

Technical R&D Profile – Ecor International Group

1. Organisation Overview

Ecor International S.p.A., founded in **1976** and headquartered in **Schio (Vicenza, Italy)**, is a high-technology industrial group specialized in the **design, prototyping, and advanced manufacturing of high-criticality components** in stainless steel, aluminium, titanium, nickel-based superalloys, and special materials. The company integrates **manufacturing excellence** with **applied industrial research**, supported by advanced welding, brazing, thermal treatment, material characterization and non-destructive testing capabilities.

Ecor International operates through a **multi-site infrastructure**, including an **ISO 7 cleanroom** and specialized high-vacuum facilities for space-grade components.

2. Research Infrastructure – Il Sentiero International Campus

In **2018**, Ecor International established **Il Sentiero International Campus**, its dedicated **Industrial Research Centre**. The centre features:

- Advanced laboratories for **material science, surface engineering, and process development**
- Equipment for **testing, validation, and quality assurance**
- Cross-disciplinary research capability for **automatic machinery, packaging systems, advanced mechanics, and aerospace technologies**

The Campus functions as an integrated R\&D engine, enabling technology transfer across food, pharma, advanced mechanics, and aerospace sectors.

3. Core R\&D Competences

3.1 Advanced Welding, Brazing & Special Processes

Ecor International is recognized for:

- High-precision **TIG/MIG welding**, orbital welding, and laser-assisted processes
- **Brazing** of complex assemblies in high-performance alloys
- **Heat treatments** tailored for aerospace, food, and pharma components
- Integrated **non-destructive testing (NDT)** such as radiography, dye penetrant, and **helium leak detection L/P/L**

These capabilities support qualification and certification of critical components for extreme-performance environments.

3.2 Applied Industrial Research for Automated Machinery

Ecor conducts technology development for:

- **Food and pharmaceutical processing and packaging machinery**
- **Cleanability and sterilization performance**
- Mechanical system optimization, reliability engineering, digital modelling

The group's competencies support the creation of new industrial processes with high cleanliness, sterility, and traceability requirements.

3.3 Aerospace & Space Materials Engineering

Ecor International conducts specialised research for aerospace and space applications, including:

- Manufacturing of **welded and brazed components for aircraft, spacecraft, and satellites**
- Research on **material behaviour in high-vacuum, high-temperature, and radiation environments**
- Fabrication under contamination-controlled conditions (**ISO 7 cleanroom**)
- **Outgassing treatments**, protective coatings, and subsystem performance optimisation

Ecor has a strategic plan to expand its aerospace R&D and production activities.

3.4 Surface Engineering & Materials Science

Ongoing research includes:

- Corrosion, oxidation, and wear-resistant surface treatments
- Fatigue and life-cycle performance of advanced alloys
- Advanced joining techniques for dissimilar materials

These activities directly support EU demands in **clean aviation, hydrogen infrastructure, pharma GMP compliance, and space hardware durability.**

4. Technology Transfer & Cross-Sector Innovation

Ecor's R&D model emphasises:

- Transferring high-cleanliness, high-precision methodologies from **food & pharma** to **aerospace and space** sectors
- Cross-fertilization between automation, mechanics, and materials engineering
- Co-design and early-stage integration with industrial customers

This multi-sectoral approach aligns with Horizon Europe's goals on **industrial resilience, advanced manufacturing, clean and sustainable industry, and strategic autonomy.**

5. Relevance to EU R&D Calls

Ecor International is an ideal partner for EU projects focused on:

- **Advanced Manufacturing & Industry 5.0**
 - High-precision manufacturing technologies
 - Robotics and large-scale process automation
 - Quality assurance and zero-defect manufacturing
- **Materials & Surfaces for Extreme Environments**
 - Aerospace, defence, and space missions
 - Harsh-environment components and advanced alloys
 - Cleanroom-grade manufacturing and contamination control
- **Food & Pharma Technologies**
 - Hygienic-by-design machinery
 - Sterility, cleanability, and traceability research
- **Space Systems & Clean Aviation**
 - High-performance metallic components
 - Heat treatment and outgassing R&D

- Lightweight design for propulsion and structural subsystems

6. Summary for EU Proposal Integration

Ecor International contributes:

- **Advanced materials and joining technologies**
- **High-performance manufacturing research**
- **Laboratory-to-industry technology transfer**
- **Infrastructure for aerospace and space qualification**
- **Cross-disciplinary innovation capacity** via Il Sentiero International Campus

This makes the company a strong candidate for **R\&D Work Packages, Pilot Lines, Demonstrator development, and TRL 5–8 validation activities** in European collaborative projects.