BALINIT® ARCTIC
Coatings that leave your tools cold
In top form thanks to low temperature

With BALINIT® ARCTIC coatings, even tools made of low tempered steels and nonferrous metals deliver more performance. A lot more.

The standard way of applying high-performance nitride coatings (such as TiN, TiAlN and CrN) to tools is by arc evaporation at temperatures of 400 to 450 °C. Tools coated in this way offer longer life, simplify and stabilise production processes at the highest level, and thus establish a basis for perceptible productivity gains in metals and plastics processing applications.

New: coating at 200 °C

A novel arc technology devised by Oerlikon Balzers permits coating at 200 °C. The upshot is that the renowned high-performance nitride coatings BALINIT® A, BALINIT® D and BALINIT® FUTURA NANO can now be applied to cold-working steels and die steels for plastics processing, commonly tempered at around 200 °C, as well as to copper alloys. And there is no trade-off in terms of quality and performance!

Hot for novel applications

With BALINIT® ARCTIC coatings, injection-moulding and extrusion dies for plastics as well as punches and dies for piercing, blanking and forming can be coated:
- without distortion
- with no loss of hardness
- with no reduction in corrosion resistance
- with excellent coating adhesion
- while maintaining the quality that has made BALINIT® famous

Apply the well-known advantages of BALINIT® coatings to an expanded range of tools used to make:
- components for the automotive industry
- parts for appliances and electronics
- packaging for cosmetics, beverages, and foods
- pharmaceutical and medical products
- sports and leisure products, toys, etc.

The boost in productivity with BALINIT® ARCTIC coatings certainly won’t leave you cold!

Plastics processing

Plastics fabricators and tool- and die-makers all over the world have become more competitive by using the advantages gained with coatings:
- lower manufacturing costs
- better mould filling
- reduced mould-release forces
- improved wear resistance
- better quality of injection mouldings
- easy cleaning and reduced need for cleaning
- dry running

Sheet-metal working

BALINIT®-coated punching and forming tools remain serviceable longer and produce pieces of consistently high quality as a result of:
- longer tool life
- lower manufacturing costs
- minimised lubricant consumption
- improved process reliability
- better workpiece surface quality

The boost in productivity with BALINIT® ARCTIC coatings certainly won’t leave you cold!

Recommended applications:
- Punching and forming (when working materials of low hardness)
- Dies for injection moulding and extrusion of plastics
- Med-tech instruments

An optimised ratio of hardness and residual compressive stress means outstanding protection against abrasive and adhesive wear, erosion, leading to enhanced stability of cutting edges and radiused edges of drawing dies. Excellent thermal and chemical stability allow the coating to be used in demanding applications.

Recommended applications:
- Injection moulds for plastics (textured-surface moulds, processing of melts with glass fibre reinforcement)
- Punching and forming tools

BALINIT® A ARCTIC
Coating material: TiN
Microhardness* (HV 0.05): 2300
Coefficient of friction* (dry against steel): 0.3 - 0.35
Coating colour: gold-yellow

*Depends on application and test conditions.

BALINIT® D ARCTIC
Coating material: CrN
Microhardness* (HV 0.05): 1750
Coefficient of friction* (dry against steel): 0.5
Coating colour: silver-grey

*Depends on application and test conditions.

BALINIT® FUTURA NANO ARCTIC
Coating material: TiAlN
Microhardness* (HV 0.05): 3300
Coefficient of friction* (dry against steel): 0.3 - 0.35
Coating colour: violet-grey

*Depends on application and test conditions.

An optimised ratio of hardness and residual compressive stress means outstanding protection against abrasive and adhesive wear, erosion, leading to enhanced stability of cutting edges and radiused edges of drawing dies. Excellent thermal and chemical stability allow the coating to be used in demanding applications.

Recommended applications:
- Injection moulds for plastics (textured-surface moulds, processing of melts with glass fibre reinforcement)
- Punching and forming tools

BALINIT® A ARCTIC
Coating material: TiN
Microhardness* (HV 0.05): 2300
Coefficient of friction* (dry against steel): 0.4
Coating colour: gold-yellow

*Depends on application and test conditions.

BALINIT® D ARCTIC
Coating material: CrN
Microhardness* (HV 0.05): 1750
Coefficient of friction* (dry against steel): 0.5
Coating colour: silver-grey

*Depends on application and test conditions.

BALINIT® FUTURA NANO ARCTIC
Coating material: TiAlN
Microhardness* (HV 0.05): 3300
Coefficient of friction* (dry against steel): 0.3 - 0.35
Coating colour: violet-grey

*Depends on application and test conditions.

An optimised ratio of hardness and residual compressive stress means outstanding protection against abrasive and adhesive wear, erosion, leading to enhanced stability of cutting edges and radiused edges of drawing dies. Excellent thermal and chemical stability allow the coating to be used in demanding applications.

Recommended applications:
- Injection moulds for plastics (textured-surface moulds, processing of melts with glass fibre reinforcement)
- Punching and forming tools
Examples of coatable materials

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* Tempered below secondary hardening temperature
** With some restrictions
*** Tempered for corrosion resistance