

NEWS

Tornos participates in the European CHARM project, which develops IoT solutions for harsh industrial environments

Moutier, Switzerland, July 3, 2020 - Launched in June 2020, the European CHARM ECSEL project aims to develop industrial IoT Internet of Things (IoT) solutions with a better tolerance to harsh industrial environments. Digitalization is key to the continuous renewal and competitiveness of Tornos as well as most European manufacturing industries. The machine tool company, which was approached in the context of the i-moutier incubator, is preparing to take up the challenge, as are the 36 other project partners.

"The conditions in the machining area of our machines make it difficult to integrate sensors and can restrict the possibilities offered by IoT and artificial intelligence (AI). The CHARM project is designed to meet this challenge and enables industrial partners to participate in such research, alongside renowned academic partners," explains Pierre Voumard, PhD, Head of Tornos Research and Development and responsible for launching this new project within the company.

Tornos' participation in the CHARM project was originally the result of a series of exchanges between the members of the i-moutier incubator. Several members, including Tornos, became aware of this European initiative by the Swiss Centre for Electronics and Microtechnology (CSEM), which acts as the Swiss coordinator for CHARM, and took an interest in the project.

CHARM (Challenging environments tolerant Smart systems for IoT and AI) is a large, three-year project with 37 partners from 10 European countries and a total budget of €29 million. It is cofounded by the ECSEL Joint Undertaking, EU Horizon 2020, the national funding agencies of the participating countries, and the consortium partners. In addition to Switzerland, represented in particular by Tornos, the partners come from Germany, Austria, Belgium, Finland, Italy, Latvia, the Netherlands, Poland and the Czech Republic.

Launched in June 2020, the CHARM project will develop demonstrators of systems for equipment condition monitoring, predictive maintenance, automation, real-time manufacturing control and optimization, and virtual prototyping, and test them in an industrial setting. Electronics, components, and systems (ECS) technologies must be designed to withstand the combinations of severe thermal, mechanical and chemical stresses present in industrial manufacturing processes. Solutions will be demonstrated for six use cases covering e.g. machine-tools, paper mills, mining industry.

This is an opportunity for Tornos to further develop its favorite theme, machining. With its keen interest in closed-loop production, Tornos intends, through the CHARM project, to succeed in setting up a system that detects deviations and errors and can even remedy them in the process. This problem arises in particular during thermal drifts resulting from fluctuations that occur at the start of production, and the aim would be for the machine not only to detect certain ratings, but also to be able to correct them.

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"These intelligent solutions are of capital interest to Tornos, and the CHARM project can reveal a very large potential. It would also be a very important step forward for both our machines and our customers," Voumard points out.

In total, the CHARM project consortium consists of 11 small and medium-sized enterprises, 14 large companies and 12 research and technology organizations. They represent the industrial value chain, from simulations, sensors, and components to packaging, integration, and reliability as well as connectivity, cloud, and cybersecurity solutions.

The project will develop sensors for, for example, gas, high temperature, and pressure detection, as well as advanced vision systems for real-time quality control and stand-alone equipment for industrial applications. Packaging technologies for electronic components that go beyond the state of the art will be used to ensure that the sensors are able to withstand harsh conditions. IoT systems will also include new solutions for wireless power transfer, connectivity, and cybersecurity.

CHARM is therefore an ambitious project, an undertaking of great importance for the industrial community—in particular for Tornos, which is delighted to take up this new challenge in an environment conducive to development and innovation.



Media contact: Rolph Lucassen, Head of Marketing Communications & Brand Management
Tel. +41 32 494 44 34, lucassen.r@tornos.com

Technical media contact: Pierre Voumard, PhD, Head of Research & Development
Phone +41 32 494 45 20, voumard.p@tornos.com

Company profile

Tornos Group is one of the global leaders for the development, production and distribution of Swiss-type automatic lathes and multispindle machines. The company's history dates back to 1880 and marked the beginning of Swiss-type lathe technology. The company primarily manufactures CNC sliding headstock Swiss-type automatic lathes, multispindle machines, and precision machining centers for complex parts. Tornos is headquartered in Switzerland. A worldwide sales and service network offers unique solutions to customers in the target automotive, medical and dental technology, micromechanics, and electronics industries. With 729 employees (FTEs), Tornos Group generated sales of CHF 205.3 million in 2019.