

BALINIT TISAFLEX Machining difficult-to-cut materials at the highest level

Tailored coating properties for demanding machining applications



BALINIT TISAFLEX: superior thermal stability and resistance to oxidation and wear

Machining difficult-to-cut materials such as titanium, nickel-based alloys and stainless and hardened steel, which are being used more and more in the aerospace, 3C (Computers, Communications and Consumer electronics) and mould-making industries, pushes cutting tools to the limits of their performance. BALINIT[®] TISAFLEX from Oerlikon Balzers is a high-end coating solution that offers superior oxidation resistance, high thermal stability and exceptional wear resistance, making it perfect for machining these challenging materials.

Top coating properties lead to excellent results

OPTIMISED PERFORMANCE		
Optimised layer structure with tailored mechanical properties of each layer	>	AITiN based layer offers high degree of ductility TiSiXN layer makes BALINIT [®] TISAFLEX hard and resistant to oxidation and wear
Defined stress profile	>	Reduced crack formation and improved resistance to chipping
Superior heat resistance of BALINIT® TISAFLEX	>	The coated tool can sustain high temperatures at the cutting edge
Tailored combination of the coating structure and properties	>	Significant reduction of adhesive wear resulting in extended tool life

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Application recommendations

Operations such as

- Finishing with end mills
- Roughing with end mills
- Finishing using inserts
- Drills

Materials

Materials leading to the formation of the built-up edge effect causing adhesive wear:

- Stainless steel
- Nickel-based alloys
- Titanium-based alloys
- Hardened steel

The superior properties of BALINIT[®] TISAFLEX make it the best coating solution for ambitious machining applications in:

Aerospace

3C Industry





Mold making

BALINIT TISAFLEX: maximum performance for machining difficult-to-cut materials





Machining aerospace components



Milling nickel-based alloy



Tool

Workpiece

Cutting parameters

Chamfer cutter Ø 12 mm

Nickel alloy 2.4650, NiCo20Cr20MoT (UNS N07263, NIMONIC® C-263)

 $v_c = 64 \text{ m/min}$ f, = 0.05 mm/tooth

Manufacturer of aerospace components

End mill Ø 16 mm

Nickel alloy 2.4650, NiCo20Cr20MoT (UNS N07263, NIMONIC® C-263)

v_ = 45 m/min

 $f_{t} = 0.09 \text{ mm/tooth}$

 $a_{0} = 0.50 \text{ mm}$

 $a_p = 0.00$ min $a_a = variable$

Tool manufacturer

Source/ Customer

Benefit from the BALINIT TISAFLEX high-performance coating Contact us now!

Headquarters

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