

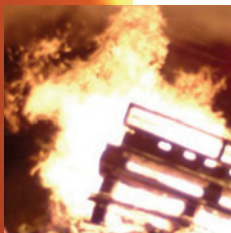


AirElite 4h

*KO₂ closed-circuit breathing apparatus
for long-duration missions*

High-tech by experience

New generation closed-circuit breathing apparatus: AirElite 4h



More than 115 years of competence and experience in the field of breathing apparatus and Personal Protective Equipment made it possible for MSA to develop the AirElite 4h. Together with its integrated control monitor IC-Air it forms a unique closed-circuit breathing apparatus. Now all the benefits of the KO_2 principle are available for long service periods of up to four hours.

Developed for practical use

In cooperation with the accredited testing body DEKRA EXAM Ltd., all needs of mine rescue teams and fire brigades were analysed and taken into consideration. The main applications are tunnels, large storage facilities and high-rise buildings.

Safety and comfort

The safety and comfort of the user were the primary factors in the development of the AirElite 4h. A slim design, with breathing tubes at the side and close to the body for maximum freedom of movement and extremely easy breathing, make the AirElite 4h an indispensable piece of operational equipment.

Proven over 40 years

MSA has successfully applied the principle of oxygen generation from potassium hyperoxide (KO_2) for breathing-air regeneration for more than 40 years.

Development target: practise

Convincing innovative details

AirElite 4h

Comfortable – in use

- Slim construction, low weight
- Lateral breathing tubes near to the body for easy donning and doffing
- Excellent breathing comfort: low breathing resistance, low inhalation temperature, dry breathing air
- AirElite 4h starts automatically when mask connector is disconnected from the shoulder strap
- Flexible service times dependent on breathing rate (breathing air capacity >7,200 litres)
- Unit is absolutely safe even if electronics fail
- Simple, pressure-free breathing-air regeneration in one single step
- Breath-controlled air supply without regulator

Simple – before and after use

- Effective air cooling with convection cooler, without pre-use preparation
- No additional logistics required
- Minimal inspection requirements: quick, easy maintenance and reconditioning
- Maintenance-free standby storage for up to 2 years in readiness (up to 8 years if canisters are in factory sealed condition)

Economical – training

- Practically no costs for training with trainer conversion kit
- No breathing canister consumption

Intelligent – Integrated Control

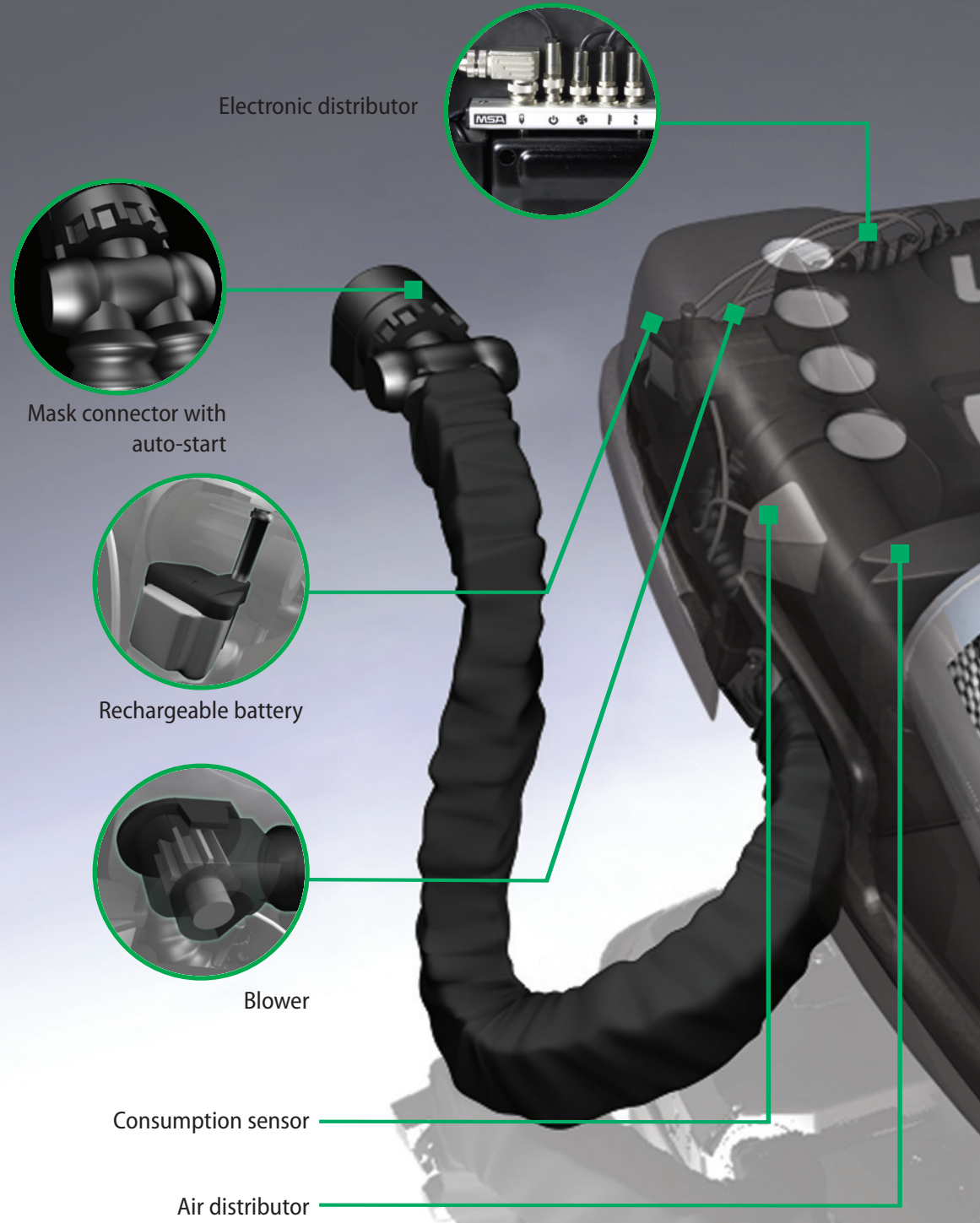
- Integrated control and display unit
- AirElite 4h is controlled and monitored electronically
- Digital consumption indication
- Three warning stages at 50%, 20% and 5% remaining capacity (visual and acoustic warnings)
- Automatic motion sensor and alarm
- Manually activated emergency alarm

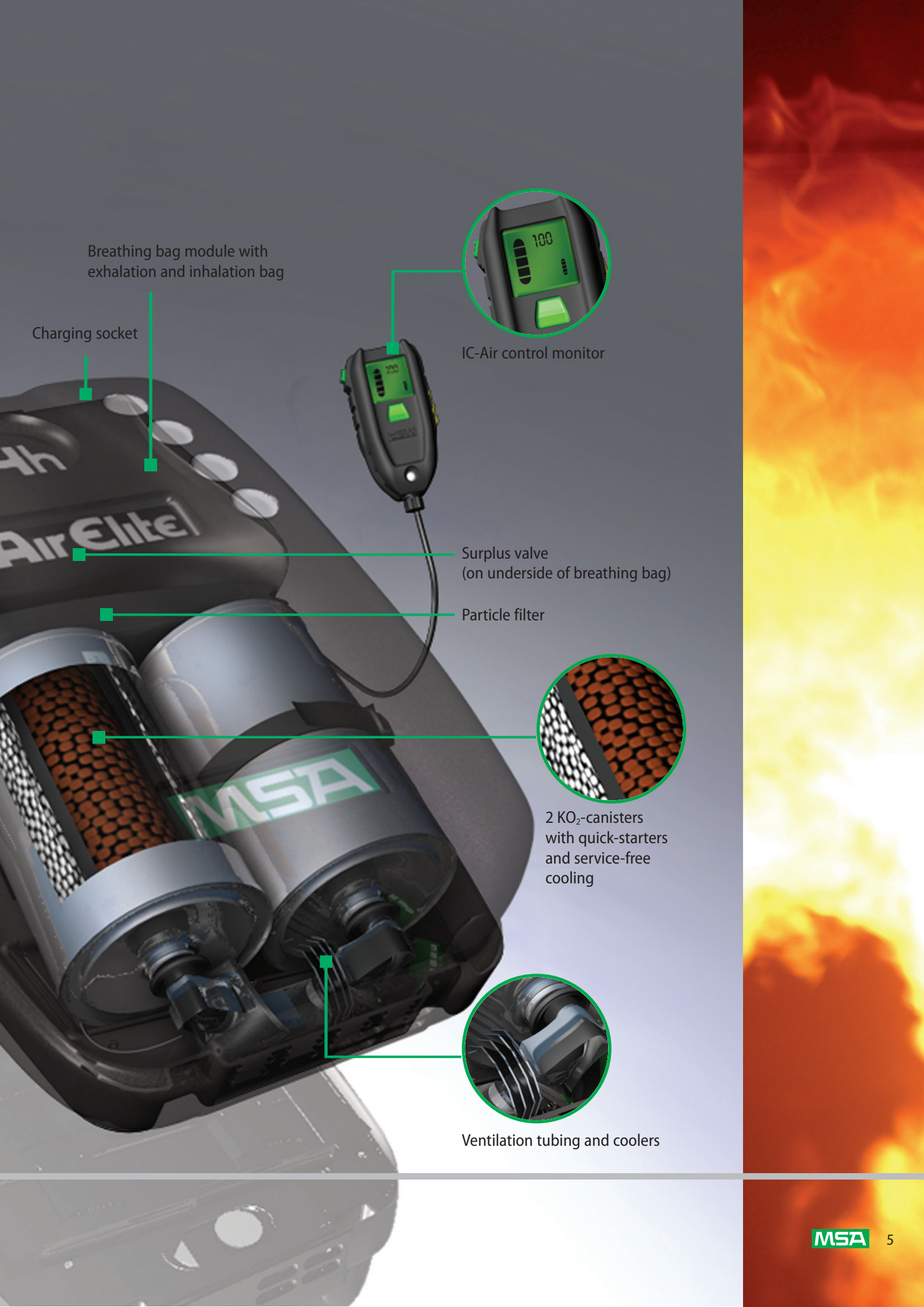


IC-Air

AirElite 4h & IC-Air

Sophisticated design





Breathing bag module with exhalation and inhalation bag

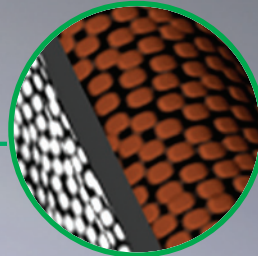
Charging socket



IC-Air control monitor

Surplus valve (on underside of breathing bag)

Particle filter



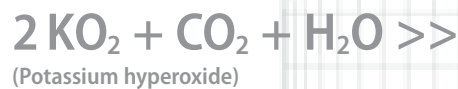
2 KO₂-canisters with quick-starters and service-free cooling



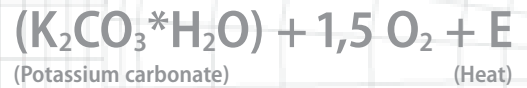
Ventilation tubing and coolers

KO₂ principle

Proven technology – optimised function



Exhaled air, enriched with carbon dioxide and moisture, is directed into the exhalation bag by the valve control. A blower assists the air in its passage through the air distributor and into the two parallel-connected KO₂ canisters. Inside the KO₂ canisters, with their maintenance-free cooling, the exhaled air is liberated of carbon dioxide and humidity and enriched with fresh oxygen.



Chemical process

KO₂ is a chemical which reacts spontaneously with the moisture and carbon dioxide (CO₂) in the exhaled air. This reaction releases energy (heat) and oxygen (O₂).

At any given time, considerably more oxygen is produced than is consumed. The person wearing the unit is provided with a reserve of oxygen which enables rapid changes from light to heavy work.



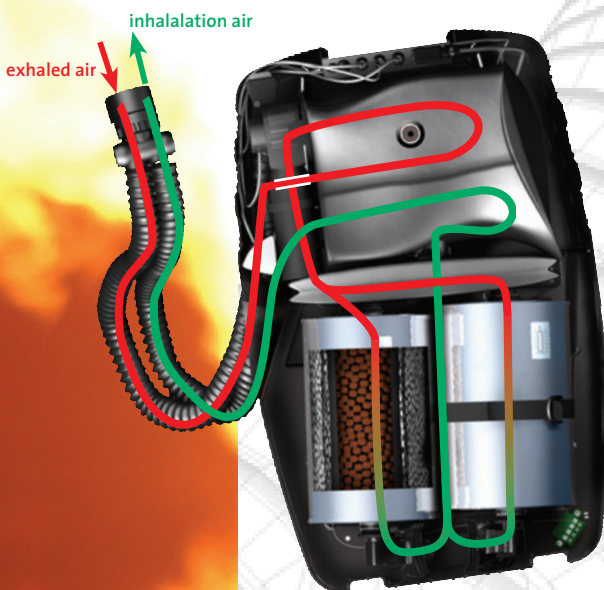
Compressed oxygen & cooling logistics – not needed

The functioning principle of KO₂ makes bottled compressed oxygen and additional carbon dioxide absorbers obsolete. If nitrogen needs to be flushed, this occurs automatically by the oxygen surplus. The reaction heat is reliably absorbed by the air-cooled heat exchanger and the entirely maintenance-free water cooling effect of the canisters.

Enriched with fresh oxygen and pleasantly cool, the breathing air then passes through the particle filter into the inhalation bag, and from there through the inhalation hose to the full face mask.

AirElite 4h on KO₂ basis

- Completely breath-controlled (no mechanical control devices)
- Plain construction
- Very safe function
- Immediately ready for use
- Suitable for long period storage without maintenance



Safety matching economy

Reduced long-term costs

The AirElite 4h also sets new standards from an economic point of view. Considerably less work is required for preparation and maintenance. And because training can be done at practically no cost, your long-term operating costs will also drop.

Costs ↓

Cost-free training

Using the TR conversion kit, a unit for real-life operation can be quickly and easily converted into a training unit. All of the training exercises can then be performed at practically no cost with a reusable training canister. The integrated P3 particle filter permits training under realistic conditions in mist and non-toxic smoke. With P3 particle filters training under realistic conditions in high dust environments, mist and non-toxic smoke is possible.



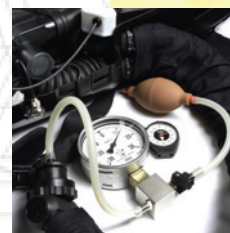
Low cost of ownership

AirElite 4h does not require any additional logistics such as expensive testing equipment, oxygen transfer pumps or deep freezers. Compressed oxygen and ice candle logistics are not necessary; this reduces the investment and maintenance costs of the AirElite 4h to a minimum.

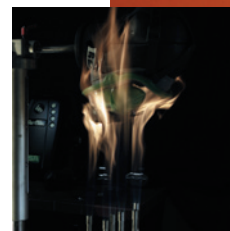


Approved safety

At MSA, the safety of the user is the top priority, and they take it well beyond the limits of the legal requirements. AirElite 4h, for example, not only satisfies the approval requirements of the DIN 58652-2 and vfdb 0802 standards, but has also passed the tough "Flame Engulfment Test" for mining and fire brigades, with flying colours.



- DIN 58652-2
- vfdb 0802
- Flame Engulfment Test





AirElite 4h-TR



Advantage AirElite



3S-R AirElite

Technical specifications

Weight (without mask)	15 kg
Dimensions (casing)	H x W x D = 600 x 360 x 190 mm
Service time	dependent on consumption; with an average breathing rate of 30 l/min it is 4 hours; maximum 6 hours
Storage at standby	-6 to +60 °C
Operational temperature once in use	-15 to +60 °C
Breathing resistance at 30 l/min	inhalation: -3 mbar exhalation: +5 mbar
Inhaled air	temperature: 30-45°C humidity: 20-40% carbon dioxide: < 1,0 vol.% (mask not considered) oxygen: > 80 vol.%
Maximum surface temperature	temperature class T4 (< 135°C)
Electronic controls	<ul style="list-style-type: none"> EX-protection EEX ia IIC T4/ATEX 94/9, Group 1, Cat. M1 Protection against dust and water: IP 67 EMC in accordance with EN 61000-6-1 and EN 61000-6-2
Housing	polycarbonate, self-extinguishing, impact-resistant, with antistatic coating
Breathing connection	full face mask 3S-R AirElite or Advantage AirElite with MSA push-to-plug connector
Approvals	<ul style="list-style-type: none"> EXAM in accordance with DIN 58652-2, Class 240S for work and rescue vfdb 0802 ATEX 94/9 EC

Ordering information

10065152	AirElite 4h (less chemical oxygen canister kit and full face mask)
10065373	AirElite 4h chemical canister kit
10065153	3S-R AirElite full face mask
10065154	Advantage AirElite full face mask
10100126	AirElite 4h trainer conversion kit HD
10094376	Particle filter P3 PlexTec (pack of 10)

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