



ISTEC

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COMPANY BROCHURE 2021



iSTEC

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Photo 'Brainstorming over paper' by Scott Graham

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Background

ISTEC Services Limited, (ISTEC) is the United Kingdom's principal supplier of high quality, precision engineered small-arm and medium calibre gun mounts, weapon stations and ancillaries.

Formed in 1989, ISTEC continues to be a leading designer and manufacturer of specialist military equipment which supports the modern warfighter worldwide, across Land, Sea and Air platforms.

During that time, ISTEC has developed as a dynamic, customer-focused company; delivering pragmatic advice and high quality products in a timely manner.

ISTEC is an ISO 9001:2015 accredited company with a reputation for providing robust, reliable and effective weapon mounting equipment and ancillaries in support of continuing, domestic and overseas requirements.

ISTEC's mounts and weapon ancillaries are currently supplied to the world's leading defence integrators and operated by users worldwide, as well as the UK.

ISTEC specialise in fully integrating a customer's inventory of crew-served weapons, either retrospectively onto vehicle platforms or by design at the concept stage.

Editorial

During the last 18 months ISTEC has focused efforts on ensuring continued growth and evolution as a business, with emphasis on strengthening the design team and investment in future product development and diversification.

Emerging from lock-down ISTEC has refreshed its online presence with a new look website www.istecservices.com, new Linked-In page and invested in a full company re-brand.

Along with the Land, Sea and Air product development programmes, customer focus remains of fundamental importance continuing to support both new and existing customers; meeting challenging User requirements; and supporting through life cycle of ISTEC systems and sub-systems.

ISTEC continues to improve both its products and practices, committed to remain front runners in the field of design, manufacture, supply and support; combining this with diversification into specific, targeted technologies and new markets.



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Capability

ISTEC has exceptional strength in the engineering design and development of new innovative systems, with a large team fully equipped with the latest 3D Solid Modelling and Finite Element Analysis (FEA) software. ISTEC adopt a very proactive approach with a strong desire to work as part of the customer's team throughout the design process and beyond.

With many existing products in-service, across Land, Sea and Air domains, the engineering team look to either adapt 'off the shelf' in-service solutions, or establish bespoke solutions to ensure full compliance

with customer requirements. All design work is undertaken in full compliance to the ISTEC design processes and procedures that ensure critical areas are addressed during the design phase, such as: compliance with user requirements; ease of operation and maintenance; ensuring a modular design and obsolescence management.

Customer Support

The dynamic approach incorporated by ISTEC starts with strong customer liaison to fully understand a customer's requirements. Our customer support team is ex-military and has a strong understanding of requirements and capabilities.

Links forged between ISTEC and the customer at this early stage is strengthened throughout the programme; through delivery. Customers have direct access to a dedicated representative to help support their requirement.

ISTEC technicians deploy globally, into diverse locations; in order to assist its customer base with varied tasks ranging from equipment installation, embodying modifications, to providing advice and training.

It is ISTEC policy that Integrated Logistic Support is applied to all product development and supply. ISTEC use a disciplined approach that influences the product design and develops a sustainable support solution, to reduce Cost Of Ownership and maintenance burden, whilst optimising supportability.

ISTEC use Supportability Engineering Management tools to produce a product that not only delivers the required capability, but can also be supported and maintained at various levels.

Reliability Centred Maintenance is used to produce equipment and maintenance regimes, which reduce down time, erroneous inspections and ultimately support costs.


Ease of Maintenance Assessments are employed to establish the most efficient engineering support regime.

Training Needs Analysis is conducted to ensure the equipment can be used and maintained, on or off the battlefield, with minimum but effective training, and ISTEC can offer training courses and supporting publications for Users and Maintainers.

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HMG

Gun mounts

The background of the advertisement features a military vehicle, possibly a Land Rover Defender, with a heavy machine gun mounted on its roof. The vehicle is in a desert-like environment. In the foreground, there is a detailed, close-up view of the HMG mount, showing its mechanical components, handles, and mounting points. The license plate on the vehicle reads 'MT 15 AB'.

STEC have designed and manufactured various HMG mounts over many years, for applications across Land, Sea and Air domains. The latest is the ISTECH 12.7mm Softmount (20203) which is a compact, modular buffered mount designed to hold the 12.7mm M2HB MG.

The weapon is held securely in the mount via the M2's standard front and rear mounting points and is controlled by the twin handles at the rear of the mount. The handles give the user total control of the mount in azimuth and elevation, plus there is an alternate firing lever attached to the handle on the right side allowing the operator to fire the weapon without removing their hands from the handles. The mount also has an applied safety catch, preventing inadvertent operation of the weapon.

The mount also includes azimuth and elevation locks and stops which can limit movement of the mount in these directions.

The modular design allows for an optional spent case and collection system to be clipped into position if required, as well as a ready round tray.


The mount has been designed using materials and finishes that allows it to be used in either land or naval applications.

The interface for the mount is via the standard G3 cone, but this can be readily replaced with other mounting systems such as NATO 4796 pintles if required.

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MMG

Gun mounts



As with the ISTECH HMG range of weapon mounts, ISTECH have designed numerous MMG softmounts over the years for applications across Land, Sea and Air domains.

The ISTECH range covers most variants of 7.62mm and 5.56mm weapons.

The ISTECH range of MMG mounts includes compact, capable and easy to use Softmounts, designed to interface with existing pintle sockets or ISTECH designed and supplied interfaces, such as the G3 Cone or NATO Spigot to name but two.

ISTECH have in-service Softmounts designed to interface with the ISTECH Universal Gun Mount (UGM) with built in T&E Mechanism and mounts that include an array of additional (and optional) features to enhance capability, such as:

- Ready Round Stowage (200-400 rounds)
- Spent Case and Clip Collection Systems
- Traverse and Elevation Locking Clamps
- Adjustable Traverse and Elevation Stops
- Mounting points for Frontal Ballistic Shield (steel or composite material)

Other unique designs of ISTECH MMG Softmounts includes the Twin GPMG Mount which is in service on both Land and Naval platforms.

The existing range of ISTECH MMG Softmounts will meet almost all User requirements. However, with the vast engineering knowledge and experience in weapon system design within the ISTECH team, overcoming problems, advising on solutions, and meeting stringent user requirements is the ISTECH speciality.

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UGM

Universal Gun Mount

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The widely adopted ISTE Universal Gun Mount (UGM) is currently utilised on both land and sea-based platforms, where it is attached directly to a traversing ring of the parent vehicle, or to a re-enforced hard point on the side of a vessel.

The UGM is capable of accepting the following range of weapons together with their dedicated softmounts (either ISTE softmounts, or alternative solutions):

- Light Machine Guns (e.g. Minimi/M249)
- Machine gun (e.g. L7A2 GPMG/FN MAG 58/M240, M60, MG3, PKM)
- Twin L7A2 GPMG Mount
- 12.7mm HMG (e.g. M2HB, L110A2 QCB, M3D)
- 40mm Grenade Machine Gun (e.g. H&K GMG, MK19)

In addition to these weapons, the UGM can be readily fitted with an adaptor to allow mounting of anti-armour weapons and 20mm cannon.

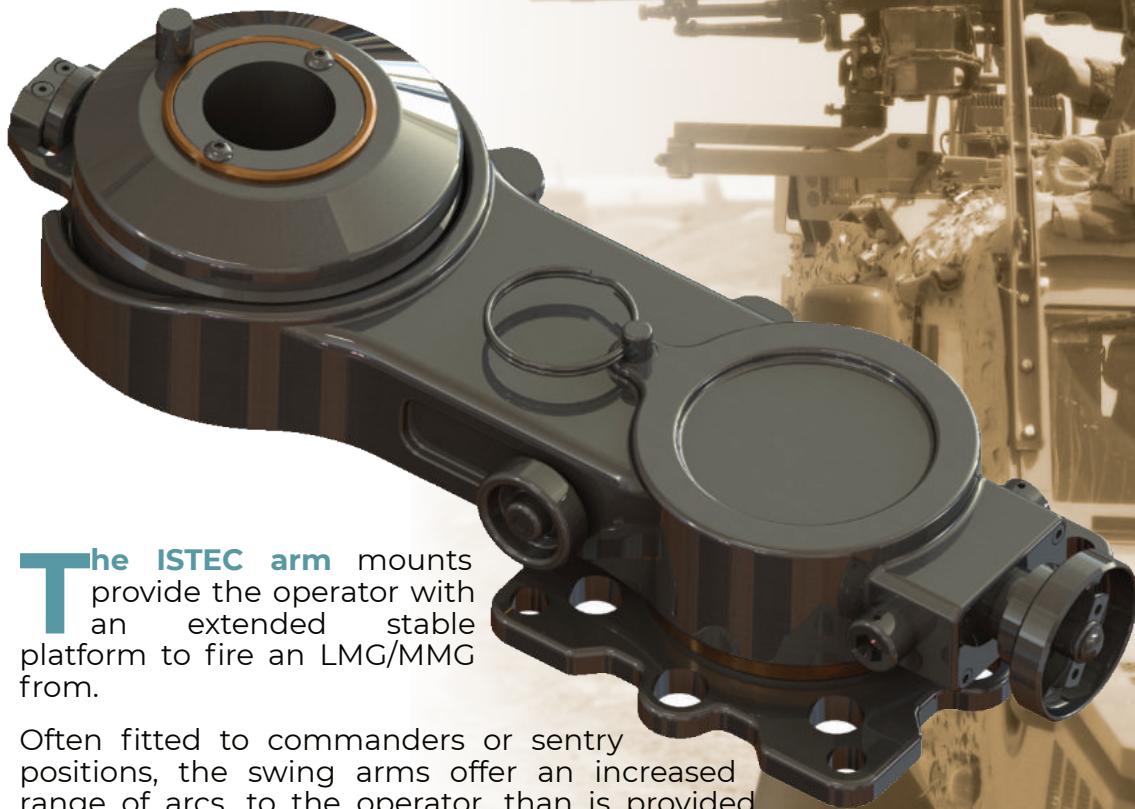
The UGM is designed to provide a solid, backlash-free, firing platform when clamped; fine adjustment being made by means of a fine control Traverse and Elevation mechanism (T&E). This provides exceptional single shot accuracy, coupled with the ability to rapidly engage, or track targets.

The UGM is modular, permitting the attachment of a variety of fitting kits and ancillaries; from frontal armour to folding interface equipment.

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ARM

Gun mounts



The ISTE arm mounts provide the operator with an extended stable platform to fire an LMG/MMG from.

Often fitted to commanders or sentry positions, the swing arms offer an increased range of arcs, to the operator, than is provided from just a fixed pintle.

Each arm is fitted with the appropriate spigot receiver, which is able to mount the correct softmount, normally either the G3 or NATO tapered cone.

For extra arc capability, double swing arms are available.

Lightweight 'bespoke' single/double swing arms can also be designed and supplied.

The swing arm solution offers a capability multiplier for a relatively small cost and minimal footprint. The swing arm needs less than 150mm square real estate on the vehicle to mount.

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PROTECTED Weapon Stations

The ISTECS ring mounts/PWS product range are weapon mounting systems designed to offer maximum capability with the minimum of user input.

The ISTECS ring mounts allow a single operator to maintain 360-degree capability with the weapon always directly to their front, without the need to stretch or strain on extreme arcs.

The system is based upon a metal ring fixed to the platform roof or support cage. Mounted to this fixed ring is a forged traversing ring, which can offer the operator continuous 360 degrees of uninterrupted traverse in either direction.

The traversing ring provides the mounting platform for a selection of options, usually based upon a base-plate. These include armour panels to defeat threat levels from STANAG 4569 Level 1 up to Level 4, hatches, spare barrel holders, personal weapon holders, spare ammunition box holders, and other operator required ancillaries. The traversing ring or base-plate is also supplied with a weapon mounting interface.

The ISTECS rings are available in a variety of sizes, but normally are restricted to the two most common sizes:

The GVA compliant 1080mm ring and the smaller UK MOD approved 980mm ring (this ring offers the best compromise between size, weight, functionality, and cost).

The weapon interface can be selected for just a single weapon type, such as a 7.62mm MMG, or it can be fitted with the ISTECS Universal Gun Mount, which can take a selection of weapon options from 5.56mm LMG, 7.62mm MMGs, 12.7mm HMG and 40mm GMGs.

As well as designing, manufacturing and supplying complete weapon systems such as the various in-service PWS' and Ringmounts, ISTECS also design sub-systems for military platforms. These include bespoke armoured solutions, steel or composite, such as ingress/egress hatches and shields (either forward facing or designed to give 360deg protection to the User). Many of the sub-systems used on ISTECS weapon stations can also be supplied as standalone sub-systems to third parties (either proven off the shelf designs or adapted accordingly), such as stowage solutions for ammunition, personal weapons and spare barrels; and innovative weapon mounting platforms such as folding 'A' frame assemblies and assisted mechanical handling systems using hydraulics or geared solutions, to offer the weapon system improved elevation and depression angles. ISTECS can also design and supply mounting configurations such as the G3 Cone and NATO Spigots, or other pintle and socket designs.

Whatever the system or sub-system requirement for a weapon platform, ISTECS can provide the solution.

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GRENADE Dischargers

ISTEC have designed, developed, manufactured and supplied 66mm and 76mm Smoke Grenade Discharger Systems, with the 66mm System now being fully qualified and in service in the UK.

The 66mm system consists of banks of smoke dischargers, junction box, Fire Control Unit (FCU) and all interconnecting harnesses.

The 76mm system consists of individual dischargers, that can be mounted on a platform, which is then fixed to the vehicle.

The banks of dischargers can be configured to suit customer requirements, e.g., two banks of two tubes; four banks of three tubes; four banks of four tubes.

The FCU is common across both 66mm and 76mm systems and is fully sealed and EMC protected. The FCU has a series of green LED's which denote when each discharger tube is armed and a series of yellow LED's that indicate when the discharger tubes require reloading.

As detailed in the Product Development section of this brochure, ISTEC has also recently completed the design and development phase of a low-cost Laser Warning System designed to be mounted with the ISTEC Grenade Discharger Systems or supplied as a standalone system.

TRIPOD Ground Mounts

ISTEC have designed and developed versions of the popular M3 and L4 Tripods including the relevant Softmounts. The M3 Tripod will mount both the 12.7mm M2HB and the Mk19 40mm AGL, whilst the L4 Tripod mounts 7.62mm MMG and 5.56mm LMG.

Product development has proven key to ISTEC success, with improvements to both Tripods over recent years.

In particular, the 7.62mm Tripod has been subject to significant design enhancements to include a lighter frame along with an ISTEC Softmount, designed specifically for the Tripod application.

The Softmount, modelled on in-service ISTEC mounts, will accept the 7.62mm GPMG, Mag58, M240 as well as the 7.62mm and 5.56mm Minimi.

The total mass of the Tripod and Softmount is reduced to 10kg (excluding weapon and ammunition), and key features include full 360-degree traverse, adjustable elevation controls (T & E Mechanism), covering 200 mils of traverse and 100 mils of elevation and depression, this combined with adjustable legs, provides line of sight ranging between 330mm and 675mm above ground level (when used with GPMG).

As with all the ISTEC products, the Tripods are supported with complete User manuals (Operator Manual, Maintenance Manual and Illustrated Parts Catalogue) and ongoing ISTEC support throughout the life cycle of the Tripod, with supply of spare parts if required.

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SEA

MG Gun mounts

The maritime battlespace is one of the harshest environments in which ISTECS equipment operates. Manufactured from marine suitable material and finishes, the range of ISTECS maritime equipment is in use, worldwide, on submarines, capital ships, assault craft, patrol craft, merchant navy craft, oil rigs and hovercraft.

ISTEC weapon mounts provide a stable platform to support operators crew served weapon.

ISTEC's main focus of weapon mount capability is buffered softmounts, into which the weapon would be fitted. Recoil and Runout mechanisms within the softmounts, buffer the weapon during firing, reducing the max peak recoil forces by up to 40%, whilst still maintaining the full functionality of the weapon.

Softmounts interface with the parent platform via a spigot. ISTECS offer a range of spigots, including the G3 tapered spigot, the NATO 4796 tapered spigot, the US standard parallel spigot and minigun gun spigot.

In general the receiver for the softmounts mounts directly onto the platform, a swing arm, or ring mount system and provides crucial safety arc stops needed on maritime platforms.

The ISTECS Universal Gun Mount (UGM) is the largest of the softmount receivers supplied worldwide to the military: offering outstanding capability to the operator. The UGM can be fitted with a front shield and also fitted to folding bulwark mechanisms to bring the weapon system 'in board' when required.



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Weapon Stations

The **ISTEC maritime** ring mounts are a weapon mounting system designed to offer maximum capability with the minimum of user input.

The ISTEC ring mounts allow a single operator to maintain up to 360-degree capability with the weapon always directly to their front, without the need to stretch or strain on extreme arcs.

The system is based upon a metal ring fixed to the platform. Mounted to this fixed ring is a forged traversing ring, which can offer the operator continuous 360 degrees of uninterrupted traverse in either direction unless physical arc stops are required.

The traversing ring provides the mounting platform for a selection of options, usually based upon a baseplate. These include armour panels to defeat threat levels from STANAG 4569 Level 1 up to Level 4, hatches, spare barrel holders, personal weapon holders, spare ammunition box holders and other operator required ancillaries. The traversing ring or baseplate is also supplied with a weapon mounting interface.

The ISTEC rings are available in a variety of sizes, but are usually restricted to the two most common sizes:

The GVA compliant 1080mm ring and the smaller UK MOD approved 980mm ring (this ring offers the best compromise between size, weight, functionality, and cost).

The weapon interface can be selected for just a

single weapon type, such as a 7.62mm MMG, or it can be fitted with the ISTEC Universal Gun Mount, which can take a selection of weapon options from 5.56mm LMG, 7.62mm MMGs, 12.7mm HMG and 40mm GMGs.



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Shields

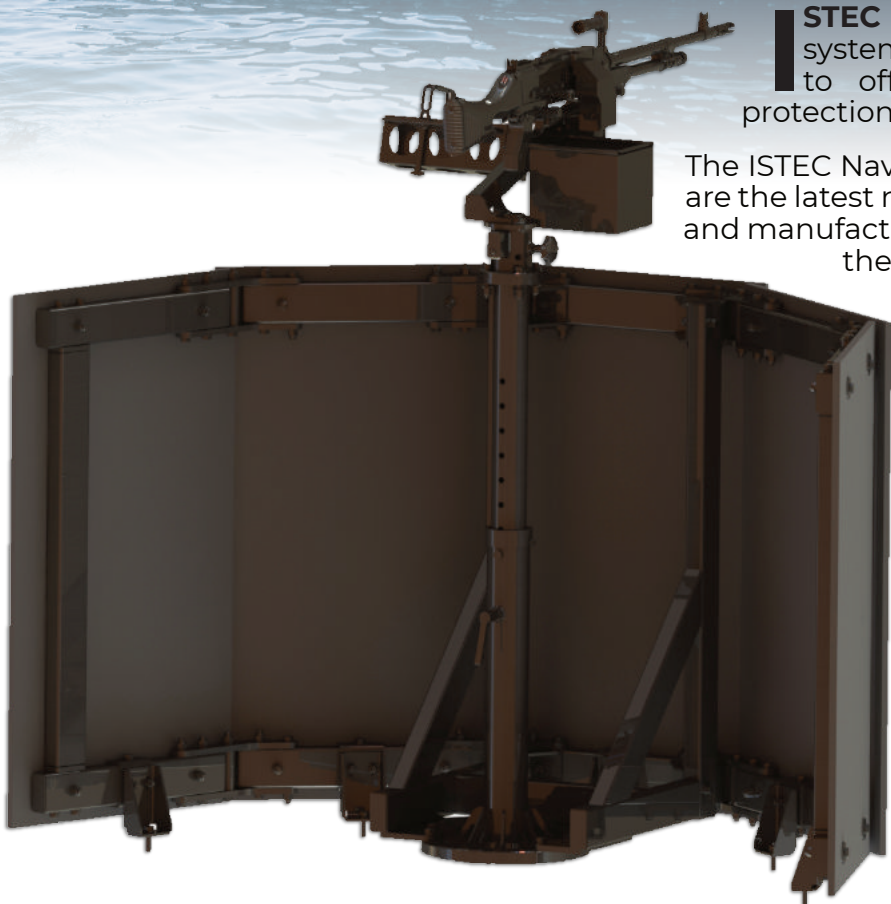
ISTEC have designed various ballistic shield systems, specifically for naval applications, to offer the gunner a certain level of protection whilst operating a weapon mount.

The ISTEC Naval Shields, both 3 and 5 Panel systems are the latest naval protection system to be designed and manufactured for a specific user requirement by the ISTEC design and development team.

The current designed system offers protection to STANAG 4569 Level 1 using composite panels. Other levels of protection are also available up to level 4.

The Naval shield system can be fitted to the ISTEC Mk 15 pedestal or other integrated ship's pedestals.

The Shield system is designed to be easily deployed and can be adjusted to provide varying angles of protection around the pedestal and the user.



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AIR



M3D Gun mounts



The ISTECAEROSPACE weapon mounts provide a stable platform to support operators crew served weapon.

All ISTECAEROSPACE 12.7mm helicopter mounts are designed and built bespoke for each platform type and conform and qualify to all aviation standards. The ISTECAEROSPACE 12.7mm helicopter softmounts are specifically designed to exacting standards and will accept the 12.7mm M3D MG.

The modular design of the mount assembly enables it to be deployed and modified to suit varying roles. The mount system incorporates a proven ISTECAEROSPACE 12.7mm softmount mechanisms.

The softmount can be detached quickly and without tools, and mounted on any other G3 cone mount, such as the UGM: providing capability for the helicopter operating in both Land and Maritime environments.

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MMG Gun mounts

All ISTE 7.62mm helicopter mounts are designed and built bespoke for each platform type and conform and qualify to all aviation standards. The ISTE 7.62mm helicopter softmounts are specifically designed for use as crew door swing arms on a variety of helicopters and allow fitting of the 7.62mm M60, Mag58 GPMG and 7.62mm PKM.

ISTEC 7.62mm Helicopter Mounts are fully qualified 'air worthy', in service mounts.

The modular design of the mount assembly enables it to be deployed and modified to suit varying roles. The mount system incorporates the proven ISTE GPMG softmount mechanisms.

The softmount can be detached quickly and without tools, and mounted on any other G3 cone mount, such as the UGM: providing capability for the helicopter operating in both Land and Maritime environments.

The swing arm travel locks are set for the individual helicopter and position, preventing customer desired arcs being exceeded. Ammo box holders are standard.

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RANGE DRUM HMG



The L8A1 .50in range drum has ballistic optimisation for the current range of in-service .50in. ammunition.

The range drum is graduated from 500m to 2200m in 100m increments. It features a Gaseous Tritium Light Source (GTLS) for illumination of the range scale under conditions of low light level.

The range drum is fitted with a quick release clamp that allows fitting to a Mil Std 1913 Picatinny rail.

The rail for attachments of the optical sight and other electro/optical ancillaries is the Mil Std 1913 Picatinny type.

It features a rotary locking device fitted to the range adjusting drum, which, when applied, prevents inadvertent rotation.

There is a high degree of commonality between the various models and with a full range of sub-assemblies and component parts available if required to carry out a repair.

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UGLS Quadrant



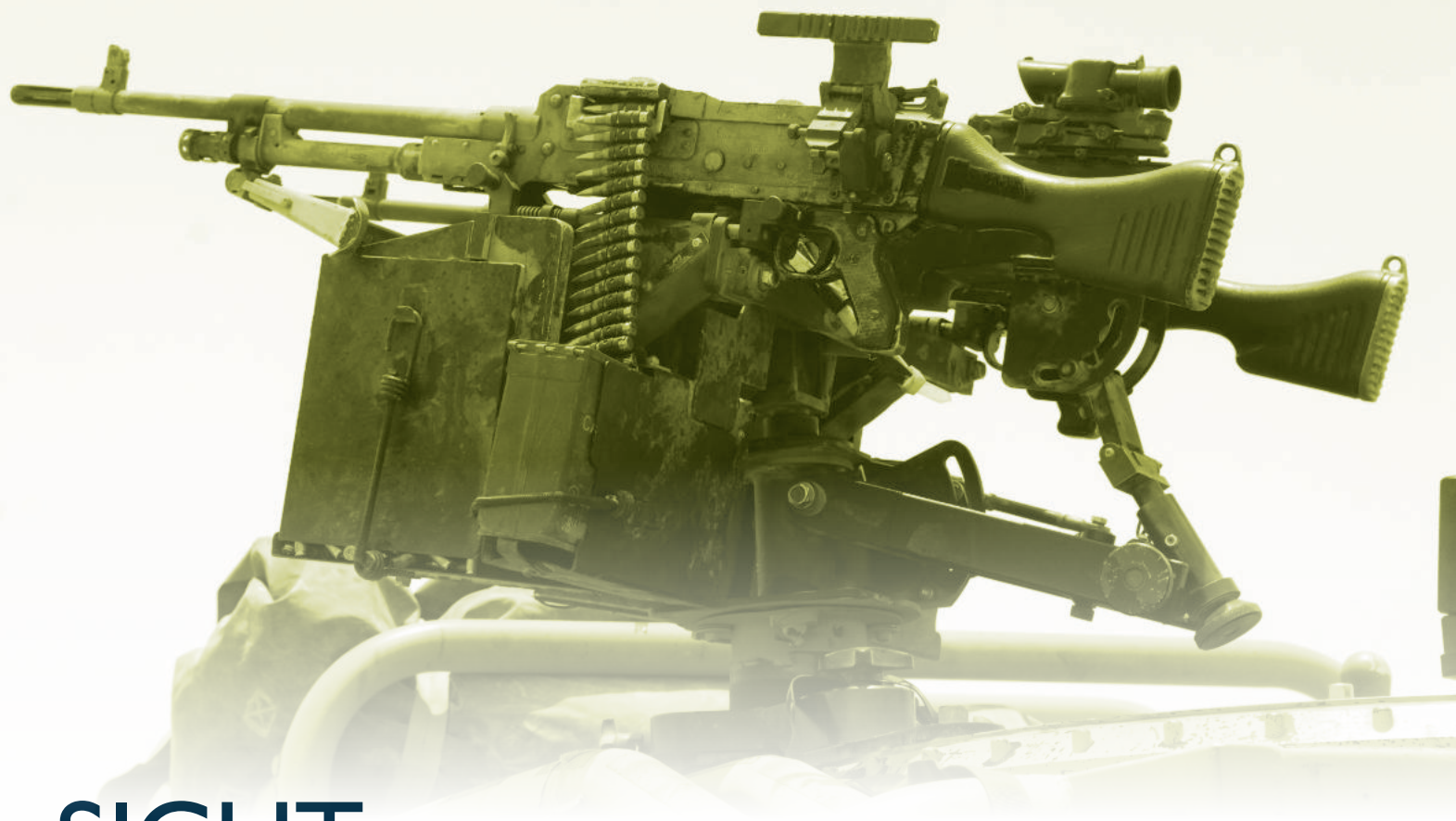
The **Underslung Grenade Launcher Sighting (UGLS)** system is a mechanical quadrant that provides adjustment from 50m to 300m for any attached weapon optic. Designed around the HK G36 UGL, as fitted to the British military's L85A2 assault rifle, the UGLS offers an improved first round hit rate for all available natures and can be adapted for other rifles.

A single Mil Std 1913 rail is fitted to allow the attachment of any compatible optic, such as the Red Dot HWS.

Range scales are provided for 40mm Practice (Prac) ammunition and HEDP. The range scales are engraved in 25m increments from 50m to 300m. As an aid to setting the range of the quadrant under low light levels, a Gaseous Tritium Light Source (GTLS) is fitted to the range scale and the line on the rear face of the elevating beam.



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SIGHT Mounts

The L12A1 flipover sight bracket, with its double Picatinny pattern rails, is designed as a direct replacement for the existing IR sight mounting bracket secured to the LH rear side of the GPMG body.

The design of the sight bracket positions the optical axis of the sight directly above the bore, as well as a secondary equipment such as a laser. When loading / unloading or carrying out weapon IA drills the sight can be tilted to the left, allowing the top cover to be opened. The Picatinny pattern mounting rail allows fitting of any optical sight or night vision sights equipment with a Mil Std 1913 interface.



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RANGE DRUM GMG

The 40mm L9A1 range drum is optimised for the various natures of 40mm munitions currently available. The sight mounting rail is tilted slightly to the right from the horizontal, to compensate for drift caused by the spin of the projectile. The range scale is graduated from 0 to 2000 m and is fitted with a GTLS on the range and zero lines to aid setting the range under low light levels.

The range drum is fitted with a quick release (QR) female dovetail mounting bracket, commonly referred to as a rail grabber; which allows rapid fitment and adjustment to the Picatinny pattern mounting rail on the bridge of the GMG soft mount.

The range drum is fitted with a top mounted sight rail, with two side mounted rails for auxiliary equipment such as lasers and range finding equipment. All three rails conform to Mil Std 1913.

The range adjusting drum can be locked in any elevation, providing exact range targeting and preventing inadvertent movement once the range is selected.

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DEVELOPMENT Programmes

Whilst ISTECH continues to design bespoke weapon mounting solutions and sub-systems for new and existing customers, ISTECH also spends considerable time, effort and capital investment in developing new products to not only support the current product range, but also diversify into new systems and technologies. Some of these private venture development programmes undertaken during 2020/21 are listed below.

IR Illuminator

ISTECH have designed and developed a standalone IR Illuminator, for integration onto military vehicles. The rugged design can combine with night vision goggles, or low light cameras, to improve visibility while maintaining a covert presence during operations.

The compact unit can be configured to suit varying tactical requirements, with 850 or 940nm IR emitters, and a variety of optics ranging from a 11° FOV 'spot' to a >100° FOV 'flood'. Two banks of two emitters, controlled by individual isolated enable lines, allow for mixed configurations and the inclusion of more traditional visible spectrum LEDs.

The simple interface allows mounting to any vehicle and the inbuilt filtering means the unit can operate off multiple power supplies, while remaining EMC compliant.

Laser Warning System (LWS)

The ISTECH LWS is a low-cost capability enhancement, for either new vehicles or for vehicles due for an upgrade / life extension programme. The ISTECH system comprises of two elements, the Detector Assembly and the Display Panel (interconnecting and power harnesses can also be supplied).

Originally conceived as an add on to the ISTECH in-service 66mm Grenade Discharger System, the LWS has been designed to be also used as a standalone system.

The LWS has a resolution of 22.5 deg and is designed to detect the direction of a laser radiation, for example from single pulse lasers (range finders) or multiple pulse systems (designators). and via the Display Panel, will alert the vehicle user both visually and audibly.

The Detector Assembly comprises of x8 sensors, plus one overhead sensor. Each sensor employs a dual detector implementation, that provides sensitivity to wavelengths between 730-1700nm

Future developments of the LWS include a smaller battery powered variant for dismounted troops, with a wireless link to current battlefield management systems.



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