

Success Story

Diebold UltraGrip®3.0 clamping chuck

" Reduce costs, increase performance. "



Process-safe at maximum cutting depth – economical down to the last detail with UltraGrip®3.0



During the machining of parts made from material 1.4301, there was the challenge is to reliably realize high cutting depths while simultaneously improving tool life and the economic efficiency of the process.

Goals:

To reduce processing times and significantly lower the cost per component.



- ✓ Reduce costs, increase performance, manufacture faster
- ✓ Increase efficiency – maximize profitability

The path to the solution – Diebold UltraGrip® 3.0 in combination with the VHM End Mill 3xD INOX Trochoid cooled from HB microtec

To optimize the milling process, our customer relied on an adapted machining strategy combining the Diebold UltraGrip® 3.0 and the 3xD INOX Trochoid cooled solid carbide end mill from HB microtec. The stable tool clamping enabled smooth, low-vibration machining.

To achieve the optimal result on the workpiece, a two-cut strategy was applied to realize the required depth of 52 mm. Another advantage of the solid carbide end mill AM Trocho 12.36.12.IK.01 is its internal cooling in combination with the newly developed, innovative chip breakers, which ensure optimal chip evacuation.

The milling process was carried out in two passes:

1. Pass	2. Pass
Vc: 130 m/min	Vc: 120 m/min
S: 3.450 1/min	S: 3.183 1/min
Fz: 0,09 mm	Fz: 0,07 mm
Vf: 1.850 mm/min	Vf: 1.336 mm/min
Ap: 28 mm	Ap: 52 mm
Ae: 0,6 mm	Ae: 0,6 mm

Result:



With this strategy, the customer achieved a tool life of approximately 420 minutes, corresponding to 26 machined components per tool



The tool wear was uniform and free of chipping. The solid carbide end mill ACTIONMILL 3xD INOX Trochoid cooled features an optimized chip-splitting geometry for reliable machining of pockets and can also be resharpened without difficulty.





Customer quote:

"The end mill still looks excellent and would not have needed to be replaced."



The economic benefits

- Reduction of machining time by 7 minutes per component
- Cost per component reduced from €25.70 to €7.82
- Cost savings of 69.5%
- High process reliability and reproducible results

Conclusion



By combining an optimized machining strategy based on the customer's adapted milling program, the solid carbide end mill ACTIONMILL INOX Trochoid cooled, and the UltraGrip® 3.0 power chuck, the customer was able to achieve a stable, cost-effective, and process-reliable milling operation for machining material 1.4301.



The long tool life, uniform tool wear, and significant cost reduction underline the added value of the implemented solution

The project was carried out with technical support from Ralf Malinge of HB microtec and Stefan Wöppel of Diebold.



Individual consultation and live demonstrations at your company. Get in touch now for expert advice and increase your efficiency

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Consulting across the entire manufacturing process – from tool selection and machining through to programming

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As a system provider, Diebold not only delivers high-precision shrink-fit technology, but also offers a comprehensive portfolio covering tool and workpiece clamping. This includes modern balancing machines, solutions for tool organization and management, as well as the innovative “Quality Check” service for measuring tool holders.

In addition, the product range comprises precision measuring technology for tools and spindles, as well as high-performance high-frequency spindles for demanding machining processes.

Diebold stands for holistic solutions – from a single source, with the highest level of quality.



*In its standard product range, HB microtec offers tools for milling, drilling, and deburring. The company's goal is to create measurable added value for customers through its tooling solutions. **HB microtec continuously develops these tools further and expands its product lines with additional variants and new innovations.***

