

# SOLO<sup>tic</sup> Helmet



## SOLO<sup>tic</sup> Helmet - SPECIFICATION

The totally unique **SOLO<sup>tic</sup>** helmet combines full head and face protection with respiratory protection,

"hands free" communications and "hands free" vision through the integrated **SOLO<sup>vision</sup>** viewer. It is probably not necessary to explain fully the benefits this brings to the wearer. His safety is paramount because he is leading the fire team. He is the only person able to see clearly the scene

being approached. His hands are free to enable him to more easily clear obstacles and use tools, if

necessary. If he needs to use his hands to make good an escape, he can do so whilst still maintaining vision through his thermal imager. He can also communicate his situation, and that of the

team, whilst remaining active.

He can maintain vision through even the densest smoke by means of a fully integrated **Micro Bolometer** Thermal image camera, the image being displayed inside the face mask by virtual reality

viewing optics.

This design gives clean lines to the outside of the helmet leaving nothing protruding which could catch on hanging debris in a fire situation.

The helmet can withstand 1000°C for 10 seconds

### The Shell

- The one piece shell is hand moulded from tough fire resistant resin with glass cloth and Kevlar® aramid fibre coated in a Class 1 fire resistant Gelcoat.
- Impact resistance is provided by a Plastazote® foam lining.
- The shell incorporates a fully adjustable "skull cap" type head harness with neck strap affording the wearer good comfort even in long periods of wearing.
- A full Nomex® neck skirt slides into a rail on the lower edge of the shell and rests on the fire fighters shoulders.

### The Face Mask

- The face seal is hand formed neoprene bonded onto a GRP former designed to fit all face sizes with comfort and act as a suspension point to prevent side impacts breaking the face seal.
- A full, wide vision Lexan® Polycarbonate visor is provided which is twice the thickness

(4mm) of a standard breathing apparatus face mask giving the wearer increased protection against facial impacts.

- A front port "unifit" demand valve adapter, which can be fitted with a range of different connectors to suit most common BA sets, takes the supplied air through two inhale ports in the lower section of the face seal up the inside of the visor, to ensure no misting, then through inhale valves in the inner mask for the wearer to breathe. The exhaled air is then expelled via a valve mounted under the wearers chin. Having the exhale valve under the helmet also helps to prevent misting when the fire fighter is wearing a gas tight chemical suit.
- A passive speech transmitter is fitted to the front of the visor to enhance normal voice communications between members of the fire team.

#### **Safety Approvals**

- The **SOLOtic** is "CE" Approved. Certificate Number 1719.
- The **SOLOtic** is **SOLAS** and **MED** approved.

#### **Communications Package**

- It is essential in fire fighting situations that the fire fighter and his control can communicate clearly.
- The package comprises twin speakers mounted in ear pads, a microphone assembly mounted inside the inner mask and a helmet mounted with optional waist belt mounted press to talk transmit switch. A lead and radio connect facility plug complete the package.
- We can supply facility plugs for most makes of radio.

#### **Thermal Image System**

- The **SOLOtic** is fitted with a centrally mounted Micro Bolometer thermal camera specifically manufactured for **SOLOtic**.
- The image from the camera is displayed inside the face mask by Virtual Reality Viewing optics. It is possible to view a scene below the display area through the visor when not in smoke. The viewing optics provide an image that appears to be much larger than that obtained on a single large screen as used on normal hand-held devices. The images from each small screen in front of each eye are resolved by the brain into a single larger image. Navigation in a smoke filled environment is made far easier for the fire-fighter as he can walk towards what he is seeing with greater ease and accuracy.
- The thermal camera camera has been tried and tested under the most severe of fire fighting conditions.
- NiMH batteries power the unit and a battery power level indicator is displayed in the viewing optics.
- The battery is mounted inside the helmet with an operating ON/OFF switch mounted on the side of the helmet.
- Power consumption typically is less than 7.0 watts.
- These parameters have been optimised to provide enhanced image performance with longer battery life.
- Video output is provided by a miniature BNC socket on the battery housing.

#### **Camera Technical Specification**

- Sensor: Control II R 2000AS Raytheon™ Amorphous Silicon Microbolometer (160 x 120 pixel array)
- Lens: Germanium
  - Focal length - F8.5mm
  - Angle of view - 50 degree's Diagonal
  - Spectral Response - 7.5 -14 micro m
  - Focus - Fixed Focus
  - Field of vision: Diagonally 50 degrees
- Viewing Optics: Augmented Reality viewing optics mounted inside the face mask.
- Recommended storage between 0°C and +40°C
- Tolerated -25°C and +60°C
- Wireless transmission is available with the camera.
- There is no temperature monitor on the **SOLOvision** viewer.