



Machining composites more efficiently: How it works

Composite materials such as carbon fibre-reinforced polymers (CFRP) already play an important role in sectors such as the aviation and aerospace industries, for one simple reason: These future-proof materials are exceptionally lightweight and offer an outstanding level of stability, making them highly sought-after in industries where reducing the weight has a significant impact on operating costs. However, working with these materials is a real challenge and can be quite expensive. To date, these materials have generally been machined when dry. In the latest newsletter from Siebert, we show how this process can be made more efficient and open up a whole new range of possibilities for your customers.

Composite machining: A real challenge to date

Conventional dry processes for machining this lightweight material can pose a real challenge: Delaminations (split fibres) can

compromise the quality of components and mean subsequent reworking steps are required. Similarly, the structure of the fibres—which is particularly difficult to machine—causes significant tool wear. The dust released during this process can also be harmful for people and machines, and the solutions required to capture this dust are extremely complex.

Special coolant has the answer

Siebert knows how important composite materials have become for a wide range of industries. As such, Siebert has taken it upon itself to tackle the challenges associated with machining carbon fibre-reinforced polymers when dry and make machining processes significantly more efficient. The solution lies in Konzentrat EP 392 and Konzentrat EP 792, products that have been specially developed for use when machining composite materials.

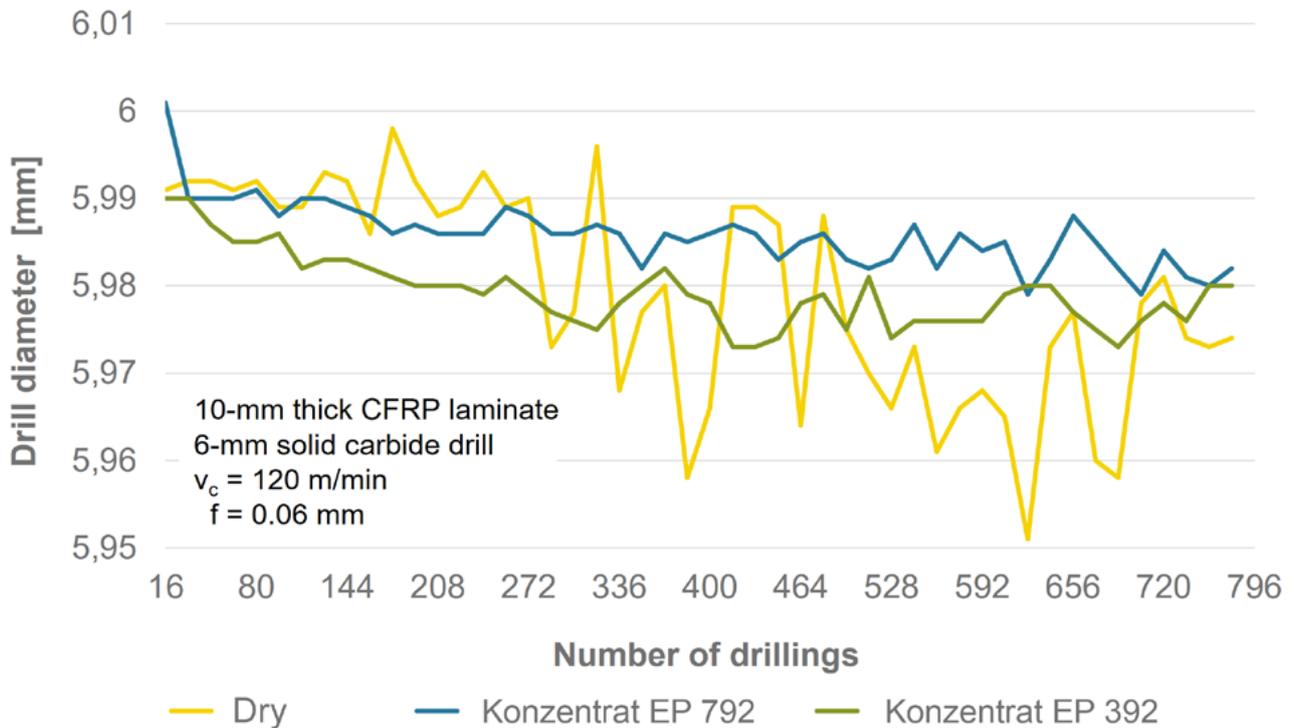
Special formulation for the cost-efficient machining of carbon fibre-reinforced polymers

Thanks to a special formulation, the new special coolants from Siebert make it possible to perform tasks that are difficult to complete using dry processes:

- Increased component quality and machining accuracy
- Reduced tool wear
- Shorter production times
- Minimised outlay for reworking, as delamination is avoided
- Improved health and safety and machine protection through optimum means of binding of fine dust

The result overall: a more cost-efficient and gentle means of machining lightweight materials.

Machining accuracy



Greater portfolio for your customers

Using special coolants to effectively machine composite materials opens up a whole range of new opportunities, even for customers that already employ wet-machining processes. If they have not yet machined fibre-reinforced plastics such as carbon, they can rise to the challenge of machining complex carbon-fibre reinforced polymers using Konzentrat EP 392 and Konzentrat EP 792.

Advantages:

- Existing machines and tools for wet machining can be used
- A simple means of expanding a service portfolio
- Scope to generate additional business potential
- Scope to bring businesses in line with the needs of the future

Siebert quality ensured through extensive development and test runs

As you would expect, with Siebert you can rely on complete performance and full material compatibility when it comes to the special coolants for the effective machining of carbon. After all, Siebert developed and tested the products in close collaboration with strong partners: Tools and workpieces were tested for wear and machining quality in suitability tests performed close to the production environment with the Research and Transfer Centre (FTZ) at the Westsächsische Hochschule Zwickau. Similarly, the German Aerospace Centre (DLR) performed compatibility tests and confirmed that the special coolants do not change structure of materials.

All-in-all, the machining of fibre-reinforced plastics using special coolants from Siebert presents a promising alternative to conventional dry processes; one that is cost efficient, of sound quality and poses reduced risk to health.

Compared with conventional dry machining techniques, the wet-machining process using special coolants from Siebert is considerably more precise and enhances the quality of components.

We are there for you

Want to know what the new special coolants can do specifically for your customers? Our Siebert expert Hans van Gerwen will be happy to advise.

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