

# ARDURO

Reach the summit of impossibility  
with us in hard machining

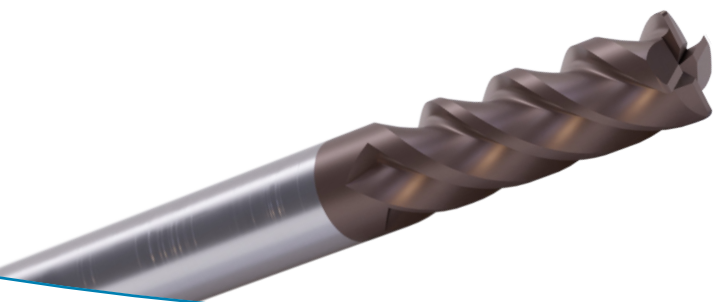
Machining hardened steel at high cutting speeds and without coolants places extreme demands on tools. Therefore, selecting the correct coating is crucial.

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.

## 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



## COATING PROPERTIES

|                                |   |
|--------------------------------|---|
| Hardness $H_{IT}$              | 31 ± 3 GPa<br>(~ 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 ± 0.01 µm                            |
| Residual stress                | -3 ± 1 GPa                                |
| Color                          | Caramel bronze                            |
| Coating composition            | AlTiSiN-based                             |

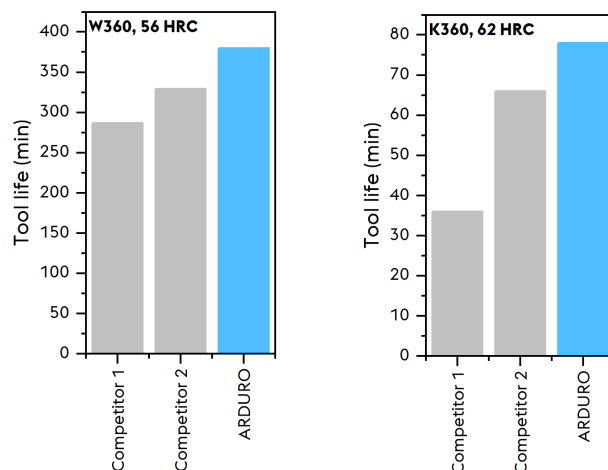


Fig. 1: Performance comparison of the new ARDURO used with end mills, diameter 10 mm,  $f_z = 0.025$  mm,  $a_p = 5$  mm,  $a_e = 0.5$  mm, max. wear mark width  $V_{B,max} = 0.10$  mm. Cutting speed: left  $v_c = 95$  m/min, right  $v_c = 65$  m/min