

# SUBLIME®

For high speeds in  
machining and gear cutting



Tools used in machining and gear cutting are exposed to particularly high temperatures.

Whether due to dry machining, high cutting speeds or steels to be machined that themselves have low thermal conductivity, such as titanium or nickel-based alloys – the coating must protect the tools.

With SUBLIME® we offer a solution that withstands even the most demanding conditions.

## COATING ADVANTAGES

- » Outstanding results in the machining of titanium, stainless steel and nickel-based alloys
- » Considerable red hardness and oxidation resistance
- » Excellent results for dry gear cutting, e.g. on gear hobbing machines

## COATING PROPERTIES

|  |                     |
|--|---------------------|
| <b>Hardness</b>                              | 3,300 ±200 HV       |
| <b>Coating thickness</b>                     | 3.0 ±1.0 µm         |
| <b>Maximum operating temperature</b>         | 1,100 °C / 2,012 °F |
| <b>Coefficient of friction against steel</b> | 0.7 – 0.8           |
| <b>Roughness on polished surfaces</b>        | 0.07 µm             |
| <b>Colour</b>                                | Grey                |
| <b>Coating composition</b>                   | AlCrTiXN-based      |

## APPLICATIONS

- » Machining – dry and wet machining
- » Gear cutting – dry and wet machining



|  | Drilling                                     | Turning  | Milling  | Sawblades   | Thread cutting  | Reaming   | Gear cutting   |
|--|--|--|--|---|---|---|--|
| <b>Steel</b><br><b>&lt;55 HRC</b>      | EXXTRAL® (Plus)<br>SISTRAL® Gold<br>SUBLIME® | EXXTRAL® (Plus)<br>SISTRAL® (Gold)<br>SUBLIME® | EXXTRAL® (Plus)<br>SISTRAL® (Gold)<br>SUBLIME® | TiN / TiCN (HSS)<br>EXXTRAL® (Plus)<br>SISTRAL®<br>SUBLIME® | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>EXXTRAL® *                           | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>EXXTRAL® *                           | TiN / TiCN<br>VARIANTIC®<br>EXXTRAL® (HM/HP) *<br>SUBLIME® |
| <b>Steel</b><br><b>&gt;55 HRC</b>      | SISTRAL® (Plus)                              | SISTRAL® (Plus)                                | SISTRAL® (Plus)                                | EXXTRAL® (Plus)<br>SISTRAL®                                 | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>SISTRAL® *(Plus)                     | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>SISTRAL® *(Plus)                     | TiN / TiCN<br>VARIANTIC®<br>EXXTRAL® (HM/HP) *<br>SUBLIME® |
| <b>Stainless steel</b>                 | SISTRAL® Gold<br>SUBLIME®                    | SISTRAL® Gold<br>SUBLIME®                      | SISTRAL® Gold<br>SUBLIME®                      | TiN / TiCN<br>EXXTRAL® (Plus)<br>SISTRAL®<br>SUBLIME®       | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>SISTRAL® Gold<br>SUBLIME®            | TiN (+MoX2)<br>TiCN (+MoX2)<br>SISTRAL® Gold<br>SUBLIME®                | TiN / TiCN<br>VARIANTIC®<br>EXXTRAL® (HM/HP) *<br>SUBLIME® |
| <b>Cast iron</b>                       | EXXTRAL® (Plus)<br>SISTRAL® Gold             | EXXTRAL® (Plus)<br>SISTRAL® Gold               | EXXTRAL® (Plus)<br>SISTRAL® Gold               | TiN / TiCN (HSS)<br>EXXTRAL® (Plus)<br>SISTRAL® *           | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>EXXTRAL® *(Plus)<br>SISTRAL® *(Gold) | TiN (+MoX2) *<br>TiCN (+MoX2) *<br>EXXTRAL® *(Plus)<br>SISTRAL® *(Gold) | TiN / TiCN<br>VARIANTIC®<br>EXXTRAL® (HM/HP) *<br>SUBLIME® |
| <b>Aluminium</b><br><b>Si &lt; 9 %</b> | ZrN / ZrCN<br>CARBON-X®                      | ZrN / ZrCN<br>CARBON-X®                        | ZrN / ZrCN<br>CARBON-X®                        | CARBON-X®   | ZrN / ZrCN<br>CARBON-X®   | ZrN / ZrCN<br>CARBON-X®   | EXXTRAL® Silber  |
| <b>Aluminium</b><br><b>Si &gt; 9 %</b> | ZrCN<br>EXXTRAL® Silber                      | ZrCN<br>EXXTRAL® Silber                        | ZrCN<br>EXXTRAL® Silber                        | EXXTRAL® Silber   | ZrCN<br>EXXTRAL® Silber   | ZrCN<br>EXXTRAL® Silber   | EXXTRAL® Silber  |
| <b>Ti based alloys</b>                 | SISTRAL® Gold<br>SUBLIME®                    | SISTRAL® Gold<br>SUBLIME®                      | SISTRAL® Gold<br>SUBLIME®                      | SUBLIME®  | SISTRAL® Gold<br>SUBLIME®   | SISTRAL® Gold<br>SUBLIME®   | SUBLIME®   |
| <b>Ni based alloys</b>                 | SISTRAL® Gold<br>SUBLIME®                    | SISTRAL® Gold<br>SUBLIME®                      | SISTRAL® Gold<br>SUBLIME®                      | SUBLIME®  | SISTRAL® Gold<br>SUBLIME®   | SISTRAL® Gold<br>SUBLIME®   | SUBLIME®   |
| <b>Brass / copper</b>                  | EXXTRAL® Silber<br>CARBON-X®                 | EXXTRAL® Silber<br>CARBON-X®                   | EXXTRAL® Silber<br>CARBON-X®                   | EXXTRAL® Silber<br>CARBON-X®                                | EXXTRAL® Silber<br>CARBON-X®  | EXXTRAL® Silber<br>CARBON-X®  | EXXTRAL® Silber  |
| <b>Wood</b>                            | EXXTRAL® Silber                              | EXXTRAL® Silber                                | EXXTRAL® Silber                                | EXXTRAL® Silber   | EXXTRAL® Silber   | EXXTRAL® Silber   | CrN<br>EXXTRAL® Silber                                     |

\* ultrafine on request