



## ARDURO®

Reach the summit of impossibility  
in hard machining

voestalpine

ONE STEP AHEAD.

voestalpine eifeler Coating GmbH  
[www.eifeler.com](http://www.eifeler.com)



# YOUR CHALLENGE: HARD MACHINING WITHOUT MARGIN FOR ERROR

**Manufacturers today** face increasing pressure to reduce costs while maintaining high productivity and quality. Tool wear, unexpected downtime, and frequent tool replacements create significant expenses and disrupt operations.

For hard machining applications, these challenges intensify. Machining steels above 55 HRC exposes cutting tools to extreme heat, abrasive wear, and mechanical stress, which quickly degrade performance and shorten tool life.

## THAT'S WHERE ARDURO® STEPS IN

Developed for the toughest jobs in hard machining, ARDURO® is a next-generation Arc-PVD coating optimized for dry and high-speed operations.

- » 20-50% performance gain in benchmark cutting tests
- » Increased tool life, fewer replacements
- » Superior chip control and wear protection
- » Exceptional oxidation resistance (up to 1,100°C)
- » Sustainable cost-efficiency across the tool's lifetime

Additionally, ARDURO®'s surface finish optimizes chip flow and prevents chip adhesion, reducing the risk of built-up edges and improving process stability. The surface quality of the coating prevents the need for post-polishing in most cases, which makes ARDURO® also an ideal coating for micro tools.



## OPTIMIZED FOR PERFORMANCE AND COST EFFICIENCY

ARDURO® offers a combination of technical advantages that translate directly into operational benefits:

- » **Tailor-made layer architecture** engineered to reduce thermal conduction to the substrate and resist mechanical and thermal stresses encountered during hard machining.
- » **Optimized and reproducible coating thickness** ensures reliable coverage across complex geometries and micro tools, supporting consistent tool performance.
- » **Refined surface finish** reduces frictional forces and avoids chip sticking, improving machining stability.
- » **High oxidation resistance** maintains coating integrity at temperatures up to 1,100°C, even in dry, high-speed operations.
- » **Controlled residual stress** enhances coating adhesion and durability for longer tool life.
- » **Reconditioning capability** enables multiple recoating cycles, reducing tooling costs and waste.
- » **Uniform surface appearance** - no color shading - signaling quality, consistency, and trust.

## COATING PROPERTIES

Coating composition:	AlTiSiN-based
Hardness $H_{IT}$	$31 \pm 3$ GPa (~ 3,200 HV <sub>IT</sub> )
Coating thickness	1 – 5 µm
Maximum operating temperature	1,100°C / 2,012°F
Roughness on polished surfaces	$0.02 \pm 0.01$ µm
Residual stress	$-3 \pm 1$ GPa
Color	Caramel bronze

## APPLICATION RANGE

- » Endmills, micro tools, twist drills and taps.
- » **Machining of:**
  - » Hardened tool steels (>55 HRC)
  - » Nickel-based alloys
  - » Titanium alloys
  - » Cast iron

Unlock your hard machining potential with ARDURO® and the dedicated service only eifeler provides.

Speak with our experts to learn how ARDURO® can meet your toughest machining challenges.

**eifeler – Serving with care. Coating with excellence.**



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