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ESI is the pioneer and world-leading solution provider in virtual prototyping.

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ESI consolidates its composites manufacturing simulation offer with the latest releases of PAM-FORM and PAM-RTM

Two solutions dedicated to virtual manufacturing of continuous fiber composites

Paris, France – 2 February, 2012 – [ESI Group](#), pioneer and world-leading solution provider in [virtual prototyping](#) for manufacturing industries, announces the release of [PAM-RTM](#) and [PAM-FORM](#) 2012, two numerical simulation applications dedicated to the manufacture of composite parts. This composites manufacturing simulation suite is a unique industrial solution to define and optimize manufacturing processes of dry textiles and prepregs, with the objective of achieving better part quality and lower production time cycle and cost.

Developed through partnerships in several fields including automotive, aerospace and defense, [PAM-FORM](#) is a virtual manufacturing solution dedicated to non-metallic forming processes. [PAM-FORM](#) enables realistic and predictive forming and pre-forming simulation of laminated composites, allowing engineers to select the most appropriate material, the right tooling design, and the best process parameters. “*PAM-FORM helped us achieve our project goals: lower weight and cost of production while preserving the mechanical properties of the part. Additionally, it provided us with more information on optimizing our production process which can be reapplied to similar projects,*” affirms **Josef Krena**, Development Manager at LETOV LETECKÁ VÝROBA Ltd., part of Latécoère Group.

[PAM-FORM](#) allows engineers to predict manufacturing defects, including wrinkling, excessive shearing, bridging or inappropriate thickness distribution; and to correct them by modifying the process parameters or the tooling. **Josef Krena** confirms: “*Recently, we designed a forming tool for which we used PAM-FORM to optimize its tipping angle. It helped us reduce the cost of that tool without affecting the quality of the part.*”

A best-in class tool, [PAM-FORM](#) addresses a large range of composites manufacturing processes: stamping, diaphragm forming, hand lay-up and rubber pad forming. The latest enhancements mainly focus on dry textile preforming.

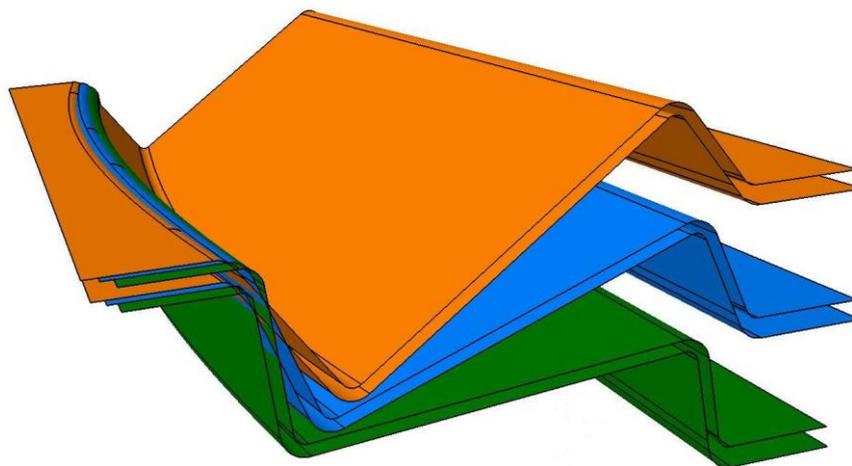
[PAM-RTM](#) is a simulation software application for resin injection or infusion of composite preforms with or without inserts and core materials. It provides an accurate prediction of the manufacturing process of thick, complex or large composite components commonly encountered in wind energy, aeronautics and automotive industries.



[PAM-RTM](#) covers a wide range of Liquid Composites Molding manufacturing processes: Resin Transfer Molding (RTM), Vacuum Assisted RTM (VARTM), Vacuum Assisted Resin Infusion (VARI), Compression-RTM and Articulated-CRTM (CRTM and A-CRTM). Simulating these processes allows engineers to determine the optimal injection strategy, minimize the injection time, control the curing cycle and manage the resulting porosity of the finished part.

Professor Jeferson Avila Souza, from the Federal University of Rio Grande, Brazil, comments, “We have chosen PAM-RTM due to its ability to run 3D models in a realistic way and simulate resin injection in parts such as small boat hulls, propeller blades and automotive parts. We have also considered that it can be handled by group members that do not directly work with numerical techniques. The simulation process is steady, leading to quick and reliable results.”

New in version 2012, a high performance solver manages thermal analysis of preheating, non-isothermal filling and curing in an even more accurate manner. Additionally, thanks to the active support of the University of Nottingham in the UK, a permeability database addressing a large number and variety of textiles is now available for [PAM-RTM](#) customers, and will be enriched over time.



Caption: thermoplastic rib forming simulation using PAM-FORM

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About ESI Group

[ESI](#) is a pioneer and world-leading solution provider in virtual prototyping for manufacturing industries that takes into account the physics of materials. [ESI](#) has developed an extensive suite of coherent, industry-oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and to evaluate the environment's impact on performance. [ESI's](#) solutions fit into a single collaborative and open environment for End-to-End Virtual Prototyping, thus eliminating the need for physical prototypes during product development. The company employs about 850 high-level specialists worldwide covering more than 30 countries. [ESI Group](#) is listed in compartment C of NYSE Euronext Paris. For further information, visit www.esi-group.com.

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