

SMC CUSTOM

Global experts in custom design,
prototyping and testing communications
equipment for complex projects

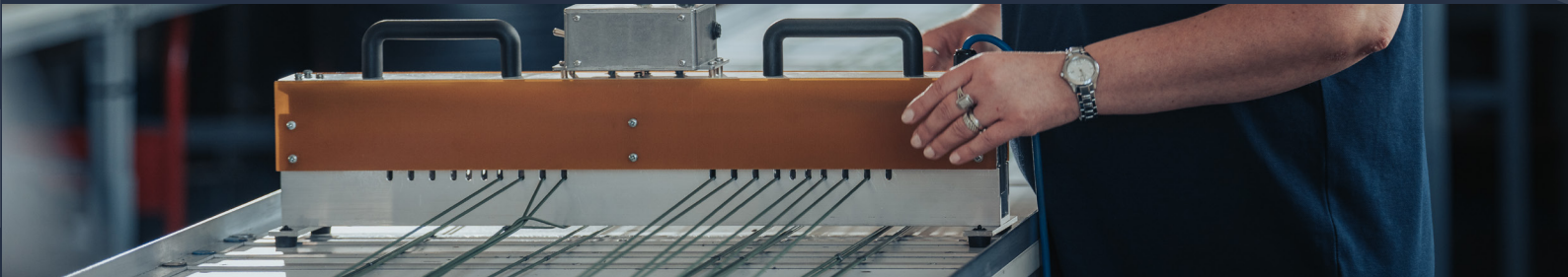


WHAT IS SMC CUSTOM?

SMC Custom is our specialist design, engineering, prototyping and testing services for customers with complex design and integration projects. We help our customers to de-risk their projects early, accelerating delivery and ensuring high quality and performance. Specific activities include feasibility assessments, bespoke design and rigorous product testing.

SMC Group specialises in the bespoke design and manufacturing of military-grade masts, HF antennas and RF communication equipment that support mission-critical operations across defence, security, emergency services and other high-reliability sectors. Since 1958, SMC solutions have been deployed globally - from the Arctic conditions of Svalbard to extreme desert climates in the Middle East.

As a manufacturer, not a reseller, we pride ourselves on our reputation for quality, reliability and engineering excellence. All SMC Group products are designed, manufactured and fully tested at our UK facility, ensuring full quality control, rapid customisation and compliance with stringent defence and industry standards. Our products and services deliver trusted, resilient communications where failure is not an option.



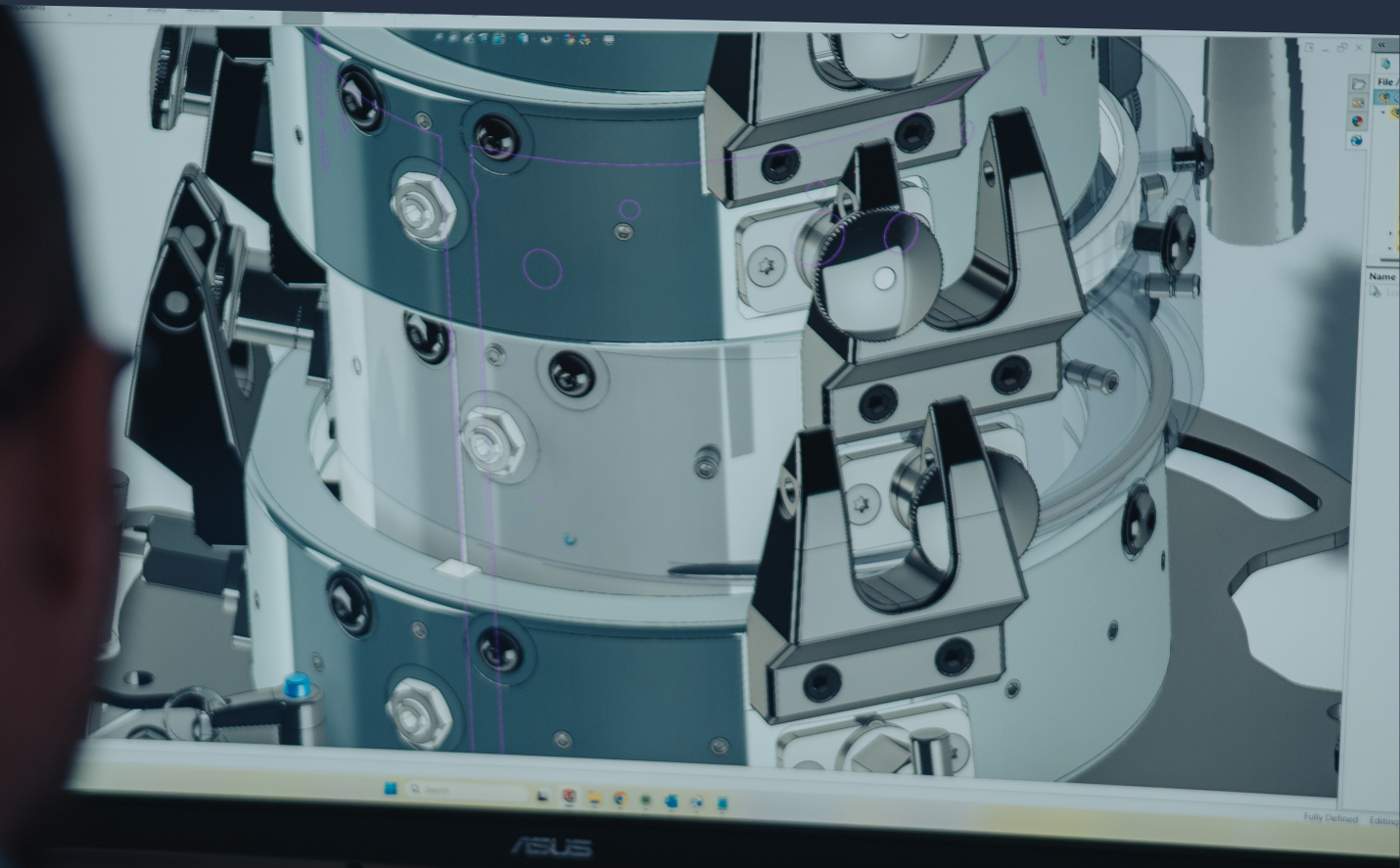
MODIFY OUR STANDARD RANGE TO FIT YOUR NEEDS

We understand that standard products don't always meet the exact demands of every application. If you see something of interest in our standard range but require a heavier headload, a change in height, bespoke brackets, enhanced materials, or other dimensional or performance adjustments, our experienced in-house design team can work with you to tailor a solution.

You don't have to choose an entirely bespoke product - by modifying proven designs, we help you achieve the right fit and performance while minimising development cost, reducing lead time, and avoiding the full expense and duration of a fully bespoke development programme.

KEY BENEFITS OF MODIFICATION

- | | |
|---|---|
|  OPTIMISED PERFORMANCE
Adjust headload, height, and key parameters to suit your application. |  PROVEN RELIABILITY
Modifications are based on validated, field-tested products. |
|  FASTER DELIVERY
Build on existing designs to reduce lead times versus full custom builds. |  ENGINEERING SUPPORT
Expert guidance to ensure compliance, safety, and performance requirements are met. |
|  COST EFFICIENCY
Lower development and tooling costs compared to ground-up solutions. |  SIMPLE LIFECYCLE MANAGEMENT
Modifying established products offer predictable spares and maintenance, reducing long-term ownership complexity. |



HOW IT WORKS

PHASE 1

UNDERSTANDING YOUR REQUIREMENTS

Every enquiry is carefully reviewed to understand your requirements, assess feasibility, and determine the best path forward.

For clients looking to adapt or modify an existing SMC Standard design, we'll evaluate how that product can be customised to meet your operational needs.

For larger-scale or more complex integration projects, our expert team will define a technical scope of work and prepare a detailed Request for Quotation (RFQ).

This may include:

- ✓ Technical concept evaluation
- ✓ Preliminary design inputs
- ✓ Budgeting and timeline estimates



PHASE 2

DESIGN

Before making a significant investment, it's essential to ensure you have the right product for your application.

At the concept stage, we collaborate with you to develop custom technical drawings and produce functional prototypes for testing and evaluation. This early-stage process allows you to assess performance, provide feedback, and refine the design – helping to protect your investment and ensure the final product is a perfect fit for your application.

From idea to CAD, our team transforms concept into a working 3D model that's ready for prototyping and testing.

- ✓ Collaborative concept development
- ✓ 3D CAD design and modelling
- ✓ Design for Manufacturability (DfM) reviews

Once you're ready to move forward, our in-house design and engineering teams work closely with you to take the project from concept to completion.

Through a structured and transparent development process, we validate designs, minimise risk, and streamline the path to full-scale production and deployment.



PHASE 3

PROTOTYPING AND TESTING

We can build you small-batch prototypes to validate both the design and the product's real-world performance. Every prototype undergoes mechanical and functional testing to ensure it meets expectations before scaling.

- ✓ Single or small batch prototype builds
- ✓ Mechanical and functional validation
- ✓ Performance assessment and design refinement



PHASE 4

SCALE TO DEMAND

After successful testing and validation, you can choose to bring your product to market

With more than 67 years of manufacturing experience, we can take your solution into full-scale production through our trusted in-house team, ensuring quality and on-time delivery at scale.



KEY BENEFITS OF BESPOKE

- ✓ End-to-end support
- ✓ Mitigate project risk
- ✓ Reduced operational disruption
- ✓ Improve application performance
- ✓ In-house prototyping and usability testing
- ✓ 67+ years knowledge and expertise
- ✓ Long-term cost-efficiency
- ✓ Aligns with your preferred procurement process
- ✓ Assured problem resolution Secure, license-based access to technical design files

Case study:

WHY TESTING IS SO IMPORTANT

The STORM Mast was trialled during the British Army's Warfighting Experiment 2017 (AWE 17), where it demonstrated strong potential for enhancing tactical communications and overall battlefield versatility.

THE BRIEF

The requirement was for a lightweight, robust mast system capable of supporting a range of payloads while meeting the demanding needs of modern operations. Based on these requirements, the STORM Mast—a carbon composite telescopic mast system—was recommended as a candidate solution.

Capable of lifting head loads up to 35kg to a height of 18 metres without external power, it was put through rigorous evaluation to ensure it was fit for purpose and aligned with application needs.

PROTOTYPE AND TESTING

Testing showed it to be highly effective at Battle Group and formation levels, offering rapid setup, full rotational capability, and support for a broad range of systems.

These included communications (J6) and ISTAR payloads such as CLAMBAKE, REVIVOR, and CORTEX. Its composite construction further reduced complexity by eliminating the need for insulators, while its low thermal signature provided additional operational advantages.

THE OUTCOME

Feedback from trials highlighted the STORM Mast's core strengths while also identifying opportunities for further development. Enhancements to portability, tensioning systems, and accessory options were recommended to ensure the product not only meets current requirements but continues to evolve as the right solution for future projects.

This process demonstrates why prototyping and rigorous testing are essential—validating performance, revealing opportunities for refinement, and ensuring solutions are truly fit for purpose before scaling.



STORM Mast Series
P/N: ST5-(6/9/12/15/18)





SMC CAPABILITIES

With a wealth of knowledge and decades of hands-on experience, our seasoned professionals bring practical insights and technical excellence.

SMC Group provides tailored solutions that meet the unique demands of each client project, allowing us to tackle complex challenges efficiently, whilst ensuring reliable performance at every stage and delivering outcomes you can trust.

 Spraying and welding including specialist coatings	 Mast assembly, field-testing and qualification	 ISO 27001 certified
 Integrated Manufacturing Systems	 CAD and FEA Design including full TRL lifecycle	 5-axis machining centre and 3- and 4-axis CNC machines
 Rapid Prototyping	 Inhouse servicing and self-service kits	 Deployment equipment
 Calibrated onsite specialist equipment	 Solutions for static and mobile installations	 Individual component assembly and qualification
 Product systems testing	 One-stop suppliers	 Made in Britain – Trusted UK manufacturer



KEY TO SUCCESS: SELECTING THE RIGHT SUPPLIER

Selecting the right supplier is not simply a matter of cost or convenience - it's a decision that directly impacts the quality, reliability and long-term success of your projects. Every component you source plays a crucial role in ensuring your system performs as intended.

Without careful supplier selection, you risk costly delays, unexpected failures, and compromised project integrity. SMC will not only provide fit-for-purpose products but also deliver the assurance of reliability, helping you safeguard performance, protect your reputation and achieve consistent results.

WHY CHOOSING THE RIGHT SUPPLIER MATTERS

- **AVOID OPERATIONAL DISRUPTION**

You need to be able to test your product in advance to be sure it is fit for purpose. Malfunctions can lead to costly delays and interruptions.
- **SHORT-TERM SAVINGS LEAD LONG-TERM EXPENSES**

The long-term costs of opting for an inappropriate solution can be substantial. You may need to spend additional resources on repairs, replacements or modifications to future-proof your end-product.
- **JEOPARDISING INTEGRITY**

Inadequate products can jeopardise your project's integrity by failing to meet quality standards, leading to unreliable performance and potential setbacks.
- **PERFORMANCE AT RISK**

A full system's effectiveness relies on each component working seamlessly. If one aspect does not perform as needed, it can negatively affect your project's overall outcome.
- **PROTECTING CREDIBILITY**

Reliability is key and any shortcomings can damage trust and credibility to your organisation.
- **MISSED OPTIMISATION OPPORTUNITIES**

Without consulting experts, you may overlook better solutions or features that could improve efficiency, quality, or cost-effectiveness.



BESPOKE SYSTEMS FOR SECTOR-SPECIFIC APPLICATIONS

In a world where reliability and national security is paramount, SMC Group is proud to support a diverse range of sectors within the everchanging landscape, shipping globally on time and in full.

With each sector's project having its own distinct demands and requirements, SMC Group has full capabilities in-house to advise, design, manufacture and test communications solutions tailored specifically to meet these needs.



GOVERNMENTS

Authorities turn to SMC Group for independent two-way radio solutions, including our essential FPI desktop radio uninterruptible power supplies, ensuring personnel safety.



TELECOMS

We support the telecoms sector by providing equipment for public safety communications, satellite services, smart city infrastructure, and 5G/6G deployment, ensuring reliable connectivity and efficient data transmission.



COMMERCIAL

SMC Group designs and manufactures products and communication solutions for industries such as airports, cellular operators, oil and gas, naval and marine, and transportation infrastructure.



EMERGENCY SERVICES

During crises, cities sometimes face communication infrastructure disruptions. For almost 20 years, SMC Group has designed and manufactured communication systems for law enforcement, such as Sharjah Police.



SECURITY

The security sector relies on masts to support CCTV systems, elevating cameras for visibility. SMC Group masts integrate communication technologies, ensuring reliable data transmission for effective security operations.



TRANSPORT

As the world advances with autonomous vehicles, trailer masts and our Ultralock masts are increasingly required in transport to enable real-time tracking, remote connectivity, emergency responses and safe operations.



METEOROLOGICAL

SMC Group masts are renowned for durability, even in harsh environments, ideal for weather monitoring. We design and manufacture reliable, robust masts, popular in Australia.



UTILITIES

From remote monitoring stations to smart grid systems, our products are widely used in the utilities sector. SMC Group masts elevate specialist cameras, enabling one person to perform tasks previously requiring a full team.



BROADCASTING

Our SMC products cater to fixed and mobile communication needs, ideal for the broadcast industry. We offer customised mobile base stations and communication system installations for Outside Broadcast (OB) vehicles.



NGOS

We supply emergency and portable communication packages, bespoke systems and rapid deployment equipment to support quick responses in times of need, including for Oxfam and the International Red Cross.



REAL-WORLD DEFENCE DEPLOYMENTS

As a custom manufacturer of defence-grade communications equipment, SMC Group products are deployed globally in some of the world’s most demanding operational environments.

Built to military specifications, our masts, antennas, and portable systems support persistent surveillance, situational awareness, secure tactical communications, tracking, radar, and sensor networks.

Designed for rapid deployment and interoperability, our solutions provide stable, encrypted data and voice transmission where infrastructure is limited, delivering reliable performance under pressure and maintaining command, control and connectivity in real-world defence missions.



INTEGRATION FOR UAV OPERATIONS

Customised mounting and mast solutions enabled ground-based support equipment for UAV operations, optimised for stability and rapid deployment.



OMNI-DIRECTIONAL MILITARY ANTENNAS

SMC’s antenna design and RF engineering expertise enabled rugged, wideband antenna systems for training and tactical networks.



BESPOKE ANTENNAS

SMC designed specialist antennas for advanced RF and electronic warfare applications, meeting stringent performance requirements.



UAV TELEMETRY AND COMMS

Modified Ultralock masts were supplied to support drone data links, providing stable elevation for ISR payloads in operational conditions.

Case Study:

THE SMC BUMBLEBEE

THE BRIEF

SMC Group recently completed a successful project with QinetiQ to provide a specialised mast with an integrated winch system for antenna testing. This collaboration was driven by QinetiQ's need for a non-conductive mast capable of lifting, turning, and holding an antenna weighing up to 35kg at a height of 4.6m. The non-conductive material was essential to ensure that the mast would not interfere with the quality of RF transmissions during testing.

UNDERSTANDING THE REQUIREMENT

QinetiQ required a non-conductive mast to maintain signal integrity during antenna testing. SMC Group worked closely with the client across several design phases, presenting drawings, material samples (including yellow GRP), and technical recommendations to ensure the solution met all functional and safety specifications.

HOW WE WORKED TOGETHER

Throughout development, SMC and QinetiQ resolved a number of design refinements together. For example, oversized locking knobs initially caused handling issues, which were resolved through a fast design change. A minor manufacturing adjustment post-delivery further ensured product integrity and performance.

THE OUTCOME

The final Bumblebee mast and integrated winch system significantly improved safety, usability, and stability over QinetiQ's previous setup. Its design allows precise antenna positioning, and a defined Safe Working Load (SWL) enhances worksite safety.

The SMC Bumblebee mast is designed to be highly effective in many scenarios and built to meet specification ED107. Its lightweight and compact GFRP construction means it can easily be deployed and transported by just one person for maximum time and cost efficiencies.

WHY SMC GROUP?

QinetiQ selected SMC based on their established track record, UK-based manufacturing, and proximity to key sites at Boscombe Down and Farnborough. Despite ordering via a third-party (EMC Shielding), the customer rated the service and delivery experience as "very good."





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✓ ISO 9001 QMS

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