

The threat posed by Chemical and Biological Weapons (CBW) and Toxic Industrial Chemicals (TICs) in both conventional battlefield and terrorist attack situations requires a radical reassessment of capabilities to deal rapidly and effectively with the known or suspected threat from these weapons and chemicals.

Standard chemical agent monitors depend on a significant release of agent into the environment for their function.

Non-invasive detection methods such as neutron activation analysis will provide information on the elemental composition of contained materials but no direct evidence of their chemical structure.

The only totally reliable technique for analysis of contents, chemical or biological, is to take and analyse a physical sample.

This is the rationale behind mmic eod's **monica™** case entry system, and for this reason the equipment has been adopted by many of the major authorities concerned with the CBW threat. This unique field-proven equipment provides remote case entry and sample/empty capabilities for a wide range of both conventional and improvised CBW.

The equipment is designed to insert a gastight self-sealing probe through target casings in a wide range of materials including metal and plastics with a considerable range of wall thickness. Once installed the probe gives fully sealed access for sampling extraction or neutralisation of the contents.



The monica™ system in use

The drilling head attaches directly to the target, regardless of its diameter, and will attach reliably to a range of surfaces without any surface preparation of the target.

No operator set-up is required to deal with different wall thickness or case diameters.

Training is simple and operators invariably comment on the simplicity and user-friendliness of the system.

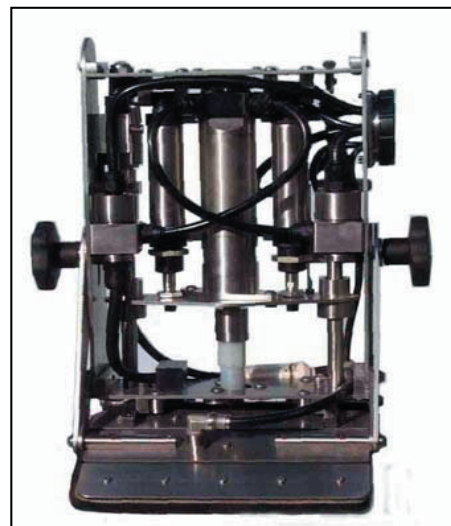
Power is supplied by compressed air from standard SCBA or other compressed air cylinders making the system man-portable and extremely reliable.

The equipment can be deployed from a single vehicle by a two-man team in under five minutes.

Our current users include:

- UK MoD Dstl Porton Down
- United Nations (UNMOVIC)
- US DoD
- US Navy EOD
- UK Royal Air Force
- UK Royal Engineers (33 EOD)
- UK SIBCRA teams
- Classified users

The equipment comprises a chemically-resistant drilling head, which attaches to the target by means of flexible vacuum feet.



The drilling head (above) has no significant EM (electromagnetic) or RF (Radio Frequency) signature and is connected via a 5M long chemical-proof umbilical to the computer-controlled main control unit (MCU), which remotely automates the drilling and seal-installation processes.



The Main Control Unit (MCU)

The operator controls the drilling process with a handset from a distance of up to 500M, linkage to the control unit being made with a number of 100M cable-reels.

The handset provides the operator with full control of the drilling process and provides him with feedback indicating the drilling status.

The drill used is a custom-made high-speed steel annular (hollow) drill, which carries a Nylon-6 seal.



Seal insertion in an Iraqi 122mm rocket warhead suspected of containing nerve agent.



The inserted seal prior to sampling



The forensic sampler in use.

The sampling syringe mates to the probe via a zero-drip seal. Both probe and syringe seals close automatically and repeat samples may be taken. Forensically approved samplers are available for evidential purposes. The sampler can be replaced with a dipleg adapter for emptying or neutralising contents if required using the 'mats' (Monica Agent Transfer System).

Sealed endoscopic access to the target's interior is also possible.

Capabilities

The equipment will drill and seal steel, iron, non-ferrous, plastic and composite targets from small diameters to flat plate. It does not require access to a target's diameter and can attach to the target in any orientation.

The probe will insert and seal against very high internal pressures. Drilling time is typically 10 mm of target wall thickness per minute and the supplied SCBA cylinder pair will power the equipment for at a minimum of four minutes.

The equipment has been proven to perform reliably against a wide variety of targets including aircraft bombs, artillery projectiles, mortar rounds, rocket warheads and Improvised Explosive Devices (IED's).

The standard sampler is suitable for both volatile and non-volatile chemical agents and most Toxic Industrial Chemicals, and a specialised sterile sampling system is available for weaponised powders.