

ARDURO®

Reach the summit of impossibility
in hard machining

Machining hardened steel at high cutting speeds and without coolants places extreme demands on tools. Therefore, selecting the correct coating is crucial.

ARDURO® is the latest solution to our portfolio of PVD coatings. Specifically developed for hard machining in the >55 HRC range, ARDURO® sets new standards in tooling performance. This advanced coating offers exceptional abrasion resistance by combining toughness with high hardness, effectively preventing chip sticking and facilitating efficient chip removal.

The innovative coating design, paired with a tailor-made layer architecture and optimized process control, withstands extreme mechanical loads during application and creates a microstructure that efficiently influences thermal conduction towards the substrate.

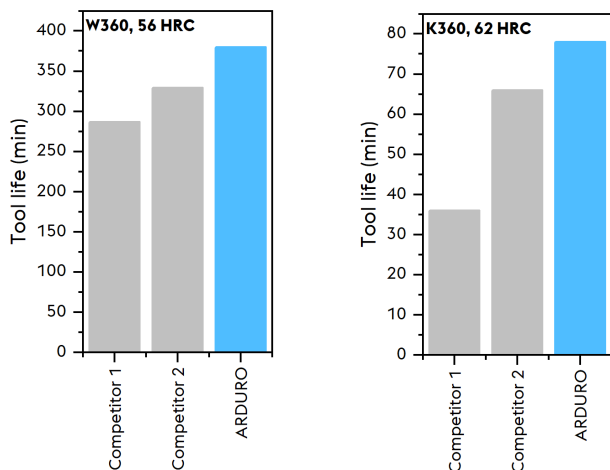


Fig. 1: Performance comparison of the new ARDURO® used with end mills, diameter 10 mm. $f_z = 0.025$ mm, $a_p = 5$ mm, $a_e = 0.5$ mm, max. wear mark width $V_{B,max} = 0.10$ mm. Cutting speed: left $v_c = 95$ m/min, right $v_c = 65$ m/min

COATING PROPERTIES

Hardness H_{IT}	31 ±3 GPa (~ 3,200 HV _{IT})
Coating thickness	
Standard (Tools Ø ≥ 3 mm)	2.5 ± 0.5 µm
Thin (Tools Ø 1 – 3 mm)	1.5 ± 0.3 µm
Micro (Tools Ø < 1 mm)	0.8 ± 0.2 µm
Maximum operating temperature	1,100 °C / 2,012 °F
Roughness on polished surfaces	0.02 ±0.01 µm
Residual stress	-3 ±1 GPa
Color	Caramel bronze
Coating composition	AlTiSiN-based

ADVANTAGES

- » Ideal for machining hardened steel >55 HRC
- » Exceptional abrasion resistance, combining toughness and high hardness
- » Outstanding oxidation resistance – even at high operating temperatures
- » Prevents chip sticking and facilitates chip removal
- » Reduces thermal conduction towards the substrate

