



EOD BOMB DISPOSAL SUIT

Currently in service in many countries throughout the world with Bomb Disposal Teams, the EOD Bomb Disposal Suit is a state-of-the-art garment specifically designed to give the highest level of protection with the maximum comfort and flexibility to the user. The ballistic levels and materials used in the various components of the EOD Bomb Disposal Suit are tested and evaluated to the full quality assurance standard laid down by the appropriate Government organizations.

The EOD BOMB DISPOSAL SUIT Series II is currently in service in many countries throughout the world with Bomb Disposal Teams, the EOD Bomb Disposal Suit is a state-of-the-art garment specifically designed to give the highest level of protection with the maximum comfort and flexibility to the user.

The ballistic levels and materials used in the various components of the EOD Bomb Disposal Suit are tested and evaluated to the full quality assurance standards laid down by the appropriate Government organizations. We are proud to announce the introduction of our latest 2008 Model the Saviour 2008 Model.

The Saviour 2008 model EOD Bomb Suit is designed to offer the maximum protection with the minimum weight making it one of the world's most advanced high-performance cost-effective suits available. The suit is in service in countless countries throughout the world and as such has proved itself operationally on numerous occasions. Our latest Saviour Generation suit aims to be the most comfortable and flexible suit available offering the highest levels of protection against the blast threats:

- Overpressure
- Shock Waves
- Primary and Secondary Fragmentation
- Displacement Force
- Heat / Fire.

The latest material technology is used to keep the suit as flexible and as comfortable as possible whilst maintaining the highest levels of integrated protection all round the body. The suit can also be quickly donned without special assistance and incorporates a quick release system for the rapid removal of the suit.

The new Saviour 2008 model EOD Bomb Suit uses the latest Aramid technology available from Dupont which offers the best flexibility to weight ratio without compromising the ballistic performance. Moreover, the helmet incorporates the latest Aramid technology and multi layer transparent system which allows it to be one of the lightest and most comfortable EOD helmets on the market.

2008 model EOD Bomb Suit Design



EOD BOMB Suit to 2007

EOD BOMB Suit from June 2008



SAVIOUR 2008 Model

Trousers The trousers have fully adjustable supporting braces and wide Velcro waistband catering for small, medium and large sizes. At the rear of the legs a full-length zip is used or Velcro .
The zips offer the option of two widths, depending on the circumference of the operators legs.

The overshoes are worn over the protective flap on the bottom of the trouser.

These are a one piece design and have the appearance of an ordinary pair of trousers with the addition of elasticated shoulder braces to give the necessary movement when bending and crouching. They also include a fully adjustable waist line and have complete lower groin protection and a high waist line to protect from any blast that might be transmitted from the ground upwards. They also include a lower 'Cricket Pad' design which gives superior knee joint flexibility and are covered with additional layers of Nomex or Kermel fabric to stop wear through the knee areas.

Features:

*Ballistic inserts made from multi-layered water-repellent Aramid.

*Outer cover – Nomex ® 111 A Comfort or Kermel ®

*Colors – OD Military green ,Navy Blue, Desert Tan

*Weight – 15kg



Jacket Collar and Groin Protector

The Jacket is a long sleeved side opening design filled with flexible Kevlar™ ballistic panels. Provision is made on the front for the attachment of the rigid throat, chest and groin blast plates by means of buckles, webbing waist strap and Velcro™ on the collar.

The high collar provides overlap protection to the helmet and visor. collar and groin protector are all permanently fixed together enabling the garment to be quickly and simply donned and adjusted at the side for the optimum fit. The groin plate and inner groin armor are constructed to allow them to bend upwards when the operator bends down or kneels.

The garment incorporates a quick release system by the use of the quick-release straps attached to the side and shoulder of the smock and quick release zips on the trousers (if this option is chosen by customer as opposed to Velcro closures) simply pulling two toggles in the front of the smock allowing the operative operator to remove the smock immediately.

The Jacket has been designed to offer optimum comfort and flexibility and offers a multitude of features:

- Special soft Aramid technology
- Easy donning
- Fully adjustable side fastenings
- Quick release mechanism for rapid removal

- Spinal protector
- Blast plates covering the chest and groin area
- Separate inner groin armour for improved flexibility when kneeling
- Utility pockets
- Nomex Delta T or Kermel flame resistant outer cover



Blast Plates Chest and Groin

In the front of the jacket is the chest and a groin blast plate which has the effect of enhancing the V50 to 1600 m/sec.

Moreover these blast plates have a built in acoustic decoupling system to protect ones lungs and internal organs. They are clipped on to the front of the suit.

*Armored steel and layered aramid.

Type 2 V50 1600 (m/s)



Spine Protector

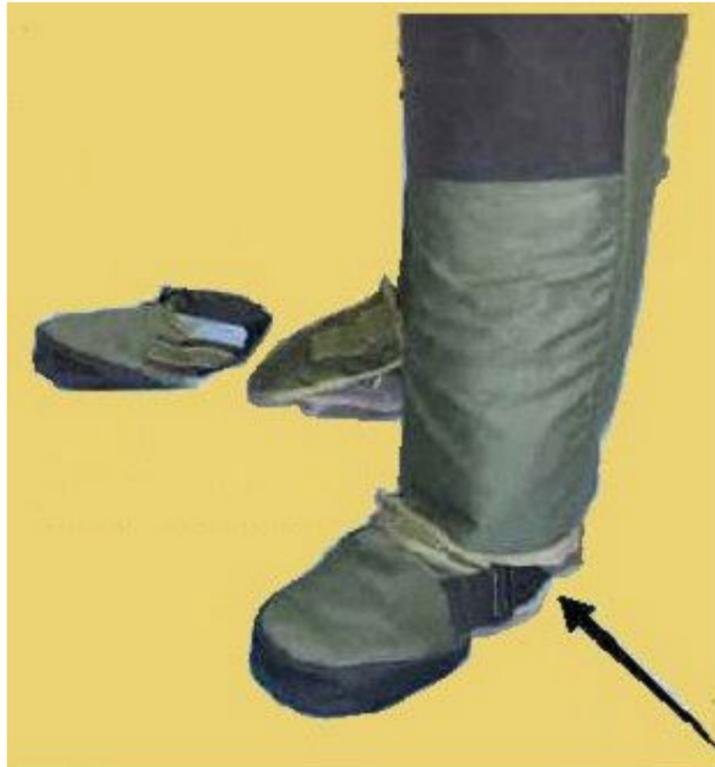
Spinal Protector

The bomb suit has a spinal protector as standard equipment which is worn independently and was originally developed for the motorcycle racing industry . The spinal protector is CE Approved.



Sleeves

The sleeves are fixed to the shoulders on the jacket and allow greater rotation of the arm around the shoulder joint. Removable Kevlar™ ballistic inserts give the necessary protection to the wearer.



Overboots

The overboots are designed to be worn over normal type military boots and are fastened around the ankle and underneath the arch of the boot.



Carrying Bag

All bomb suits come with a large carrying bag within which is the complete suit, blast plates, helmet, spinal protector and room for other small accessories. The cooling vest has its own carrying container.



Series II Helmet



MK II



Saviour Series EOD Helmet 2008



Saviour Series EOD Helmet 2009

Ballistic Helmet, Visor, Demister

The bomb helmet incorporates the latest materials technology and molding techniques to provide a helmet that is not only ballistically superior but also shaped to fit the wearer's head. It is also designed to fully integrate within the collar of the suit without impeding the lateral and rotational movement of the head.

Features:

- Advanced Aramid molding technology
- Multi impact laminated visor - Anti ballistic visor made from hardened acrylic polycarbonate laminate.
- Built in demister to stopping fogging and allow cool air onto the face
- Shock absorbing foam liner
- Internal sweat management comfort fabrics
- Removable visor to allow for greater comfort before and after operations
- Aramid neck skirt to offer even greater neck protection
- Molded chin cup

*Suspension harness – webbing and ballistic nylon.

*Flashlight: A bracket and small flashlight is provided on the front of the helmet which is self powered .

The helmet is based upon a motor cycle 'Jet' style helmet and fully covers over the ears and with the neck protector continues down around the upper neck. It has a removable visor mounted on two side pivots with locking pins on each side to secure it in position.

When it is closed it is sealed to the helmet to stop blast and dust particles entering the helmet and around the operator's eyes. The visor is constructed from a laminate of polycarbonate and acrylic which not only gives it a good multi hit capability but also excellent ballistic performance.

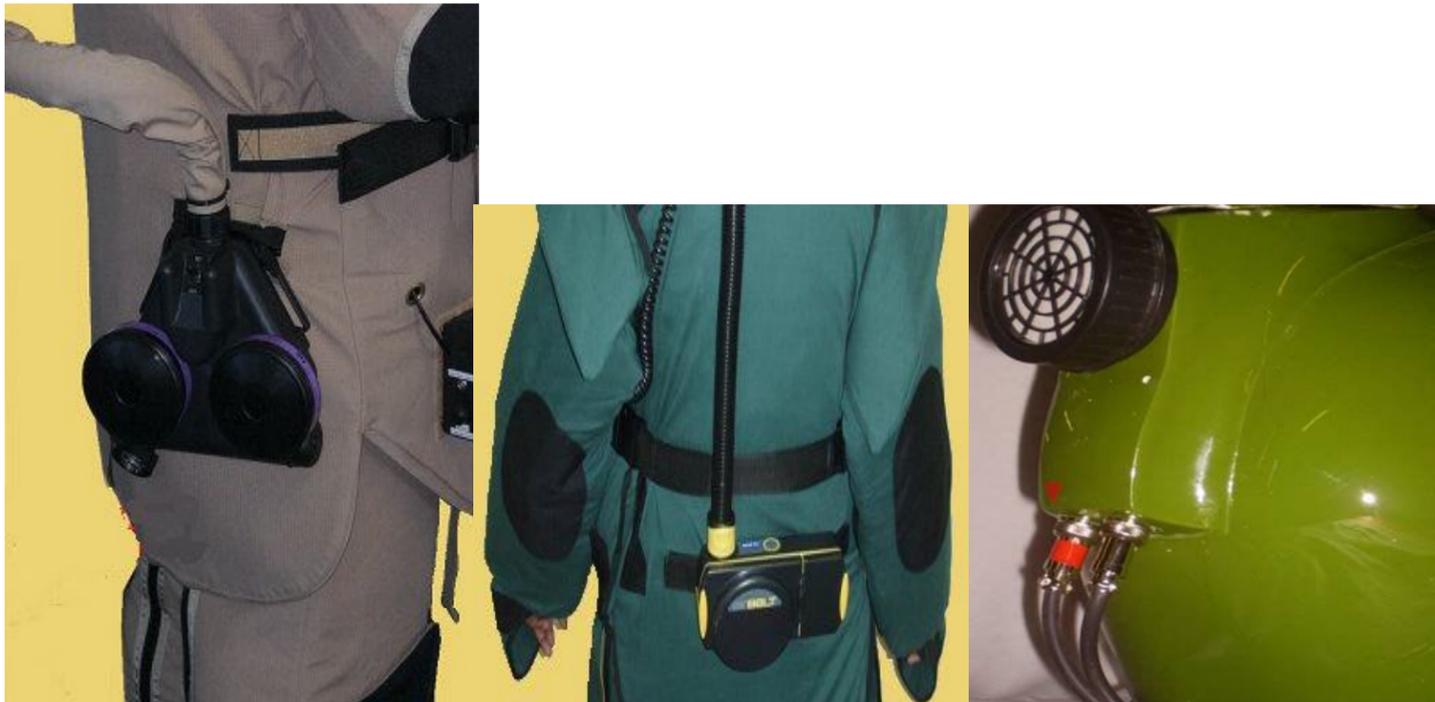
Optical Transmission 90 %

At the back of the helmet there is the fan connector intake housing which blows a cool stream of air round the inside of the helmet and onto the wearer's face ensuring that the visor does not steam up. This is powered by its own battery source built in to the respirator. All power sources are rapidly rechargeable.

Air Flow: 160 Lt air/min

Duration: 4 hours

The EOD helmet is made from a sandwich construction system developed by and unique to the company and is fully adjustable by means of the three-point suspension. Incorporated in the helmet is the a communication set consisting of an integral speaker and microphone. Also incorporated in the helmet is an Air Ventilation system, which directs the flow of forced fresh air over the top of the helmet liner, across the visor and down over the operator's face ensuring efficient demisting and clear view. This system can be used in conjunction with a Filter/Canister configuration. The visor is removable.



Saviour 2008 Series Blower Blower

Saviour 2008 Series II Blower and connections

Saviour 2009 Helmet with

Ventilation and Demisting: Low Profile Powered Air Filtration System. This system is attached to the bomb suit and controlled via a switch. This system then forces air up the heavy duty breathing tube directly in to the helmet over the top of the head and on to the visor. The heavy duty tube will be covered in cloth and secured. In addition, as standard equipment, this system offers particulate filtration, something that the series II suit only offers if a decision was made to fit a filter/canister. The Air Filtration System is lightweight at only 1.5kg and is rechargeable. The new style helmet we are offering has been supplied in large quantities over the years to many countries around the world so it is a proven piece of equipment. Our new style helmet is a slightly lower profile than the series II helmet which is better for vehicle search and other EOD operations.

Protection Performance:

Helmet 680 m/s Stanag 17 grain (1.1) fragment simulator and visor 680m/s.



Hardwire and communication system

Communications:

The helmet has a built in speaker and microphone which are connected to a controller mounted on the lower RH front of the smock. An external socket is provided on the controller for connection to a wireless or hardwire system. The hardwire communications system is designed specifically for EOD teams using EOD bomb disposal suits. The system provides communication between the bomb disposal operator and his back up at the base station. This is via 100m of cable mounted on a reel

The optional Hardwire duplex communications is supplied with the base station, headset, and 100m wire on a reel. The wire plugs into the side of the controller on the front of the smock.

If two way radios are to be used the same socket is used. However the type and make of the radio must be specified so the correct interface can be assured. There is a switch on the side of the controller to change between hardwire or wireless.

The controller on the EOD suit has three controls, one for volume control of communications between the EOD technician and the base station. The second controls the ambient sound* volume and the third control button, which is on the top of the air pump controls the air blower.

The controller is supplied as part of the EOD suit therefore all systems come with an ambient sound facility.

The base station for the Duplex Hardwire system contains a battery which will power the communications in the EOD suit .

*Ambient Sound Feature: An external microphone is mounted on the outside of the helmet and a speaker in the helmet on the LH side enabling the operator to hear noises in his environment. This has an automatic high decibel cut out. This facility is controlled with an ON/OFF switch and volume control accessible to the operator .

Power Supply: Powered Air Purification System – Supplied with own self contained in built rechargeable battery and compact charger. Ambient Sound – 9v standard battery

Hard Wired Communications – supplied with own power supply.

The suit consists of the following separate items, which collectively make the complete EOD suit.



- | | | |
|-------------|---|--------------------|
| Item | Description | |
| 1. | Trousers with Elasticated Braces adjustable in length and width zips or Velcro on legs. | with quick release |
| 2. | Smock (Jacket) with attached collar & Groin Protector | |
| 3. | Sleeves | |
| 4. | Overboots / Overshoes | |
| 5. | Hand protectors /Protective Gloves | |
| 6. | Blast plates covering Chest & Groin | |
| 7. | Throat blast plate | |
| 8. | Spinal Protector | |
| 9. | Ballistic Helmet, Visor, Demister & Helmet mounted Light | |
| | Integral speaker, ambient sound and microphone in helmet | |
| 10. | Carry Bags . | |
| | Smock carry bag with spine protector. | |
| | Trouser carry bag with blast plates and overshoes. | |
| | Transit bag for smock and trouser bags. | |

Carry case for helmet,

Headlamp charger and fitting instructions with the respirator pump.

Protection performance figures are for the Stanag 2920 17 grain (1.1gm) (Mil Std 662) fragment simulator. Also conforms to Mil Std 1472 re fitting and sizing

Saviour 2008 model EOD Bomb Suit V50 RATINGS

Test standard MIL STD 662E Stanag 2920

Description	EOD Suit	Saviour 2008 Model
	Series 11	
Chest plate and jacket front	1600m/s	1600 m/s
Neck	600m/s	600 m/s
Jacket front	600m/s	600 m/s
Jacket rear	500m/s	500m/s
Sleeve front	560m/s	560 m/s
Sleeve rear	450m/s	450 m/s
Front collar	1600m/s w/steel insert	1600m/s w/steel insert
Front groin plate and groin protector	1600m/s	1600m/s
Rear groin protector	500m/s	500 m/s
Trousers with thigh inserts	500m/s	500 m/s
Trousers-shin insert	500m/s	500 m/s
Trousers-knee insert	500m/s	500 m/s
Rear trousers	500m/s	500 m/s
Helmet	610m/s	680 m/s *
Visor	688m/s	680 m/s *
Suit weight	28.20kg	Suit without up Armour Blast Plates 15.3 kg
Helmet weight	4.7kg	
Suit Material	Fire resistant Nomex 111A Comfort or Kermel	
Ventilation and demisting	With helmet mounted fan	
Communication	Full duplex hardwire system-100m range	
Hand covers	450 V50 (m/s)	450 V50 (m/s)
Front Collar	850 V50 (m/s) without steel insert	

Back Collar
Front Thigh
Shoe covers

Warranty 2 years



450 V50 (m/s)
690 V50 (m/s)
450 V50 (m/s)

450 V50 (m/s)
690 V50 (m/s)
450 V50 (m/s)

Trauma Reduction:

Up Armour Blast Plates have a double layered backing of a resilient, closed cell, linear foam which has a comprehensive modulus of 4350 psi (astm d 1621). The collar chest groin and front of the legs have built in anti trauma inserts.



Fig21



Fig 3

suit controls

Back view of EOD trousers showing quick release zippers.

Saviour 2008 model EOD Bomb Suit sizes and weights in Kgs

	small	medium	large	xlarge	
Smock		7.4	8.8	10.2	12.2
Trousers		6.5	6.9	7.05	10.6
Smock, trousers		13.9	15.7	17.25	22.8
Spine protector		0.8	0.8	0.8	0.8
Smock, trousers, spine protector		14.7	16.5	18.05	23.6
Blast plates		4.85	4.85	4.85	5.87
Smock, trousers, spine protector, & blast plates		19.55	21.35	22.9	29.47
Power pack		2.3	2.3	2.3	2.3
Smock, trousers, spine protector, blast plates, power pack		21.85	23.65	25.20	31.77
Helmet		3.20	3.20	3.20	3.20
Total smock, trousers, spine protector, blast plates, power pack, helmet		25.05	26.85	28.40	34.97

Cooling Suit OPTION:



The Cooling Suit is designed to offer a safe and cool environment for people who must maintain a high level of efficiency and concentration under extreme heat. The suit can be worn with commercially available equipment. Pockets to accommodate the power pack, controls and ice reservoir can be provided at no extra cost on the back of the suit. The system is ideally suited for persons involved in bomb disposal and surveillance operations, as well as personnel in non-air-conditioned armored vehicles. The Kejo Cooling System uses ice water to remove body heat produced during strenuous work, especially in hot environments. The suit requires no hazardous pressurized canister or toxic cooling agents. Made from machine washable, fire retardant Kermel, the Kejo Cooling Suit also offers protection against heat and flash fire balls. Testing of the suit on the effects of over-pressure, fragmentation, ballistics, body impact and heat have shown this suit is suitable for use under bomb suits, chemical suits and many other applications where body heat removal is desirable. The kit includes a long-sleeved shirt with cooling on trunk and arms, long legged pants with cooling on legs, a close fitting open faced hood for head, a cooling unit and pouch, two water bottles, battery pack and carrying bag.

SPECIFICATIONS:

Performance:

Heat Removal Rate: 270 watts (full suit)

Endurance min. 45 min at 35 ° C (95 °F)

Cooling Unit:

Control: On/Off Variable speed

Pump: 12V

Cold Source: Water circulating over ice

Power: Connected directly to the EOD 12V power supply..

Weights:

Suit: 1.0 kg

Cooling Unit Dry: 0.5kg

Ice : 1.2kg

Water: 0.7kg

Material:

Garment: Kermel stretch knit fabric, flame retardant.

Sizing:

Small: 150-175 cm; 40-75 kg

Medium: 170-185 cm; 70-90 kg

Large: 175-193 cm; 85-110 kg

Compatibility: Worn next to skin under any clothing

Cooling unit can attach securely to bomb suit via Velcro, strap and buckle

Second water/ice bottle supplied for standby



Optional Extras:

Optional Accessories

1. Cooling Vest
2. Land Line Communications
3. Radio Communications
4. Recording/ Transmitting Helmet Mounted Video
- 5 Optional custom designed steel storage box.
6. Chemical Agent Suit
7. Mine Protective Boots
8. Wireless: Two way hand held radios (two) VHF/UHF as specified by the customer.
9. Hardwire: 100m range. A base station is provided with speaker, microphone, headset and tape outlet. Slipping facility enables communications to be maintained whilst the "hard wire" is being deployed. A control amplifier is provided with speaker, microphone and tape outlet. Hardwire with Slip ring facility
- 10.Video Camera: A bracket can be provided on the helmet for a small video camera powered from the 12v power pack. Transmission of data can be either by wireless or hardwire.

Displacement Forces

Once the fragments and the Blast Wave have been discharged there is a massive displacement of air around the device in a spherical expansion, which will cause objects to be flung through the air. One of which, will be the EOD operative. The effects of being hurled through the air are numerous and depend largely on the stance of the operator at the time, the drag on the different

human parts, and the position of other objects around the operative. To combat physical injury caused by low velocity impact onto other objects the helmet is fitted with special shock absorbing materials and the spine is protected by the spinal protector, worn inside the back of the suit. Moreover, the damper incorporated in the blast plates also protects from low velocity forward impacts. To minimize traumatic amputation the suits as are well fitting to reduce drag and also to hold the limbs attached to the body after the bones might have fractured within. Medically, if this can be achieved the possibility of saving the limb is greatly increased.

Protection from Heat & Fire

It is difficult to quantify this threat as it depends upon the explosive material used and if incendiary material was deliberately incorporated within the device. However, during all explosions there is a flash which causes high temperature dust particles to be generated.

This flash is normally short lived and therefore thermal conduction is not such a large problem as is the flammability and the effects of the high temperature dust particles to sensitive organs such as the eyes.

To combat this the suit is not only intrinsically flame resistant as it is made from Aramid which has a decomposition

temperature of 450 Deg C but is also covered in Nomex Delta T fabric which is the latest generation fabric from Dupont.

The Helmet design and visor configuration also offers excellent protection to the eyes and face from the high temperature dust particles. Special Aramid gloves are available as an extra which will also protect the operators hands when worn.

Comparison between Saviour 2008 model EOD Bomb Suit with Med-Eng EOD 8.



Description	Saviour 2008 model EOD Bomb Suit	Medeng EOD 8
Chest plate and jacket front	1600m/s	1600m/s
Neck	600m/s	600m/s
Jacket front	600m/s	600m/s
Jacket rear	500m/s	450m/s
Sleeve front	500m/s	560m/s
Sleeve rear	450m/s	450m/s
Front collar	1600m/s steel insert	825m/s
Front groin plate and groin protector	1600m/s	1600m/s
Rear groin protector	500m/s	250m/s
Trousers with thigh inserts	500m/s	690m/s
Trousers-shin insert	500m/s	620m/s
Trousers-knee insert	500m/s	750m/s
Rear trousers	500m/s	250m/s
Helmet	680m/s	425m/s
Visor	680m/s	780m/s
Suit weight	28.20kg	30.72kg
Helmet weight	4.7kg	4.8kg
Test standard	MIL STD 662E Stanag 2920	MIL STD 662E Stanag 2920
Suit Material	Fire resistant Nomex 111A	Fire resistant Nomex 111A
Ventilation and demisting	Comfort or Kermel Powered Air Filtration System	With helmet mounted fan
Communication	Full duplex hardwire system-100m range	Full duplex hardwire system-100m range
Warranty	2 years	2 years

Shipping Dims and weights:

The complete EOD suit with all the paraphernalia helmet, hardwire systems etc are packed in 3 cartons

dimensions

Suit: One Carton 85lbs. 39.5" x 20.5" x 12"

Helmet and protective Box: One Carton 37lbs. 24" x 15" x 14.5"

Hardwire: One Carton 21 lbs. 17" x 18" x 15"

Volume 55,5

Total weight 143 lbs / 65kg of all the above

Cooling Suit: One Carton 9lbs. 12.5" x 17.5" x 12"





DefenseTechs
Experience, Safety & Innovation

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