

» CARBIDE AND COATINGS

# THERMAL COATINGS

More effective against wear.

DURIT



# » WEAR OPTIMIZATION AS A GOAL— PRODUCTIVITY AS A RESULT

When it comes to minimizing wear, DURIT is one of the globally trend-setting companies. We also play a leading role in the growing coatings market. Our processes represent technological innovation and they **increase performance and service life of parts, tools and components.** The range of products we can improve by applying coatings is virtually infinite.

» COATING SOLUTIONS BY DURIT—PERFORMANCE AND LONGEVITY PERFECTLY BALANCED



» HVOF WC/Co

## HARDFACTS

- » **DURIT COATINGS**  
Wear resistance and best performance
- » **REDUCED**  
abrasion, erosion and friction
- » **INCREASED**  
resilience (wear and corrosion)
- » **IMPROVED**  
conductivity and insulation  
(electrical, thermal)
- » **CREATED**  
biocompatibility

# » THERMAL COATINGS

DURIT realizes customized solutions by **effective coating processes that improve the durability of parts and components:** Our experts develop and implement all improvements of the surface properties individually and specifically to the respective requirement.

» WE RESOLVE YOUR WEAR ISSUES

This **also applies to established production processes.** On that point, wear patterns and potential causes of malfunction including all parameters decisive for the respective application, e.g. temperature, pressure, adjacent components, or the processed medium, are analyzed at first. Thermal coatings by DURIT offer most effective possibilities to **considerably improve the operational performance.**

» WITHSTANDS MOST EXTREME DEMANDS



» HVOF WC/Co

## LASER CLADDING

Laser deposition welding

### » Alloys

Weldable powders (carbides, metals)—comparable with Stellite, Triballoy, Colmoly, Hastalloy, Inconel or similar

## HVOF

High Velocity Oxygen Fuel

### » Carbides

WC/Co	WC/Co-Cr	WC/Ni
WC/NiCr	WC/NiCrBSiFe	Cr <sub>2</sub> C <sub>3</sub> /NiCr

## APS

Atmospheric Plasma Spraying

### » Ceramics

Al <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> /TiO <sub>2</sub>	Cr <sub>2</sub> O <sub>3</sub>
Cr <sub>2</sub> O <sub>3</sub> /TiO <sub>2</sub>	ZrO <sub>2</sub> /MgO	ZrO <sub>2</sub> /Y <sub>2</sub> O <sub>3</sub>	

## EAWS

Electric Arc Wire Spraying

### » Metals

Cu	Mo	NiCr	NiCrMo	NiCrAlY
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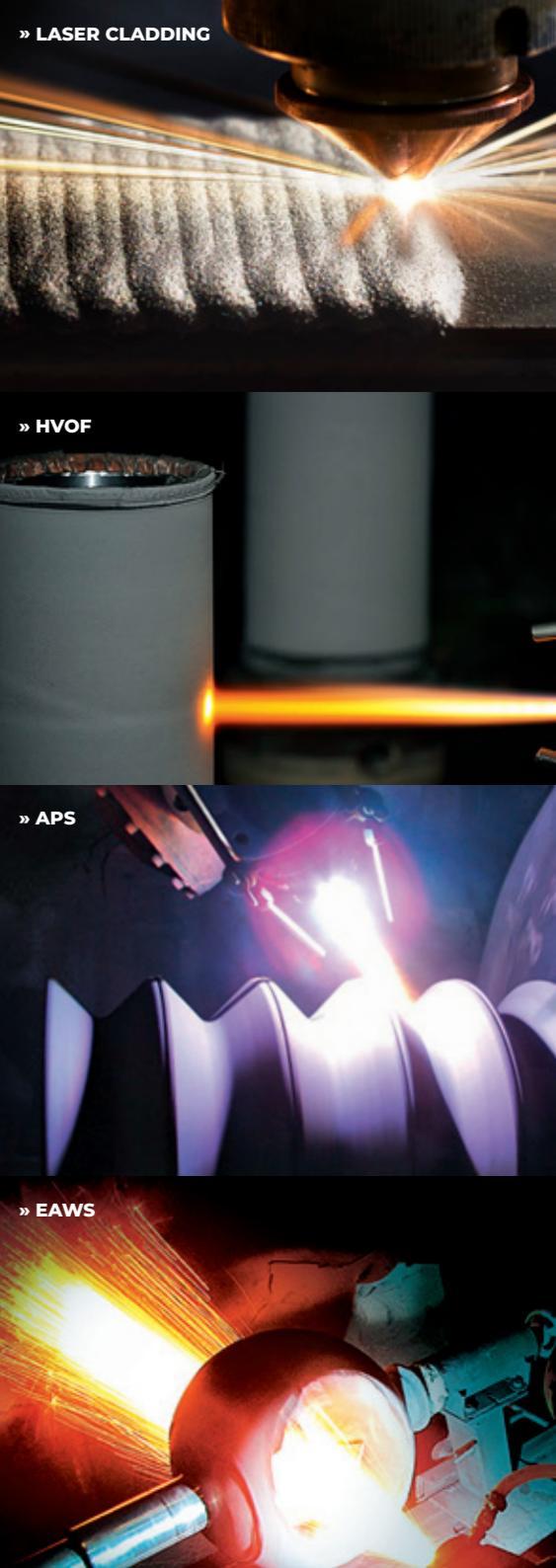
Additional coating materials by request.

» LASER CLADDING

» HVOF

» APS

» EAWS



## » LASER CLADDING LASER DEPOSITION WELDING

Laser-based coating processes play a key role in today's manufacturing and maintenance processes. Due to its **high accuracy**, mostly nickel-cobalt based, alloys can be applied very precisely.

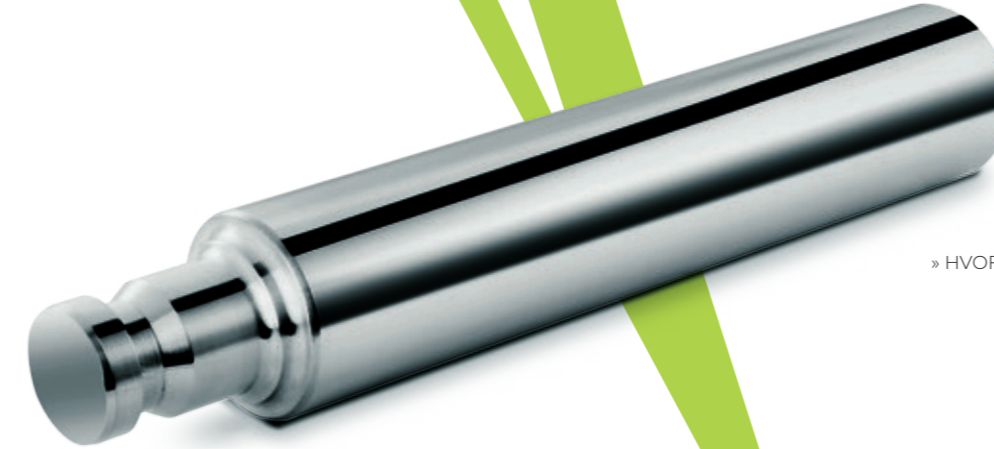
### » PROPERTIES

- Ø Adhesive strength: > 300 MPa
- Ø Porosity: 0%
- Ø Thickness of coating: 0.2 to 5 mm and more

### » ADVANTAGES

- Very good layer adhesion due to metallurgic fusion
- Partial coating and complex geometries possible
- High contour precision—even for elaborate shapes of workpieces
- Development of very fine microstructures
- Limited heat input

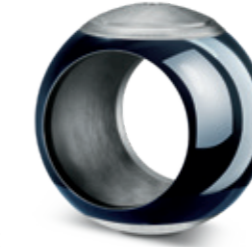
» Laser Cladding



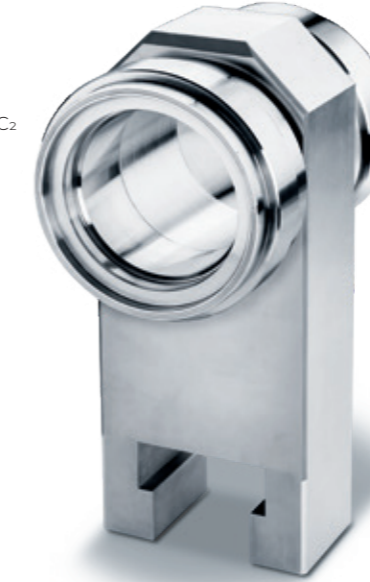
» HVOF CRC-MAX



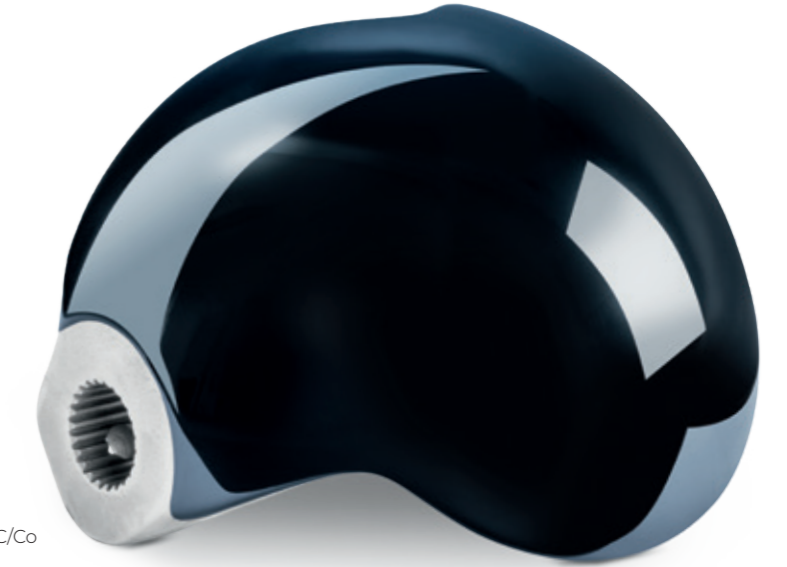
» HVOF WC/Co



» HVOF WC/Co



» HVOF Cr<sub>3</sub>C<sub>2</sub>



» HVOF WC/Co

## » HVOF HIGH VELOCITY OXI-FUEL

HVOF-Flame Spraying is a high-velocity process, usually applying a **carbide or metal layer coating**, which allows our experts to create **densely sealed surfaces**.

### » PROPERTIES

- Ø Adhesive strength: > 80 MPa
- Ø Porosity: 0.5% to 1%
- Ø Thickness of coating: 100 to 500 µm

### » ADVANTAGES

- Low thermal load of basic material
- High endurance at linear loads
- Material-independent and partial coating possible
- High density of coating layer
- Thin layers with high dimensional accuracy

» HVOF WC/Co



## » APS ATMOSPHERIC PLASMA SPRAYING

The most flexible of all thermal spray processes produces enough energy to melt any material and allows superior handling to achieve—usually with CERAMICS—**optimal layer thickness** and surface characteristics.

### » PROPERTIES

- Ø Adhesive strength: 20 to 50 MPa
- Ø Porosity: 4% to 8%
- Ø Thickness of coating: 200 to 1,000  $\mu$

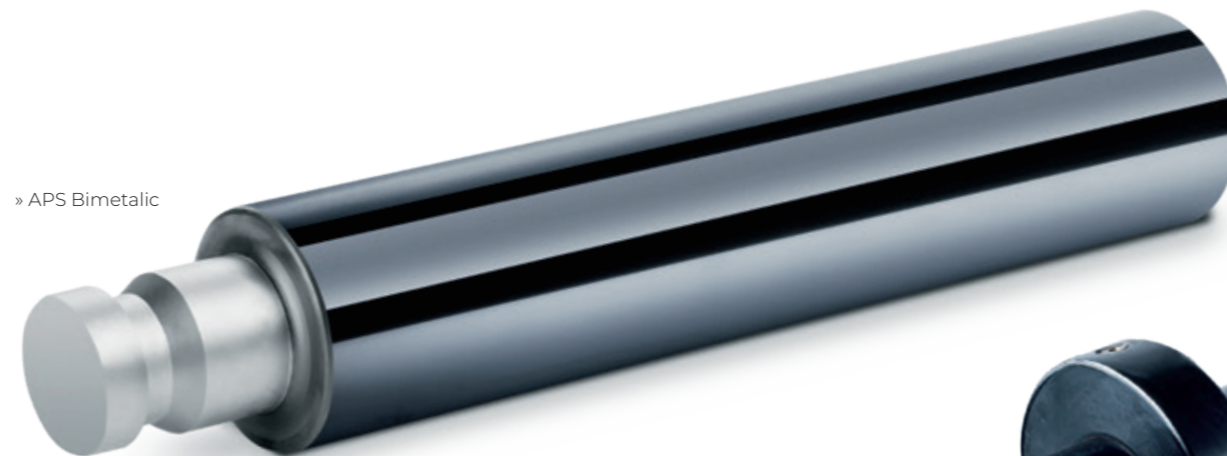
### » ADVANTAGES

- Broad range of materials on diverse matters
- Low heat input into the component
- Good control of layer thickness and surface properties
- Coating of small inner bores possible
- Improvement of thermal or electric insulation

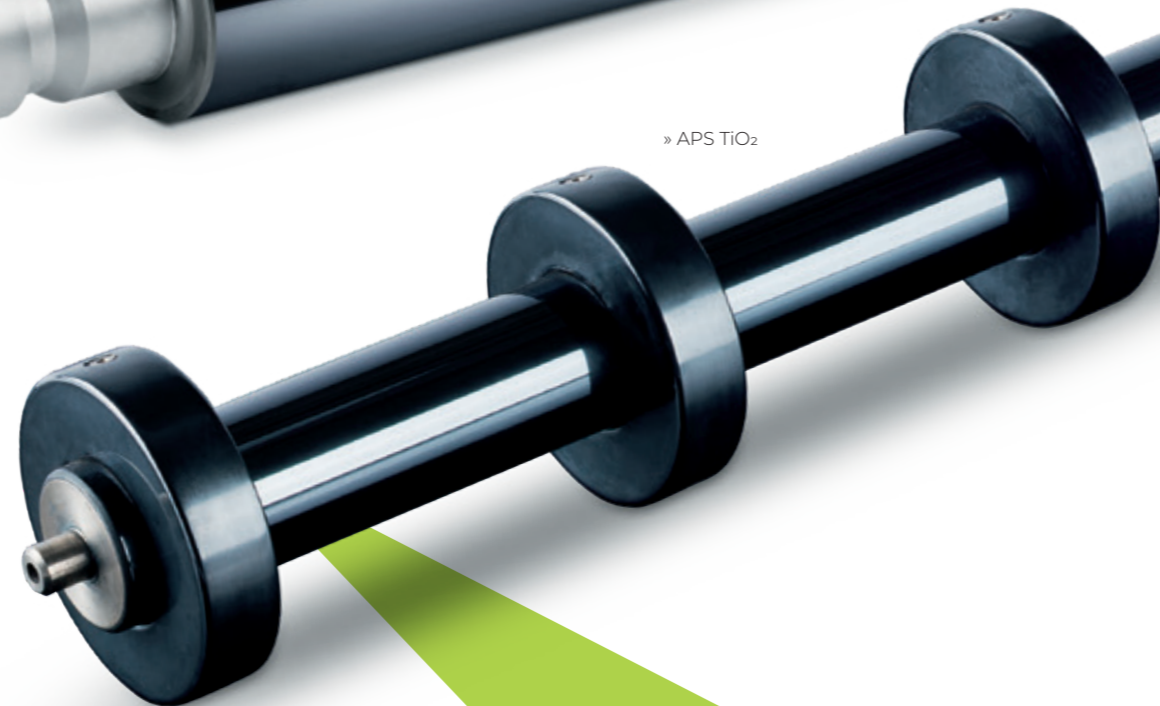
» APS Al<sub>2</sub>O<sub>3</sub>



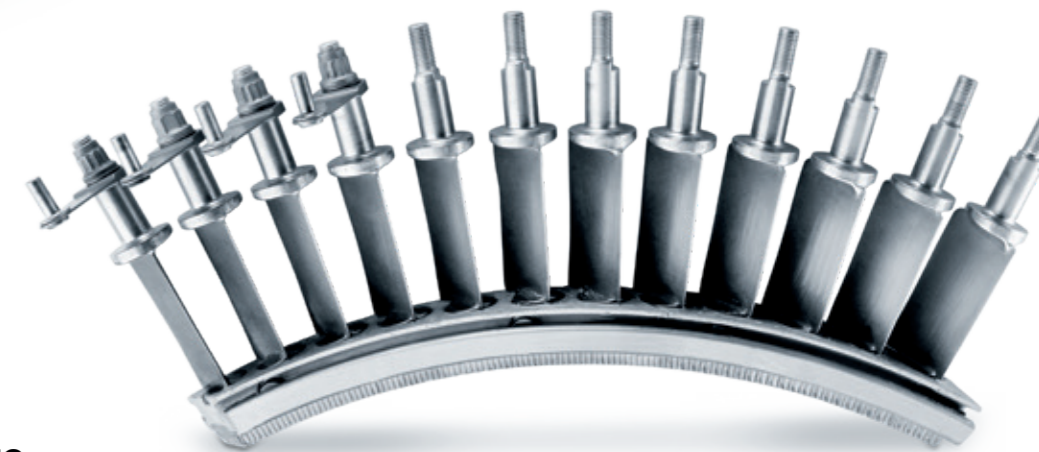
» APS Bimetallic



» APS TiO<sub>2</sub>



» EAWS Inconel 718



## » EAWS ELECTRIC ARC WIRE SPRAYING

This process allows massively increased protection against wear, improved corrosion resistance, thermal insulation, electrical insulation as well as enhancement of visual perception by using mainly **metallic coating materials**.

### » PROPERTIES

- Ø Adhesive strength: 15 to 40 MPa
- Ø Porosity: 3%
- Ø Thickness of coating: 200 to 5,000  $\mu$ m

### » ADVANTAGES

- Thick application of more than 5 mm possible
- Enhanced service lives and reduced maintenance costs
- Ideal for repair of machine parts
- Wear protection containing molybdenum is possible as well
- Enormously high profitability

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**takes you to EXTREMES**    

