

CROSAL<sup>®</sup>-PLUS  
COATING

# THE CROSAL<sup>®</sup>-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

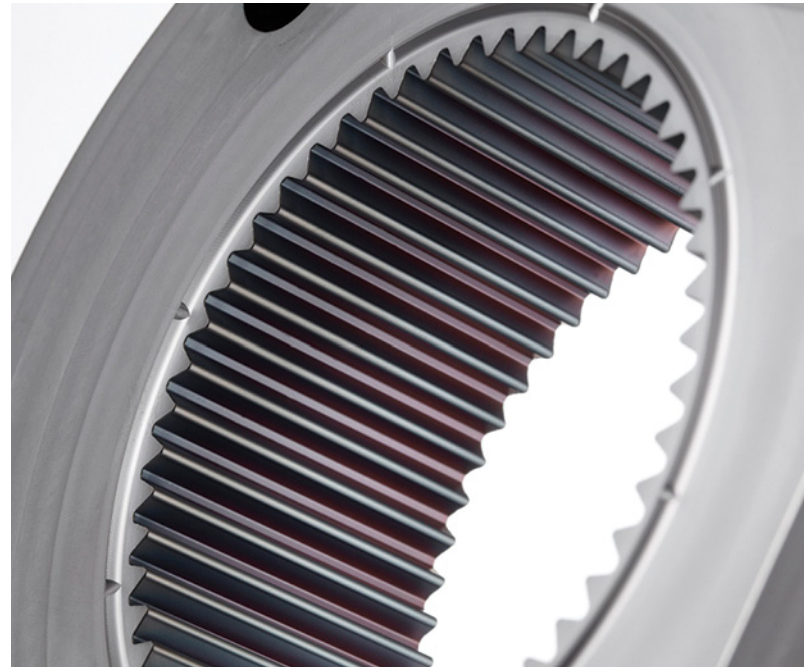
Micro-hardness:  $3200 \pm 300$  HV

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

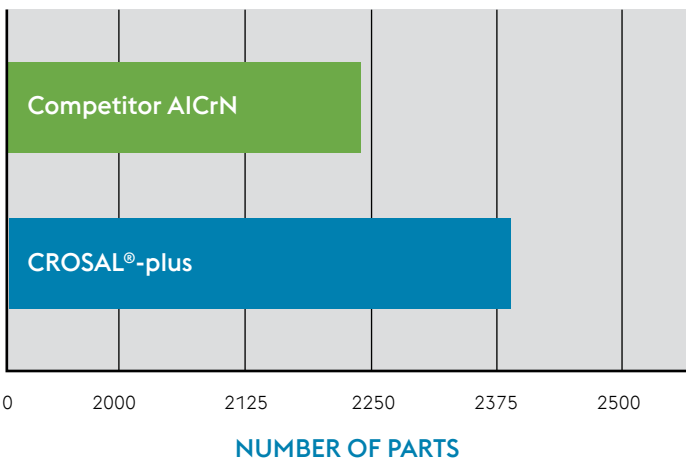
Coefficient of friction against steel: 0.45

Coating thickness: 2-5  $\mu\text{m}$

Color: Slate-Grey



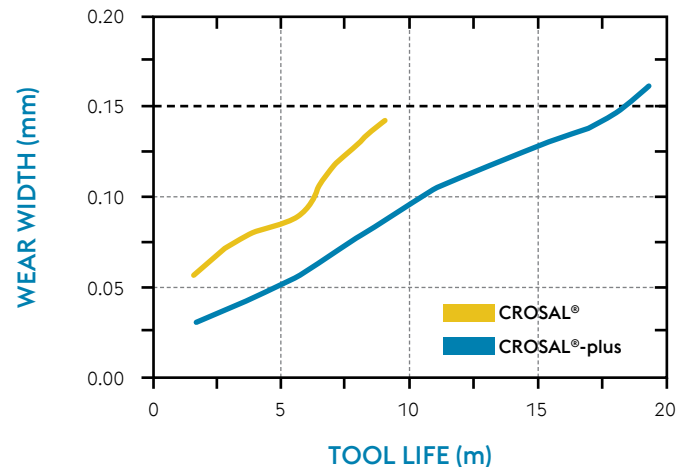
## CROSAL-PLUS PRODUCTIVITY



### Hobbing, 2-cutting technique,

PM-hob, dry, 5<sup>th</sup> 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

## Locations:

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