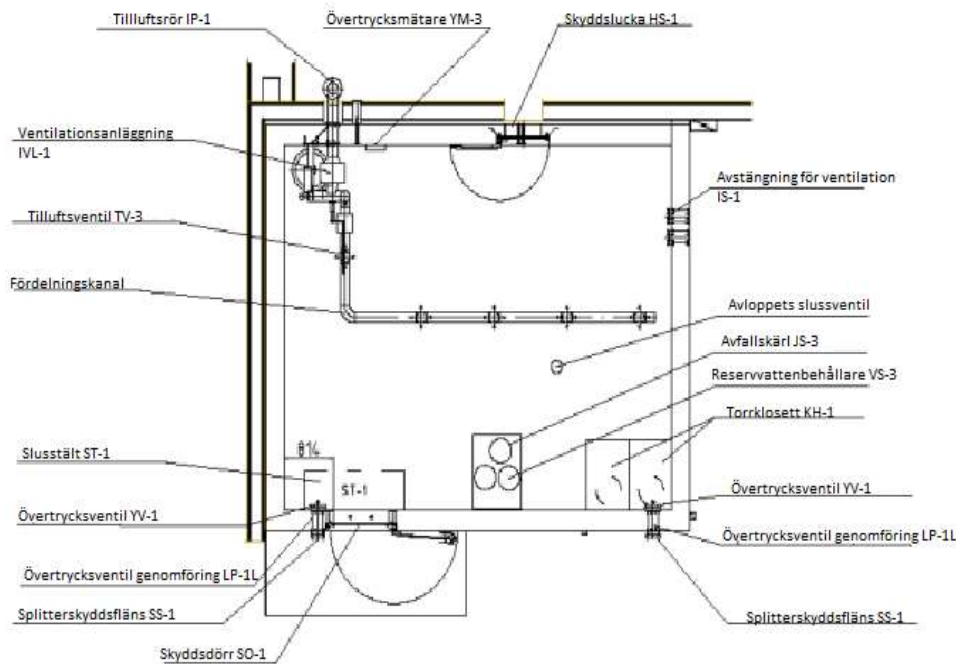


USE AND SERVICE INSTRUCTIONS FOR CIVIL DEFENSE SHELTER CLASS S1

1. Actions under normal conditions

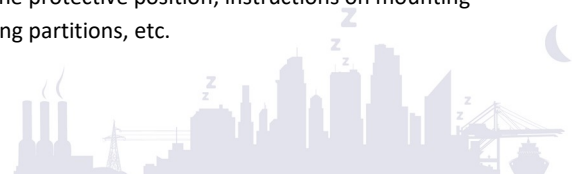
Figure 1 Examples of civil protection and equipment



1.1. Checking the equipment

The equipment in the shelter must be inspected at least once every two years. The inspection must be recorded. The Civil Protection Authority inspects the shelter, and the inspection records every 3-10 years

1. Check using Figure 1 that the equipment in the shelter is complete and in place. Check using the shelter's equipment and equipment list that the equipment in the shelter is in place and in good condition.
2. Check that the anti-corrosion paint on doors, hatches and other metal parts is in good condition.
3. Check that the doors and hatch's function.
4. Check that the following are complete and in place:
 - the seals on the doors and hatches.
 - the seals and bolts in the shut-off device for normal ventilation.
 - the rubber couplings and hose clamps of the ventilation system.
 - the protective covers of the special filters (the protective covers must be sealed).
5. Check that the air flow meter lever is in the "PASS" position and that the pressure valve and the relief valve are closed.
6. Check that there is no water in the pressure valve, relief valves or protective fan. Open the screw for water removal located in the bottom. Screw the screw back after checking.
7. Maintain the fan according to the instructions on the nameplate.
8. Check the condition of the overpressure gauge and reset the gauge according to the instructions.
9. Check that the packages with the sluice tent and toilet scrubbers are still there and that the mounting frames are in place.
10. Check that there are enough reserve water tanks (15l / 40l / m²).
11. Check the number of dry toilets (1 pc / 20 m²).
12. Check that the shelter has sufficient instructions on how to put it in the protective position; instructions on mounting or dismantling partitions, etc.



Contact the manufacturer if the equipment in the shelter has such faults or deficiencies that the above measures cannot be carried out.

1.2. Checking the tightness of the shelters

1. Close protective doors and hatches and the shut-off device for normal ventilation.
2. Close the floor drain shut-off valve during the inspection.
NOTE: After the inspection is complete, the valve must be opened again. Close the pressure relief valves and lock with the locking screws.
3. Check that the ventilation system is in the pass-through position (figure 2).
4. Close the pressure valve using the handwheel.
5. If the shelter has an airlock chamber, check that the exhaust air valves from the shelter are fully open.
6. Check the overpressure gauge and reset it according to the instructions attached to the gauge.
7. Start the protective fan and open the pressure valve slowly until the overpressure gauge indicates an overpressure of approx. 300 Pa. If the pressure is not reached, the largest leaks should be located and investigated.
8. Close the pressure valve and fan. Examine the pressure drop in the shelter by measuring the time it takes for the pressure in the overpressure gauge to drop from (20 mmvp)200 Pa to 50 Pa.
9. If the time is at least 20 seconds, the shelter is sufficiently tight.
10. If the time is shorter, the seal in the shelter should be improved. Leaks can be located, among other things, by using smoke (match, light, etc.) or sound.
 - follow the movement of smoke near the inner surfaces of the shelter during the leak test.
 - create the highest possible overpressure in the shelter (max. 500 Pa), close the pressure valve and move around the shelter and listen for leaks that are small.
3. Mount the shelter airlock tent in the standby position in its mounting frame inside the shelter door. Follow the instructions on the packaging.
4. Mount the shelter toilet scrubbers in their mounting frames according to the instructions on the packaging. Check the dry toilets and place them in the toilet scrubbers.
5. Check the function of the emergency exit and the emergency exit hatch. If the hatch is below ground level, remove any asphalt layer or other coating. Make sure that it is quick and easy to dig out. The hatch can also be opened completely if necessary and protected against water with a water cover.
6. Check that no debris or water has collected in the air ducts or in the pressure gauge measuring tube. If the air tube has been detached and stored, it should be installed in place outside the collapse area. First detach the compact protective plate of the penetration. Also check the pressure gauge and top up with fluid if necessary.
7. Familiarize yourself thoroughly with the use and maintenance of the ventilation system using these operating and maintenance instructions and the instructions on the fan nameplate.
8. Check the condition of the system by checking points 1-12 in section 1.1.
9. Check the tightness of the shelter using the ventilation system according to the instructions in section 1.2.
10. Close the shut-off valves for heating pipes and other pipes that are not required for the protective function. However, make sure that the pipes cannot freeze. Check the drain shut-off valve. Fasten the non-return valve flap if it has come loose.
11. Check that the reserve water tanks are tight and clean and fill them with water.
12. Furnish and equip the shelter. Check that there is a battery-operated radio and that the antenna is connected, that the telephone is connected to the mains and that there is backup lighting. Install toilet scrub walls and build any special shelters

2. Measures for protective preparedness

If it is necessary to prepare the shelter for protective function; the following inspections and measures should be taken:

1. Empty the shelter of unnecessary items, structures and machinery and remove any drapes that may prevent heat from spreading to the walls and ceiling.
2. Close all valves for normal ventilation with their shut-off devices. Make sure that no openings in the surrounding structures leading to the shelter are left open.



3. General safety instructions

Check that all doors and hatches leading out are properly closed.

The drain shut-off valve is kept closed and opened only when necessary.

In addition, the use of drinking water and emergency lighting must be regulated. Rest breaks must be planned and arranged and other measures aimed at maintaining order must be taken.

Instructions and messages during the protection time are transmitted via radio.

4. Use of the ventilation system during the protection period

The measures in different situations are carried out in the same order as they are listed in the instructions. The Civil Protection Authority determines and announces the use situations.

4.1 Bypass mode

1. In the ventilation system toolbox there is a special operating manual for the ventilation system. **BYPASS** mode

IN BYPASS MODE, DO NOT USE THE SPECIAL FILTER

1. Check that the special filter is set for bypass mode and secured with the locking clamp. Also check that the bypass air pipe is secured with spring-loaded couplings and hose clamps to the pressure valve and the fan intake pipe.

2. Open all pressure relief valves in the shelter.

3. Open the pressure valve fully using the handwheel.

4. If the shelter has an airlock chamber, check that the exhaust air valves from the shelter are fully open.

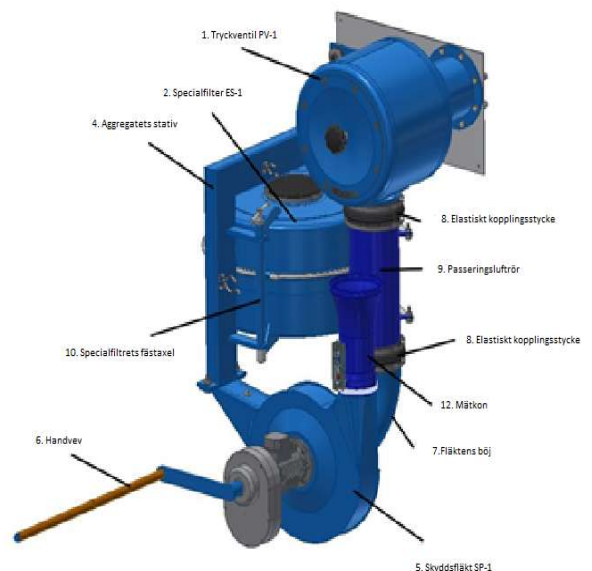
5. Set the air flow meter lever to the BYPASS position.

6. Start the fan via the control centre.

7. Open the pressure valve fully using the handwheel. The air flow should be at least 600 m³/h (170 dm³/s).

If the power supply is interrupted, use the hand cranks to achieve an air flow of 500 m³/h (135 dm³/s). (In winter, a smaller air flow is sufficient). Observe the direction of rotation arrow on the fan. Change the person at the hand cranks regularly.

Figure 2 Ventilation system during access operations.



4.2. Lock use

WHEN USING THE LOCK, NO AIR COMES IN OR IS RELEASED FROM THE PROTECTIVE ROOM.

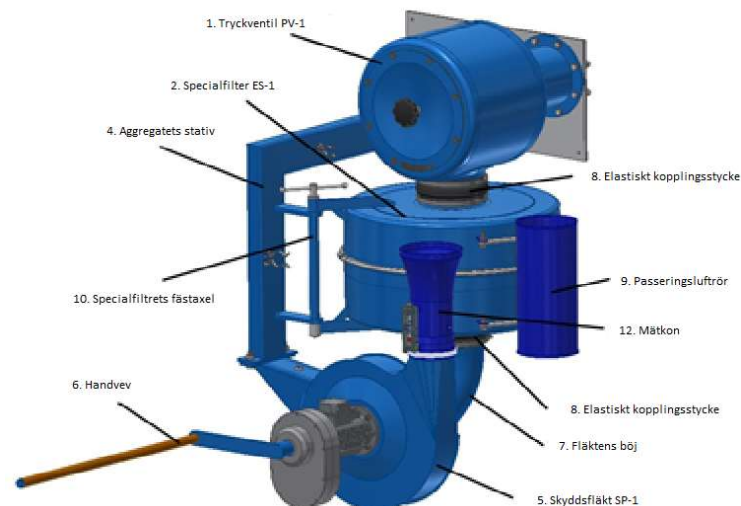
1. Close the pressure valve using the handwheel.
2. Close the pressure relief valves and lock with the locking screws.
3. Close the drain shut-off valve.

4.3. Transition from lock use to filtration use

IN THE FILTRATION USE, THE AIR IS DIRECTED INTO THE PROTECTIVE ROOM ONLY VIA THE SPECIAL FILTER.

1. Open the air-handling room relief valves.
2. Release the spring-loaded couplings from the air-bypass pipe (Figure 2).
3. Remove the lower protective cover of the special filter.
4. Open the special filter lock and set the filter to the filtering position (Figure 3).
5. Secure the special filter tightly to the fan intake pipe using the lower spring-loaded coupling and a hose clamp and lock the filter with the locking mechanism.
6. Turn the air flow meter lever to the FILTERING position.
7. Operate the fan manually using the cranks at low speed during the following two steps. Observe the direction of the rotation arrow.
- 7.1. Remove the upper protective cover of the special filter.
- 7.2. Secure the special filter to the pressure valve using the upper spring-loaded connector and a hose clamp.
8. Remove the hand crank.
9. Lock the special filter in place.
10. Start the fan via the control centre.
11. Adjust the filter air flow to 150 m³/h (40 dm³/s) by slowly opening the pressure valve using the hand wheel.
12. If the power supply is interrupted, open the pressure valve completely using the hand wheel. Use the hand cranks to achieve an air flow of 150 m³/h (40 dm³/s). Observe the direction of the rotation arrow. Change the person at the cranks regularly.
13. Observe the overpressure in the shelter, which should be at least 50 Pa (5 mmvp).

Figure 3 The ventilation system during filtration.



4.4 Transitioning from filtration use to closure use

If you must return from filtration, use to closure use, do the following:

1. Switch off the fan via the control unit or cancel manual operation.
2. Close the pressure valve using the handwheel. Close the pressure relief valves and lock with the locking screws.
3. Close the drain shut-off valve.

4.5 Transition from filtration use to override use

1. Close the fan or cancel manual operation.
2. Operate the fan manually using the hand cranks at low speed during the following two steps. Observe the direction of rotation arrow.
 - 2.1. Detach the upper spring-loaded connector from the special filter (Fig. 3).
 - 2.2. Close the special filter tightly with the upper protective cover and a hose clamp.
3. Detach the lower spring-loaded connector from the special filter and close the filter tightly with the lower protective cover and a hose clamp.
4. Open the special filter lock and set the filter to the bypass position (Fig. 2).
5. Attach the bypass air pipe with spring-loaded connectors and hose clamps to the pressure valve and the fan intake pipe. Lock the special filter with the locking mechanism.
6. Repeat the steps in section 4.1 (bypass use), points 2-8.

