

## 1 Safety-related information

- Before using this product, carefully read the Instructions for Use and those of the associated products.
- 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 authorized 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. The warranty may be void if repair, modification or alteration is made to the product by any individual or entity other than Dräger or its authorized representatives.
- Properly trained authorized 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.
- Before occupational use of this respirator a written respiratory protection program must be implemented meeting all the local government requirements. In the United States employers must comply with OSHA 29 CFR 1910.134 which includes medical evaluation, training, and fit testing.



These instructions for use can be downloaded in electronic form in other languages in the Technical Documentation database ([www.draeger.com/ifu](http://www.draeger.com/ifu)).

## 2 Conventions in this document

### 2.1 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.

### 2.2 Trademarks

Trademark	Trademark owner
PAS®	Dräger
X-plore®	Dräger
FPS®	Dräger
Panorama Nova®	Dräger

The following webpage lists the countries in which Dräger's trademarks are registered: [www.draeger.com/trademarks](http://www.draeger.com/trademarks).

## 3 Description

### 3.1 Product overview

The Dräger PAS X-plore (see Fig 1) is a belt mounted manifold that is used to connect an external breathing air supply (supplied airline respirator – SAR) to a lung demand regulator and mask combination. The manifold has an input connector (see Fig 1, item 3) to connect the airline and has an output at a female quick coupling (see Fig 1, item 1) to connect the lung demand regulator and mask.

The warning whistle (see Fig 1, item 2) is a low input pressure warning device. The whistle sounds during use to alert the wearer if the breathing air supply falls below the pressure required to provide adequate breathing air.

Radio-frequency identification (RFID) is an option available for this product to allow electronic asset management and tracking using a radio-frequency reader. When fitted, the passive RFID tag is positioned inside the manifold casing.

#### 3.1.1 Lung demand regulator and mask

The PAS X-plore is used with a Dräger Plus lung demand regulator (see Fig 2) and a compatible Dräger FPS® 7000 or Panorama Nova® mask (the Panorama Nova mask is shown in Fig 1).

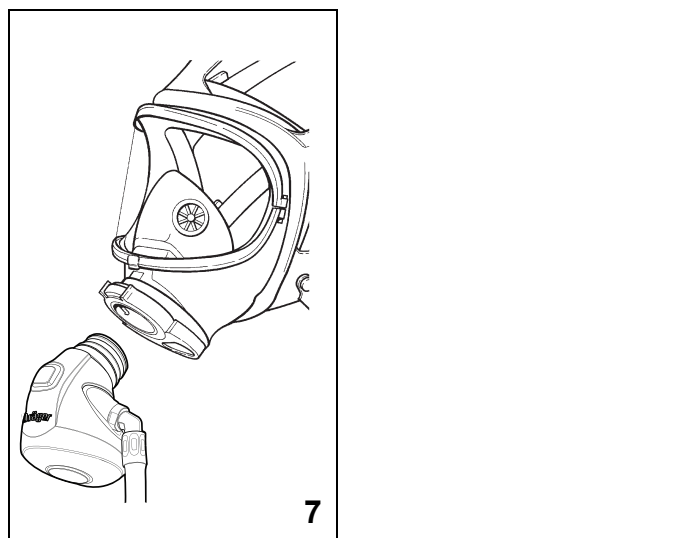
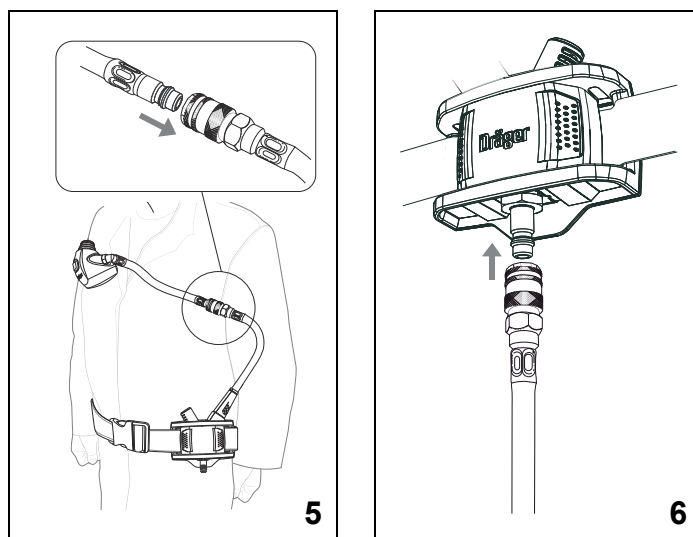
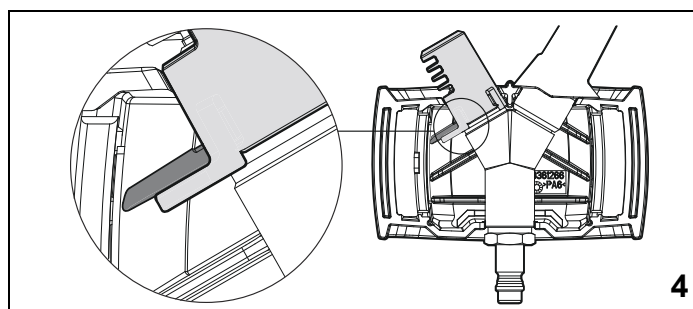
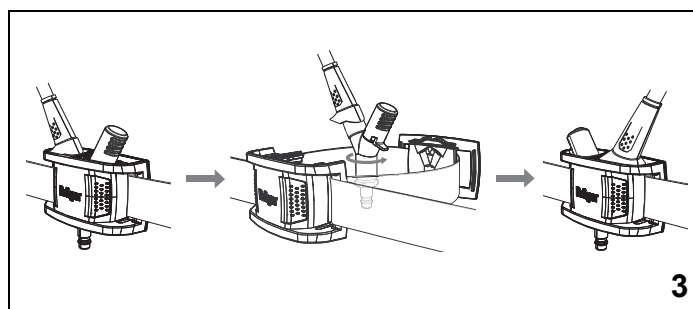
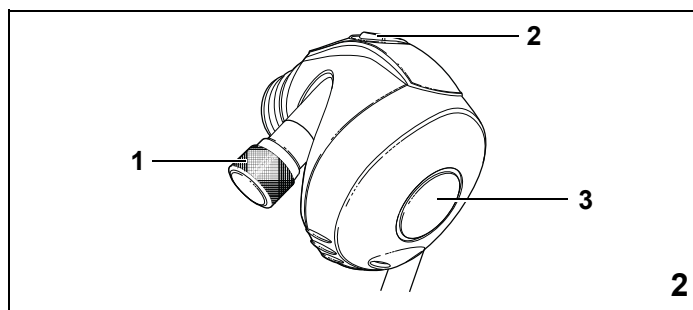
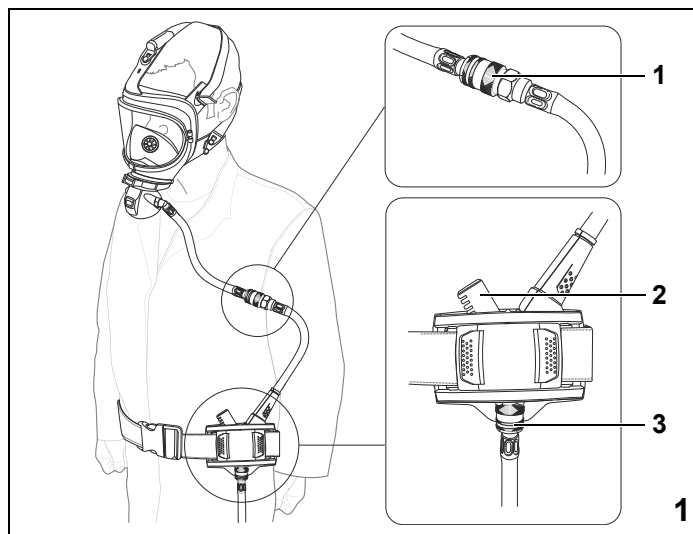
The lung demand regulator connects to the mask and controls the breathing air supplied into the mask using positive-pressure operation. The bypass valve button (see Fig 2, item 1) can be used to deliver an additional airflow into the face mask when required by the wearer during use. The reset button (see Fig 2, item 2) can be used to switch off the air flow through the regulator when required. See the Instructions for Use supplied with the mask and lung demand regulator for further information.

#### 3.1.2 Breathing air supply

The breathing air supply (airline supply) is an external source of breathing air from an air cylinder or compressor arrangement capable of supplying the specified air quality, pressure and flow rates (see Section 4.1 for details).

### 3.2 Intended use

The PAS X-plore is intended for use with approved Dräger compressed airline breathing equipment to provide respiratory protection against the



effects of harmful substances. The equipment is intended to be used only for airline applications.

The compressed airline breathing equipment and other accessories used with this product must be certified Dräger components, assembled in an approved configuration; otherwise the operation of the device may be impaired. Contact Dräger for further information.

There is no restriction for use in areas containing flammable dust.

### 3.3 Limitations on use

This product is not suitable for use in IDLH (immediately dangerous to life and health) atmospheres, and is not approved for use in CBRN (chemical, biological, radiological and nuclear) applications.

### 3.4 Approvals

The Dräger PAS X-plore airline respiratory protection equipment conforms to the 19C requirements of NIOSH. The product is approved for use as a supplied airline respirator (SAR) system, and must only be used in the Dräger configurations approved by NIOSH.

For further information, see Notes on Approval (part number 9300774).

### 3.5 Marking and symbols

The product type is indicated on the label on the manifold casing, and the product serial number is marked on the body of the manifold.

Marking on the air supply hose indicates that the hose is heat resistant (H) and/or antistatic (S).

## 4 Use

### 4.1 Breathing air supply

**WARNING**  
The quality of the air supply shall meet the requirements for breathing air according to CGA G-7.1, Grade D or higher quality. Do not use oxygen or oxygen-enriched air. The moisture content of breathing air should be controlled within the specified limits in the standard to avoid freezing the equipment.

Carry out a risk assessment of the workplace to ensure that it is not possible to connect to any air supply other than breathable air (e.g. Nitrox).

Adequate protection may not be provided by the equipment in certain highly toxic atmospheres.

The user must ensure that the capacity of the air supply system is sufficient for every user connected to it. The user must also ensure that they can retreat safely if the supply from the airline fails.

Ensure that the air supply meets the air quality requirements, and complies with the following pressure and flow requirements:

**Input pressure** The minimum input pressure depends on the hose length and number of couplings in line. Insufficient pressure supply is indicated by the warning whistle (see Fig 1, item 2). Do not exceed an input pressure of 125 psi.

**Input flow** At least 400 liters per minute

#### 4.1.1 Compressed air supply hose

- Ensure that the airline coupling is compatible with the product input coupling. The coupling shown in the illustrations is the CEJN/Rectus type coupling. Other couplings (e.g. Hansen and Schrader) are available from Dräger.
- Airline hose requirements: 5 feet to 300 feet of Dräger approved hose. The airline hose must not be made up of more than 12 individual hoses.
- The maximum working pressure of the Dräger compressed air supply hose is 250 psi.
- Ensure that supply hoses with a total length greater than 150 feet have an appropriate earth connection.

#### 4.1.2 Compressed air supply hose pressure drop

**CAUTION**  
The use of extension hoses leads to a pressure drop between the breathing air supply and the distributor.  
► To compensate for the pressure drop caused, increase the pressure of the breathing air supply (e.g. ring line, compressor, etc.) accordingly.

If the warning whistle sounds, it might be that there is a pressure drop due to the individual frame requirements of the breathing air supply. In this case, the pressure must be increased until the warning whistle does not sound anymore.

Observe the maximum allowed pressure of 125 psi.

### 4.2 Preparation for use

The manifold can be worn on the left or right side. To swap sides, loosen the belt, remove the backplate if fitted and rotate the manifold (see Fig 3). When reassembling, ensure that the lip of the whistle cover sits under the rib in the manifold bracket (see Fig 4). Ensure that the position of the manifold on the waist allows full head movement without pulling the hose, and that the hose will not present a snag hazard.

1. Carry out a visual inspection (see Section 6.2).
2. Put on the belt and adjust as necessary. Ensure that the PAS X-plore is fitted tightly against the body.
3. Positive-pressure systems: press the reset button (see Fig 2, Item 2) to switch off the regulator.
4. Connect the lung demand regulator hose to the manifold (see Fig 5).
5. Connect the airline supply to the manifold input coupling (see Fig 6). The whistle will sound briefly as the pressure increases.
6. Ensure that the pneumatic hoses are not kinked or compressed by clothing or equipment.
7. Check for audible leaks. If there is any leak, investigate and repair the leak before use (see Section 5).
8. Connect the lung demand regulator to the mask (see Fig 7).

**WARNING**  
Correct fit of a 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 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.

- Put on the mask (see the Instructions for Use supplied with the mask) and breathe normally.
- Carry out the following mask function test:
  - Disconnect the airline supply from the manifold input coupling and breathe normally to empty the system of air. The whistle will sound briefly as the pressure decreases.
  - When the system is empty, the face mask should hold on to the face to indicate a positive seal – if air enters the mask, readjust the mask head harness and retest.
  - Exhale. The exhaled air should flow through the exhalation valve without resistance.
- Reconnect the airline supply to the manifold input coupling. The whistle will sound briefly as the pressure increases.
- Take several deep breaths to ensure that sufficient air is available and then breathe normally.

#### 4.3 During use

**NOTICE**  
Where hearing protection or sound attenuation communications equipment is used, consider the reduction in audibility of the whistle.

**Supplementary supply:** If additional air is required, briefly press and release the front button (see Fig 2, item 3) to deliver a single jet of supplementary air into the mask.

**WARNING**  
**Air supply failure:** If the whistle sounds, there may be insufficient air supplied into the mask to allow safe breathing. Immediately cease the work activity and leave the hazardous area by the shortest and safest route. Remove the headgear as soon as it is safe to do so.

#### 4.4 After use

**WARNING**  
Do not remove the equipment until you are in a non-hazardous and safe breathing environment.

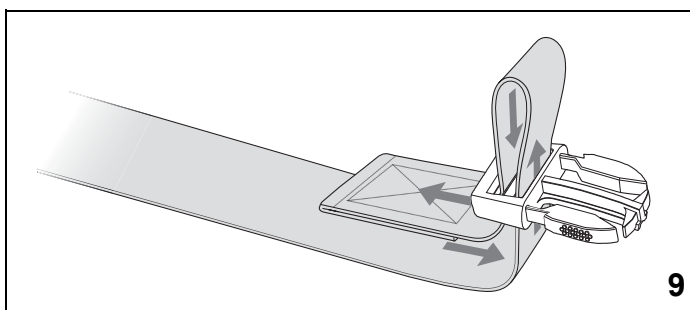
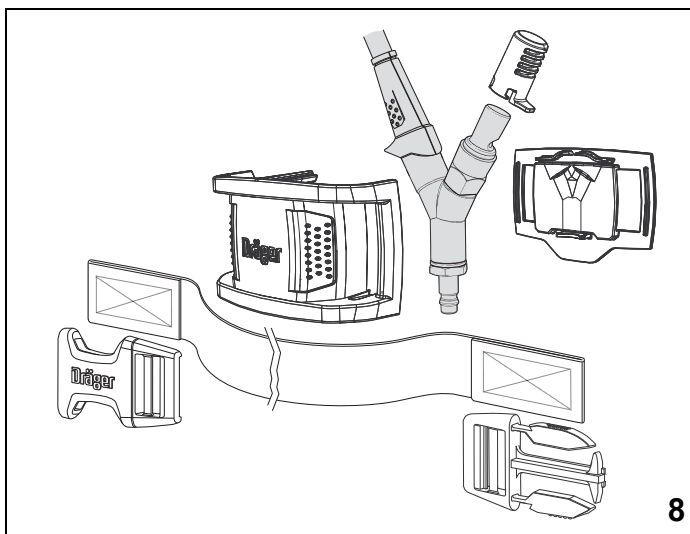
- Remove the mask (see the Instructions for Use supplied with the mask).
  - Positive-pressure systems: immediately press the reset button (see Fig 2, item 2) to switch off the air flow through the lung demand regulator.
- Disconnect the airline supply from the input coupling.
- Press the front button (see Fig 2, item 3) to fully vent the system.
- Disconnect the lung demand regulator from the output coupling.
- Open the waist belt buckle and remove the equipment.
- Carry out the after use maintenance tasks in the maintenance table (see Section 6.1).

### 5 Troubleshooting

The table shows fault diagnosis and repair information for product users. Further troubleshooting information is available in Instructions for Use supplied with associated equipment (e.g. the mask, lung demand regulator and air supply equipment).

Contact authorized service personnel or Dräger if the symptom remains after the remedy actions have been attempted.

Symptom	Fault	Remedy
Air leak (if necessary, use a soapy solution to locate the leak)	Loose or dirty connector	Disconnect, clean and reconnect couplings and retest
	Faulty hose or component	Substitute user replaceable items and retest
	Leak from face mask	See the Instructions for Use supplied with the mask
Whistle sounding or insufficient air flow to the mask	Air supply restricted	Remove any kinks or restrictions from the hoses
	Faulty hose or component	Substitute user replaceable items and retest
	Input filter blocked	Contact authorized service personnel or Dräger
	Input pressure too low	Increase input pressure
Air enters the mask during the mask function test	Faulty face seal	Readjust the mask head harness and retest
	Faulty mask	See the troubleshooting information in the Instructions for Use supplied with the mask
Inoperative or poor sounding whistle	Dirty whistle or whistle cover	Clean the whistle flute and cover as necessary
	Faulty activation mechanism	Contact authorized service personnel or Dräger
A resistance is felt to the flow of exhaled air	Faulty exhalation valve	See the mask Instructions for use



### 6 Maintenance

#### 6.1 Maintenance table

Dräger recommends that regular inspection, testing and servicing of the breathing equipment is carried out in accordance with the table below. The table applies also to out-of-use (stored) equipment. Record all maintenance in the equipment log book. See also the maintenance information for all equipment used (mask, lung demand regulator, etc.). Additional inspection and testing may be required in the country of use to ensure compliance with national regulations.

Task	Before use	After use	Every year
Visual inspection (see Section 6.2)	○	○	
Clean and disinfect (see Section 6.3)		○	
Functional test (see Note 1)			○

#### Notes

○ Dräger recommendations

- This maintenance task may only be carried out by Dräger or trained and authorized service personnel. Details of the test are contained in the technical manual which is issued to authorized service personnel that have attended a relevant Dräger maintenance course.

#### 6.2 Visual inspection

Carry out a visual inspection, checking the full breathing equipment 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 equipment include impact, abrasion, cutting, corrosion and discoloration. Report damage to authorized service personnel and do not use the equipment until faults are rectified.

#### 6.3 Cleaning and disinfecting

**CAUTION**  
Do not exceed 86 °F (30 °C) for washing, disinfecting and rinsing solutions. Do not exceed 140 °F (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. Contact Dräger for information about additional cleaning methods for heavily soiled parts if required.

If water is trapped and then freezes inside the pneumatic system of the breathing equipment, operation will be impaired. Prevent any liquid from entering, and thoroughly dry the breathing equipment after cleaning to prevent this from occurring.

**NOTICE**  
The PAS X-plore has a leather belt when it is used with welding headgear. Do not wash the leather belt using the cleaning agents in this section – use a suitable leather cleaning product when required.

For information about suitable cleaning and disinfecting agents and their specifications refer to document 9100081 on [www.draeger.com/IFU](http://www.draeger.com/IFU).

See also the instructions for the lung demand regulator, face mask and other associated equipment.

#### 6.3.1 Manual cleaning of the breathing apparatus

- Prepare cleaning solution as per manufacturer's instructions. Clean the breathing apparatus manually using a cloth moistened with cleaning solution to remove excess dirt.
  - Disassemble and clean the parts separately if required. Fig 8 shows the parts disassembled and Fig 9 shows the belt routing through the buckle during re-assembly to ensure that the belt can be tightened.
- Prepare disinfecting solution as per manufacturer's instructions. Apply to all internal and external surfaces, ensuring that all surfaces remain visibly wet for the time specified in 9100081.
- Rinse all components thoroughly with clean water to remove all cleaning and disinfecting agents.
- Dry all components using a dry cloth, in a heated dryer or in air.
- Contact authorized service personnel or Dräger if disassembly of pneumatic components is required.

### 7 Storage

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

See the storage temperature ranges in the technical data (Section 9).

### 8 Disposal

The product life is 10 years from the first use. When required, dispose of the product in accordance with national or local regulations for waste disposal.

### 9 Technical data

Weight (manifold and belt)	< 1.1 lb (0.5 kg)
Belt size (standard belt)	1 ½ in x 29 ½ -57 in (38 mm x 750-1450 mm)
Belt size (large belt)	1 ½ in x 29 ½ -76 ¾ in (38 mm x 750-1950 mm)
Whistle volume	>90 dB(A)
Input pressure	The minimum input pressure depends on the hose length and number of couplings in line. Insufficient pressure supply is indicated by the warning whistle (see Fig 1, item 2). Do not exceed an input pressure of 125 psi.
Input flow	At least 400 liters/minute
Donning temperature	+5 °F to +140 °F (-15 °C to +60 °C)
Operating temperature	-22 °F to +140 °F (-30 °C to +60 °C)
Storage temperature	-5 °F to +105 °F (-20 °C to +40 °C)

### 10 S – Special or critical user's instructions

**WARNING**  
If the whistle sounds or the air supply fails, there may be insufficient air supplied into the mask to allow safe breathing. Immediately cease the work activity and leave the hazardous area by the shortest and safest route. Remove the headgear as soon as it is safe to do so.

- The independent air supply must meet the following criteria:
  - Airline pressure and flow requirements: pressure 87 to 125 psi, airflow rate at least 400 liters/minute.
  - Airline hose requirements: 5 feet to 300 feet of Dräger approved hose. The airline hose must not be made up of more than 12 individual hoses.
- The temperature range for donning is between +5 °F and +140 °F (-15 °C to +60 °C).
- The temperature range for use during operation is between -22 °F and +140 °F (-30 °C to +60 °C).
- Lower or higher temperatures are permitted when the exposure time is short.