# SISTRAL®-ULTRAFINE

**The nanostructured “ultrafine” coating for high-performance metal cutting**

The nanostructured SISTRAL®-ultrafine coating represents a further new development from the “ultrafine” coating series, specially developed for the high speed cutting (HSC) of very abrasive or hard materials (steel >54 HRC) in dry, high-speed applications. The ultrafine technology allows a considerable reduction of the surface roughness.

## APPLICATIONS

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|---|---|
| **Cutting** | Hard, dry and high-performance cutting Drilling, turning, sawing |
| **Other** | Other areas of application which demand extremely high resistance towards oxidation and wear as well as high hot hardness. |

## COATING PROPERTIES

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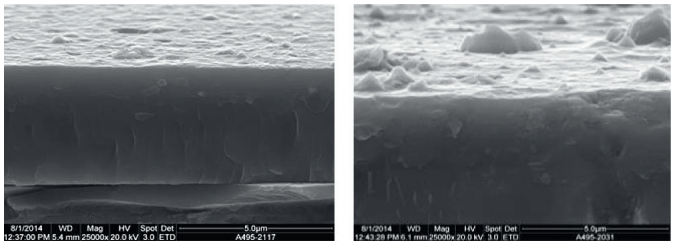
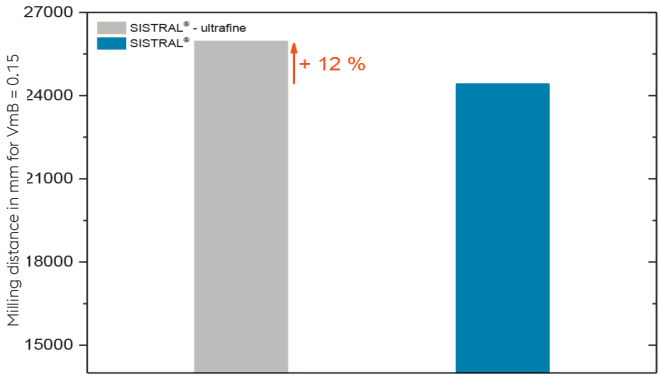
|---|---|
| **Hardness** | 2,500 ± 300 HV (possible increase of hardness up to >3,000 HV in application) |
| **Max. application temperature** | 900 °C / 1,650 °F |
| **Coating thicknesses** | 23 µm |
| **Colour** | anthracite blue |

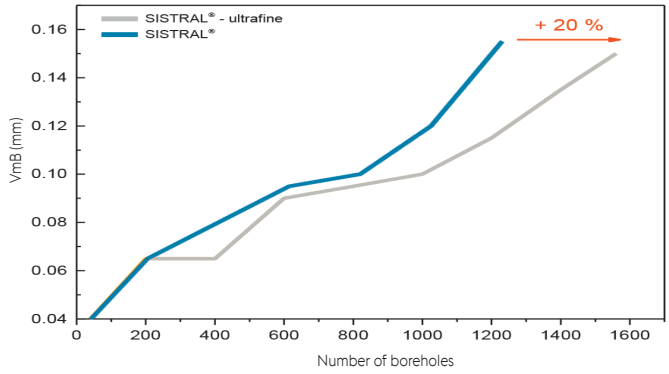


Scanning electron microscope fracture patterns of SISTRAL®-ultrafine (left) and SISTRAL® coatings (right).

The reduction of macroparticle deposition results in a smoother surface layer and low-defect layer structure. This provides a higher wear resistance and improved durability due to friction reduction, especially for hard, dry and high-performance cutting.




Maximally achieved milling distance for a wear mark width of 0.15 mm when hard milling of Vanadis 10 (62 HRC).
Cutting parameters:
$v_c$ =100 m/min, $v_f$ =1,337 mm/min,
$a_p$=10 mm, $a_e$=0.02 mm




Wear mark width as a function of the number of boreholes reached in 1.4571.
Drilling parameters:
$v_c$ =80 m/min, $v_f$=0.08 mm/rev, $a_p$=20 mm, Avilub 10 %

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