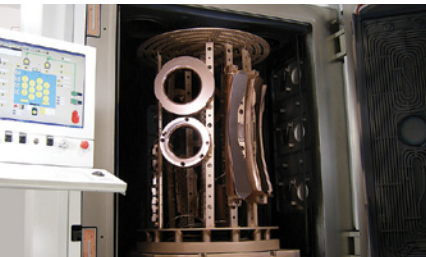


PVD COATING SOLUTIONS

Tooling potential is driven by coating performance



PVD COATING GRADES

- » Duplex-TIGRAL®
- » Duplex-VARIANTIC®
- » CROSAL®-plus
- » EXXTRAL (aluminum titanium nitride)
- » EXXTRAL UF
- » CrN (hi & low temp.)
- » TiCN

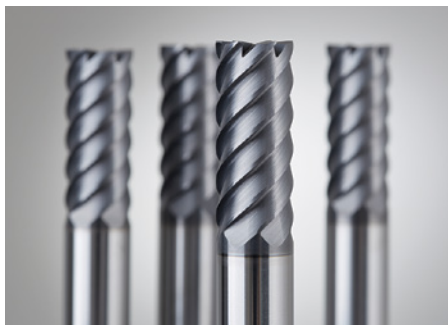
voestalpine eifeler Coatings is pleased to offer advanced Physical Vapour Deposition (PVD) coating services. Our state-of-the-art coating centers are equipped with the latest in PVD coating technology. PVD is a vacuum coating technique in which a hard film is created to provide a wear resistant surface on the target material. This film extends tool life of the tool, lowers tool maintenance while providing improved part quality.

A significant advantage of PVD coatings is the application of the coating at temperatures that do not require additional heat treat steps. This prevents potential growth and distortion concerns associated with TD and CVD treatments while reducing overall turnaround.

Our PVD Coating Centers specialize in creating custom solutions for the automotive, die casting, machining and plastic injection industries; but we are equipped to service a wide variety of segments and customer needs. Our coating centers operate alongside the company's steel and thermal processing divisions. We offer an unparalleled level of value-added services compared to any steel company worldwide.

At no time before has a steel supplier been able to provide optimized solutions with material selection, additive manufacturing, heat treatment, and coating technology! Our unique understanding of all three components allows voestalpine to develop complete solutions without compromise and with assured quality.

PVD COATING SOLUTIONS



CROSAL®-plus Coating

CROSAL-plus is the next generation AlCrN coating for difficult applications. This high performance coating features excellent hot hardness and oxidation resistance, which provides coating stability at higher temperatures and extreme cutting speeds. Its high adhesive strength also makes it suitable in the forming sector in high pressure applications. Deposited with voestalpine Vacotec technology, CROSAL-plus brings high temperature stability to extreme pressure applications.

PRIMARY APPLICATIONS

- » **Cutting: high performance gear cutting, hobbing and broaching**
- » **Forming/punching: fine blanking, hot pressing, aluminum die casting**

Duplex-TIGRAL® Coating

Duplex-TIGRAL is designed for tools in need of very high resistance against oxidation, abrasion and chemical attack. It is a two stage coating process, composed of Plasma Nitride followed by a mono layered composite coating. The composition creates a very tough but ductile film ideal for environments such as die casting and hot forging. Duplex-TIGRAL's unique chemistry makes it the "Number 1" choice to protect your die cast tooling investment.

PRIMARY APPLICATIONS

- » **Die casting**
- » **Warm forming**
- » **Aluminum extrusion**

Duplex-VARIANTIC® Coating

Duplex-VARIANTIC is a two stage high performance treatment consisting of an engineered plasma-nitride and a "low" temperature multi-layered PVD coating. This multi-layered composition greatly reduces internal coating stresses which prevents the propagation of coating micro-cracks. The resulting benefits provide significant tool life improvements in the most extreme pressure applications.

PRIMARY APPLICATIONS

- » **Stamping, forming and punching of all HSLA and dual phase steels**
- » **Coating for a wide range of carbide, and high speed steel tooling**
- » **Machining of all types of steel under dry and wet conditions**
- » **Sliding wear protection for automation and production equipment**

The voestalpine eifeler Coatings team is committed to delivering high performance coatings. All products are coated on the same reliable equipment used at our locations worldwide, accommodating our globally expanding client base.