

1 For your safety

1.1 General safety statements

- Before using this product, carefully read the Instructions for Use.
- Strictly follow the Instructions for Use. The user must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the Intended Use section of this document.
- Do not dispose of the Instructions for Use. Ensure that they are retained and appropriately used by the product user.
- Only fully trained and competent users are permitted to use this product.
- Comply with all local and national rules and regulations associated with this product.
- Only trained and competent personnel are permitted to inspect, repair and service the product. Dräger recommends a Dräger service contract for all maintenance activities and that all repairs are carried out by Dräger.
- Properly trained service personnel must inspect and service this product as detailed in the maintenance section of this document.
- Use only genuine Dräger spare parts and accessories, or the proper functioning of the product may be impaired.
- Do not use a faulty or incomplete product, and do not modify the product.
- Notify Dräger in the event of any component fault or failure.

1.2 Definitions of alert icons

Alert icons are used in this document to provide and highlight text that requires a greater awareness by the user. A definition of the meaning of each icon is as follows:

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

CAUTION
Indicates a potentially hazardous situation which, if not avoided, could result in physical injury or damage to the product or environment. It may also be used to alert against unsafe practices.

NOTICE
Indicates additional information on how to use the product.

2 Description

2.1 Product overview

The Dräger SAVER PP (positive-pressure) is an emergency escape breathing apparatus that provides respiratory protection to escape from a contaminated or oxygen-deficient environment to a safe breathing environment.

The main features of the product are:

- The respiratory protection equipment is contained in a carrying bag that has a soft or hard case. If the bag is black it indicates that the bag material has anti-static properties. The bag has a neck strap to carry the product.
- The air cylinder is fitted inside the carrying bag but has a pressure gauge (Fig 1, Item 4) that is visible outside the bag. When the cylinder is full it provides a nominal duration of 10 or 15 minutes (see Section 2.1.1).
- The cylinder valve has an automatic activation device that is operated by removing a two-pronged locking clip (Fig 1, Item 3). The locking clip is connected by a strap to a sprung-gate clip (Fig 1, Item 2) that is in turn connected to a D-ring (Fig 1, Item 1) on the inside of the lid. This arrangement automatically removes the locking clip as the carrying bag is opened.
- The pressure reducer (Fig 1, Item 5) reduces the cylinder pressure to a medium pressure (the pressure required at the lung demand valve).
- The face mask (Fig 2) has an elasticated five-point head harness, and an internal nose cup that fits over the nose and mouth to supply air to the wearer.
- The lung demand valve regulates the breathing air supply to the wearer during use. The valve is switched on by the inhalation of the wearer (first-breath activation), and can be switched off by pressing a reset button (Fig 2, Item 1) when required.
- There is an anti-tamper tag (or tags) (Fig 3) fitted on the lid of the carrying bag to allow an inspector to quickly identify that the bag has not been opened. The soft-case bag has a single anti-tamper tag (Fig 3, A), and the hard-case bag has two anti-tamper tags (Fig 3, B).

2.1.1 Air cylinders

The SAVER PP15 version has a 3 litre steel or carbon-composite cylinder – nominal duration of 15 minutes.

2.2 Intended use

When this product is used with an approved air cylinder it provides the wearer with respiratory protection for escaping from contaminated or oxygen-deficient conditions.

The air cylinder used with this product must be a certified Dräger cylinder; otherwise the operation of the product may be impaired. Contact Dräger for further information.

Operating temperature range: -30 °C to 60 °C.

2.3 Limitation on use

The SAVER PP15 version (with 3 litre steel cylinder) exceeds 5 kg. This is considered to be unsuitable (as defined in EN 402) to be carried by the wearer for more than 8 hours.

Use in potentially explosive atmospheres

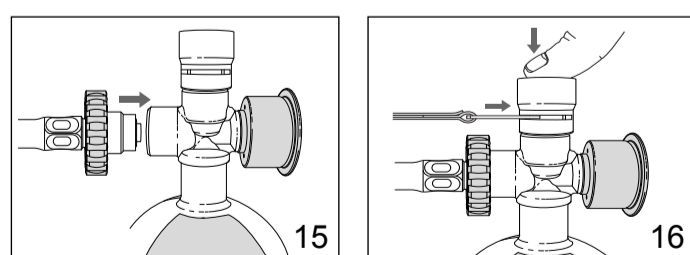
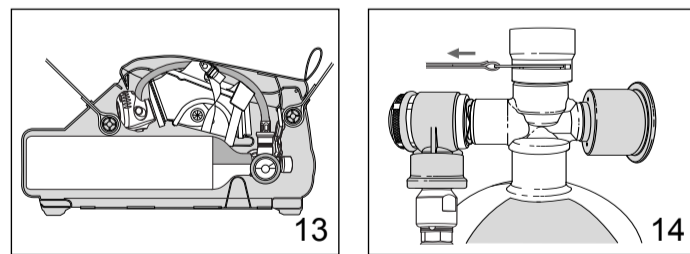
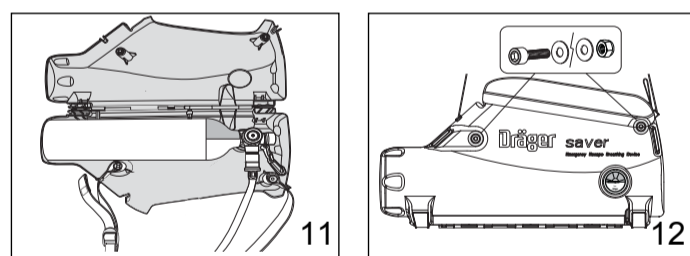
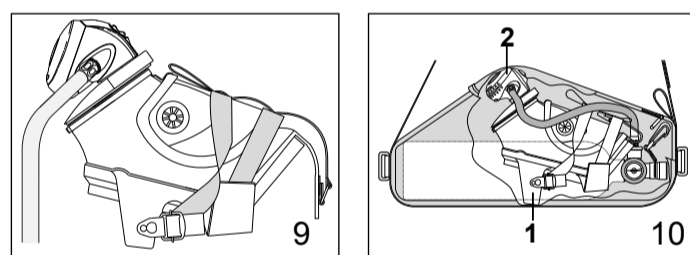
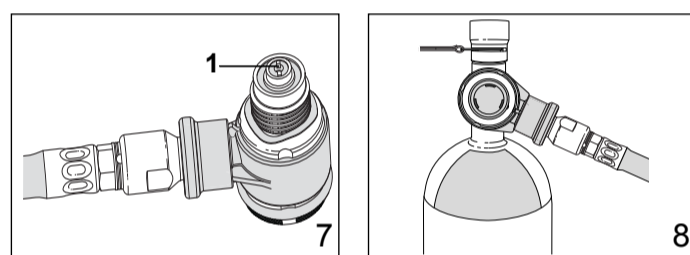
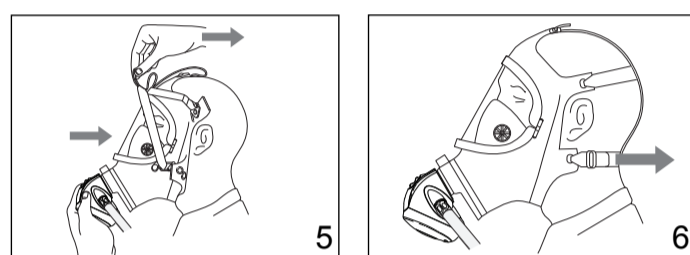
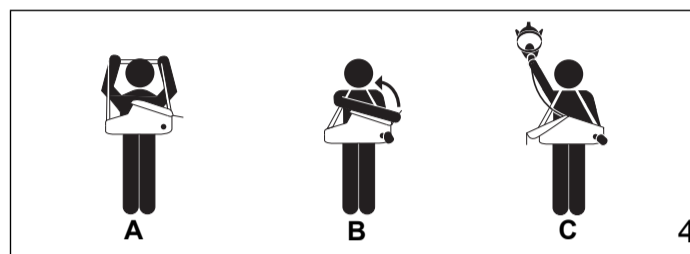
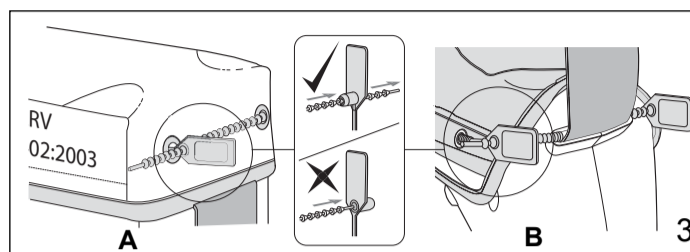
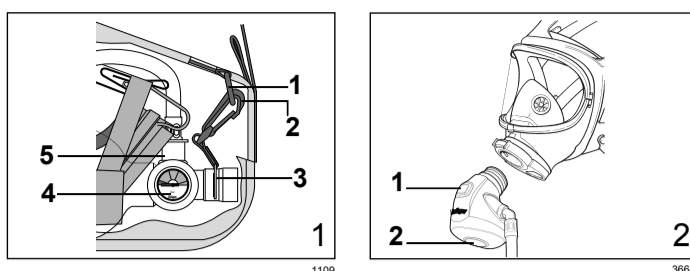
Do not charge the cylinder in a potentially explosive atmosphere.

SAVER PP Series combinations that are supplied in a black soft-case bag or hard-case bag have anti-static properties and are type tested as suitable for use in potentially explosive atmospheres. The combinations are suitable for use in hazardous areas up to and including zone 0 and zone 20. The combinations can be used in atmospheres containing gases of the gas explosion group IIC.

SAVER PP Series combinations that are supplied in an orange soft-case bag are not suitable for use in potentially explosive atmospheres.

2.4 Approvals

The European standards, guidelines, and directives according to which this product is approved are specified in the declaration of conformity (see declaration of conformity or www.draeger.com/product-certificates).



2.5 Explanation of markings and symbols

The date of manufacture of the product is shown on the carrying bag in the form MM/YYYY.

A snowflake symbol (❄) on the bag lid indicates that the equipment can be used in the following operating temperature range: -30 °C to 60 °C.

3 Use

WARNING
The time required to allow the wearer to escape to a safe area must be within capacity of the equipment. When selecting the type and duration of escape equipment it is essential to consider potential hazards, storage location and escape routes.

3.1 Preparation for use

WARNING
On receipt of the SAVER PP from Dräger, the product is not configured for immediate operational use. The cylinder automatic activation device is not connected, and the air cylinder may be discharged. Carry out the following procedure to prepare the product for use.

Immediately following removal of the equipment from its packaging:

- If the air cylinder is supplied discharged, see Section 4.2.5 for cylinder charging instructions.
- If the air cylinder is supplied fully charged, carry out the following to connect the cylinder automatic activation device:
 - a. Grip the loop on the lid of the carrying bag and pull up to open the bag.
 - b. Press the reset button (Fig 2, Item 1) to ensure that the lung demand valve is switched off.
 - c. Check that the pressure reducer is secure in the valve port.
 - d. Seal the lid along the hook-and-loop fastening strip leaving sufficient opening to insert a hand and, taking care not to detach the locking clip from the cylinder valve, connect the sprung-gate clip (Fig 1, Item 2) to the D-ring (Fig 1, Item 1).
 - e. Fit the anti-tamper tag(s) and close the lid (Fig 3).

3.2 Putting on the carrying bag (ready position)

1. Check that the pointer of the cylinder pressure gauge is inside the green area, and the anti-tamper device on the lid of the carrying bag is intact (Fig 3).
2. Place the neck strap over the head (Fig 4, A) and adjust the strap until the equipment sits in the centre of the chest.
3. If fitted with a waist belt (optional accessory), loop the waist belt around the waist and then fasten the buckle. Pull the free end of the belt until the equipment is secure and comfortable.

3.3 Putting on the face mask and escape procedure

WARNING
Correct fit of the face mask can only be achieved if the complete mask seal makes contact with skin. Head hair, facial hair (including beard stubble and sideburns), earrings, other facial piercings and normal spectacles will interfere with the face mask seal and are not permitted in the sealing area. Additionally, head hair that could affect the face mask fit (buns, pony-tails, hairpieces, etc.) is not permitted.

NOTICE
The actual breathing time available from the cylinder depends on the wearer's air-use rate. Higher breathing rates associated with increased physical effort would reduce the available escape time. The wearer **must** be able to reach the required area before the air cylinder is empty.

1. Grip the loop on the lid of the carrying bag and pull firmly upward to break the anti-tamper tag(s) and open the lid of the bag (Fig 4, B). This action removes the locking clip, automatically activating the cylinder valve.
2. Remove the mask from the carrying bag (Fig 4, C).
3. Using one hand hold the mask on to the face and, with the other hand, pull the elasticated head harness over the back of the head, locating the harness centrally on the head (Fig 5).
4. Tighten both lower straps evenly towards back of the head (Fig 6).
5. On achieving a face seal, inhale to activate the breathing air supply. The duration of the cylinder air begins from the time of the first-breath activation of the lung demand valve.

NOTICE
After storage at temperatures below 0 °C leakage may be observed when the breathing air supply is activated due to ice formation.

- If leakage is observed from the **lung demand valve**: Press the front button (Fig 2, Item 2) to allow a rush of air to pass through the lung demand valve and then quickly press the reset button (Fig 2, Item 1) to switch off the positive pressure. Resume normal operation.
- In the event that leakage still occurs, remove the breathing apparatus from service and report the fault to trained service personnel or contact Dräger.

6. Breathe normally and immediately leave the hazardous area by the shortest and safest escape route.

WARNING
Do not remove the equipment until in a safe area and clear of the hazard.

CAUTION
Do not drop or throw down equipment as damage could occur.

7. Once in a safe breathing environment, remove the face mask.
8. Press the reset button (Fig 2, Item 1) to switch off the air flow through the lung demand valve.

3.4 After use

After any use, the product must be checked and then returned to the ready-for-use condition. The after use maintenance tasks (see Section 4.1.2) must be carried out by trained service personnel or Dräger to prepare the product for use.

4 Preparing and maintaining the SAVER PP

The tasks in this section must be carried out to prepare and maintain the SAVER PP in a ready-for-use condition.

4.1 Maintenance periods

4.1.1 Daily checks

It is essential that escape apparatus is ready for use at all times, and Dräger therefore recommend a daily check. If the customer's on-site risk assessment concludes that less regular checks are acceptable, this can be extended to a maximum of one month. It is the customer's responsibility to ensure that the equipment is ready for use at all times.

- Check that the pointer of the cylinder pressure gauge is inside the green area. Charge the cylinder if it is in the red area (see Section 4.2.5).
- Check the anti-tamper tag(s) on the lid of the bag (Fig 3). If a tag is broken, inform trained service personnel or Dräger immediately.

4.1.2 Maintenance table

Service and test the breathing apparatus, including out-of-use apparatus, in accordance with the maintenance table. Record all service details and testing. Refer also to the Instructions for Use for the lung demand valve, face mask and other associated equipment.

Additional inspection and testing may be required in the country of use to ensure compliance with national regulations.

Component / System	Task	After use	Every year	Every 10 years
Complete equipment	Visual inspection (see Note 1 and Section 4.2.1)	○		
	Leak test (see Section 4.2.6)	○		
	Functional tests (see Note 3)		○	
Lung demand valve O-ring	Check and lubricate if necessary (see Note 2)	○		
Pressure reducer	Basic overhaul. Contact Dräger for the Repair Exchange Service (REX)			○
Cylinder valve	Basic overhaul. Contact Dräger for the Repair Exchange Service (REX)			○
Cylinder	Charge to correct pressure (see Section 4.2.5)	○		
	Cylinder pressure test and recertification; check the test date on the cylinder		Carry out in line with national regulations	

Notes

○ Dräger recommendations

1. Clean the equipment if it is dirty. If it the equipment has been exposed to contaminants, disinfect any components that come into direct and prolonged contact with the skin.
2. As a guide, lubricant should be felt on the fingers but not seen. If lubrication is required, lightly apply Dow Corning® Molykote® 111 (other lubricants are not tested and may damage the equipment).
3. These maintenance tasks may only be carried out by Dräger or trained service personnel. Details of the tasks are contained in the technical manual which is issued to service personnel that have attended a relevant Dräger maintenance course.

4.2 Maintenance tasks

4.2.1 Visual inspection

Carry out a visual inspection, checking the full breathing apparatus including all component parts and accessories. Check that the equipment is clean and undamaged, paying particular attention to pneumatic components, hoses and connectors. Typical signs of damage that may affect the operation of the breathing apparatus include impact, abrasion, cutting, corrosion and discoloration. Report dirty or damaged equipment to trained service personnel or Dräger, and do not use until faults are rectified and the product is cleaned.

4.2.2 Fitting the cylinder

Tools required
Torque adaptor 3364854
Torque wrench Stockist

1. Ensure that the pointer of the cylinder pressure gauge is inside the green area (fully charged to 200 bar).
2. Check that the threads of the valve port and the pressure reducer hand wheel are undamaged, and the O-ring (Fig 7, Item 1) is in position and undamaged.
3. Align the pressure reducer as shown in Fig 8 then screw it into the cylinder valve hand tight. Ensure that the pressure reducer is fully screwed into the cylinder valve (screw threads must not be visible). Tighten to a torque of 6 Nm.
4. Carry out the leak test (see Section 4.2.6).
5. Press the reset button (Fig 2, Item 1) to ensure that the lung demand valve is switched off.
6. Pull the elasticated head harness of the face mask over the front of the mask (Fig 9).

NOTICE

Note that the mask visor faces upward in a soft-case carrying bag and faces downward in a hard-case carrying bag.

Route rubber hoses in such a way that the bend radius is not too acute and the hose is not stretched, compressed or twisted.

The 3 litre carbon-composite cylinder is not suitable for use with a hard-case carrying bag.

7. Fit the cylinder and mask as follows:

- Soft-case carrying bag:
 - i. Fully insert the cylinder into the carrying bag.
 - ii. Fit the pressure gauge shroud into the cut-out section in the side of the bag.
 - iii. Connect the hook-and-loop strap around the cylinder.
 - iv. Fit the face mask into the carrying bag, ensuring that the harness lugs (Fig 10, Item 1) of the mask are flat and wrapped around the cylinder, and that the lung demand valve (Fig 10,

- Item 2) is positioned as shown so that the mask does not form a seal on the cylinder.
- Hard-case carrying bag:
 - i. Place the cylinder on the fully open case (Fig 11) and fit the neck strap as shown.
 - ii. Close the carrying bag body, ensuring that the pressure gauge shroud remains in its holder.
 - iii. Fit the securing screws (Fig 12) (5 mm hexagon key and a 10 mm socket required). Dräger recommend a torque of 2 Nm (1.5 lbf ft). The nylon in the locknut must exhibit an interference with screw threads – if interference is not felt, replace with a new M6 self-locking nut.
 - iv. Refit the lid into the slot on the bag.
 - v. Fit the face mask into the carrying bag (Fig 13).
- 8. Seal the lid along the hook-and-loop fastening strip leaving sufficient opening to insert a hand and, taking care not to detach the locking clip from the cylinder valve, connect the sprung-gate clip (Fig 1, Item 2) to the D-ring (Fig 1, Item 1).
- 9. Fit the anti-tamper tag(s) and close the lid (Fig 3).

4.2.3 Removing the cylinder



WARNING

High-pressure air release may cause injury to the user or other personnel near the breathing apparatus. Ensure that the locking clip is fitted in the cylinder valve and fully vent the system before attempting to disconnect the air cylinder.

When the cylinder valve outlet is open to atmosphere (not connected to the pressure reducer or a charging adaptor), **do not** remove the locking clip unless the cylinder is completely discharged. Removing the locking clip would immediately exhaust high-pressure cylinder air. To fully discharge the cylinder, see Section 4.2.4.

1. If the carrying bag is closed, break the anti-tamper tag(s) and carefully open the lid, ensuring that the locking clip (Fig 1, Item 3) remains fitted in the cylinder valve.
2. Disconnect the sprung-gate clip (Fig 1, Item 2) from the D-ring (Fig 1, Item 1) and then fully open the lid.
3. Remove the face mask from the bag.
4. Press the front button (Fig 2, Item 2) to fully vent the system.
5. Remove the cylinder as follows:
 - Soft-case carrying bag: release the hook-and-loop strap and carefully remove the cylinder.
 - Hard-case carrying bag: remove the screws from the carrying bag body (Fig 12) (5 mm hexagon and a 10 mm socket required), fully open the carrying bag body and then carefully remove the cylinder. Remove the lid from the slot on the bag.
6. Unscrew the pressure reducer from the cylinder valve.

4.2.4 Fully discharging the air cylinder

1. Ensure that the pressure reducer is connected to the cylinder valve.
2. Remove the locking clip from the cylinder valve (Fig 14).
3. Press the front button (Fig 2, Item 2) of the lung demand valve and allow the cylinder to fully vent. **Do not** direct the air toward the face, eyes or skin.

4.2.5 Air cylinder charging



WARNING

Air quality for compressed-air cylinders shall meet the requirements for breathing air according to EN12021.

- The charging connector is a G5/8 connector as per EN 144-2.
 - Refer also to the instructions supplied with the cylinder and the charging unit for recharging the cylinder.
 - Only charge compressed-air cylinders which:
 - Conform to national standards.
 - Feature the original manufacturer's test date and test mark.
 - Have not exceeded the test date indicated on the cylinder by the last testing station.
 - Are not damaged.
 - Dräger recommend a charge rate of 27 bar/minute (rapid charging will increase the temperature resulting in an incomplete charge).
 - To prevent overcharging of the cylinder, Dräger recommend using a pressure-limiting device on the charging compressor.
1. Remove the cylinder (see Section 4.2.3).
 2. Connect the charging adaptor to the cylinder valve (Fig 15).
 3. If the cylinder is still pressurized, approximately match the charging line pressure to the cylinder pressure.
 4. Remove the locking clip from the cylinder valve (Fig 14).
 5. Recharge to the rated working pressure of the cylinder (200 bar).
 - Compression of cylinder air can cause a small temperature increase during refilling, resulting in an incomplete charge. If necessary, top-up the cylinder when it cools.
 6. When the cylinder is fully charged, refit the locking clip. Press the button down against the spring and insert the locking clip into the slot (Fig 16), ensuring that the button remains in the locked (down) position.
 7. Vent pressure from the charging hose and then remove the charging adaptor from the valve.
 8. Refit the cylinder (see Section 4.2.2).

4.2.6 Leak test



WARNING

If breathing apparatus fails to meet any of the standards or parameters described in the leak test, or if an immediate leak is evident, there is a system fault. Report the fault to trained service personnel or contact Dräger. Do not use the breathing apparatus until the fault condition is rectified.

1. Ensure that the pointer of the cylinder pressure gauge is inside the green area.
2. Press the reset button (Fig 2, Item 1) to ensure that the lung demand valve is switched off.
3. Remove the locking clip from the cylinder valve to pressurize the system and then refit the locking clip. Press the button down against the spring and insert the locking clip into the slot (Fig 16), ensuring that the button remains in the locked (down) position.
 - There should be no audible leak. If there is any leak, investigate and repair the leak before use. If necessary, use a soapy solution to locate the leak.
4. Press the front button (Fig 2, Item 2). A small amount of air will vent from the system.

5. Press the reset button (Fig 2, Item 1) to switch off the air flow through the lung demand valve.

4.3 Cleaning and disinfecting



CAUTION

Do not exceed 60 °C for drying, and remove components from the drying facility immediately when dry. Drying time in a heated dryer must not exceed 30 minutes.

Do not immerse pneumatic or electronic components in cleaning solutions or water.

If water is trapped and then freezes inside the pneumatic system of the breathing apparatus (such as the lung demand valve), operation will be impaired. Prevent any liquid from entering, and thoroughly dry the breathing apparatus after cleaning to prevent this from occurring.



For information about suitable cleaning and disinfecting agents and their specifications refer to document 9100081 on www.draeger.com/IFU.

Refer also to the Instructions for Use for the lung demand valve, face mask and other associated equipment.

- Use only clean lint-free cloths

1. Clean the breathing apparatus manually using a cloth moistened with cleaning solution to remove excess dirt.
2. Apply disinfecting solution to all internal and external surfaces.
3. Rinse all components thoroughly with clean water to remove all cleaning and disinfecting agents.
4. Dry all components using a dry cloth, in a heated dryer or in air.
5. Contact service personnel or Dräger if disassembly of pneumatic or electronic components is required.

5 Troubleshooting

There is no user troubleshooting on the SAVER PP. Contact trained service personnel or Dräger to report any issues with the product.

6 Storage

Store the equipment between -15 °C and +25 °C. Ensure that the environment is dry, free from dust and dirt, and does not subject the equipment to wear or damage due to abrasion. Do not store the equipment in direct sunlight. Note also the following:

- Extend the neck strap and, if fitted, the waist belt. On the hard-case carrying bag, the neck strap can be fed into the bag at the front and rear slots to tidy the strap.
- Fix the apparatus securely to any raised mounting point to prevent it from falling.
- Contact Dräger for suitable storage cabinets and wall mounting kits.

7 Disposal

When required, dispose of the SAVER PP in accordance with national or local regulations for waste disposal.

8 Order list

Description	Quantity	Order code
Anti-tamper tags	5	3350388
Waist belt	1	3350396
Dow Corning® Molykote® 111	100 grams	3331247
Self-locking nut (M6 with nylon insert)	50	1333062
Torque adaptor	1	3364854