

The logo for WOLF, consisting of the word "WOLF" in a bold, white, sans-serif font on a black rectangular background.A red square icon containing a white graphic of a tool or cutting edge.

Innovative Tool Solutions for High Performance Material Machining

In wake of current demands for conserving resources and energy efficiency, modern materials such as titanium alloys, sulfur reduced and high-strength steels, nickel base alloys, (strengthened) polymer and potassium alloys play a crucial role. This is especially true for aerospace and automotive manufacturing, but also applies to other fields, such as medical technology. Due to their superior mechanical properties, these materials present huge challenges to the machining process.

WOLF, the customer oriented technology partner, offers high-end machining solutions to cope with these specific manufacturing issues, all by a single company.

Both the high technological understanding of the machining process and the close networking of development and applications technology make it possible for WOLF to successfully meet the rising demands towards component quality and growing cost pressure through adapted manufacturing concepts.

WOLF has become a recognized technology partner for manufacturing of nickel base and titanium alloy components through years long, intensive cooperation with numerous customers and leading universities.

This combination of high grinding and machining expertise leads to technologically sensible and economical machining solutions.

Your Advantages

- + Productive and high precision tool solutions
- + Highly reproducible tool quality
- + Technology partner for all your machining needs
- + Economical machining processes
- + High precision components
- + Worldwide regrinding services

VHM Shaft Mill for Titanium Machining

Titanium features relatively low density, high strength, good corrosion resistance and bio-compatibility. Low elasticity modules and strong affinity towards carbon, nitrogen and oxygen lead to problems during machining. Problematic chip production and high temperature development at the tool can be the result. Compared to other materials, titanium has low heat conduction. The usability temperature limit for titanium of the various titanium work materials available on the market is appx. 530° C due to the expected gas intake.

For some 40 years titanium alloys have been in use in aerospace, medical implants and military technology. Special requirements are presented to tool design and production to economically work these hard-to-machine materials.

+ Application specific tool designs

+ Nano layer coating

+ High cutting edge quality

+ Application specific hard metals



Shaft Mills for roughing machining of Ti6Al4V

- + Diameter: 25,4 mm
- + Cutting speed Vc: 42,5 m/min
- + Feed per tooth fz: 0,08 mm/z
- + Cutting depth ap: 35,0 mm
- + Cutting width ae: 6,0 mm
- + Lifecycle: 800 min
- + Cooling: Emulsion



Shaft Mills with Corner Radius for Trochoide Milling of Ti6Al4V

- + Diameter: 20,0 mm
- + Cutting speed Vc: 75 m/min
- + Feed per tooth fz: 0,15 mm/z
- + Cutting depth ap: 45,0 mm
- + Cutting width ae: 2,0 mm
- + Lifecycle: 240 min
- + Cooling: Emulsion





VHM Drill Tools for Machining of Nickel Base Alloys

Super alloys based on nickel are alloys with special composition, which have been developed specifically for high temperature applications. The main advantages of nickel alloys are their crawling and fatigue strength at high temperatures. The special hardening allows them to be used up to close proximity of their melting point.

This hardness is usually reached by applying aluminum and/or titanium. Their high corrosion resistance from impermeable oxide layer allows for the use in gas turbines and airplane turbines. Nickel base alloys can be used in environmental temperatures beyond the melting point (appx. 1200°C).

+ Application specific cutting edge preparation

+ High surface quality in the machining chambers

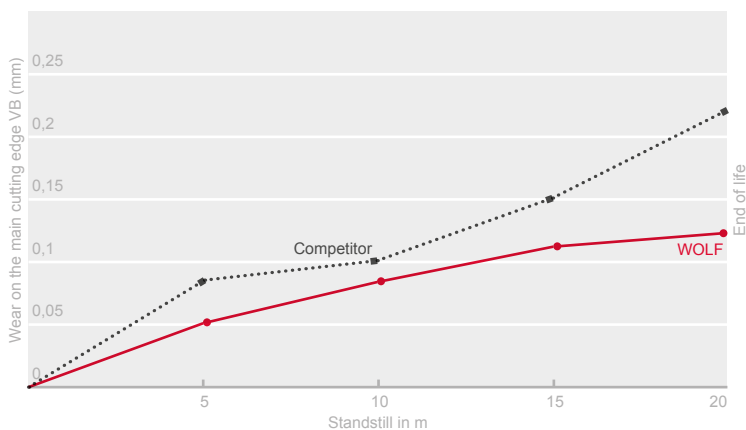
+ Low cutting edge jaggedness

+ High layer adhesion



Drilling of structural components out of Inconel 718 or MAR-M- 247

- + Diameter: 5,0 mm
- + Cutting speed Vc: 25,5 m/min
- + Feed fu: 0,08 mm/U
- + Drilling depth: 20,0 mm
- + Cooling: Emulsion internal and external
- + Clamping situation: Instable



Competitor at the end of the service life



WOLF at the end of the service life



**Customer specific tools
and services**

Thanks to our air-conditioned production area with modern CNC tool grinding machines and our own in-house coating we are able to deliver to our customers quickly, individually and at highest quality.

Customer specific tool development and application consulting belong to our services.



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