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**State-of-the-art tools for future-oriented materials and manufacturing processes: LUKAS-CarbonCut**

Carbon is light as a feather: The miraculous material from the aerospace industry, long since a standard feature of exclusive bicycles, can now be found everywhere from automotive and mechanical engineering through to medical technology and the pharmaceutical industry. Industry is no longer conceivable without the steadily growing usage of the special carbon fibres.

Colloquially, carbon is a term for both the chemical element itself as well as its products. In the industrial environment, carbon refers to a carbon fibre-reinforced plastic (CFRP). This composite material is used in particular where a high degree of rigidity and low weight are required.

However, this high-performance material also brings with it some machining problems. CFRP comprises carbon fibres embedded in a matrix of synthetic resin. The mechanical characteristics of the cured composite benefit primarily from the tensile strength and rigidity of the carbon fibres. The matrix prevents the fibres from displacing against each other under load.

LUKAS offers a diverse range of custom-made solutions for many different industrial sectors. From process technology, mechanical engineering and high-temperature processes through to civil engineering, medical technology and sports – LUKAS has optimised high-performance tools in its range for every area.

The new CarbonCut burr from LUKAS is the ideal tool for industrial stationary milling, sawing and drilling (dipping) of innovative and premium high-tech materials such as carbon fibre-reinforced lightweight materials. It impresses with its excellent cutting stability when milling carbon, CFRP or even glass fibre-reinforced plastics (GFRP). The especially thin, smooth and hard high-performance coating allows for low friction. Extremely sharp cutting edges and optimised chip removal when milling carbon fibre-reinforced materials, together with the other product characteristics, contribute to the fact that the LUKAS CarbonCut can offer an extremely long service life in stationary applications.

Carbon fibres are much less dense than materials such as steel. Their weight-specific rigidity in the fibre direction is, depending on the fibre type, somewhat to even significantly higher than that of steel. This results in a very stiff material that is particularly suitable for applications with one main load direction where low weight combined with high rigidity is important.

Fibre composite components must frequently be designed to be more voluminous so that they can withstand the same forces as a corresponding metal component, which diminishes the weight advantage. In order to still be able to produce precise and delicate components, the right professional tool is essential.

LUKAS products meet the most demanding requirements. Fibre tears, protrusions or incomplete cut-offs, as well as scorched resin, are a thing of the past thanks to the CarbonCut burr. In stationary applications, the LUKAS CarbonCut produces not only a perfect surface, but also top-class edges on the workpiece due to its sharp cutting surfaces edges. However, the potential of the CarbonCut goes far beyond carbon machining. This burr is also perfect for machining other composite materials used in lightweight construction, such as GFRP (glass fibre-reinforced plastics), composites (layered constructions, honeycombs) and aluminium structures.

Stationary manufacturing allows for extreme flexibility in the production area and the use of robots can be seamlessly adjusted in line with a company’s growth. As well as rotary cutters and composite burrs for use with robotic systems, LUKAS also manufactures tungsten carbide milling tools in special shapes and dimensions for stationary applications – and individually tailored to your challenges! In addition to the comprehensive assortment from LUKAS-ERZETT, LUKAS can also provide milling tools with a cutting diameter of up to 20 mm and a maximum tool length of 200 mm on request. These differ substantially and individually from the comprehensive LUKAS standard assortment in terms of shape, cutting material and cutting edge geometry (chip, free or twist angle).

Thanks to the optimised “VibrationShield” coating, especially for demanding carbon machining, the CarbonCut also impresses with an outstanding tool life. The high-performance coating offers excellent wear protection and enables the tool to withstand extremely high thermal and mechanical loads without any major impairments during use. For stationary use in particular, this offers many benefits due to the significantly fewer tool changes, which guarantees minimised machine downtimes.

*As one of the technological leaders in the manufacture of milling, grinding, polishing and cutting system solutions,*[*LUKAS-ERZETT GmbH & Co. KG*](https://lukas-erzett.com/en/company/company-profile/)*, which is based in the Cologne area in the Oberbergisch district, specialises in manufacturing, retailing and offering consulting services for grinding, milling, polishing and cutting tools, power tools, and an extensive range of accessories. Convince yourself of the precision, high cutting durability and long service life of the LUKAS CarbonCut!*

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