

Título:

"Delta": Revolutionizing the composites industry with the first ever Continuous Fibre Injection Process (CFIP) machine

Texto:

Reinforce3D, a pioneering start-up, is set to redefine the composite manufacturing industry with its groundbreaking Continuous Fibre Injection Process (CFIP) technology. Established in 2022, Reinforce3D emerged from a collaboration between Eurecat, Catalonia's leading research and technology organization, BKIF, a deep science fund managed by BeAble Capital, and Marc Crescenti, the inventor of CFIP and CTO of the company. The company's vision is led by Blanca Garro as a CEO.

Traditionally, the continuous fibres have been basically placed on surfaces like in infusion, RTM, AFP, autoclave or filament winding, or pulled through a mould like in pultrusion. CFIP is the first technology based on injecting the continuous fibres into tubular cavities within a part. This method is versatile, applicable to parts made from various materials including plastics, metals, and ceramics. The fibres are injected simultaneously with liquid resin which, once cured, forms a mechanical bond between the fibres and the part, enhancing its mechanical performance.

CFIP is a completely mouldless technology that can be used for reinforcing parts made by any process. When combined with 3D printing, it allows to place the fibres in all directions following complex trajectories, even through printing layers. When combined with high-efficient 3D printing technologies like MJF or SLS, CFIP becomes a cost-effective and time-efficient solution.

CFIP not only reinforces parts but can also integrally join different components, providing fibre continuity along them. This is a breakthrough capability that enables the efficient manufacturing of large, multi-material and multi-process structures.

The composites industry is used to deal with shell-like structures since traditional composite manufacturing methods are suitable for this type of geometries. For first time, CFIP enables the efficient manufacturing of volumetric, complex and highly optimized geometries with ultra-high performance materials that can be freely placed within the part in order maximize its mechanical and light-weighting performance. This capability is invaluable across various sectors, including aerospace, automotive, sports, healthcare or construction.

Reinforce3D proudly introduces "Delta", the first ever commercial CFIP machine "Delta" offers a revolutionary approach to the composites industry for reinforcing and integrally joining parts, ushering in previously unimaginable capabilities.

"Delta" boasts a user-friendly graphical interface on a touchscreen, reflecting the engineering team's focus on creating an intuitive and easy-to-use machine. Its compact footprint allows it to fit seamlessly in both laboratory and shop floor environments, complementing modern 3D printers in space-limited settings.

What sets "Delta" apart is its alignment with Industry 4.0 principles. The machine can be integrated with robotics, automating and streamlining the reinforcement process within a production workflow.

The disruptive nature of CFIP, embodied in "Delta", positions it as a transformative technology in the composites sector, encouraging a shift in thinking towards three-dimensional and geometrically complex designs beyond traditional shell-like structures.

Experience "Delta" firsthand at JEC 2024 in Paris, where the Reinforce3D team will be available to demonstrate the machine's capabilities and delve deeper into the CFIP technology.