



Hufschmied at the JEC World 2018

## The perfect milling tool for any application | 1

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At JEC World 2018, from the 6th to the 8th March 2018 in Paris, Hufschmied GmbH, Bobingen, will be manning a joint stand with Bayern Innovativ (Hall 6, Stand R 51), presenting numerous new developments for the milling of CRP, GRP and CMC.

### The 068ECO milling cutter with a new diamond coating

For highest service life in the CRP sector, Hufschmied is providing the newly developed 068ECO milling cutter. Combined with the new DIP6P diamond coating, this milling tool is especially suited to the M21E CRP material that is prevalent in the aerospace industry.



The cutter geometry of the 068ECO has the advantage of a significantly reduced vibrational response, especially in larger components. This in turn guarantees a smoother running and at the same time minimises clamping forces on the component. Furthermore, the new cutter geometry in combination with copper mesh and other materials excels when it comes to edge-holding properties. Fibre protrusions in CRP and copper mesh protrusions can be eliminated.

### New DIP5P/DIP6P diamond coating

Within the framework of the MAI ProCut project, Hufschmied has developed the new DIP5P/DIP6P diamond coatings in collaboration with Airbus Helicopters and BMW. As a result, diamond-coated and specifically prepared tools have become available, featuring a distinct cutter geometry. Within the project, coating and sharpening techniques relevant for the tools have been developed. The material for the coating consists of nano-crystalline diamond particles; sharpening is done with a plasma process.

### The FB172 spiral drill for the processing of M21E

HEXACUT FB172 spiral drills are a newly developed tool range by Hufschmied that achieves exceptional quality when drilling CRP materials like M21E. Their nano-crystalline DIP5P diamond coating guarantees a long service life with a high surface quality throughout.



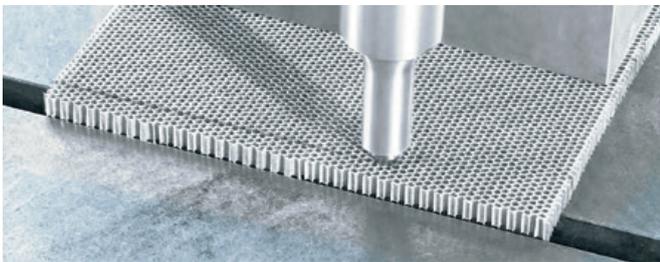
Chip breakers at the tip geometry of FB172 spiral drills generate a focussed force distribution, thus enabling processing that is free from delamination, splintering and fibres. This also leads to a significantly improved surface quality at entry and exit points.

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## The perfect milling tool for any application | 2

### Ultrasound blades for the cutting of tissues and scrims



In addition, Hufschmied will present the newly developed VHM ultrasound cutting blades for the efficient and precise cutting of sandwich materials with a honeycomb core, foils, skins and plastics with glass or carbon fibre reinforcement.

Thanks to an innovative production method, the solder joint between the steel body and the blade can

be completely eliminated. Hence, ultrasound dampening that used to occur within the solder connection, is removed. The blade thus always operates within the optimum oscillation range which in turn achieves excellent cutting characteristics and a stable process control even when dealing with difficult materials.



### PKD tools for the processing of CMC

For the processing of CMC, Hufschmied provides tools with specifically tailored cutting geometries. In a practical test with a CMC turbine blade, test runs that were performed in cooperation with the Deutsches Zentrum für Luft- und Raumfahrt (DLR) achieved short processing times and extremely smooth surfaces. The tools used were PTW100G080-157 (for roughing) and PKD97080 (for smoothing). Planned next steps are the CT-scanning of the components and the production of a complete blade.

### New T-REX geometry for automotive manufacturing

The geometry of T-REX tools for the milling of combined CRP/GRP structural components used in the automotive industry has been further refined. Cutting forces and vibration levels in the 394CG-GR end mill cutter have been further reduced and the service life has been improved.



With its variable cutting geometry, T-REX combines the advantages of a router geometry with the cutting quality of a compression tool. Delamination, splintering and fibre protrusions are avoided due to this geometry. A combined roughing and smoothing in a single processing step saves significant time in edge processing resulting in a quality that does not require post-processing.

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## The perfect milling tool for any application | 3

### Hufschmied Engineering

The range of services offered by Hufschmied Engineering provides the customer with a comprehensive array of technical support for the practical deployment of tools. The Hufschmied Team will analyse the entire value chain, in order to perfectly tailor the tool components to the respective material and component.



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