

TICN-ULTRAFINE

The multipurpose “ultrafine” coating for cutting and forming

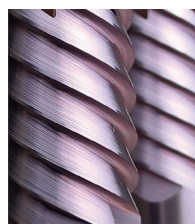
The use of ultrafine technology allows the synthesis of a smooth and defect-reducing arc coating. In cutting applications, The TiCN-ultrafine coating provides significantly improved durability compared to the conventional TiCN arc coating, and also exhibits relatively low friction coefficients as with tribological DLC coatings.

APPLICATIONS

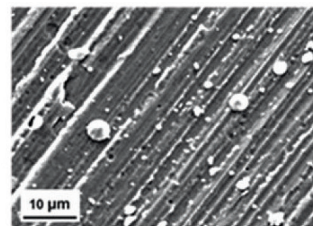
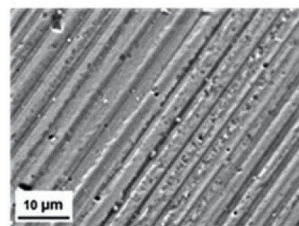
Cutting	The versatile TiCN-ultrafine coating was specifically developed for milling, turning, drilling and cutting operations on high and low alloy steels at moderate thermal loads (max. 400 °C).
Forming	Also suitable for the coating of shaping tools which demand a reduced surface roughness and excellent sliding properties, even with limited use of lubricant.

COATING PROPERTIES

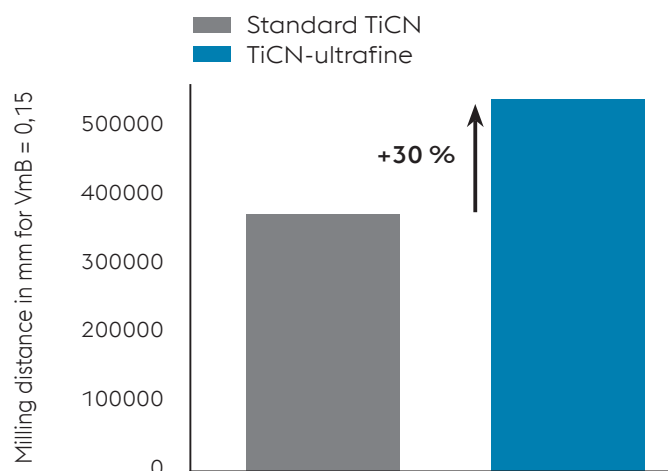
Hardness	3,500 ±500 HV
Max. application temperature	400 °C / 750 °F
Coating thickness	2 – 3 µm
Color	anthracite blue



With TiCN-ultrafine coated solid carbide finishing cutter (Ø 10 mm).



Scanning electron microscope images of the chip flute of a milling cutter coated with TiCN-ultrafine (left) and TiCN (right).



Maximum achieved milling distance for a wear mark width of 0,15 mm, for cooled milling from DIEVAR (48 HRC). Cutting parameters: $v_c = 150$ m / min, $v_f = 2006$ mm / min, $a_p = 10$ mm, $a_e = 0.02$ mm, QUAKER 370 KLF coolant (concentration 10 – 20 %).