



TECHNICAL DATA SHEET

FAST-mask, FAST-cowl & FAST-cape FACE MASKS



SCBA & Supplied Airline
FAST-mask



SCBA & Supplied Airline
FAST-cowl



EEBA
FAST-mask



EEBA
FAST-cowl

POSITIVE PRESSURE FACE MASKS & DEMAND VALVE REGULATOR



EEBA
FAST-mask



AIR-walker
FAST-cape



RIG-walker
FAST-cowl



SCBA

Positive Pressure Face Masks

EMERGENCY ESCAPE BREATHING APPARATUS (EEBA)

The FAST-mask, FAST-cowl are activated when the mask is deployed from their stowage bag. As the lanyard clip is removed, the cylinder valve assembly opens the medium pressure air supply. The head harness is automatically inflated while at the same time purging the face mask of any traces of hazardous gas, before rapid donning in less than five seconds. Placing the face mask onto the face immediately creates a face seal, which in turn automatically deflates the self-tensioning head harness and switches the demand valve regulator to positive pressure breathing.

SUPPLIED AIRLINE BREATHING APPARATUS

The AIR-walker and RIG-walker face mask options are activated when the demand valve regulator switch, with safety lock system is rotated to open the medium pressure air supply, which automatically inflates the head harness prior to rapid donning in less than five seconds, with automatic mask tensioning achieving a face seal and activation to positive pressure breathing.

FAST-cowl TECHNOLOGY

The FAST-cowl face mask system provides wearers with much higher protection factor performance than the FAST-mask, including wearers with facial hair/beards. This claim is supported by 3rd party test reports available to download on the Cam Lock website.

CERTIFICATIONS & APPROVALS

CE 2797, UKCA 0086, EN 136:1998 & BMP 779942, AS/NZS 1716:2012



SPARE FACE MASKS ORDER CODES

EEBA Spare Face Masks	
CB40-PP-FAST	FAST-mask
CB40-PP-FASC	FAST-cowl
AIR-walker & RIG-walker	
FAST-DVX05	FAST-mask
FASC-DVX05	FAST-cowl
FASCP-DVX05	FAST-cape
SCBA	
FAST-DVX05	FAST-mask
FASC-DVX05	FAST-cowl

TECHNICAL SPECIFICATIONS

Face mask Positive Pressure	1.7 to 5.9 mbar
Demand valve peak flow rate	>500 Litres/min ⁻¹
Weight (kg)	
FAST-mask	0.70
FAST-cowl	1.00
FAST-cape	1.66

FACE MASK CARTON DIMENSIONS

30cm long x 21cm wide x 16cm deep		
Total weight (kg)	0.84	FAST-DVX05
	1.14	FASC-DVX05
	1.80	FASCP-DVX05



Standard head harness with orange tracer for head circumferences less than the 95th percentile



Extra Large (XL) head harness with green tracer for head circumferences above the 95th percentile ≥ 600mm

Reference: ISO/TS 16976-2:2015 Respiratory Protective Devices – Human Factors – Part 2: Anthropometrics

MATERIALS

Face Mask moulding	
FAST-mask	Black silicone
FAST-cowl	Light grey chloroprene natural rubber blend
FAST-cape	Light grey chloroprene natural rubber blend
Head Harness Assembly	
Flame retardant polyester outer sleeve with internal silicone tubing	
Medium pressure supply hose	
Reinforced EPDM	
Demand Valve Regulator hose plug connector	
Rectus (CEN pattern), 316 stainless steel	

THERMAL OPERATION TEMPERATURES

Storage	+4°C to +30°C
Operation	
EEBA	-40°C to +60°C
AIR-walker & RIG-walker	-40°C to +60°C
SCBA	-40°C to +70°C
-40°C when Winter Cover fitted and stored prior to use in accordance with Cam Lock stated range of storage temperatures	
Maximum humidity	95%

Protecting personnel with facial hair

FAST-cowl face mask protection to all wearers; including those with facial hair.

Cam Lock have commissioned 3rd party organisations to conduct test programmes to the ISO 16900-1:2019 face mask Total Inward Leakage (TIL) test protocols. The BSI – HSE Buxton Science and Research Centre Laboratories and the ProQares (TNO) Simulated Workplace Protection Factor (SWPF) studies on subjects with facial hair/beards.

BSI TEST REPORT – 3098045: DETERMINATION OF INWARD LEAKAGE

Test Method 1: Sulphur Hexafluoride (SF6) gas aerosol

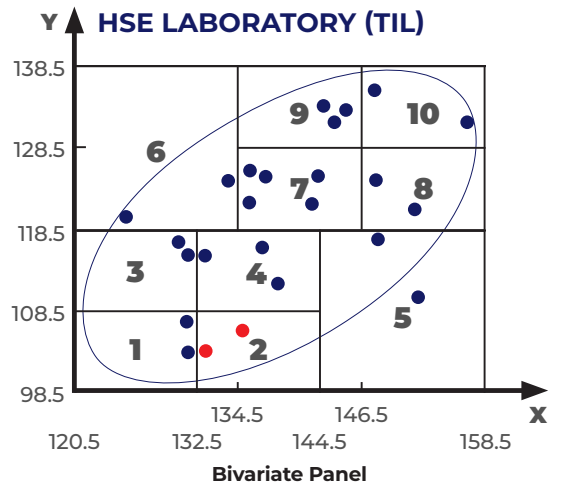
Result: Average Total Inward Leakage (TIL) percentage less than 0.0005%



Quick donning
FAST-cowl face mask



Test Chamber Exercise Protocols

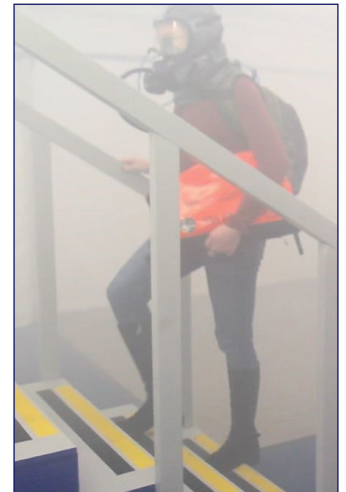


PROQARES – A TNO COMPANY TEST REPORT: REF NO. 25275

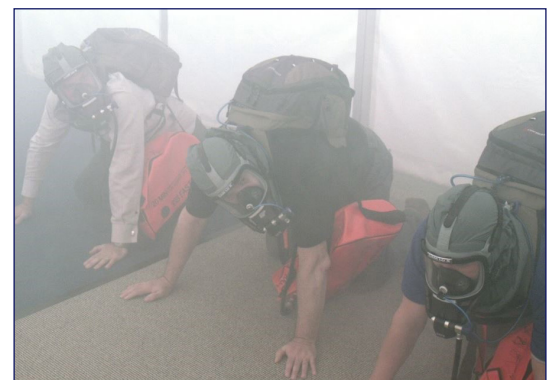
Simulated Workplace Protection Factor (SWPF) data measurements summary of test results

SWPF	5th percentile	Mean	95th percentile
Women and clean shaven men	677,000	1,000,000	1,000,000
Men with three to five days stubble	658,000	1,000,000	1,000,000
Men with full beards	493,000	1,000,000	1,000,000

For Quantitative Risk Assessment (QRA) only 5th percentile SWPF data can be used



Images from the ProQares (TNO) Simulated Workplace Protection Factor (SWPF) study where volunteers were subjected to test protocols conducted in a high particle count aerosol environment.



ISO/TS 16975-1:2016 – RPE international ISO standard, calculating the Hazard Ratio (HR) using the determined foreseeable worst-case airborne concentration of a toxic respiratory hazard, a calculation method for the determination of the minimum protection factor (PF) required to protect personnel in that environment is as follows:

The 3rd party test results conducted at the HSE Science and Research Centre, Buxton laboratory facilities during December 2019, monitored by BSI Product Certification UK, are detailed in the BSI test report No. 3098045, where 21 of the 25 test subject volunteers had a variety of facial hair from three to five day stubble to many with full beard growth, plus an additional two women and two clean shaven men.

The results clearly show the average Total Inward Leakage (TIL) percentage (%) to be less than **0.0005%**.

The Hazard Ratio (HR) initial calculation is simply:
$$\text{HR} = \frac{\text{Toxic Concentration}}{\text{OEL - max concentration inside the face mask}}$$

Example: A site has a worst case exposure of 30% (300,000ppm) H₂S and uses an OEL of 5 ppm, which is calculated as:

$$\text{HR} = \frac{300,000}{5} = 60,000$$

Based on the average TIL from the BSI test report was 0.0005%, the resulting protection factor (PF) for the Cam Lock FAST-cowl face mask system is calculated as follows:

$$\text{PF} = \frac{100}{\text{TIL}} = \frac{100}{0.0005} = 200,000$$

Comparing the protection factor (PF) to the hazard ratio (HR), the PF is far in excess of the HR and therefore the Cam Lock FAST-cowl face mask system is more than adequate for use by wearers with facial hair in this high sour gas facility example.

For operational sites with an even more stringent OEL policy of less than 5 ppm, this TIL test report confirms that the Cam Lock FAST-cowl face mask system is capable of protecting all wearers, including those with full beard growth across all ethnic groups.

In summary, the PF calculations for the Cam Lock FAST-cowl face mask system support protection of all wearers in extreme high sour toxic levels up to the maximum 100% H₂S, based on an OEL of 5 ppm.

EXTREME WINTER TRIALS AT -40°C (-40°F) HORIBA-MIRA TEST REPORT 1209846 CERTIFICATES OF APPROVAL

FAST-cowl face mask positive demand breathing system, tested their range of escape, supplied airline/escape and Emergency Response SCBA, in the HORIBA MIRA climatic chamber facility demonstrating the benefit of the Winter Cover rubber moulding that slips over the outer mask and held in position by the demand valve regulator to prevent the exhalation valve freezing in extreme winter operations.

When considering human factors with respect to exposing site personnel to extreme winter temperatures of -40°C/-40°F wearing winter PPE clothing, the recommended exposure time is a maximum of 20 minutes.



Cam Lock Ltd

10 Springlakes Industrial Estate
Aldershot, Hampshire GU12 4UH
United Kingdom

T: +44 (0)1252 366 648

E: info@camlockuk.com

www.camlocksafety.com