



RF/Microwave Capability



Microwave Design & Manufacturing Heritage

With over 50 years of heritage supplying microwave components and sub-systems, our designs and system assemblies can be found globally on commercial and military aircraft, satellites and military equipment.

Panels for satellites, power dividers for large ground station radars, and antennas for air defence systems and rotating joints for weather radar systems, feature in the application of our products.

Our highly skilled design and applications engineers relish unique and challenging customer requirements and are recognised in industry for their design excellence and quality of finished product.



Our Clients

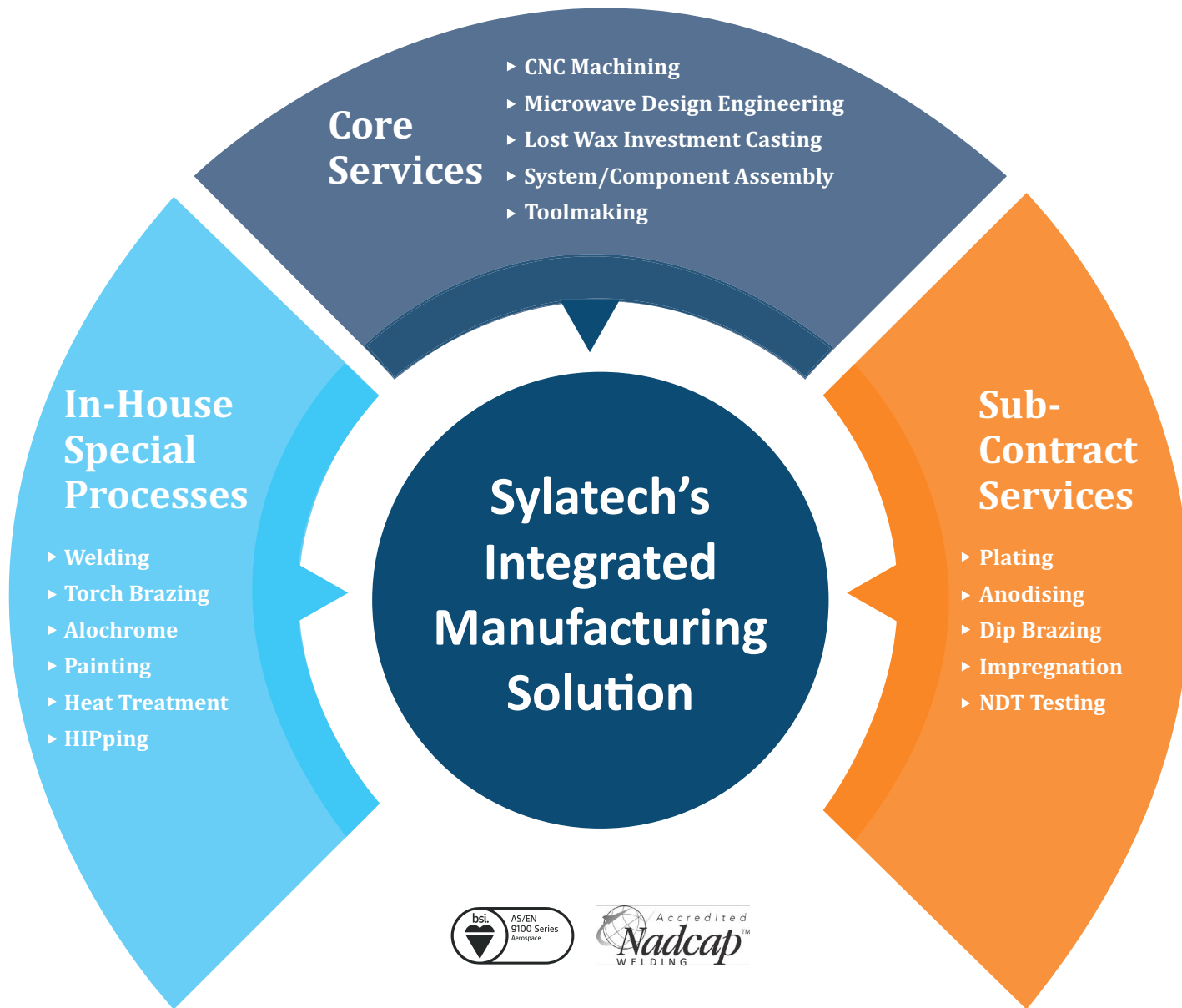
AIRBUS
BAE SYSTEMS
COBHAM
HONEYWELL
ROCKWELL COLLINS
SAAB
SABCA
ELTA SYSTEMS
SUPRAERO
THALES



Quality

- > AS9100 Certification
- > Nadcap Certification for Welding
- > Fully automated CMM with SPC Software
- > Full batch metal traceability

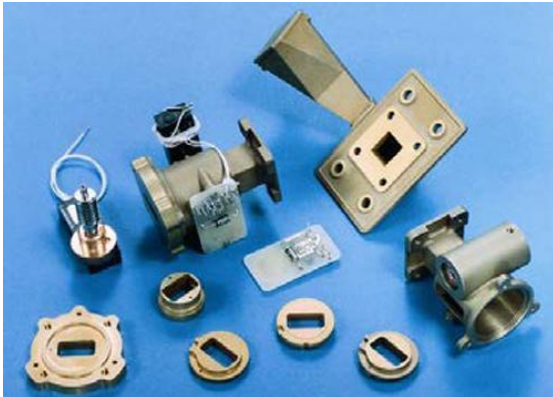
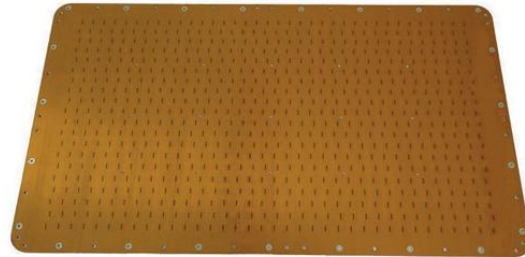




Core Sectors

- > Aerospace
- > Defence
- > Space
- > Sat Comm
- > Scientific & Research
- > Medical





Defence Applications

- ❖ 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 Transmitter (Airbus Defence and Space)



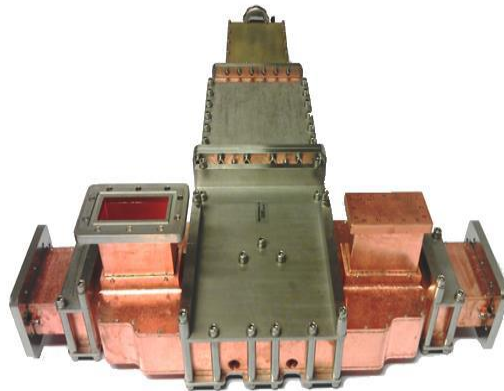
Satcom Applications

- ❖ Feeds
 - S, X, Ku bands
 - Dual channel
 - Linear and circular polarization
- ❖ Waveguide assemblies
- ❖ Rotating joints
- ❖ CGC Technology, UBS, SVS Telekom



Space Applications

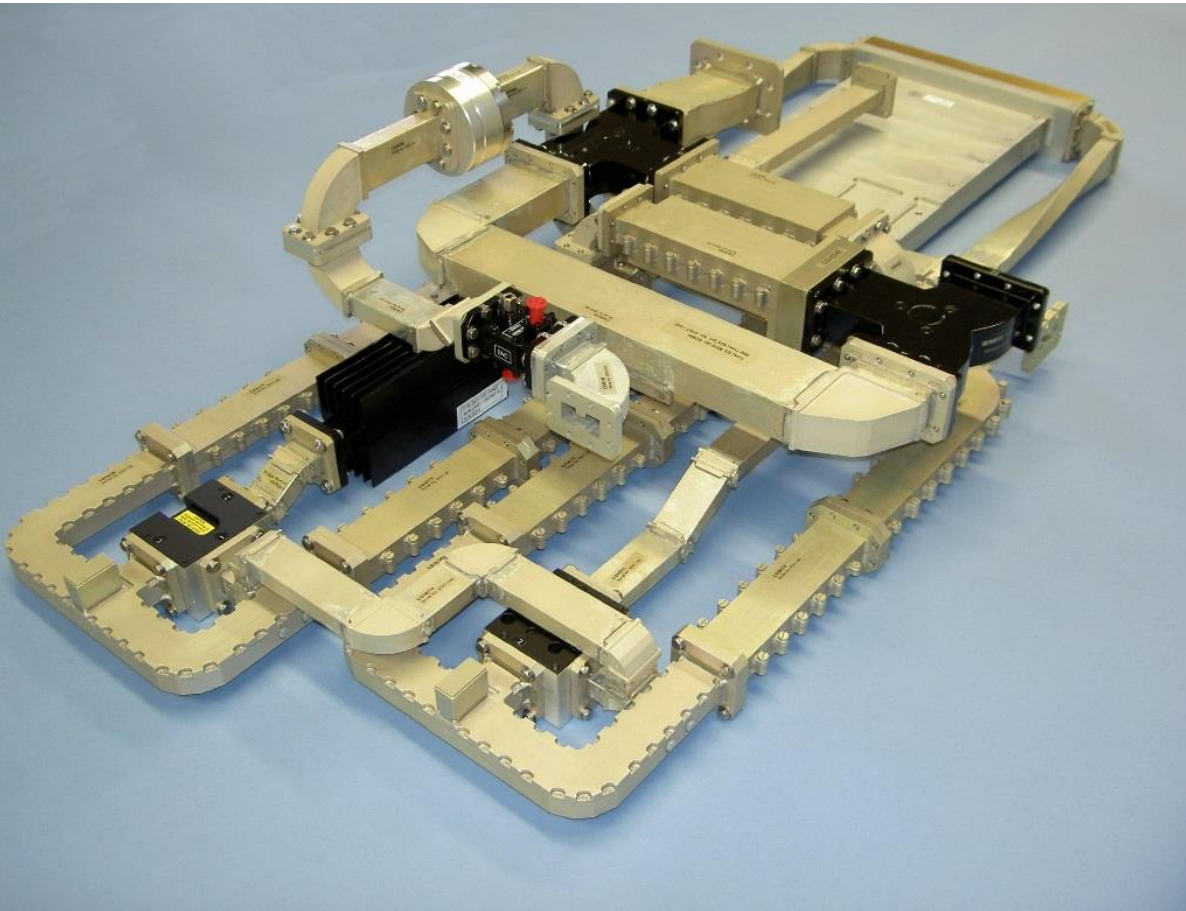
- ❖ Current programs Eutelsat 72B and SES 12
- ❖ Clients include Airbus, OHB Systems, NEC Toshiba Space



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



Systems Applications

- ❖ Waveguide based sub-systems
 - Dual band waveguide sub-system
 - I&G band
 - High power

Sylatech's RF CNC Machining Solution

Specialists in RF/Microwave

- ▶ Microwave Systems
- ▶ Custom Design
- ▶ Sub-Systems
- ▶ Components
- ▶ Assemblies

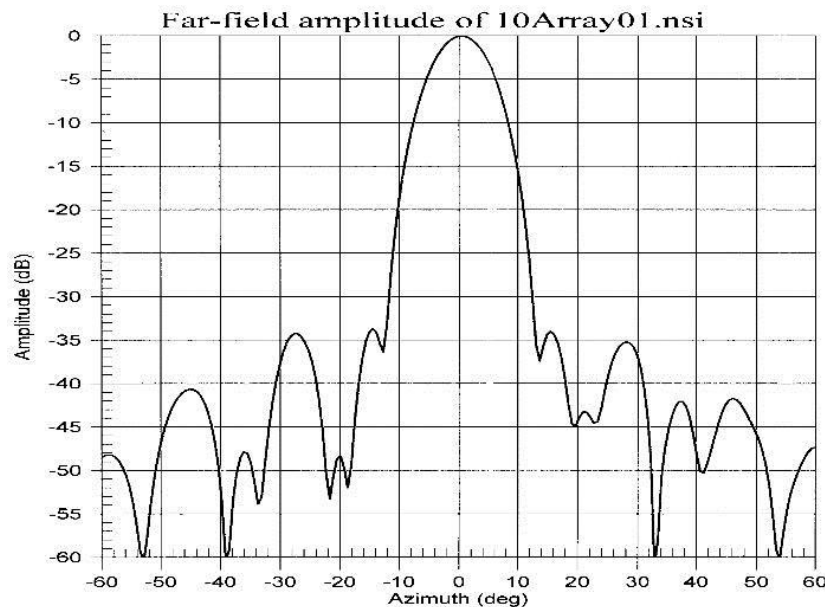
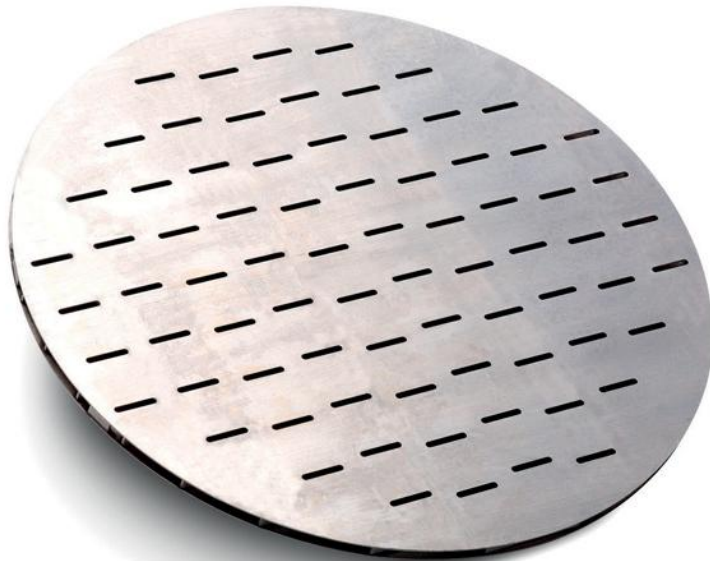
Our CNC machining capability

- ▶ One 5-axis and nine 4-axis FANUC 24,000 rpm Robodrill machining centres
- ▶ 4 x CNC Mazaks
- ▶ 3 x CNC lathes
- ▶ Wire & CNC EDM
- ▶ CMM systems

Customers Benefits

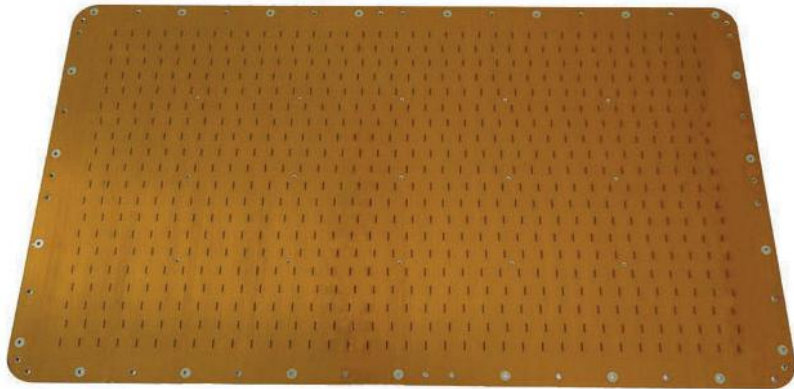
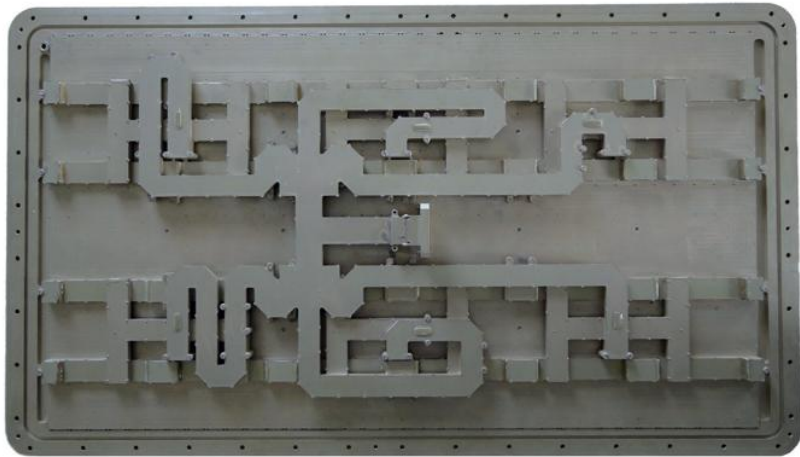
- ▶ Access to highly qualified mechanical and Electrical microwave engineers
- ▶ Comprehensive design & manufacture capability
- ▶ Full electrical testing
- ▶ One-stop manufacturing partner affording supplier consolidation
- ▶ AS9100 Certificated

- > Highly skilled team of Programmers utilising Solidworks and MasterCam
- > Fully Integrated Renishaw Probing Systems across all Fanuc Robodrills
- > Optimisation of design through RF simulation software CST



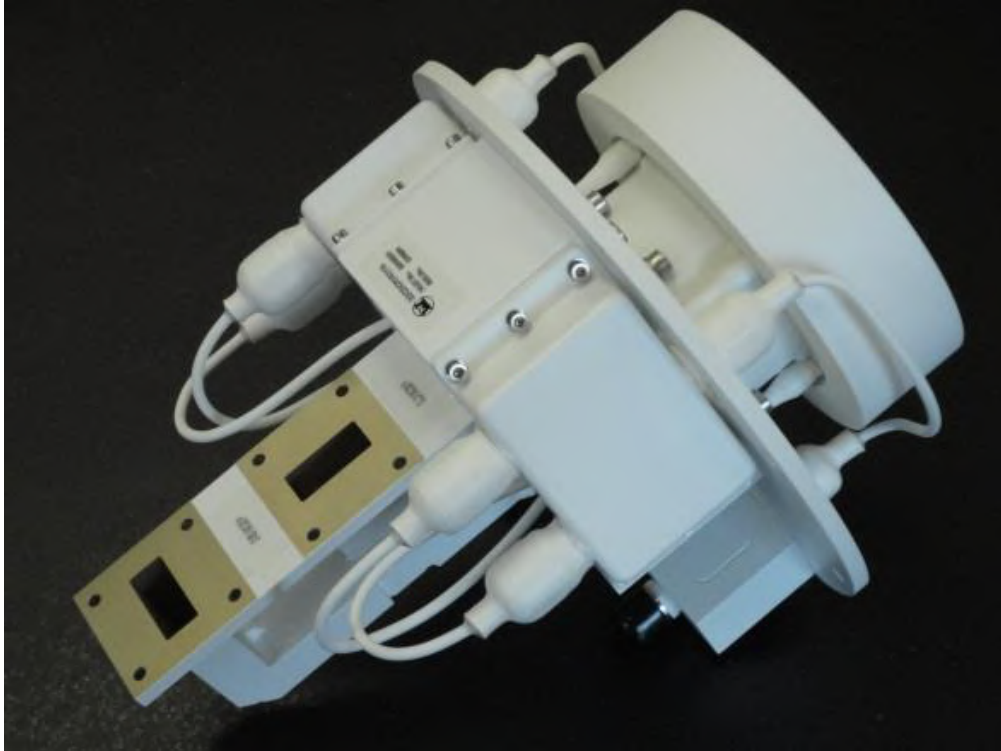
Antennas

- ❖ Frequency 9.3GHz to 9.4GHz
- ❖ Gain 26dB
- ❖ Beam width (3dB) 10° max
- ❖ Side lobes 25dB min
- ❖ VSWR 14dB min



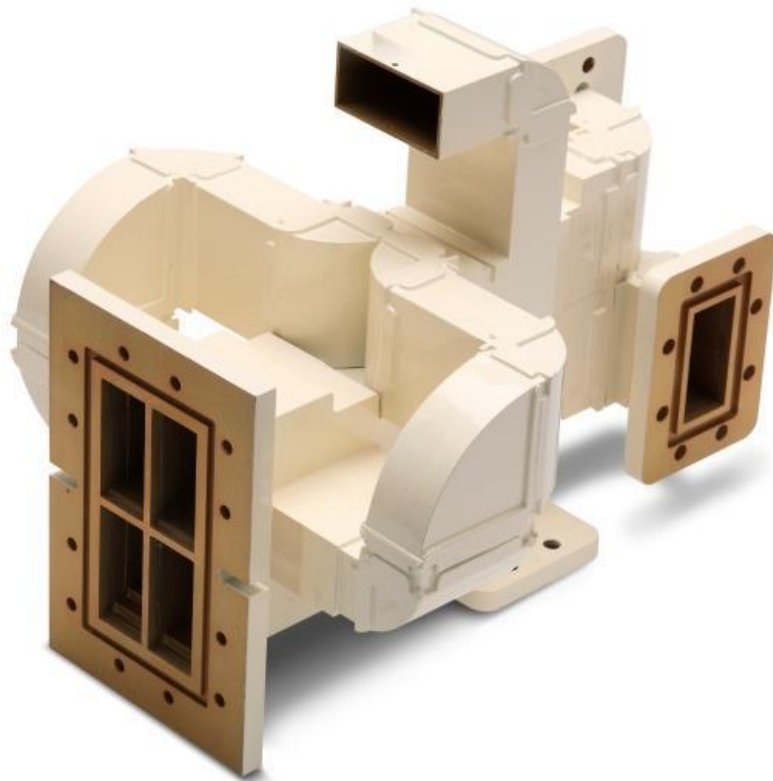
Antennas

❖ Frequency	Ku Band	
❖ Gain	34dB	
❖ Beam width (3dB)	Az	3° max
	EI	3.7° max
❖ Side lobes	Az	24 dB min
	EI	16 dB min



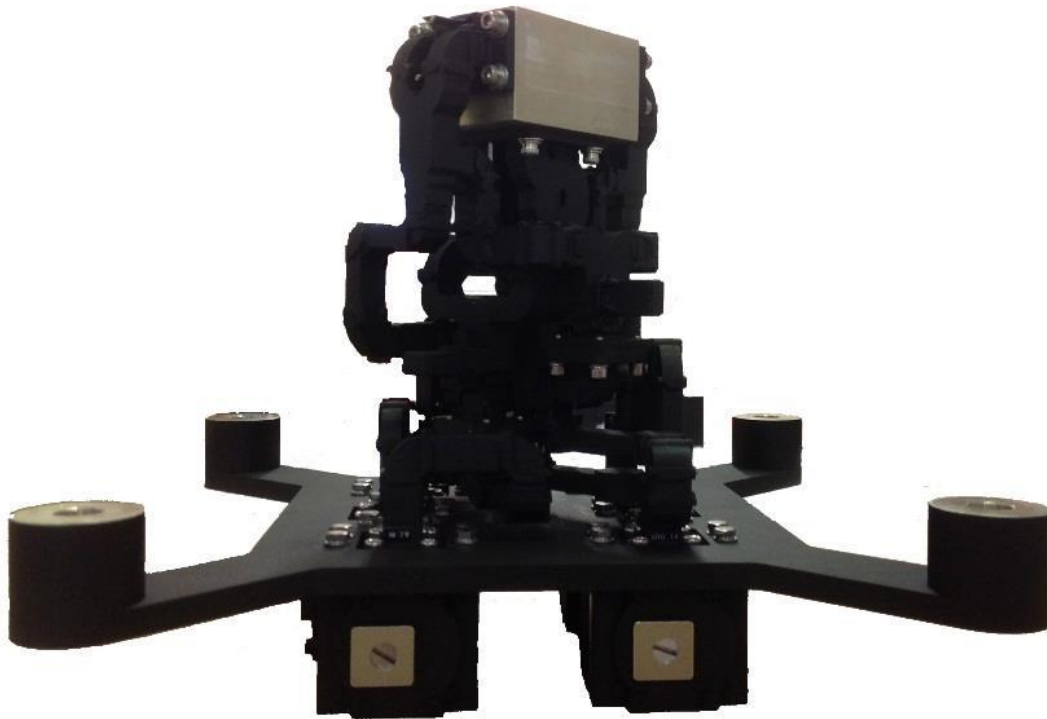
Antenna and Feeds

❖ Frequency	X band (WR112) 8.025 GHz to 8.4 GHz
	S Band (coaxial) 2.025GHz to 2.3 GHz
❖ Polarisation	LHCP and RHCP
❖ Axial ratio	2.0 dB max
❖ Return loss	11.73 dB min
❖ Isolation	X band 18.3 dB min S band 7 dB min



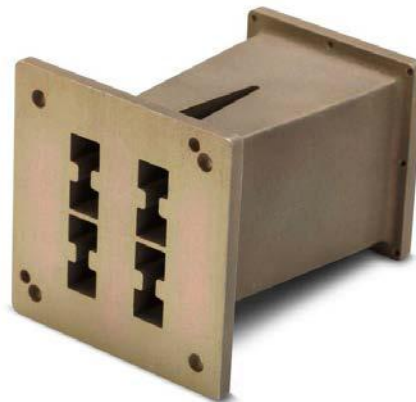
C Band Monopulse Comparator

- ❖ Frequency 5.4 GHz to 5.9 GHz
- ❖ Return Loss 20.83 dB min
- ❖ Isolation 35 dB min
- ❖ Amplitude unbalance max 0.2 dB max
- ❖ Phase unbalance 4° max



Ka Band Dual Monopulse Comparator

- ❖ Frequency 29 GHz to 31 GHz
- ❖ Return Loss
 - SUM port 14.0 dB min
 - DIFF port 12.0 dB min
- ❖ Insertion loss 0.9 dB max
- ❖ Isolation
 - SUM - DIFF ports 30 dB min
- ❖ Amplitude unbalance +/- 0.4 dB max
- ❖ Phase unbalance 4° max
- ❖ Phase variation with frequency 4° max
- ❖ Polarization V & H



Antenna and Feeds

- ❖ Quad horns
- ❖ Standard gain horn



Rotating Joints

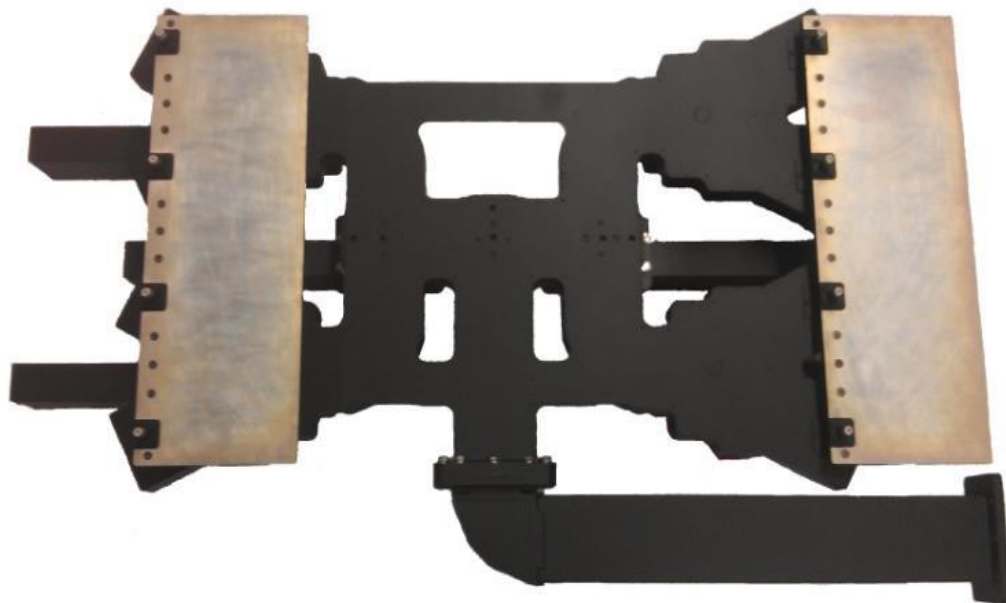
❖ Single channel rotating joints

- commercial aerospace (weather radar on commercial jets)
- Satcoms
- Military radar

❖ Dual channel rotating joints for military radar

- Frequency CH1 (WR112) 8.5 GHz to 9.6 GHz
 CH2 (coaxial) 2.0 GHz to 4.0 GHz
- Insertion Loss CH1 (WR112) 0.15 dB max
 CH2 (coaxial) 0.5 dB max
- VSWR CH1 (WR112) 1.1:1 max
 CH2 (coaxial) 1.5:1 max

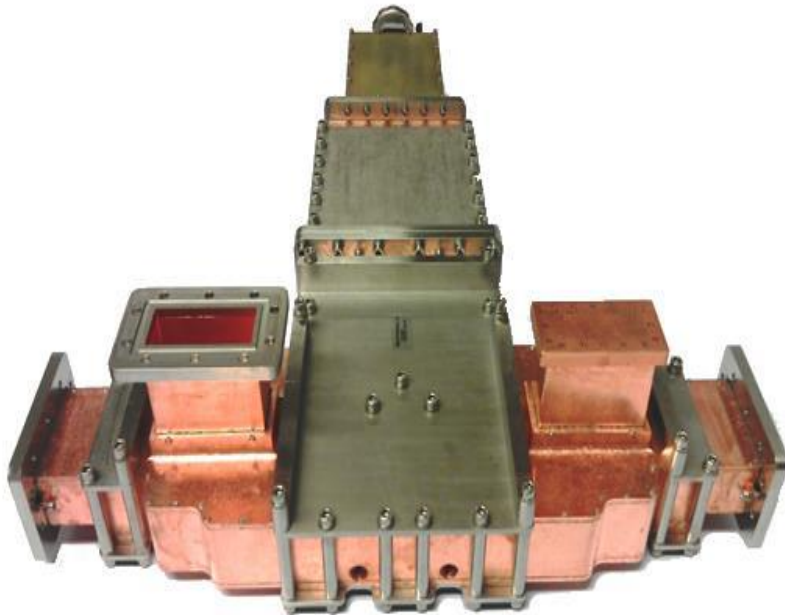
Power combiner for ATC application



Power Dividers / Combiners

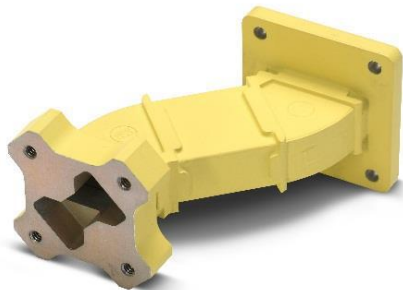
- ❖ Device Type 8:1 combiner
- ❖ Frequency 2.7GHz to 2.9 GHz
- ❖ VSWR 1.16:1 max
- ❖ Insertion Loss 0.25 dB max
- ❖ Isolation 22.0 dB min
- ❖ Power Handling 20 kW pk
2kW mean

Variable Power Divider for Particle Physics Application



Power Dividers / Combiners

- ❖ Device Type Variable 2:1 divider
- ❖ Frequency 2.851 GHz to 2.861 GHz
- ❖ VSWR 1.3:1 max
- ❖ Insertion Loss 0.1 dB max
- ❖ Power Handling 10 MW pk
30 kW mean
- ❖ Material OFHC suitable for UHV applications



Waveguide Products

- ❖ Waveguide assemblies
- ❖ Flexible assemblies
- ❖ Couplers



Waveguide Products

- ❖ Double Ridge Components
 - Magic Tees & Tees
 - Couplers
 - Transitions
- ❖ Loads
- ❖ Pressure Windows



Sylatech's design and manufacturing capability delivers:-

- ✓ **Microwave systems design**
- ✓ **Antenna and feed, including array design and manufacture**
- ✓ **Waveguide components, couplers, windows, transitions, bends, diplexers, multiplexers**
- ✓ **Waveguide assemblies**
- ✓ **High power microwave components.**

Engineering your future



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