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**PRINCIPLES OF QUALITY**

**SUCCESS THROUGH PROXIMITY TO CUSTOMERS**

**CARBON FIBER AND GLASS FIBER REINFORCED PLASTICS**

**CONTENT OVERVIEW OF OUR TOOLS FOR FIBER REINFORCED PLASTICS**

**SMC milling**

**CFRP & GFRP milling**

**sheets & stacks milling**

**PCD tools**

**Honeycomb Milling**

**Armad milling**

**CFRP & GFRP drilling**

**CFRP - Aluminium drilling**

**PCD tools**

**CFRP - Titanium drilling**

**Hand drilling**

**Aramid milling**

**CFRP - Aluminium drilling**

**CFRP - Titanium drilling**

**Honeycomb Milling**
T-REX tools were developed for chipping CFRP structure components and special requirements of the aerospace and automobile industry. With its variable cutting geometry, T-REX combines the advantages of router geometry with the delamination-free trimming quality of a compression tool. This new development is filed for patent by HUFSCHMIED. Other high-tech tools like DIAMOND, DIAMOND-CUT, and DIAMOND-X are also available.

**Features**:
- High abrasion resistance for long tool life
- Milling of edge trimming pockets and cutouts for CFRP with thermal protection
- Milling of non-compensated inside parts
- Milling of internal contours or coatings even highly abrasive materials can be processed.

**Applications**:
- Milling of edge trimming pockets and cutouts for CFRP with thermal protection
- Milling of non-compensated inside parts
- Milling of internal contours or coatings even highly abrasive materials can be processed.

**Advantages**:
- Easy to handle
- Multiple teeth for different helix possibilities
- Delamination-free trimming in CFRP

**Diamond coating** is available.

**Advantages**:
- Chipbreakers
- DIP6p coated
- Aerospace proved
- Thermoset and thermoplastic matrix systems
- Aerospace grade fiber
- permits the highest level of service life, even when faced with challenging materials like CFRP high temperature tension could be reduced in turn. Furthermore, this geometry, in combination with copper mesh and other composite materials, can significantly improve edge holding. Moreover, the new DIP6p diamond coating permits the highest quality in the finish used for the component faced with challenging materials like CFRP high temperature thermosets and thermoplastics, easily process all aerospace grade fiber.

**Application**:
- Milling of edge trimming pockets and cutouts
- Aerospace approved

**Advantages**:
- Low cutting pressure
- Good chip control
- Chipbreakers
- Inner coolant on demand

**Other features** are available, also special made on demand.
T-REX tools were developed for shaping CFRP structure components and special requirements of the automotive and Aerospace industry. With its variable cutting geometry T-REX combines the advantages of raster geometry with the abrasion-resistant trimming quality of a compression tool. This results in high abrasion resistance for long tool life. T-REX new development is filed for patent by HUF SCHMIED. Other patented T-REX systems, however, are available.

Advantages:
- Milling of edge trimming pockets and pockets for CFRP with thermal relief
- Applicable machining systems
- Another T-REX geometry is available

Applications:
- Milling of edge trimming pockets and pockets for CFRP with thermal relief
- Clean surface
- Prevents fiber pull out
- Abrasion resistant trimming
- High dimensional stability

TYP 108.

Application:
- Multiple teeth choices
- Different head possibilities
- Aerospace proven
- DIP6p coated

Advantages:
- Easy to handle
- Multiple teeth choices
- Different head possibilities

TYP 194.

Application:
- Milling of edge trimming pockets and pockets for CFRP with thermal relief
- Clean surface
- Prevents fiber pull out
- Abrasion resistant trimming
- High dimensional stability

Through close cooperation with end users in the CFRP industries, we were able to develop new cutter geometry based on the popular HUF SCHMIED T-REX cutter geometry. Particulate with large components, the vibrational response of components was greatly reduced, so that the requirements for component version could be reduced tonard 5%–10%. Furthermore, the geometry in combination with copper mesh and other composite materials enables improved edge trimming. Moreover, the new DIP6p coating permits the higher elevated speed. The new tool head with challenging materials like CFRP high temperature thermoplastic, with carbon fiber and silicon carbide fiber, will be provided.

Application:
- Milling of edge trimming pockets and pockets for CFRP with thermal relief
- Clean surface
- Prevents fiber pull out
- Abrasion resistant trimming
- High dimensional stability

Other teeth geometries are available, also special made on demand.
508 tools were developed for shaping CFRP structure components and special requirements of the automotive and shipbuilding industry. With its variable cutting geometry T-REX combines the advantages of cutter geometry and the abrasion-free trimming quality of a compression tool. This results in high abrasion resistance for long tool life. This new development is patented by HUFVUDSMED. Other similar products T-Simplex, T-compact and T-decorate are possible.

Applications:
- Milling of edge trimming pockets and recesses for CFRP with thermoplastics
- Aerospace proven

Advantages: Roughing and finishing
- Easy high feed
- Clean surfaces
- Prevents fiber pull out
- Abrasion-free machining high-precision varieties

Advantages: Roughing and finishing
- Very high feed
- Prevents fiber pull out
- Abrasion-free machining high-precision varieties

T-REX tools are available for cutting CFRP structures with different tooth geometries (Narrow, medium or coarse-toothed) are possible. This new development is patented by HUFVUDSMED. Other similar products T-Simplex, T-compact and T-decorate are possible.

Application:
- Milling of edge trimming, pockets and recesses for CFRP with thermoplastics
- Aerospace proven

Advantages:
- Easy high feed
- Multiple teeth choices

Applications:
- Milling of edge trimming, pockets and recesses for CFRP with thermoplastics
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Advantages:
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T-REX tools were developed for chipping CFRP structure components and special requirements of the automotive and shipbuilding industry. With its variable cutting geometry T-REX combines, the advantages of cutter geometry and the abrasion-free trimming quality of a compression tool. This results in high abrasion resistance for long tool life. This new development is patented by HUFVUDSMED. Other similar products T-Simplex, T-compact and T-decorate are possible.

Applications:
- Milling of edge trimming, pockets and recesses for CFRP with thermoplastics
- Aerospace proven

Advantages:
- Easy high feed
- Abrasion-free machining high-precision varieties

Through close cooperation with end users in the CFRP industries, we were able to develop a new cutter geometry (based on the high-performance HEXACUT® cutter geometry. Particularly with large components, the vibrational response of components was greatly reduced, so that the requirements for component tension could be reduced by 50%. Furthermore, this geometry, in combination with copper mesh and other composite materials, enables significantly improved edge finishing. Moreover, the new DIP6p diamond coating permits the highest possible stability. The T-Simplex line is coated with challenging materials like CFRP, high-temperature thermoplastic, carbon-carbon, and self-lubricating fiber.

Application:
- Milling of edge trimming, pockets and recesses

Advantages:
- Easy high feed
- Abrasion-free machining high-precision varieties

Applications:
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<table>
<thead>
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<th>Type of Tool</th>
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<td>T180C</td>
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<td>PCD tools</td>
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**CARBON FIBER AND GLASS FIBER REINFORCED PLASTICS**

- Carbon Fiber Reinforced Plastics
- Glass Fiber Reinforced Plastics

**HUFFSCHMIED ZERSPANUNGSSYSTEME GMBH**

Edikonstraße 11 d
D-86399 Bobingen
Tel.: +49 8234 96 64-0
Fax: +49 8234 96 64 99

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