

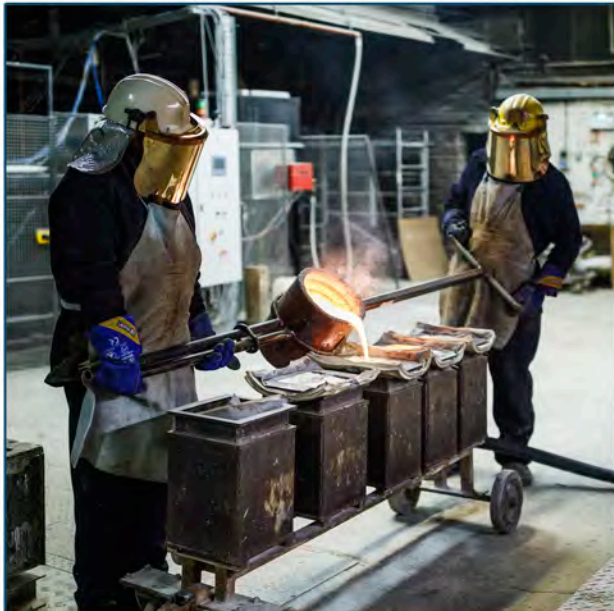
RF/Microwave Engineering

Antennas - Components - Assemblies - Subsystems



Engineering your future

Our service offering spans three core functions



Investment Casting

Complex microwave component casting and assembly.



RF and Microwave

Design and manufacture of antennas, components, assemblies and subsystems.



CNC Machining

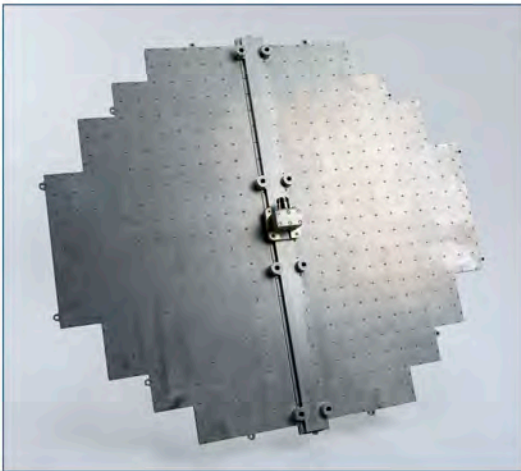
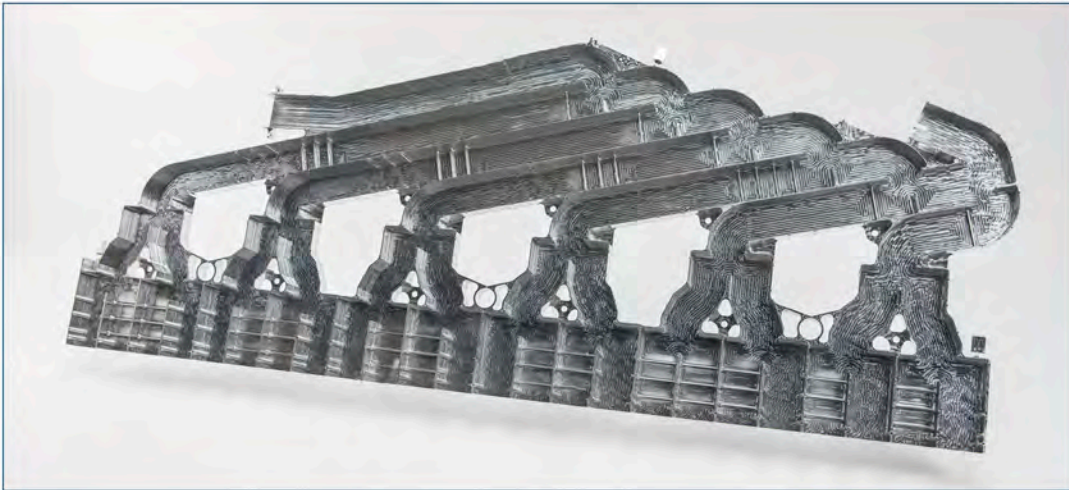
Advanced engineering of precision microwave components.

Microwave Design & Manufacturing Heritage



- 50 years of microwave engineering heritage.
- Design, manufacturing and test of passive waveguide antennas, components, assemblies, and subsystems to 40GHz.
- Our designs and subsystems can be found globally on commercial and military aircraft, satellites, satellite communication equipment and radar systems.
- We supply panels for satellites, power dividers for radars, and antennas for air defence systems and rotating joints for weather radar systems.
- Excellence in design, engineering and quality of finished products. A highly skilled team of microwave and mechanical designers able to meet challenging customer requirements.

Microwave Product Design & Manufacture



- At Sylatech our comprehensive in-house design and manufacturing capability equips us to design, manufacture and test arrays of assembled components.
- We have a particular expertise in the development of slotted array antennas and the construction of radar front-ends, battlefield radars and uneven power divider systems.
- We also offer a build to print service, through strong customer integration our engineers will always offer their expertise and advice to strengthen customer designs.
- Sylatech's microwave capability can offer reduced cost and shortened lead time whilst improving performance.

Our Clients



ASTON MARTIN



Quality



- AS9100D certification
- Nadcap certification for Torch Brazing
- Fully automated CMM with SPC Software
- Full batch metal traceability



Defence Applications - Radar



Antennas and antenna components for Ground Surveillance Radar

- MSTAR (DRS/Thales)
- Blighter (Plextek)
- GO12 (Thales)

Battlefield Radar

- Arthur, Giraffe, Sea Giraffe, CEROS & Grippen (SAAB)
- Variant (Thales)
- WLR & Flycatcher (Bharat Electronics)
- TRS Trasmmitter (Airbus Defence and Space)



Satcom Applications



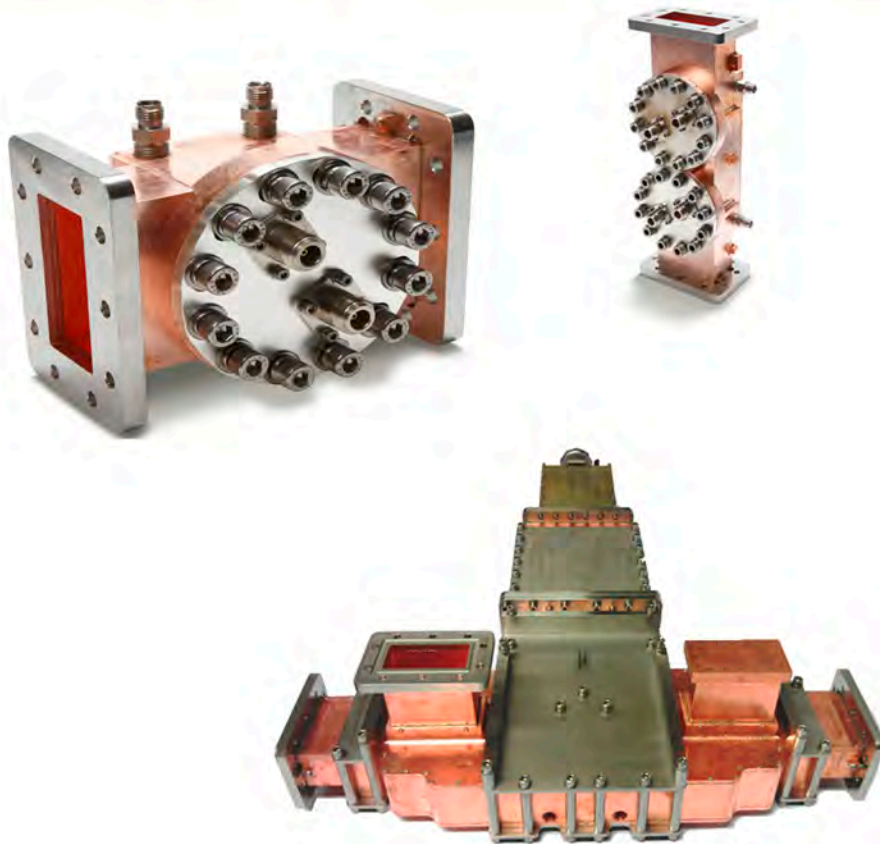
- Sylatech services the needs of the ground Sat Comm market by offering a range of standard and custom designed antenna feeds and waveguide components for S, C, X, Ku and Ka bands.
- Custom design and build-to-specification horn antennas.
- Custom design waveguide rotating joints - single and dual channel.
- RF/waveguide components and waveguide assemblies.
- Waveguide bends.

Space Applications



- Eutelsat 172B - INET/ONET (Airbus)
- SES 12 - Waveguide Panels (Airbus)
- Power combiners and SAR slotted waveguide antennas (Airbus)
- OHB - Diplexer
- NEC - 128:1 Ka Band Combiner
- One Web (Cobham) - Waveguide Bends
- Space Flight - 5 channel multiplexer - Elisra
- WG17 & WG18 3dB hybrid couplers - Matra

Scientific and Instrumentation



Components for Particle Accelerators

- Waveguide assemblies in OFHC copper
- Stub Tuners
- Couplers in OFHC copper and designed for high radiation environments
- Variable power dividers in OFHC copper
- CERN, DESY, Mevex, Tata Institute

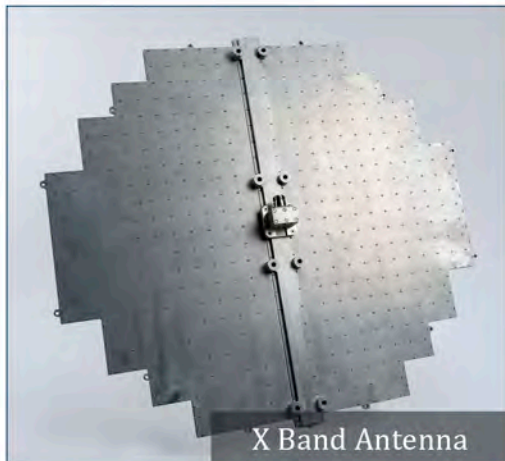
Microwave Instrumentation for Power Industry

- ISM band In process monitoring of carbon in ash
- Measures complex permittivity
- Waveguide & electronics design

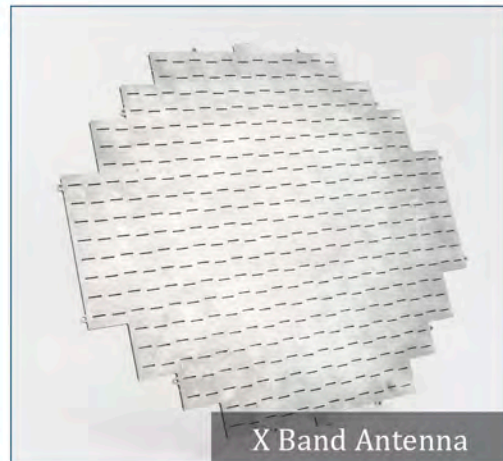
Antennas: Slotted Waveguide Arrays



C Band Antenna



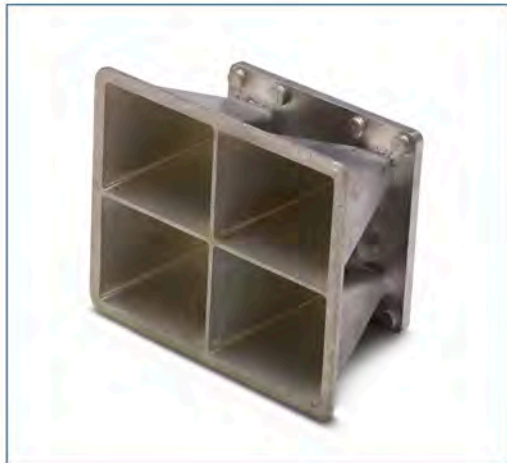
X Band Antenna



X Band Antenna

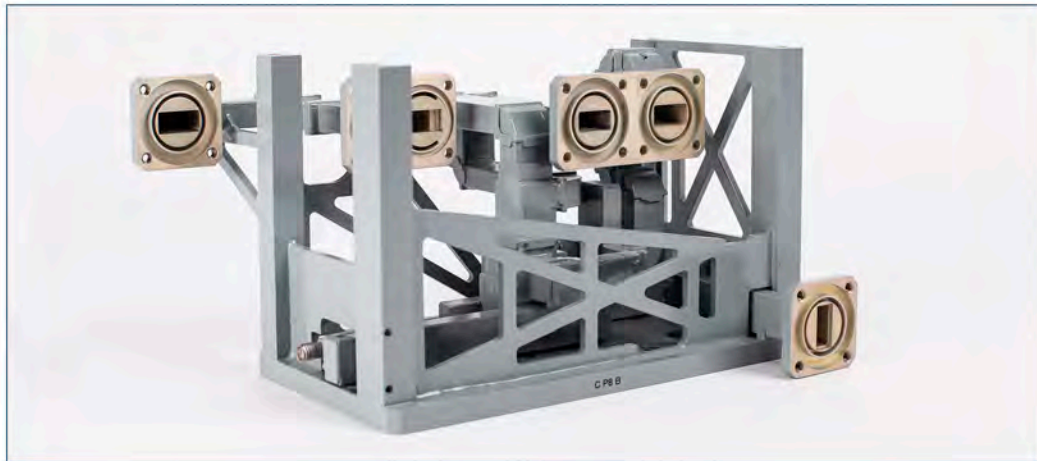
- The designing, manufacturing and testing of slotted waveguide antennas is our speciality. C, X, K and Ka band slotted antennas for weather radar, SAR, fire control and surveillance radar applications.
- Low mass and low-profile feeds. Our innovative designs have been applied to missile, aircraft and surveillance systems including designs that are man portable.
- Customised monopulse comparator designs. For radar antennas with four or more inputs, Sylatech offers to interface with the waveguide array as required.
- Dual polarised waveguide antenna arrays have been developed and successfully manufactured.
- Integrated flat plate waveguide antennas with simple and complex configurations.

Antennas: Scalar Feeds



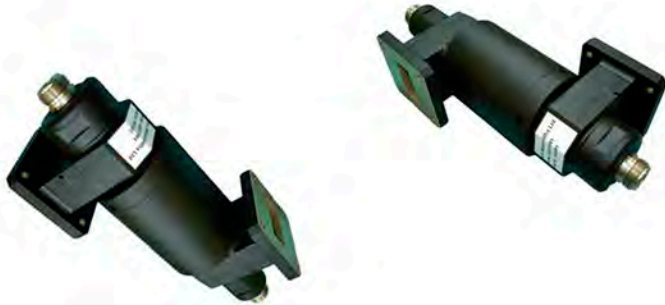
- Satellite communication applications - feeds developed and manufactured for front-end parabolic antennas.
- Antenna designs available covering C, X, Ku and Ka bands.
- Available in single and dual-bands with dual polarizations. Linear (V/H) or circular polarizations (RHCP/LHCP) can be provided upon request.
- Provided with switchable polarizations, either right or left hand circular polarization.
- Corrugated choke rings can also be fitted to reduce 'front to back' radiation and provide a mounting surface.

Components - Monopulse Comparators



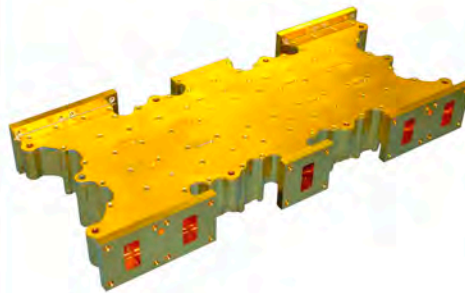
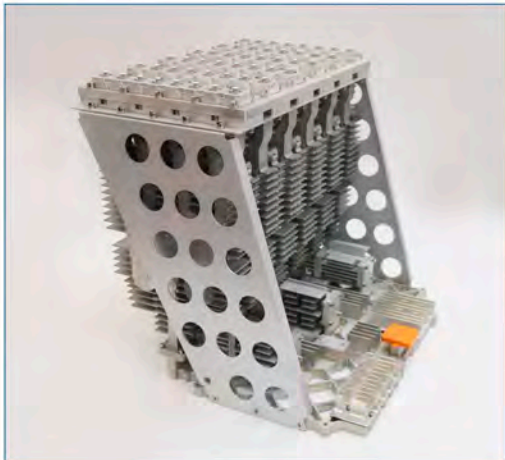
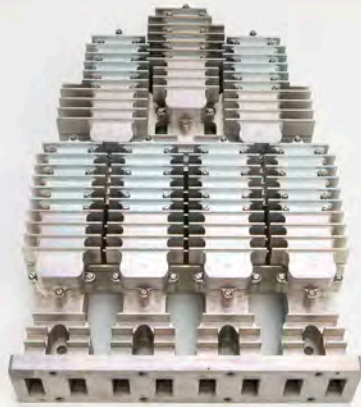
- Design, manufacture and test - S, C, X and Ka bands.
- Our monopulse comparator designs for narrowband frequencies within WG12 (WR187) up to WG 22 (WR28) provide excellent performance.
- Isolation typically between 30 and 35dB ensuring excellent amplitude, phase unbalance and deep nulls.
- Highly skilled design team fulfilling custom design requirements.
- A strong expertise in the manufacture and design of antennas and feed networks.

Components - Rotating Joints



- Standard and custom designed waveguide rotary joints can be offered.
- Pressurised and non-pressurised.
- Single or multi-channel, with a selection of waveguide or coaxial connections and I-type, L-type or U-type geometrical layout.
- Sizes are offered from WG14 to WG22 (WR137 to WR28) with any combination of interfaces.
- Single channel rotating joints
 - Commercial aerospace (weather radar on commercial jets)
 - Satcoms
 - Military Radar
- Dual channel rotating joints for military radar

Components - Power Dividers & Combiners



- Design and manufacturing expertise to offer a range of custom and build-to-print waveguide power combiners.
- Ideal for use in TWT replacement applications. Available in configurations 1:2 right up to 1:128.
- Designed to suit end-fed slotted waveguide arrays - providing unequal power division at output ports.
- Tee designs are optimised to eliminate the need for fitment of extra irises or complicated undercuts.

Waveguide Components



- OMTs - Typical orthogonal isolation of better than 40dB.
- Couplers - Crossguide, Directional, and Loop Couplers available.
- Magic Tees - Offered as linear, folded E-plane and folded H-plane variants.
- Loads and Terminations - Suitable for low, medium and high power applications.
- Pressure Windows - Waveguide sizes from WG11 to WG22.
- Transitions / Adapters - Available in a variety of waveguide and coaxial interfaces.
- Stub tuners - double short and triple boss designs available.

Waveguide Cast Bends



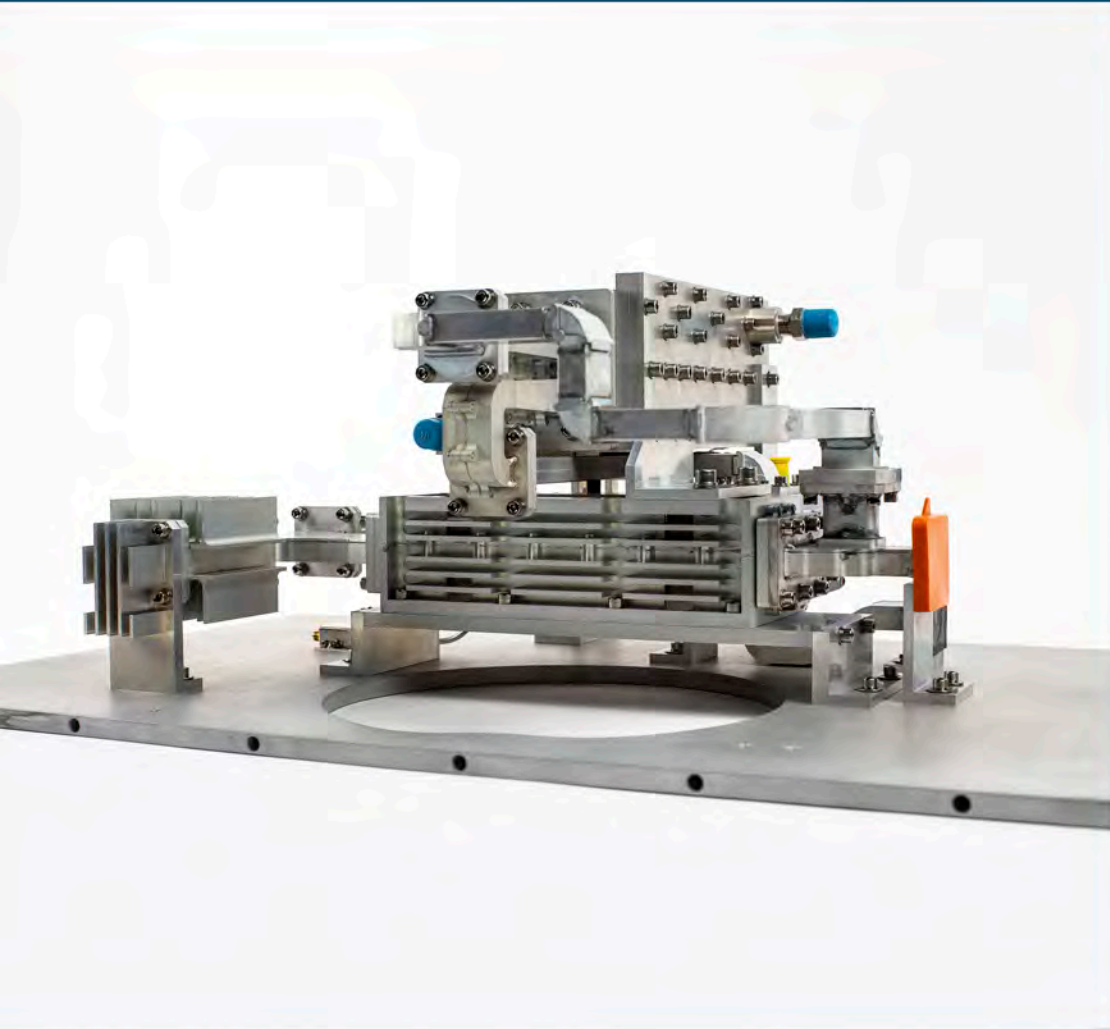
- Sylatech offers a range of light-weight waveguide miter bends and is available in E and H planes covering WG6 to WG25 (WR650 to WR15).
- Sockets, flanges or plain connectors are available in a variety of angles such as 90, 60, 45, and 30 degrees.
- Bends are available to meet US dimensions.
- Double-ridged designs are also available and our range of half-height and light-weight miter bends enhance our offering.

Waveguide Assembly



- A wide range of in-house microwave design, manufacture and test capabilities - includes thermal modelling and analysis of high power devices.
- Sylatech has a custom blend of investment casting, precision machining and advanced metal joining.
- Flame brazing, soldering, welding, mechanically fastened or adhesively bonded.

Subsystems



- Sylatech has a unique and comprehensive range of in-house microwave design, manufacture and test capabilities for the supply of waveguide components, integrated assemblies and subsystems.
- Thermal modelling and analysis of high power devices is available.
- Sylatech's custom blend of investment casting, precision machining and advanced metal joining techniques afford the designer to choose the most advantageous construction method.
- Depending on the type of product, whether it be a simple bend, complex OMT, rotating joint or complete antenna, assemblies and subsystems can be joined in various ways.

In Summary



Sylatech's design and manufacturing capability delivers:

- Microwave Design - passive waveguide antennas and components.
- Manufacture including build-to-specification, several inhouse processes - brazing, assembly and finishing.
- Microwave test.
- Waveguide antennas and scalar feeds including design and build-to-specification.
- Waveguide Cast bends, Monopulse Comparators, Power Dividers / Combiners, Loop couplers, Loads and Terminations.
- Waveguide assemblies to 40GHz (WG22/WR28) - Space qualified assemblies.
- Subsystems - Integrated assemblies such as Radar transmitter front-ends.

Contact Us



Sylatech Limited, Kirkdale Road,
Kirkbymoorside, YO62 YPX

E: engineer@sylatech.com

T: +44 (0) 1751 432 355

www.sylatech.com