

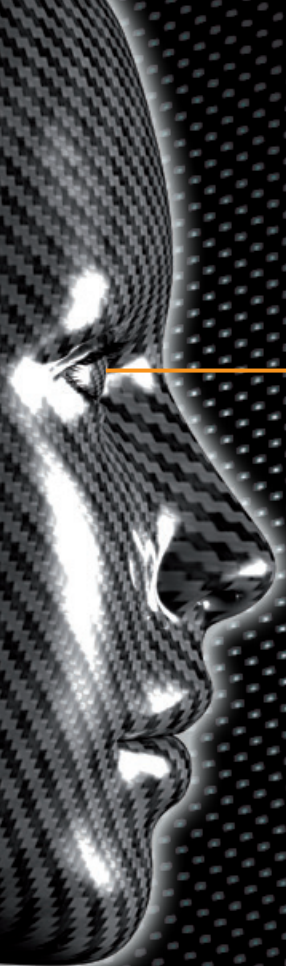


THREE STEPS TO MORE EFFICIENT PROCESSES

*Engineering
as value-adding
service*



HUFSCHMIED
ONE CUT AHEAD.



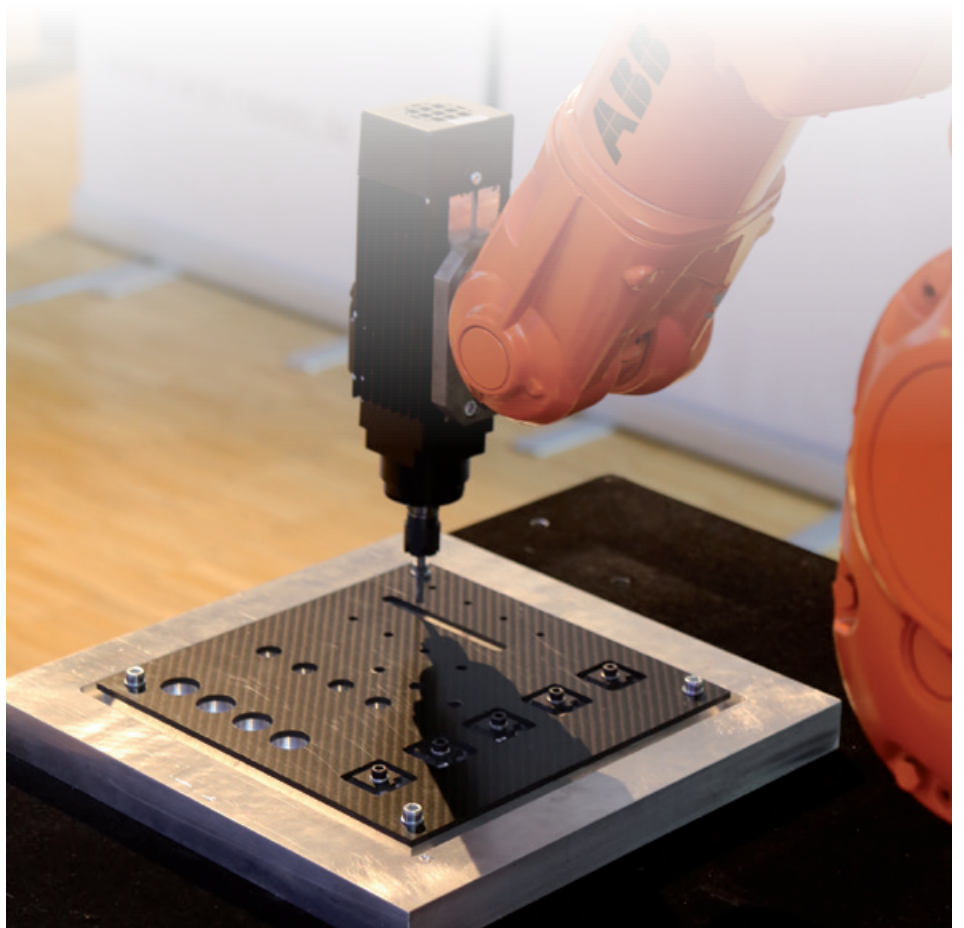
Optimized processes for precision machining of new materials.

The ideal strategy to produce in series faster and without reworking.

Machining new materials presents many tweaks allowing massive reduction of processing expenses while increasing product quality without reworking. Hufschmied Engineering is a new service to optimize your manufacturing processes in three steps.

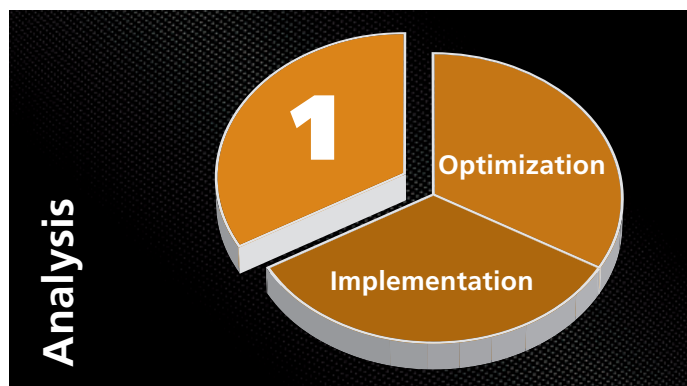
Common objective of all measures is to reduce processing, cycle and running times in your company beginning with submission of quotation up to start of series production, to increase the machining and processing quality and lower manufacturing costs. To achieve this every process step should become more efficient and processing optimized as whole. Together we can achieve this competitive advantage in three steps.

THREE STEPS
TO MORE
EFFICIENT
PROCESSES



First step: Analysis

The more complex the components and the higher the demands on machining of new materials are, the more complex and extensive the manufacturing processes become. Our experts at our HSC center in Bobingen analyze the complete process.



Use the newest analysis and measurement technology:

- High-speed cameras
- High resolution microscopes
- 3D Cutting edge measuring device
- Machine integrated force absorption systems

Examination of the complete manufacturing strategy:

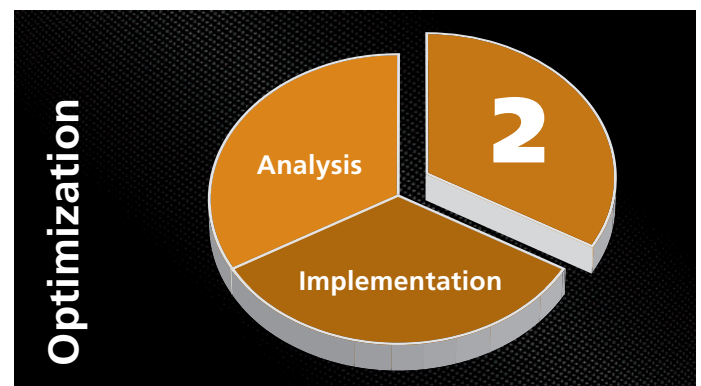
- Pros/Cons of machines used
- Pros/Cons of clamping systems
- Pros/Cons of chuckings
- Pros/Cons of the tools used

Objective of this comprehensive process analysis is to precisely determine the current status and to determine all cost drivers and factors with negative impact upon the machining result. The customer has the same contact person from beginning – till the end of the project.

Second step: Optimization

We will pull all stops for you

The more extensive the processing procedures become, the more points for optimization exist. Based upon your requirements and demands we develop a consistent concept to eliminate all flaws and chinks in your chain of processing.



Basis of this optimization is the comprehensive analysis of the machining process with most modern measurement and analysis technology. We advance into the dimension of processing in which the chip is created. In combination with our broad and deep grasp of the materials make accessible all details about parameters which influence the quality, efficiency, run-time and cost of the component. At the end stands material and tool optimized programming of your machine.

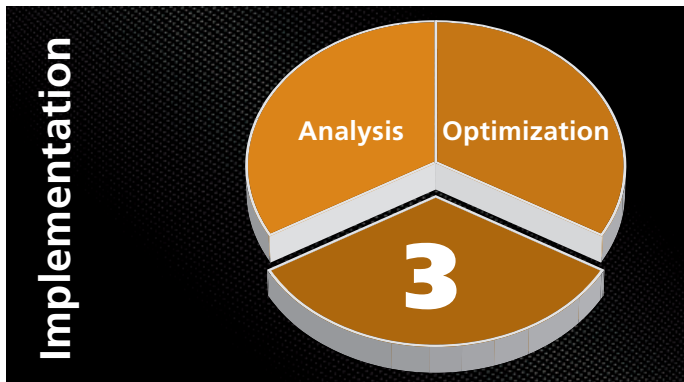
Objectives of the second step:

- Product quality making further reworking unnecessary
- Cost optimized manufacturing processes
- Reducing the number of tools required
- Capacity optimization of the production systems of the customers
- Shortest possible processing times while meeting all quality requirements
- Resource conserving tool use
- Technology transfer

Third step: Implementation

We tap the whole potential

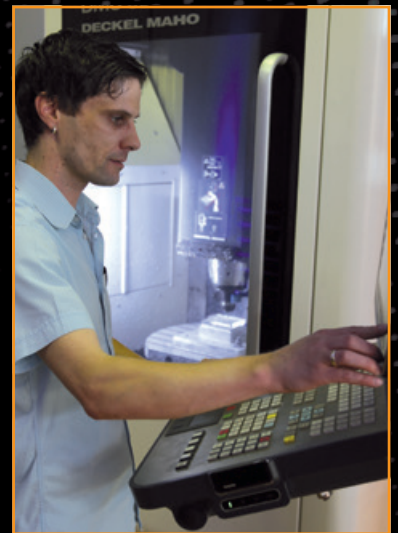
Implementation is based upon a comprehensive package of measures which fully exploits all possibilities of your processing equipment.



Besides material optimized programming of your machine(s) we also take advantage of the significant benefits which can be achieved by using our process-optimized tools. Working together hand in hand we will unleash the full potential for a cost, time and quality optimized series production process to significantly and verifiably boost your competitive capabilities.

Objectives of the third step:

- Running-in of the whole process on-site at the customers
- Material-specific application of respectively process-optimized Hufschmied tools
- Customization and fine-tuning of all process parameters on-site
- Sample machining according to the quality requirements of the customer
- Start of series production in the optimized process at the customer
- Further optimization of tools to ensure and achieve maximum tool life
- Training of the customer staff



From project launch to series production within a few days.

A standardized engineering process delivering immediate and verifiable results.

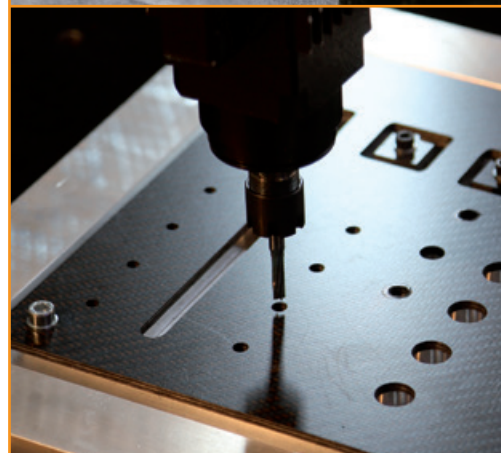
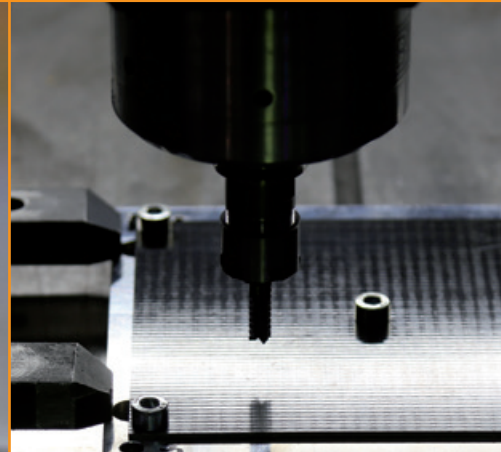
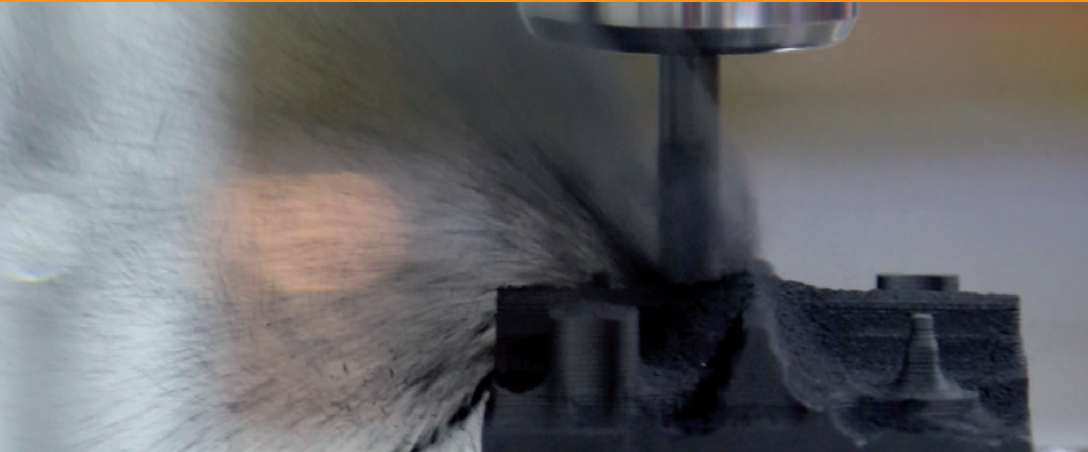
Continuous application consulting is one of our exceptional advantages. Now, we have consolidated our in-house consulting expertise, reinforced the staff and provide comprehensive engineering to our customers as independent and new service. As your project partner from the beginning and our know-how and experience of more than 25 years.

In our technology center in Bobingen the machining processes are analyzed with state-of-the-art technology and remodeled. This is based upon comprehensive databases and our know-how about machining and processing most diverse fiber reinforced composites. The first step is the comprehensive analysis of the complete handling and machining process. The results find immediate application to design and creation of tools correspondingly optimized in process and material at our production plant in Winterlingen.

Benefits for our customers

Using our own standardized engineering process we can often reach start of series production at the on-site manufacturing plants within a few days. All preliminary tests and the programming are conducted at our HSC center in Bobingen. After all parameters are determined and defined we run-in the processes on the customer's machines. This out-sourcing of process development and design to Hufschmied reduces the impact upon the manufacturing capacity of the customers.

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ZERSPANUNGSSYSTEME



Now your initiative is required

Simply contact us and then manufacture optimized.

From practical application – to practical application. This is our standard we apply to a service whose value creating contribution you may directly reap by the lowered manufacturing expenses.

The strategy:

Comprehensive revision of the complete manufacturing process from quotation, initial tests and samples up to series production. Contact us. Together we will optimize your manufacturing process step by step.

Your contact partner is Mr. Markus Schindele.

The standardized engineering process by Hufschmied in detail:

- Inquiry by the customer
- Determination of all requirements by Hufschmied
- Creation of a requirement profile in consultation with the customer
- Research on-site: Which machine is applied with which processing parameters?
- Acceptance of machine, component and clamping parameters by the customer
- Initial tests in Bobingen:
 - Tool pre-selection
 - Force measurements
 - Surface measurements
 - Initial wear analysis
- Machine programming by Hufschmied
- Running-in of the whole process on-site at the customers
- Customization and fine-tuning of all process parameters on-site
- Start of series production in the optimized process at the customer
- Training of customer staff
- Establishing a consignment warehouse in Bobingen for just-in-time tools supply



Hufschmied.
One cut ahead.

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