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# Stand-off Breaching Grenade

A 40mm grenade designed for stand-off breaching which improves both tactical and logistic operations.

Current 40mm breaching grenades are energetically inefficient, limit operational effectiveness, and present a higher risk than necessary to people in the vicinity of the target. A new design by the UK Government overcomes these limitations and also improves both safety and logistics.

Typical 40mm breaching grenades suffer from design flaws which limit their effectiveness.

Firstly, current designs are inefficient as the explosive blast overpressure is not directed towards the target. This results in an increased Net Explosive Quantity (NEQ) to obtain the desired effect and in turn makes the grenade more hazardous to use and handle.

This increase in NEQ further results in the breaching team needing to adopt an unnecessary additional stand-off distance (typically +15m).

Lastly, current designs are typically based on impact for initiation. This method creates a significant fragmentation hazard both to the breaching team and to people behind the target which is exacerbated by the higher NEQ.

## Stand-off Breaching Grenade

Developed by the Defence Science and Technology Laboratory (Dstl), this new design is the result of several years of research to overcome the deficiencies of current breaching grenades. The result is a reduction in target fragmentation, reduced omnidirectional overpressure and increased operational effectiveness.

## Benefits

- **Increased Tactical Advantage** - improved directional control of the overpressure lowers the risk to the breaching team and reduces their stand-off distance.
- **Reduced Collateral Damage** - the design significantly reduces the risk of fragmentation and behind target effects.
- **Increased Breaching Capability** - the overpressure generated is sufficient to deform a variety of door materials including multi-lock steel doors.
- **Safer / Easier Logistics** - reduced NEQ gives inherent safety benefits and allows for easier shipping / storage.

## Description

This new technology addresses the challenges facing breaching teams with three key design features.

- The design of the explosive charge
- How the grenade or device is initiated
- The fusing of the grenade

The result is a reduction of the NEQ by approximately half while maintaining the same breaching capability displayed by conventional 40mm rounds.

The design focuses blast overpressure towards the target to deform the door structure, as opposed to conventional impact detonation methods. The result is a reduction in target fragmentation, reduced omnidirectional overpressure and increased operational effectiveness, even against steel doors.

## Intellectual property

GB and international patent applications filed (GB1814267.9 and PCT/GB2018/000118).

Breaching trials of the Stand-off Breaching Grenade against a multi-locking point steel door set within a steel frame.

## More information

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

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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.