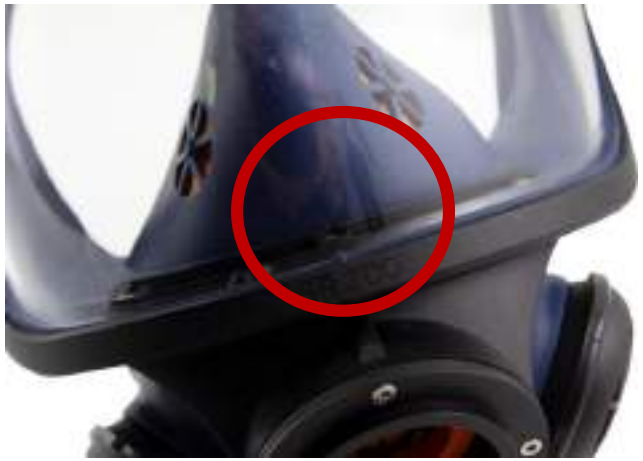
# 6. Change the visor

**6.1** The visor is mounted in a groove running around the visor opening of the outer mask and is held in place by one upper and one lower frame half. Use a 2.5 mm Allen key to remove the two screws holding the frame halves together.

**6.2** Carefully remove the upper frame half.
Carefully prise the top part of the mask off the visor and remove the visor from the lower groove.

**6.3** Take this opportunity to clean the groove, if necessary.

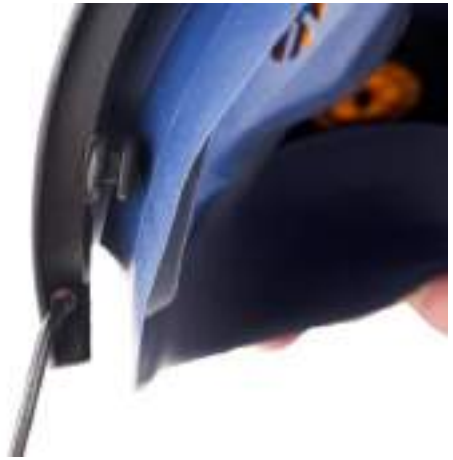
# 6. Change the visor



**6.4** Markings are made to show the centers of the visor, frame halves and mask. Press the new visor into the groove, making sure that the center markings are in line. To make assembly easier, coat the slot with a soap solution or similar liquid.

**6.5** Carefully prise the top half of the mask over the visor, and make sure that the visor is in the groove in the mask.

**6.6** Prise the upper frame half, making sure that the center markings are in line.



**6.7** Fit the screws and tighten them alternately until the two halves of the frame are firmly in contact.

# 7. Change the inhalation membranes

**7.1** One membrane is in the center of the inner mask on a fixed dowel. Prise off the membrane and fit a new membrane.

**7.2** Two membranes are fitted, i.e. one on each inside of the inner mask. The dowels for these membranes are removable and should be changed whenever the membrane is changed. Prise off the membranes and dowels.

**7.3** Prise the new membranes onto the new dowels. The membrane should rest on the larger flange, i.e. thread the dowel with the membrane from the inside of the mask, through the valve seat, with the smaller flange first.

# 8. Change the exhalation membranes

**8.1** The exhalation membranes are mounted on a fixed dowel on the inside of the valve covers on each side of the outer mask. The covers should be changed whenever the membranes are changed. Snap the valve covers off the valve seats.

**8.2** Prise off the membrane.

**8.3** Press the new membranes onto the dowels. Carefully check that the membranes are in contact with the valve seats all round.

**8.4** Press the valve covers into place. A clicking sound indicates that the cover has snapped into place.

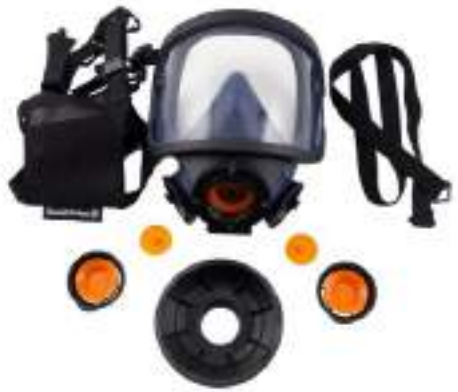
# 9. Change the head harness

**9.1** The head harness can be ordered as a spare part only as a complete harness. Snap the strap holders of the head harness off the mask strap mountings.

**9.2** Check that the straps are not twisted and fit the new head harness.

# 10. Cleaning

Sundström cleaning tissues SR 5226 are recommended for daily care. If the mask is heavily soiled, use a warm (up to +40 °C), mild soap solution and a soft brush, followed by rinsing with clean water and drying in air at room temperature. If necessary, spray the mask with 70 % ethanol or isopropanol solution for desinfection.



10.1 Remove the adapter/filter. Remove the covers for the exhalation valves and remove the membranes (two).

**10.2** Remove the inhalation membranes. Critical areas are the exhalation membranes and the valve seats which must have clean and undamaged contact surfaces.

**10.3** If necessary, remove the visor.

Clean as described above. Inspect all parts and replace with new parts as necessary. Leave the mask to dry, and then assemble it.

# 11. Maintenance schedule

Recommended minimum requirements on maintenance routines so you will be certain that the equipment will always be in usable condition.

| | Before use | After use | Annually |
|---|---|---|---|
| Visual inspection | • | | |
| Functional check | • | | |
| Cleaning | | • | |
| Membrane change | | | • |
| Head harness change | | | • |