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Explosive Ordnance Disposal Disruptors

A portfolio of novel technologies for breaching mine casings, low order disposal of conventional munitions, elimination of hazardous material, and rendering safe Improvised Explosive Devices (IEDs).

Neutralisation tools currently employed almost universally trace their origins to 1970s technology, for which there are performance limits, stemming from the trade-off required to ensure neutralisation without full detonation.

This collection of complementary technologies offers an alternative approach, with more than a step change improvement over current equipment, providing various options for rendering safe improvised explosive devices (IEDs), with benefits in performance, transport, storage, safety and configurability.

Existing Explosive Ordnance Disposal (EOD) equipment can be bulky and thus difficult to store and transport. Furthermore, carrying explosives is not always desirable. Finally, it can be tricky to deliver the intended charge with non-configurable systems.

This collection of complementary technologies offers an alternative approach, with more than a step change improvement over current equipment, providing various options for rendering safe improvised explosive devices (IEDs), including:

- A system for firing shaped charges as an array in order to achieve a volume disruption effect with minimal variability between each charge.
- A small calibre shaped charge where the shaped charge jet can be manipulated.
- A disruptor that can be adapted to provide liquid jet geometries tailored to different threats.
- A disruptor for firing supercavitating projectiles underwater, with the option for non-explosive driven systems.
- A modular EOD disruptor.
- Tools to give higher assurance in the low order neutralisation of air dropped munitions including legacy World War remnants on UK mainland and in territorial waters.

Benefits

Across the portfolio of technologies, the following benefits can be achieved:

- Configurable for easier transport and storage
- Customisable effect for thick or thin barrier targets
- Consistent volume disruption with each charge
- Control over the penetrative depth of a shaped charge, tuneable at point-of use
- Improved defeat of targets behind barriers
- Ability to defeat more complex targets
- Ability to use a variety of calibres with a single calibre power cartridge
- Improved safety with non-explosive driven systems
- Reduced damaged to gun barrel systems
- Improved payload transit times underwater
- Improved ability for inducing low order effects in munitions
- Higher assurance in the low order neutralisation of air dropped munitions including legacy World War remnants on UK mainland and in territorial waters

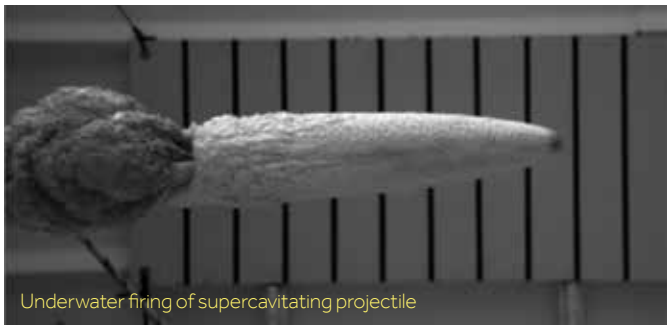
Disruptor portfolio summary

Seven inventions are included in this portfolio, including a modular EOD disruptor, an alternative method of device breaching and a disruptor for firing supercavitating projectiles underwater.

A reconfigurable disruptor permits a fast thin jet for penetrating thicker targets, or a slower wider jet for larger or thinner skinned targets.

A complementary invention uses electromagnetic effects applied within the munition to manipulate the penetrative capability of the jet at formation, without having to change munition hardware.

Another of the technologies provides a volume neutralisation effect, reducing the firing precision required, whilst being fast to deploy.



Underwater firing of supercavitating projectile

Intellectual property

- Pending: GB (1820220.0)
- Granted: GB (2572685)
- Pending: AUS (2019226419), CAN (3091761), EP (19708593.9), US (16/969796)
- Granted: GB (2534945)
- Granted: GB (2573627)
- Pending: AUS (201923377), CAN (3093952), EP (19711649.4), US (16/971561)
- Pending: GB (2017969.3)

More information

For more information about licensing this technology, or to speak to us about our other communications and sensors related IP, please contact us.

Time sequence of neutralisation tool against simulated explosive ordnance

1

2

3

4

Resultant large diameter penetration of thick steel casing

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For more than 15 years we have worked with an array of scientists, innovators, investors, entrepreneurs, SMEs and public sector organisations to bring about the commercialisation of many great innovations developed at world-class organisations such as Dstl, Ministry of Defence, and the Atomic Weapons Establishment.