

French SME offering advanced structural damping and vibroacoustic solutions seeks partners for Horizon Europe Noise reduction breakthroughs for new ultra-efficient aircraft (HORIZON-CL5-2027-04-Two-Stage-D5-09)

Summary

Profile type	Company's country	POD reference
Research & Development Request	France	RDRFR20260205033
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
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General Information

Short summary

A French SME with strong expertise in vibroacoustics develops high-performance passive structural damping solutions achieving up to tenfold reductions in noise and vibration. The company seeks a technical role in a Noise reduction breakthroughs for new ultra-efficient aircraft (HORIZON-CL5-2027-04-Two-Stage-D5-09) consortium, contributing simulation-driven design and industrialization capabilities.

Full description

The project focuses on developing advanced structural damping and vibroacoustic technologies for next-generation aircraft and defense systems. Its main objective is to reduce airframe and cabin noise, mitigate engine noise sources and installation effects, and improve structural fatigue resistance, fully aligned with the expected outcomes of HORIZON-CL5-2027-04: reduction of airframe and cabin noise, mitigation of engine noise sources and installation effects, and the development of methodologies to manage noise perception and annoyance.

The partner is a French SME specialized in vibroacoustics, headquartered in Toulouse France. Our highly responsive team is able to identify problems and then define solutions and developments up to the industrial stage.

In its day-to-day operations, the company addresses issues within its area of expertise, ranging from those faced by SMEs to those of large industrial groups across all sectors: aerospace, transportation, defense, capital goods, and more. It offers solutions to problems based on its existing technologies, but also dedicates a significant portion of its activity to developing new ones to address emerging needs. R&D thus constitutes a substantial part of its business.

With over 30 years of experience, the company has a proven track record in developing high-performance passive damping solutions for aerospace and defense systems and has participated in European collaborative projects. The company is currently a candidate as a partner in a European sustainable wind turbine development project, which brings together 17 partners in 4 EU countries. In the past, it coordinated two European projects focused on the development of vibroacoustic technologies.

Methodology: the company uses an integrated "From Simulation to Industrialization" workflow:

- **Software Tools:** Utilization of industry-standard codes (NASTRAN, DYTRAN, MARC) alongside proprietary Python-based software.
- **Integrated Process:** Development begins with advanced simulation, followed by prototype construction and testing at ARTEC's internal facilities to ensure industrial readiness.
- **Custom Methodology:** The Intelligent Damping Design® approach allows for targeted problem analysis and the creation of customized noise reduction technologies.

Key Technological Building Blocks the company offers a proven portfolio of anti-vibration solutions, specifically validated for high-noise environments such as aircraft powered by counter-rotating open rotors:

- **Fuselage Damping:** Lightweight damping patches for fuselage skin (certified for fire/smoke) and specialized damping concepts for stringers and frames.
- **Interior Comfort:** Advanced damping floor technologies designed to mitigate engine harmonics.
- **Developed in collaboration with the French Defence Procurement Agency (DGA),** this structural damping connecting rod reduces vibrations at the source. It can replace standard structural rods or be integrated into compact engine support attachments.

The company's objective is to integrate these "technological building blocks" into a proposal submitted under HORIZON-CL5-2027-04, specifically targeting Noise reduction breakthroughs for new ultra-efficient aircraft (Two-Stage-D5-09).

The French SME offers to act as a technical partner responsible for:

- Developing customized noise reduction documentation and simulation models.
- Adapting damping patches (fuselage skin) and frame concepts (stringers/frames) to the project's specific architecture.
- Validating prototypes at internal testing facilities to ensure industrial readiness

Advantages and innovations

The French SME utilizes an integrated methodology known as Intelligent Damping Design. This approach leverages industry-standard solvers (like MSC/NASTRAN) driven by proprietary metasoftware. By combining automated optimization with human expertise, the company can identify strategic locations for vibration control and rapidly iterate through design variants to find the most efficient solution.

The core of the company's innovation is a high- performance damping concept that embeds specialized materials within custom-designed reinforcements.

- **Amplified Performance:** The device structure magnifies the effectiveness of the damping material tenfold.
- **Efficiency and Weight:** Instead of uniform repartition, the technology targets specific strategic areas identified through analysis. This ensures maximum effectiveness with minimal added mass.
- **Frequency Independence:** The system is effective across the entire spectrum, addressing both very low and very high-frequency vibrations.
- **Material Versatility:** Devices can be manufactured from metallic or composite materials depending on the specific application requirements.

Strategic Integration and Benefits

Technology offers flexibility in how it is implemented:

1. **Remedial Application:** It can be added to existing structures to solve unforeseen vibration issues.
2. **Native Integration:** When included during the initial design phase, it often allows engineers to reduce the overall mass and complexity of the structure, which might otherwise have been "oversized" to compensate for noise or vibration.

By significantly reducing vibration levels and desensitizing components to vibrational or sonic fatigue, the technology extends the operational lifespan of the structures.

Prototyping and Production

The company manages the full lifecycle of the damping solution:

- **Development:** Moving from digital concepts to functional prototypes.
- **Validation:** In-house testing and verificatio

Technical specification or expertise sought

The company is looking for a project leader and offers to contribute its research expertise and technologies in the vibroacoustic field.

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

• Goal 9: Industry, Innovation and Infrastructure

IPR Notes

Partner Sought

Expected role of the partner

The company is looking for a project coordinator/leader building a consortium for the Horizon Europe Noise reduction breakthroughs for new ultra-efficient aircraft (HORIZON-CL5-2027-04-Two-Stage-D5-09). The sought-after partner should be a leading industrial company or research organization in the aerospace sector. The company is open to collaborating with other vibroacoustic players, such as testing laboratories or universities, to refine the technology's application. The company remains open to other funding opportunities.

The call will be open until April 14, 2027, 5:00 PM Brussels time for Stage 1, and until October 7, 2027, for Stage 2.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **University**
- **SME <=10**
- **Big company**
- **SME 50 - 249**

Call Details

Framework program

Horizon Europe

Call title and identifier

Noise reduction breakthroughs for new ultra-efficient aircraft (HORIZON-CL5-2027-04-Two-Stage-D5-09)

Submission and evaluation scheme

Anticipated project budget

Coordinator required

Yes

Deadline for EoI

31 Mar 2027

Deadline of the call

14 Apr 2027

Project duration in weeks

Web link to the call

Project title and acronym

Dissemination

Technology keywords

- **02011001 - Aeronautical technology / Avionics**
- **10002014 - Noise Pollution**

Targeted countries

- **World**

Market keywords

- **08003006 - Power transmission equipment (including generators & motors)**
- **08003007 - Other industrial equipment and machinery**
- **08002006 - Numeric and computerised control of machine tools**

Sector groups involved