

# Escaping from a confined space and the benefits of chemical oxygen breathing apparatus

Presented by:

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General Manager



# Expertise

- specialists in escape & working rescue chemical oxygen short duration breathing apparatus

Simple to use and totally reliable, our range of escape and working rescue breathing apparatus protects those working in environments that could become hazardous and life threatening



# History and Key Facts



**1993**  
Semmmco LPS began trading



**2001**  
**HEAD10 launched**  
This innovative escape breathing apparatus won the first BSIF Product Innovation Award the same year



**2006**  
**UK & Irish Prison Service Contract**  
Semmmco LPS won the contract to supply every prison with the HEAD CSRE Working Rescue Set. There are now more than 6,500 sets in use.



**2019**  
**Queen's Award for Enterprise: International Trade**



**2008**  
**HEAD15 Working Rescue Set introduced**  
To enhance the HEAD range, the 15 minute working / rescue set was introduced. Approved to a different standard it allows workers to enter a hazardous environment to attend to an issue or rescue someone.



**2021**  
**EEBD Industrial 20 & EEBD Marine 15**  
The EEBD compact, lightweight, disposable escape breathing apparatus was launched for the industrial and marine markets



**2022**  
**LPS wins new £10m HMP Contract**  
to supply the English, Welsh and NI Prison Services with HEAD Cell Snatch Rescue Equipment (CSRE) for the next 10 years.



**Some of our Customers**

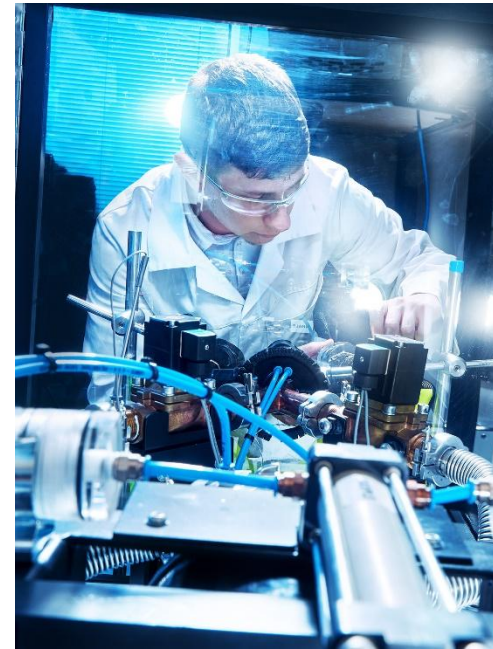


**Facilities in Woking, UK, Texas, USA and Dubai, UAE**

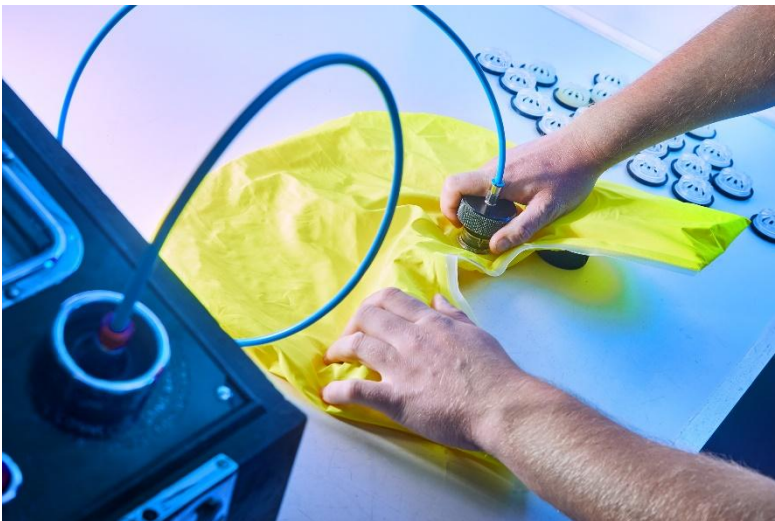
# Production & Maintenance Facilities



Refurbishment, testing and assembly areas



Breathing machine for product testing and regulation



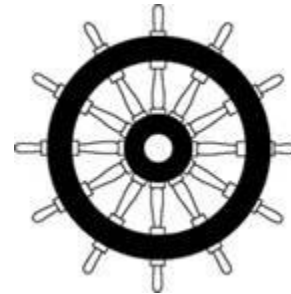
# Approvals & Accreditations



UK  
CA



bsi.



# Confined Spaces



# What is a confined space?

- A confined space is one which is both **enclosed**, or largely enclosed, and which also has a reasonably foreseeable risk to workers of **fire, explosion, loss of consciousness, asphyxiation or drowning**.
- It may be small and restrictive for the worker or it could be far larger such as a grain storage silo with hundreds of cubic metre capacity.

# What are the hazards?

Risk from:

- noxious fumes
- reduced oxygen levels
- fire
- flooding/drowning
- asphyxiation from some other source, e.g. dust, grain or other contaminant
- temperature extremes
- noise
- restricted movements

*\* Working in confined spaces, HSE  
& IOSH Confined Spaces*



# Why do fatalities occur?

- Inability to recognise the confined space and its dangers
- Ill-conceived rescue attempts
- Inadequate systems for safe working



# Confined Space Escape Solutions



# EEBD Marine & Industrial

**Marine 15 EEBD**  
**Industrial 20 EEBD**



- Chemical oxygen rebreather (KO<sup>2</sup>)
- Quick & easy to don
- Automatic quick start mechanism
- Lightweight (1.3kg)
- No face fit required
- 15 year shelf life
- Minimal through life costs
- Ideal for confined spaces

# EEBD Marine & Industrial – storage & maintenance

- Up to 15 years storage
- Visual checks - carried out regularly to ensure:
  - No damage
  - Anti-tamper label intact
  - Within expiry date
  - Visual indicator is blue



Integrity indicator – easily visible



Fits existing storage racks



# EEBD Marine & Industrial

EEBD<sup>15</sup>  
MARINE

EEBD<sup>20</sup>  
INDUSTRIAL



# EEBD - How it works

chemical O<sub>2</sub> rebreather



Exhaled breathe containing CO<sub>2</sub> passes through KO<sub>2</sub> in the generator that's within the breathing bag.



The KO<sub>2</sub> 'scrubs' the CO<sub>2</sub> and liberates O<sub>2</sub> that enters the breathing bag.



As the wearer inhales, O<sub>2</sub> is drawn from bag, through the breathing tube. The cycle repeats.

# HEAD Escape & Working Rescue

**Escape – 10, 15 & 30 minutes**  
**Working Rescue – 15 minutes**

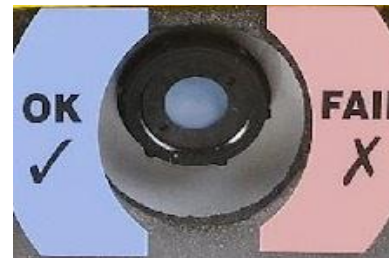
- Automatic start – instant O<sub>2</sub> supply
- Maintenance free for 12 years
- Head worn – no bulky cylinder
- Quick and simple to don
- No face fit test required
- Easy to communicate
- Lightweight – 1.6kg
- Panoramic visor
- Clear visual viability indicator
- Audio and visual safety alarm indicating low oxygen level



# HEAD –

Storage and viability

HEAD products are sealed in an aluminium foil/membrane vacuum container incorporating an integrity indicator.





# HEAD features



# HEAD – How it works

chemical O<sup>2</sup> rebreather



- Exhaled breathe passes through KO<sup>2</sup> in the generators
- KO<sup>2</sup> scrubs CO<sup>2</sup> and liberates O<sup>2</sup>
- O<sup>2</sup> enters breathing bag

- As the wearer inhales, O<sub>2</sub> is drawn from bag, through the tubes and into the oronasal mask
- Cycle repeats

Alarm has 3 stages

Stage 1 – 5 beeps and lights flash on removal from bag

Stage 2 – intermittent beeps and light flashes at 2/3 duration

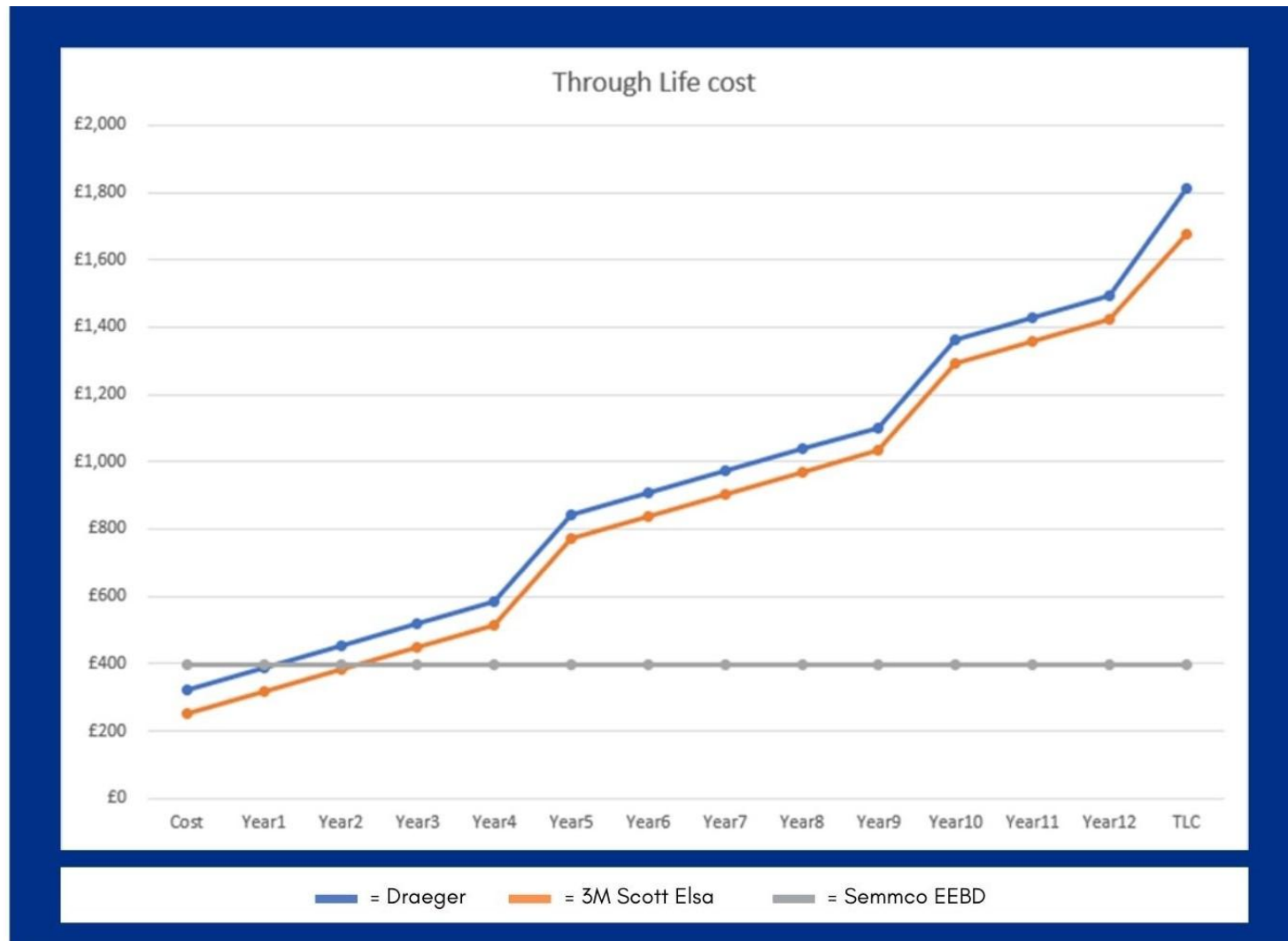
Stage 3 – continuous beep and lights at duration of set

# Semmco vs compressed air



HEAD Range / EEBD	Compressed air escape set
KO <sub>2</sub> generators – smaller, more compact	Cumbersome design
Lightweight 1.5 kg	Heavy weight, 4 – 6 kg
Low through life costs	Frequent and costly maintenance
Easy donning	Awkward and complex donning
Integral alarm enhances safety	No alarm
Fully recyclable	Limited recyclability

# Compressed Air vs Chemical O<sup>2</sup>



# Training

Semcco LPS offers a full range of training courses and equipment



# Chemical O2 Escape Sets - Summary



## Semmco O2 Rebreathers

- Quick & simple to don
- OK for Oxygen deficiency
- Own chemical O2 supply
- No cylinder to carry
- Minimal through-life costs
- Reusable and single use
- Up to 15 year life



**Thank you  
Any questions?**