



eifeler

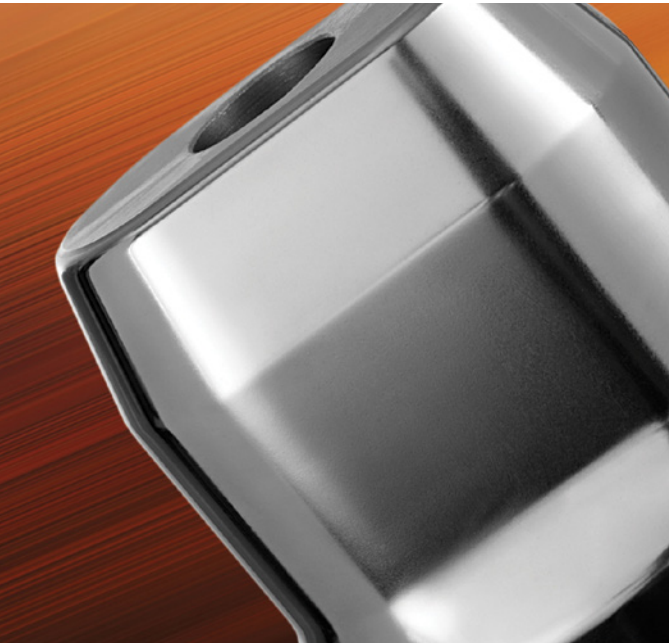
CROSAL® - PLUS
COATING

voestalpine eifeler Coatings
www.eifeler.com/northamerica

voestalpine

ONE STEP AHEAD.

THE CROSAL[®]-PLUS ADVANTAGE



CROSAL-plus is voestalpine eifeler Coatings' next generation AlCrN based hard coating. This new coating is an advanced development of our well established CROSAL coating.

In many manufacturing applications, localized extreme temperatures can be detrimental not only to the performance of tooling but also to the workpiece material and or finished product.

BENEFITS OF CROSAL-PLUS:

Our new CROSAL-plus coating meets the requirements of these demanding environments and applications to deliver:

- » **Extended Tooling and Coating Life**
- » **Improved Abrasion Resistance at High Temperatures**
- » **Increased Productivity in Demanding Applications**
- » **Decreased Tooling Cost**

FEATURES

As a result of optimizing process parameters to enhance the coating microstructure CROSAL-plus has several key characteristics:

- » **High Thermal Threshold**
- » **Excellent Wear Resistance**
- » **Outstanding Hot Hardness**
- » **Superior Coating Adhesion**

voestalpine eifeler Coatings CROSAL-plus is deposited using our unique PVD-Arc coating process which delivers maximum adhesive strength and optimized coating smoothness.



APPLICATIONS

CROSAL-plus is especially suited for the following applications:

Cutting Applications

- » High Performance Cutting and Milling
- » Gear Cutting and Hobbing, Including Stick Blades
- » Dry Broaching of Tough Alloys

Stamping/Forming Applications

- » Fine Blanking
- » Stamping and Forming
- » Hot Pressing
- » Aluminum Die Casting
- » Forging



PROPERTIES

Material: Aluminum Chromium Nitride Based, AlCrN

Micro-hardness: 3200 ± 300 HV

Maximum temperature of operation: $1100^{\circ}\text{C}/2012^{\circ}\text{F}$

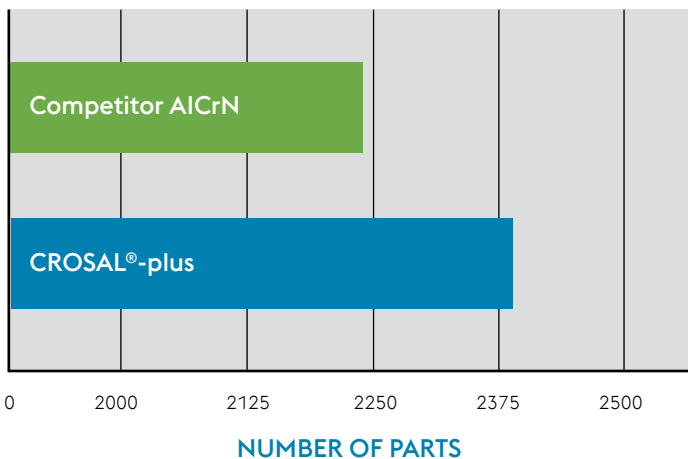
Coefficient of friction against steel: 0.45

Coating thickness: 2-5 μm

Color: Slate-Grey



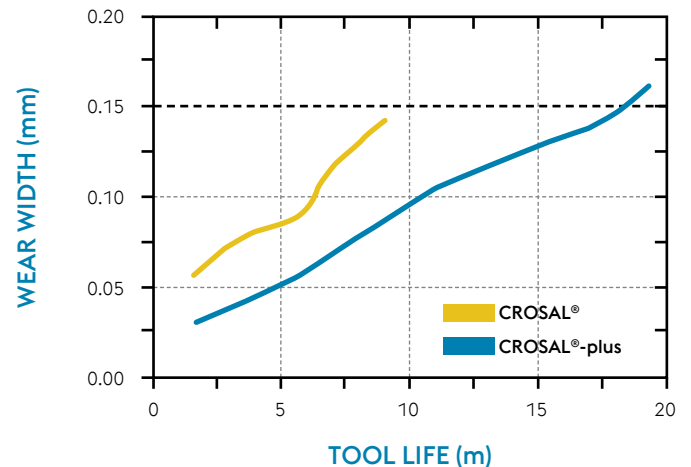
CROSAL-PLUS PRODUCTIVITY



Hobbing, 2-cutting technique,

PM-hob, dry, 5th speed, 16MnCr5 roughening: 180 m/min
refining: 360 m/min

CROSAL-PLUS TOOL LIFE



Hard cutting in VANADIS10,

H=61HRC, CC-end mill Z=6, $v_c=100$ m/min, $f_z=0.07$ mm/tooth,
 $v_f=1337$ mm/min, $a_p=10$ mm, $a_e=0.2$ mm

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