

12 January 2023

ITALSIGMA and TP Engineering launch a commercial partnership to make an innovative and cost-effective fatigue test methodology available to SME and University labs.

The new partnership will focus on the commercialization of a revolutionary fatigue test methodology developed for additive manufacturing metals that dramatically compresses costs while providing useful mechanical performance data.

Forli/Parma, December 26, 2022. TP Engineering and ITALSIGMA consolidate their cooperation with the announcement of a commercial partnership focused on an innovative test machine developed by TP Engineering implementing a revolutionary test fatigue methodology that significantly reduce material and testing costs of fatigue test programs.

TP Engineering is a spin-off company of the University of Parma co-founded in 2006 by Professors Gianni Nicoletto and Enrica Riva. Since then it has been active in three areas, namely, CAE & simulation, Product design and development and Advanced material testing for customers in automotive, rail, machinery and mechanical engineering sectors.

In the last 10 years Professor Nicoletto has been scientifically involved in metal additive manufacturing with a focus on material testing and product qualification needs. So he understood the severe budget and technical constraints placed on research of new metals and on material/process qualification for the powder bed fusion technology inherent in fatigue testing following the standard practice. Therefore, Professor Nicoletto proposed a paradigm change in approach to fatigue testing by introducing a miniaturized specimen geometry to be tested on a dedicated mechanical test system that contributes significantly to overall sustainability in terms of reduced material waste and reduced energy consumption while drastically reducing costs. Over time TP Engineering has gradually evolved the test system from a prototypical version to a refined, CE-compliant, material test system that has been installed at few customers. In parallel, the methodology has been extensively applied to many powder-bed-fusion- processed metals and the results presented to technical conferences and peer-reviewed journals.

To promote a widespread adoption of the new fatigue test method and system by R&D laboratories of SMEs, university and research establishments labs, TP Engineering considers ITALSIGMA the ideal partner because it has been operating in the material testing sector since 1982, designing and manufacturing “customized” systems to subject products of various sectors to the tests required by regulations and norms.

The two companies are committed to contribute to the sustainability of the material and process qualification phases, especially critical for the metal additive manufacturing sector, by offering a reliable and cost-effective material test solution. Hopefully, it may attract new actors, i.e. university labs and SME labs, contributing to knowledge development on the link between material/process and mechanical performance.

“We are excited about this partnership with ITALSIGMA, an esteemed company specialized in design and development of mechanical test systems for the national and international market. – says Enrica Riva, Chief Executive Officer of TP Engineering and Professor at the University of Parma – Thanks to its experience in special material test systems, ITALSIGMA will be decisive in expanding the number of future installments of the original equipment implementing our innovative testing approach.”

Franco Giuliani, President of ITALSIGMA, commented, *“We are pleased to start this partnership with TP Engineering centered on the “custom” fatigue test equipment recently developed and successfully proven on many additive manufacturing metals. The innovative test system is a cost-effective addition to the conventional material testing equipment market.*

