

Liebherr Components relies on new materials

- Product portfolio expanded with carbon fibre reinforced plastic (CRP) products
- Liebherr supports its customers in the design and implementation of CRP products
- In-house expertise for the entire product development and manufacturing process

Munich (Germany), 8 April 2019 – Liebherr Components includes carbon fibre reinforced plastic (CRP) products into its portfolio. Thereby, Liebherr relies on its expertise in the production of robust, metallic components and translates it into the development and application of innovative materials.

Liebherr is currently working on the development and application of lightweight components in various research and development projects. Close cooperation with the customer is thereby the key. The projects come from the hydraulic cylinders site in Kirchdorf an der Iller (Germany). In the future, the range of final products made of composite materials will extend far beyond the mere supply of hydraulic cylinders. The goal is to apply weight-optimised solutions, especially where they not only make economic sense, but also offer high added value. This means to achieve new dimensions with customised properties.

The market and technology meanwhile offer a variety of fibre materials, matrix systems and manufacturing processes. The composite can be designed freely with a wide variety of starting materials and by determining the orientation of the reinforcing fibres. By tailoring its rigidity, strength and density, the material can be individually adjusted to a wide variety of requirement profiles.

With the expertise in fibre composites, the solutions implemented bring the performance of each component and that of the entire system to a new level. Liebherr selectively substitutes conventional materials to optimise the weight and performance of individual components, assemblies and complete systems. This generates further added value in addition to the static and dynamic performance gains. These include resistance to corrosion, special damping properties or beneficial adjustable thermal expansions.

In-house competence

Liebherr always seeks to produce components itself and thus has the necessary know-how on hand. Liebherr also remains true to this motto when developing and manufacturing fibre composite solutions. This is how the complete product development process takes place - from analysis of the requirements to selection of the materials and process through to production on site in the Kirchdorf district of Oberopfingen (Germany).

When Liebherr develops and manufactures CRP components, it not only performs a complete analysis of the customer's application, but also considers the entire system and its environment. From rough dimensioning to a fibre-specific construction, Liebherr offers a highly detailed components analysis to optimise the fibre composite laminate. The optimal combination based on the cost, performance and quantities is found for every application. Liebherr relies on automated production processes and state-of-the-art systems that allow for efficient and careful processing of raw materials. Continuous process improvement as well as integration into the existing quality management system ensure consistently high quality, including in the field of composite materials.

Caption

liebherr-crp-products.jpg

Innovative winding process by robotized production of carbon fibre reinforced plastic (CRP) products.

liebherr-cfk-material.jpg

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