Founded in 2025 as a spin-off of BruBotics (Brussels Human Robotics Research Centre) at the VUB, Ailos Robotics draws on more than 30 years of human-centred robotics research and 10 years of R&D on robotic transmission (the mechanical reduction motor found in robot joints).

AILOS Robotics aims to translate validated scientific breakthroughs into enabling technologies for the next generation of collaborative and humanoid robots. By doing so, we seek to enhance quality of life—particularly for individuals facing a loss of independence.

© Ailos Robotics

This breakthrough is enabled by a highly innovative technology: robotic actuators built around our patented R2poweR gearbox. Based on an advanced planetary architecture, it uniquely combines high torque density, low weight, and intrinsic backdrivability—delivering exceptional transparency and efficiency.

As a result, R2poweR significantly enhances safety in human–robot interaction, allowing for more controlled and inherently gentler impacts. At the same time, it enables robots that are lighter, more dynamic, and more energy- and material-efficient—ultimately making them safer and more effective partners for working alongside people.

Pablo Lopez-Garcia, CEO and co-founder of AILOS Robotics. © Ailos Robotics

There are already four sectors targeted by the R2poweR gearbox: collaborative robotic arms, humanoid robots, exoskeletons and robotic prostheses. All of these applications require robotic actuators that are very light, high-performance and safe for humans.

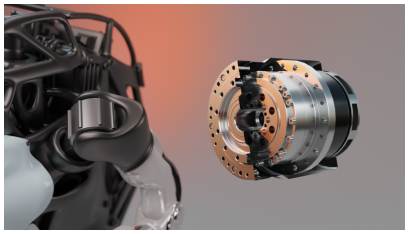
AILOS Robotics has successfully validated its core technological principles and developed its first functional prototypes. The company is now focused on industrial optimisation, with the goal of achieving product qualification for series production within the next two to three years.

© Ailos Robotics

In parallel, AILOS is building a robust industrial ecosystem. It has established European partnerships for the manufacturing of critical components and is actively engaging with leading robotic device manufacturers interested in integrating its prototypes. The company also maintains strong ties with the Vrije Universiteit Brussel and collaborates closely with key regional innovation agencies, including VLAIO, FWO, Innoviris—which supported part of the project—and Wallonie Entreprendre.

Through these efforts, AILOS aims to contribute to a European-centred industrialisation of next-generation robotics, building on the continent's strong heritage in mechanical engineering and advanced robotics. While Europe seeks to close the gap in artificial intelligence, it must also capitalise on its deep industrial expertise to establish itself as a global pillar of robotics alongside the United States and China. In this context, strategic autonomy in key technologies such as actuators becomes critical. AILOS Robotics firmly believes that now is the time to strengthen Europe's technological base to ensure long-term competitiveness on the global stage.

Youtube video: https://www.youtube.com/watch?v=EKVdlU9hCvI



Ailos

Campus VUB

Pleinlaan 2

B-1050 Brussels

Email: pablo@ailos-robotics.com

https://ailos-robotics.com/