

MICROWAVE SYSTEMS AND COMPOSITES MATERIALS STRUCTURES
FOR SPACE, DEFENCE, CIVIL AND NAVAL APPLICATIONS



GROUP PRESENTATION



Gruppo Pasquali Company Organization



Florence, Italy



abt **75 employees** (43 years average age), 11,000 sqm facilities,
Universities and Research Institutes stable collaborations.



Washington, DC



**Pasquali Microwave
System srl**

Leading company of group
specialized in state-of-the-
art RF technology.



Ride the wave srl

R&D department of EM\RF
design for full-custom and
turnkey's solutions.



Vega Composites srl

ADVANCED assemblies and
COMPOSITE STRUCTURES
design, manufacturing and test.



Galvanica Pasquali srl

Group division focused on
surface galvanic treatments
on metal parts



**Pasquali Microwave
USA**

Pasquali Microwave USA.

US Division Sales & Technical
department. Located in
Washington DC and
Huntsville AL

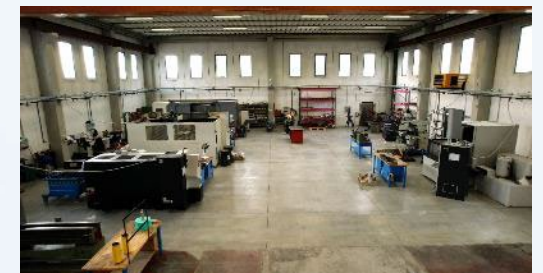
Gruppo Pasquali

Group Information and Investment Policy



Gruppo Pasquali counts 3 Facilities:

- **Metallic Materials Manufacturing**
- **Composites Materials Manufacturing**
- **Surface Galvanic Treatments and Painting**



75

Group Employees
Mean age 43 years

11,000

Production Area
5,500 sqm indoor / 5,500
sqm outdoor

8%

Investments
Equipment\Machinery
investment over turnover

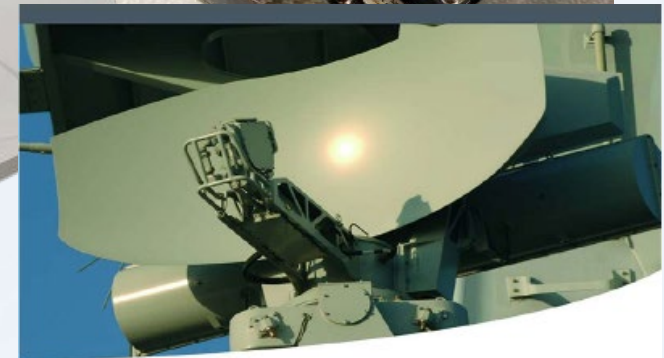
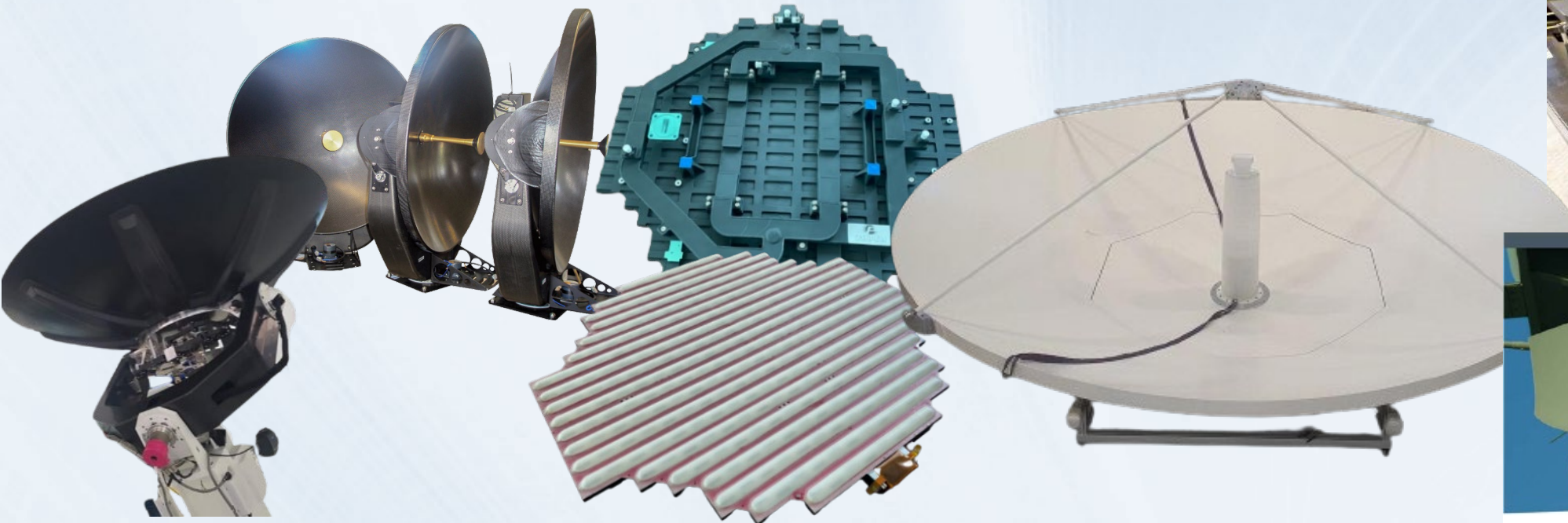
Gruppo Pasquali Mission



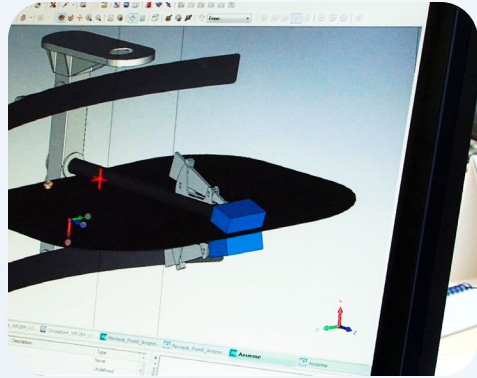
Gruppo Pasquali mission is to become a **Technological Partner** of its customer thanks to its *unique heritage* which matches well rounded capabilities from design and project to manufacturing and test.

More specifically, the key element of Gruppo Pasquali value proposition to its partners hinges on the capability of leveraging on the complementarity of the fields of expertise of the companies within the group, to offer a turnkey solution.

Even when approaching challenging Built-to-Spec antenna project, the Group is capable of taking on the various aspects of R&D, design, manufacturing, assembly and test full-in-house.



Gruppo Pasquali Group Capabilities



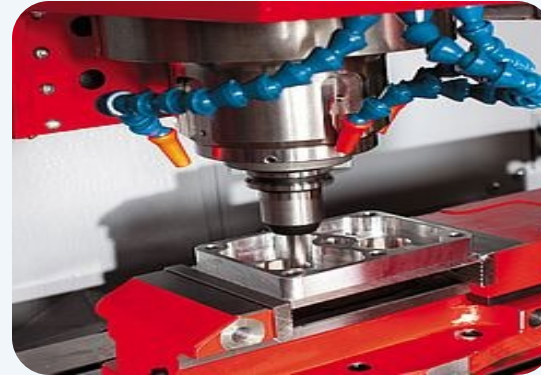
R&D Engineering

RF/EM Design

RF/EM Optimization

Mechanical
Engineering

System Engineering



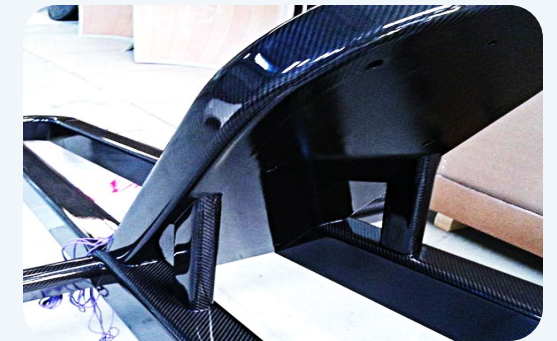
Metal Manufacturing

CNC Machining

Oven Brazing/Welding

Soft Soldering

Electroforming



Composites Materials

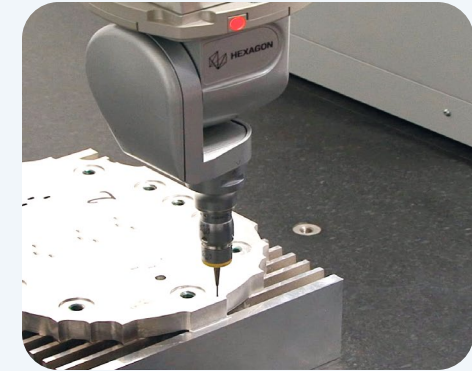
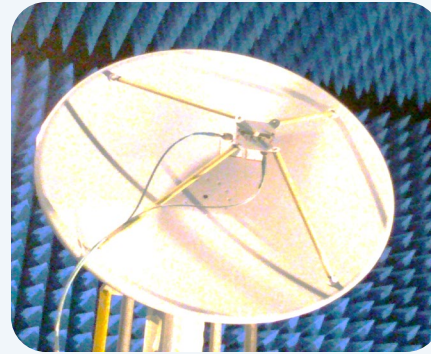
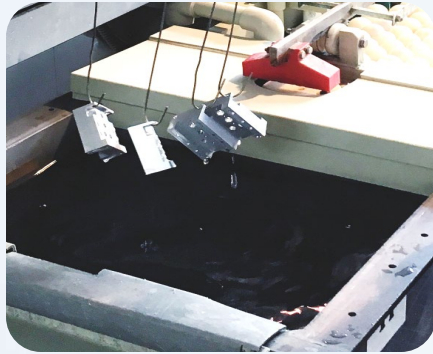
Single Skin/Sandwich
Structures

Bonding Structures

3D Structures Molding

Special Metals
Manufacturing

Gruppo Pasquali Group Capabilities



Galvanic Treatments

Metal Plating
(Gold, Silver, Copper,
Nickel)

Special Painting

Passivation

Environmental Tests

TVAC External Labs

Anechoic Chambers

Thermal Chambers

QA/PA Inspections

3-4-5 Axis

X-Rays

Ultrasonic

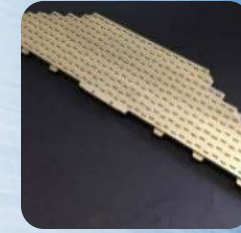
Laser

Gruppo Pasquali Products Overview



- **μ-Wave and mm-Wave Waveguide Assemblies and Antennas Systems**

[1 GHz ÷ 100 GHz or higher frequencies]



- **Blackbody RF Absorbers for Calibration Targets**

[10 GHz ÷ 200 GHz, 4°K ÷ 330°K]

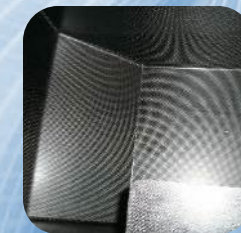


- **Carbon and Composites Fiber-Reinforced Structures and Metal Frames**

[Carbon-Fiber, Kevlar, Rohacell, Innegra, Dyneema]

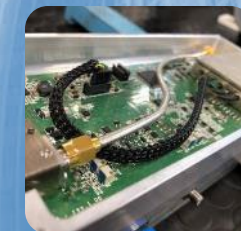
[Special Steel, Titanium, Alumina Alloys]

[Non conventional matrix Systems]



- **Electronics Subassemblies and Components**

[On-waveguide integrated parts, microstrip/PCBs (1 GHz ÷ 50 GHz)]

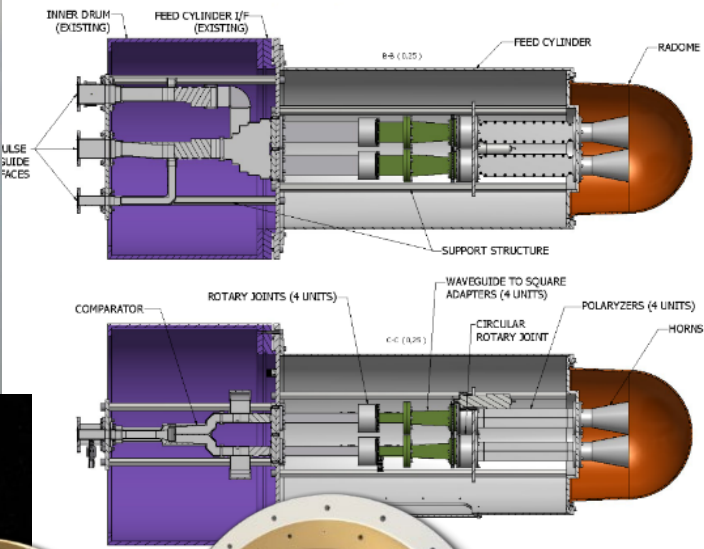


Gruppo Pasquali

Synergic capabilities for customized projects

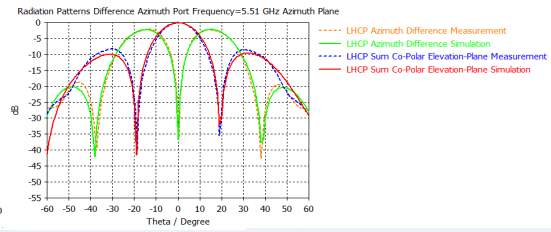
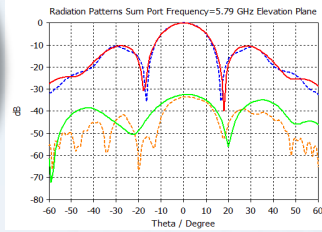
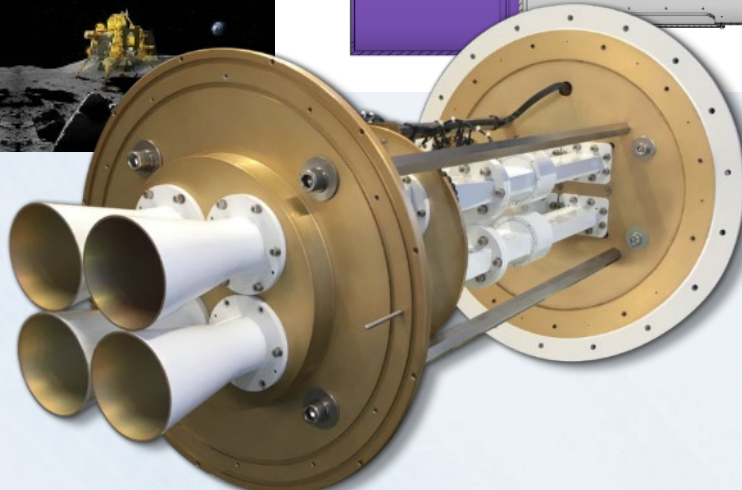
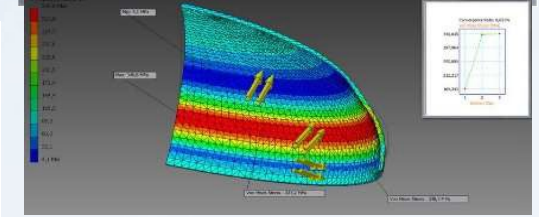
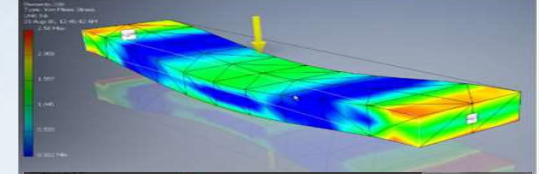
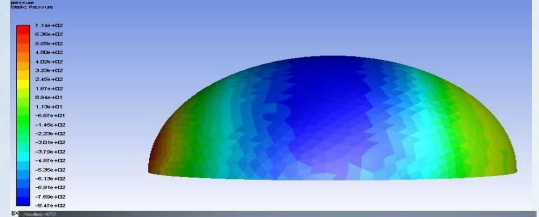
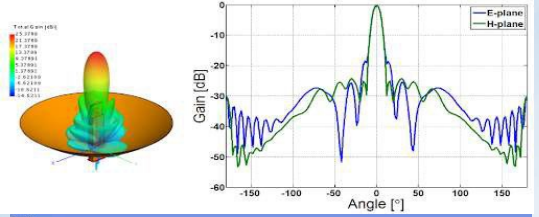


R&D - EM\RF Design – RF equipment integration - capabilities



The integration of EM/RF and FEM Analysis tools with our CAD-CAM/CNC Manufacturing processes let us carry-out turnkey products up to complex and extensive-scale solutions, such as:

- Optimized Multi-Layers Radomes
- Large and Complex Antenna Systems
- Shields and Structural Frames



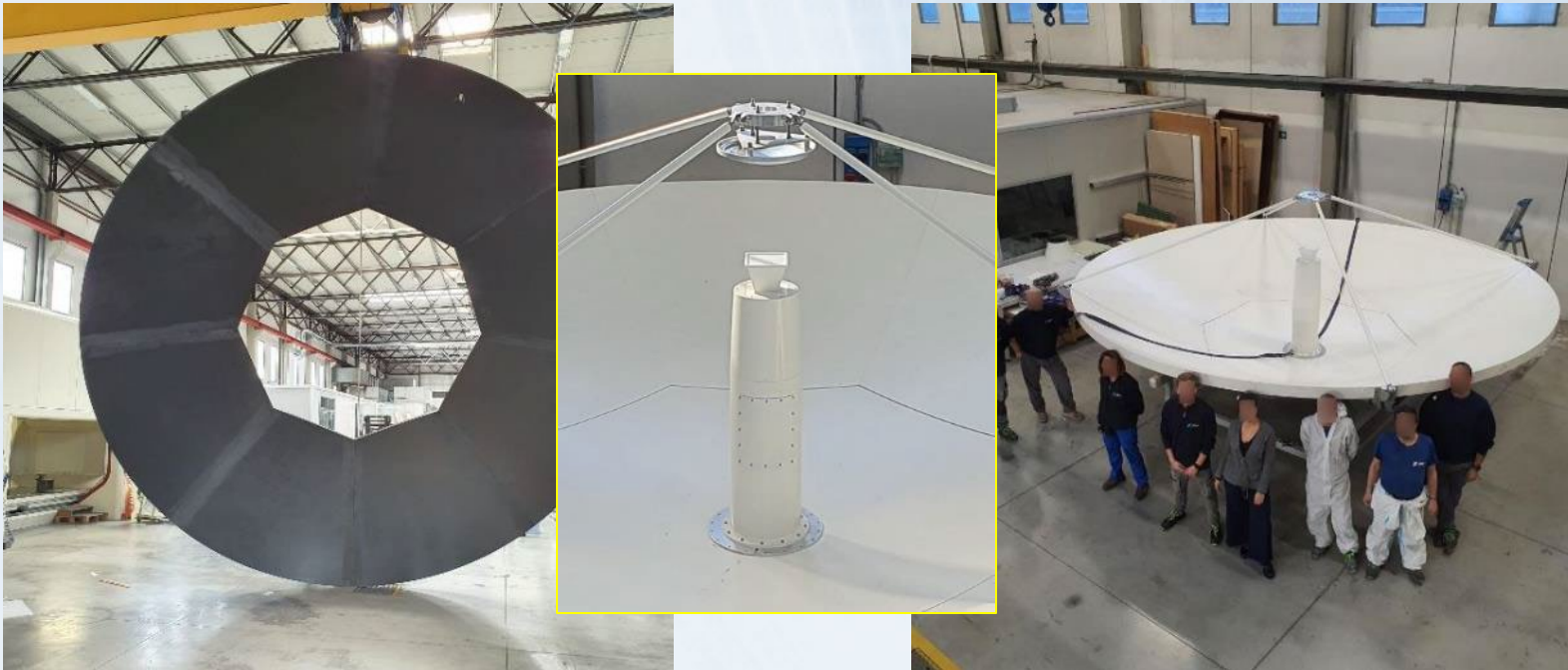
Gruppo Pasquali Synergic capabilities for customized projects

Reflector Dimensions - capabilities

From small sized integrated antennas



*BB30 integrated Ku-Ka band antenna
30cm Ø Reflector*



To big sized integrated antennas
(up to 10m!)

*Integrated C band antenna
5,8m Ø Reflector*

Gruppo Pasquali

Synergic capabilities for customized projects

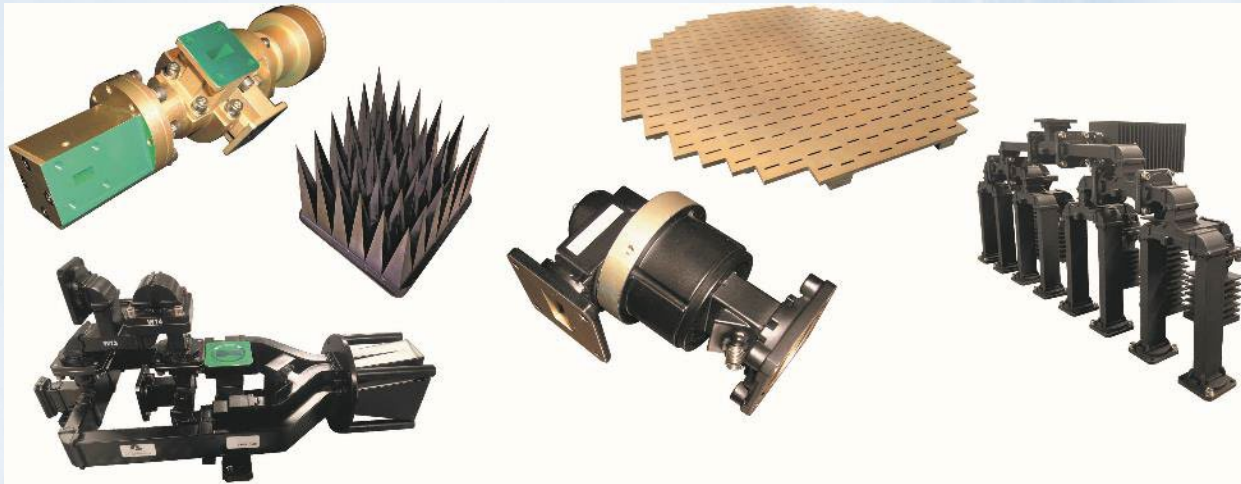
Radomes - capabilities



Radomes of different sizes and shapes for the most challenging Airborne, Naval and Ground applications.

Pasquali Microwave Systems

Italian leading manufacturer of **microwave and mm-wave products and waveguide assemblies** for Space, Defense and Civil Applications.



Pasquali Microwave Systems main products lines comprehend:

Antennas, Waveguide Paths (Rigid and Semi/Flexible), Calibration Targets, Millimeter Components, Monopulse Comparators, Solid State TR-Limiters, Rotary Joints, MultiChannels Combiners, Ferrite Devices

Since 1958 (**more than 65 years ago**) **Pasquali Microwave Systems** has developed a wide expertise and deep know-how in combining precision mechanics with microwave concepts, for supplying of custom products (1 GHz ÷ 100 GHz or higher), ranging from single prototypes to full stocks.

Pasquali Microwave Systems offers specialized activities of outstanding technical value, based on:

- R&D – Cutting-edge EM/Mechanical simulation tools and CAD/CAM systems
- Production – Full in-house Production (CNC Machining, Brazing, Electroforming)
- Plating and Finishing – Galvanic Treatments and Passivating (X-Rays certified instruments)
- QA and Tests – RF and Mechanical tests - [UNI EN ISO 9001](#) and [UNI EN](#)

9100 certified



Ride The Wave - RTW

RTW Ride The Wave Srl (RTW) was founded in 2003 by a team of engineers and researchers with specialized skills in **μwaves** and **sub-millimeter waves** and deep know-how in **EM design** and **TLC systems**.

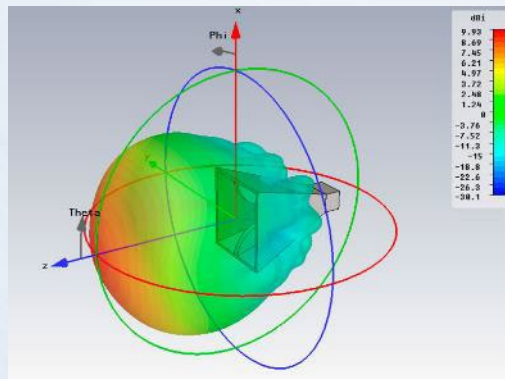
RTW started in 2003 as a spin-off company of the University of Pisa.

In 2005 **RTW** started a collaboration with **Pasquali Microwave Systems** for the development of **custom microwave components** for **RADAR systems**.

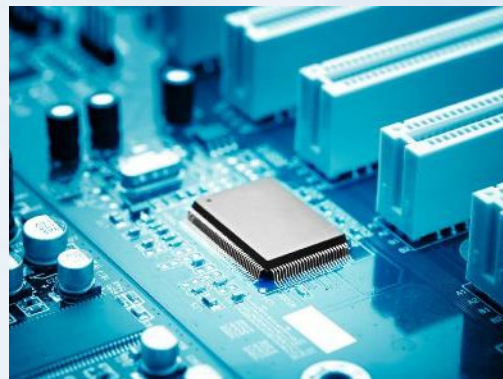
In 2006 RTW joined **Gruppo Pasquali**, becoming its **R&D company**. Since then RTW has performed all the **EM design** for **Pasquali Microwave Systems** production.



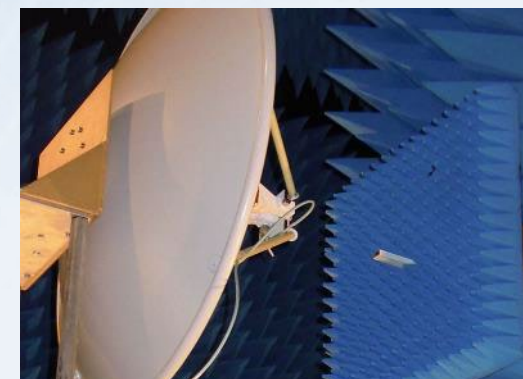
UNI EN ISO 9001:2015 Certified



EM Design



TLC Systems



RF Test

Vega Composites



Vega Composites is an Italian leading manufacturer of assemblies and mechanical structures realized in reinforced-fibers and metal parts for Defense, Civil, Naval and Space Applications



Since its establishment in 2003, Vega Composites has developed a significant know-how and technical expertise in high tech design, manufacturing and test of:

- Composite fiber-reinforced structures (carbon fiber, glass fiber, kevlar, innegra, dyneema, quartz)
- NON CONVENTIONAL Matrix systems (like Cyanate-esters or BMI) for special applications
- Integrated complex metal parts (special steel, titanium, aluminium alloys)

Vega composites core businesses are **Aviation & Space** (e.g satellites and micro satellites), **Defence (airborne and naval)**- and **Telecommunications & Civil applications** (e.g Ground Stations).

By today Vega Composites is well-know reference company for the high-technology, quality and reliability of its products ([UNI EN ISO 9001](#) and [UNI EN 9100](#) certified)

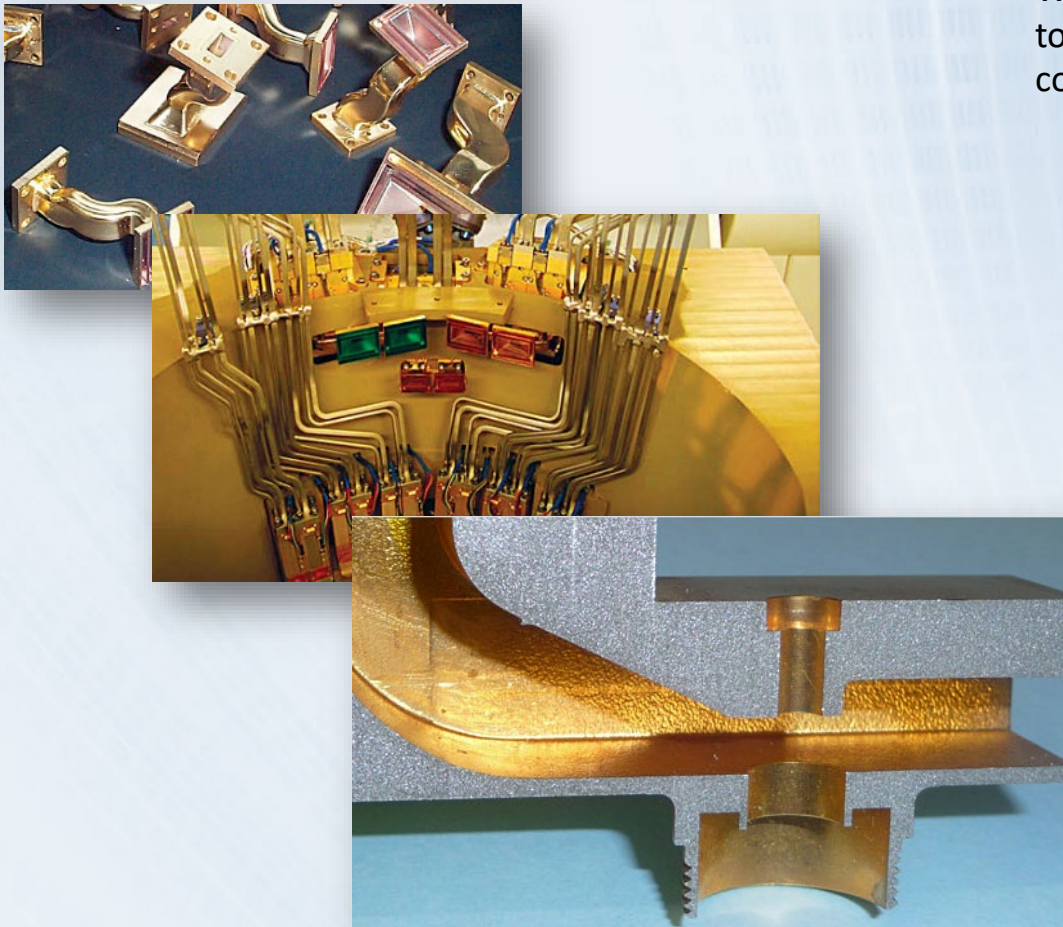
Since 2020 Vega Composites is part of Gruppo Pasquali



Galvanica Pasquali is specialized in high quality **galvanic surface treatments**.

With more than 30 years of experience on galvanic processes of mechanical parts destined to the Defense and Space sector, Galvanica Pasquali can actually work on mechanical parts composed of both aluminum alloy and copper/bass alloys with:

- 18K gold-plating (high hardness, fit for rubbing contacts)
- 24K gold-plating
- Silver-plating
- Chemical nickel-plating
- Electrolytic nickel-plating
- Copper-plating
- Chromium plating
- Tin coating
- Passivation
- X-rays Inspections



Certified **UNI EN ISO 9001** and **UNI EN 9100** certified



Latest Developments

Merlinhawk Composites – November 2023



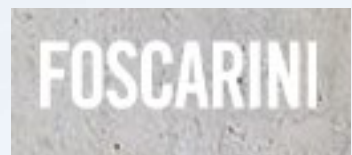
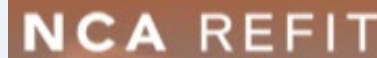
On the 23rd of November 2023, blessed by the presence of Her Excellency Dr. Neena Malhotra, Ambassador of India to Italy and San Marino, Merlinhawk Aerospace and Vega Composites srl (Gruppo Pasquali) signed an agreement to constitute a Joint Venture which will be based in the state of Tamil Nadu.

This important event represents a milestone in the partnership between the two companies, enhancing the capabilities to support Indian customers for what concerns composite materials made components and assemblies for various high-tech industries.

Merlinhawk Composites, this will be the name of the JV, is expression of the strategic partnership between India and Italy. The initiative received widespread praise for being the first Joint Venture between the companies of the two countries.



Gruppo Pasquali - Main Customers





THANKS FOR YOUR
ATTENTION