

## CERTESS<sup>®</sup> NITRO

NITRO layers correspond to nitrides produced by the PEMSTM process at low temperature (<200°C). They are used in a wide range of mechanical fields and can be used to solve complex wear problems.

### Characteristics:

- Hardness from 1000 to 4000 HV
- Resistance to abrasive and adhesive wear
- Thermal stability up to 800°C
- Resistance to oxidation

### Materials suitable for treatment:

Steels and cast irons • Carbides • Dense sintered materials • Inconel alloys • Aluminium, copper and titanium alloys

### Examples of use:

Parts subject to wear by abrasion (textile machines, paper mill tools, aeronautics, etc.)

Trade name	CERTESS <sup>®</sup> NITRO Ti	CERTESS <sup>®</sup> NITRO T	CERTESS <sup>®</sup> NITRO SD	CERTESS <sup>®</sup> NITRO X	CERTESS <sup>®</sup> NITRO G	CERTESS <sup>®</sup> NITRO M
Architecture	TiN	TiAlN	TiBN	CrxNy	ZrN	MoN

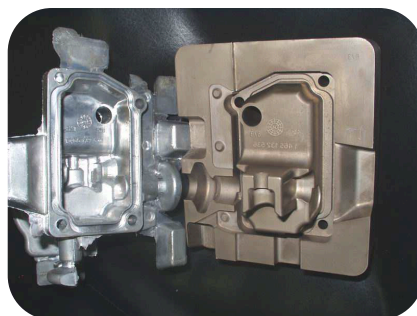
With the CERTESS<sup>®</sup> NITRO line, HEF Group offers a complete range of ultra-hard coatings to meet all your wear challenges.

More specifically, these treatments are used in a wide range of fields, and provide solutions to complex wear issues. They can be used to prevent:

- abrasive wear
- adhesive wear
- erosion

They are used in a wide variety of fields, including:

- aerospace
- automotive components
- mechanical components used in industrial machinery and equipment
- tooling applications (cutting, shaping, stamping, etc.)
- molds for the plastics and rubber industries
- die casting
- medical instruments and various decorative and optical applications



Coatings	Architecture	Thickness	Hardness	Treatment temperature	Maximum temperature of use	Applications
Certess <sup>®</sup> Ti	Ti-N	Typically 2-6 μm depending on application	2700 HV	250 – 450 °C according to the substrate	500°C	Forming tools Cutting tools Wear resistance of mechanical parts
Certess <sup>®</sup> X	Cr-N		1500 – 2200 HV	150 – 350 °C according to the substrate	700°C	Wear and adhesion issues on plastic molds Wear resistance of mechanical parts Automotive parts
Certess <sup>®</sup> T	Ti-Al-N		3000 HV	300 – 450 °C according to the substrate	800°C	Cutting tools High-temperature wear resistance of mechanical parts
Certess <sup>®</sup> SD	Ti-B-N		>3500 HV	250 – 450 °C according to the substrate	700 – 800°C	Wear and adhesion issues for plastic molds Wear resistance of mechanical parts Wear and adhesion issues on aluminum die-cast molds

