

Manufacturing excellence

Cost effective, high quality hybrid
assembly and manufacturing services.



Experts in design, manufacture and testing of high-performance RF components and sub-systems.

Filtronic designs and manufactures products that transmit, receive and condition radio waves, particularly at microwave and mmWave frequencies.

Mission-critical communication networks depend on our systems and components. Our technologies are integral to a range of challenging applications including telecommunications infrastructure, aerospace and defence, critical communications and space.

Our bespoke product range includes transmit and receive modules, power amplifiers, transceivers, MCPs, SIPs and filters, operating from DC to more than 114GHz.

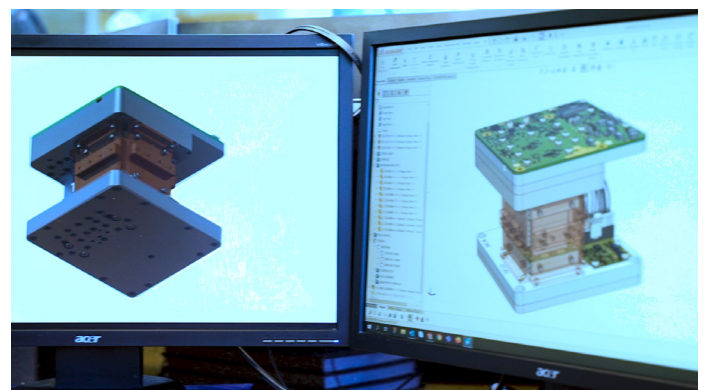
Helping our clients get to market quicker

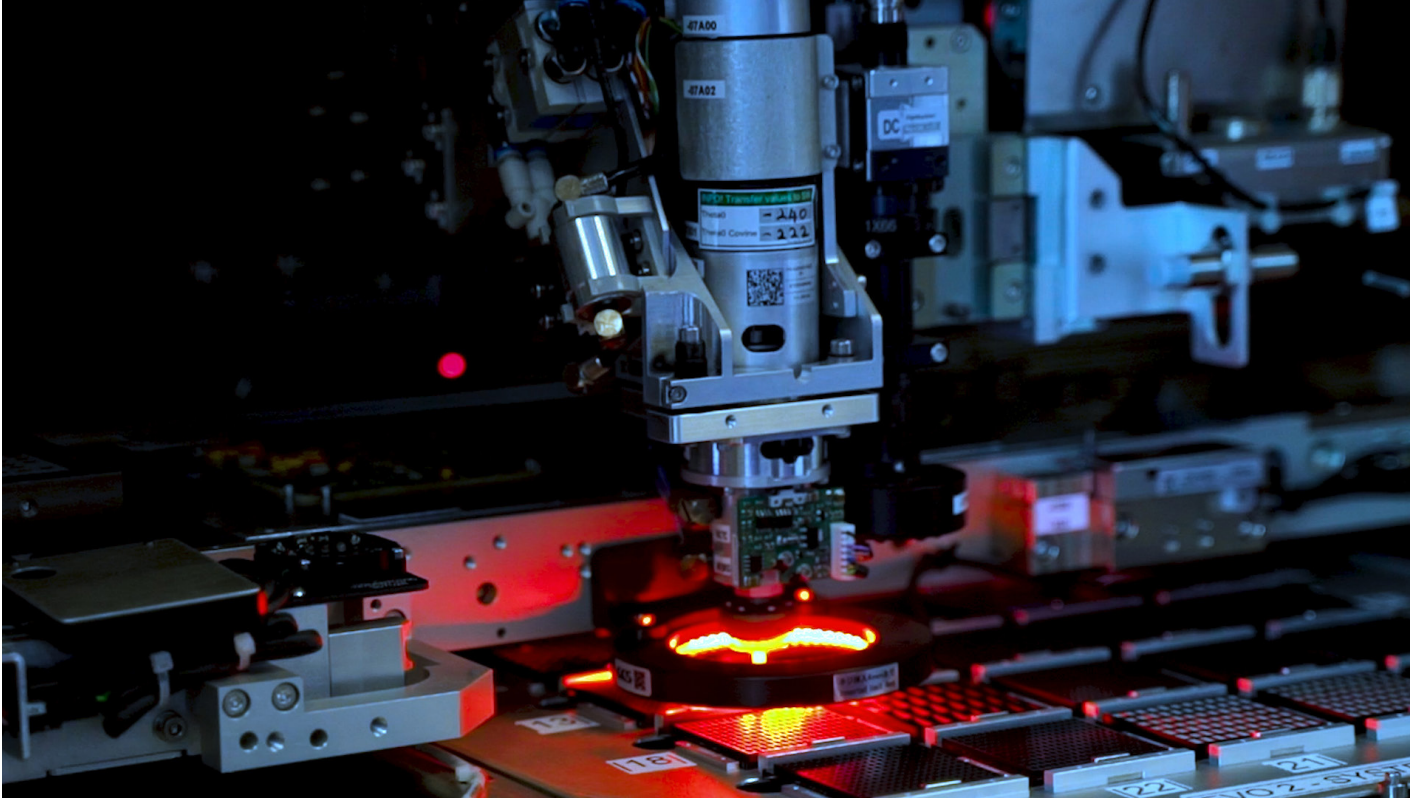
We design and manufacture bespoke microwave and mmWave components for a broad range of communication applications. Delivering world class performance and reliability our engineering team design integrated modules involving complex electronic control and calibration, enabling the future of RF.

We have over forty years' track record of delivering high performance RF technologies, offering bespoke microwave design services for a broad range of applications up to 175GHz.

Our core skill base includes:

- RF systems engineers
- MMIC specialists
- Filter specialists
- Electronic and PCB layout designers
- Mechanical design
- Process engineers
- Software and firmware experts





Precision microelectronics manufacturing

We manufacture the most intricate components with extreme precision, using our highly automated microelectronic assembly process. Our manufacturing teams thrive on challenging projects where the solutions we produce push the boundaries of RF electronics and materials.

Producing precision components to client specifications in our 24-hour production facilities, we offer hybrid manufacturing services in both the UK and USA. Providing cost effective manufacture for both volume and high mix products.

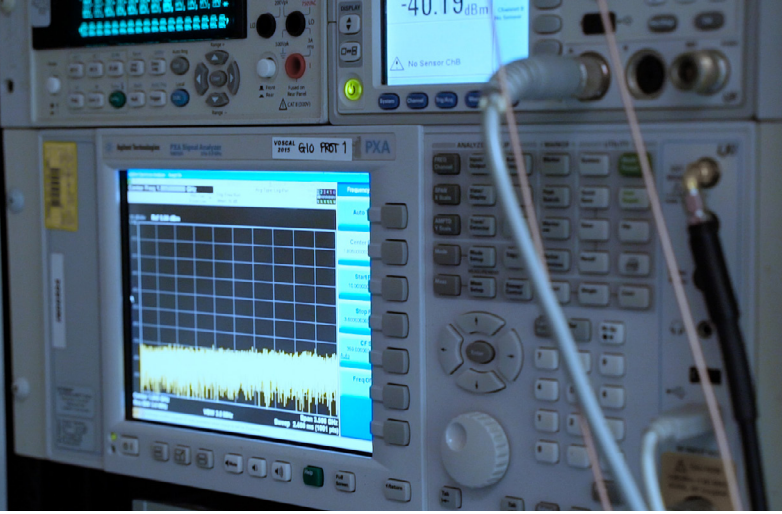
The services and capabilities that Filtronic provide add value, make clients' lives easier, and allow them to increase sales. We offer a range of order fulfilment options, such as manufacturing close to market, inventory hubbing and site-kitting.

Electronics assembly

Filtronic offers a range of electronic contract assembly & test services that includes:

- Environmental stress testing with the latest temperature and humidity chambers
- Thermotron™ temperature and humidity chamber volume of 1450 in²
- Test Equity™ temperature chamber volume of 1300 in²
- RF analysis test equipment coupled with automated test software
- PIM chamber for telecom device testing (700, 800, 900, 1900 & 2600 MHz)
- Network Analysis up to 90GHz
- Discrete Signal Analysis up to 114GHz, (Spectrum Analyzers, Power meter)
- Noise Figure Analysis up to 90GHz





Microelectronic assembly

Our facilities include highly automated production assembly lines, these enable MMIC die attach, wire and ribbon bonding, together with skilled manual assembly and hermetic sealing; all to Military/IPC standards. All processes are supported by our in-house leading manufacturing engineers and process engineering teams.

Fully automated epoxy dispense

- Deep access epoxy dispense capability
- Accuracy of 35um and repeatability of 15um

Die and component attach technology

- Eutectic
- Silver sinter
- Epoxy
- Rated up to 3k placements per hour with an accuracy of <10um
- X/Y placement accuracy +/- 10 microns

Wire bonding

- Fully automated ball bonding, wedge bonding and ribbon bonding
- Deep access multi-level capability

Air cavity packaging

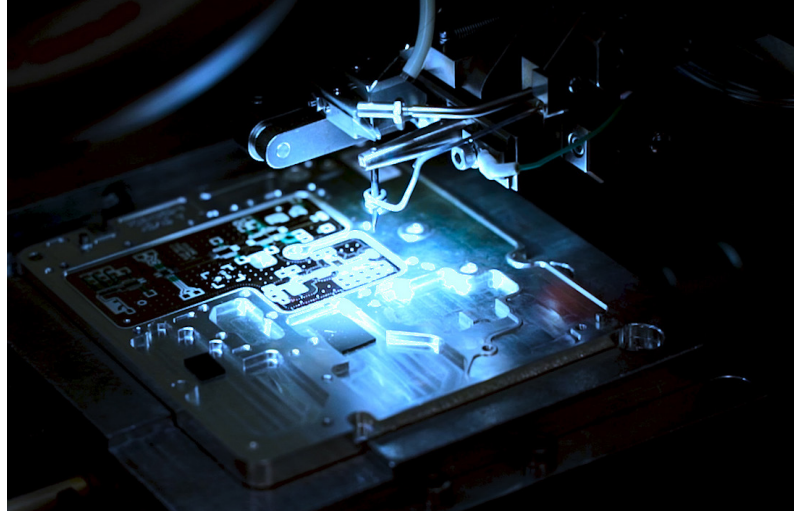
- GaAs, GaN and silicon die can be mixed in a single package
- Proprietary air cavity packages perform up to 86GHz

In-house testing for complete quality assurance

Uniquely, many of our products are manufactured and tested in-house at our state-of-the-art high volume manufacturing facilities. This enables us to develop tailored, rigorous, robust testing at every stage of production, which may include:

- Electrical testing DC to 114GHz
- Environmental & stress screening
- 100% electrical characterisation over full operating temperatures
- Destructive and non-destructive tests
- Die level MMIC wafer acceptance testing and characterisation
- Pre and post-lid tests
- Module calibration
- Fully automated, software controlled volume testing





Adding value to your supply chain

Enabling clients to take advantage of our industry-leading manufacturing processes and test facilities. We help our clients to remove cost from their operations, reducing their labour costs, improving their processes by removing waste. We also reduce time to market, giving our clients the flexibility to ramp up and down rapidly, improving quality all without any additional overheads or purchasing capital equipment.

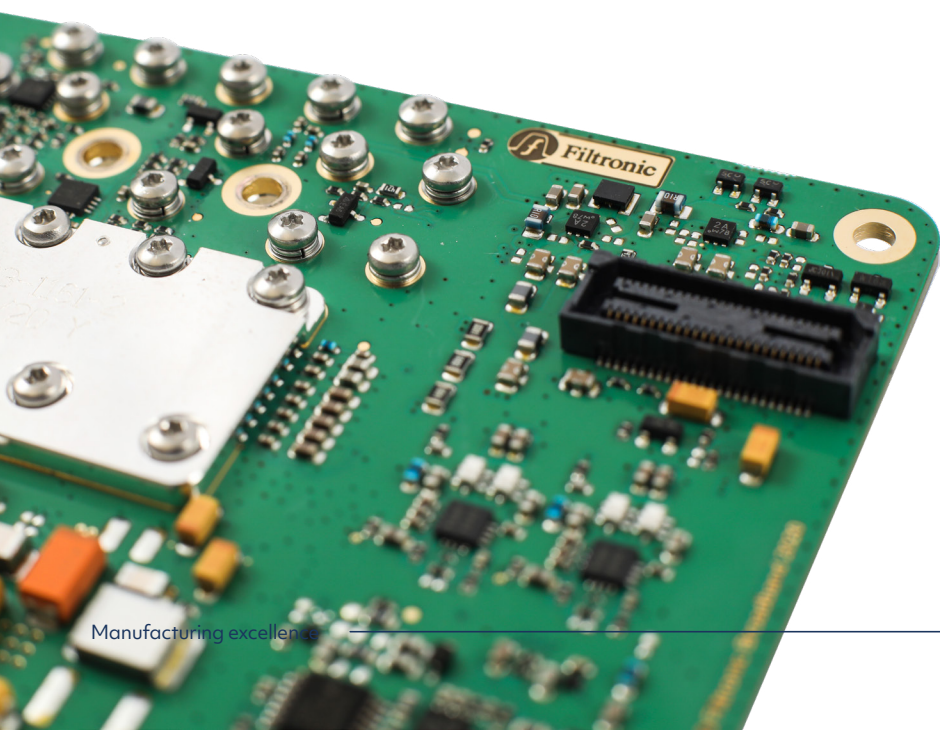
World leading process control for full traceability

Our robust web-based manufacturing and process control system ensures real-time organisationwide access to material traceability, inventory management, WIP tracking, SPC, yield reporting and on-time delivery.

All components are tracked via a unique serial number ID providing full end-to-end process control. Each operator is uniquely identified, ensuring complete user monitoring and enabling role-based authorisation to allow only trained operators to run specific workflow sequences.

Supply chain resilience

Filtronic has a well-established global supply chain with strong supplier partnerships, and our buying power is increased by leveraging demand from multiple clients, which can result in significant BoM cost reduction. Our supplier partnerships include MMIC foundry and semiconductor vendors.



How we add value:

- We help our clients get to market quicker – increasing their sales revenues and market share.
- Our capabilities and technologies reduce the overall cost of data communication, lowering the cost per Gbps.
- Taking unique challenges & providing a customised solution, we lower development & NRE costs, minimising the cost of quality for our client.
- We solve problems, engineer to engineer, we drive down whole life costs.
- We like to know our clients inside out, identifying ways to improve their products, increasing their premium & providing them with a competitive advantage.

Dual sourcing

Clients around the world trust Filtronic with the prototyping and manufacture of their own product designs, due to its first-class reputation for product quality and reliability. We are equally comfortable manufacturing to a customer's design, as we are designing and manufacturing our own high-performance products. Alternatively, we work with our clients, fusing their core competencies with ours to optimise their original design.



A snapshot of our service offering:

Service Offering		UK	USA
Design		●	●
Assembly and test capability			
	< 6 GHz	●	●
	6 GHz ~ 30 GHz	●	●
	30 GHz ~ 100 GHz	●	
Application testing			
	PIM	●	●
	Environmental	●	●
	Physical	●	●
	Electrical	●	●
QC / MRP Platform		●	●
Integrated telecom system build-up (Rack/stack)			●
ISO 9000 (2015)		●	●
Repair Services			
	< 6 GHz	●	●
	6 GHz ~ 30 GHz	●	●
	30 GHz ~ 100 GHz	●	

Our facilities:

Sedgefield, County Durham, UK

- 13,000 ft2 Total size
- 2,000 ft2 ISO 8 Clean rooms
- 2,000 ft2 Engineering laboratories
- 5,000 ft2 of ESD safe work area for sensitive designs

Salisbury, Maryland, USA

- 16,000 ft2 Total size
- 5,000 ft2 under temperature control
- 3,000 ft2 of ESD safe work area for sensitive designs





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A white resistor symbol, consisting of a zigzag line with a horizontal line extending from its right end, positioned at the end of the horizontal line above the footer.