

oerlikon
balzers

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

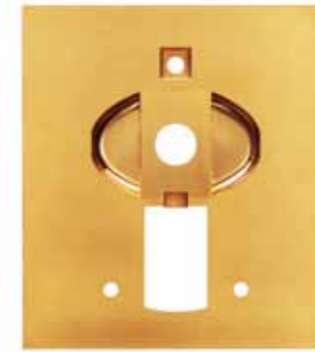
Plastics fabricators and tool- and die-makers all over the world have become more competitive by using the advantages gained with coatings:

- 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



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® A ARCTIC is a titanium nitride coating with a wide range of applications. It affords good protection against abrasive and adhesive wear. It often serves as a decorative or wear-indicating treatment. The coating is biocompatible and safe for food contact.

Recommended applications:

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



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® D ARCTIC offers a unique combination of good wear, corrosion and oxidation resistance. The excellent frictional qualities of the coating afford protection against cold welding and seizure under starved lubrication conditions. BALINIT® D ARCTIC exhibits corrosion resistance comparable to that of hard chrome coatings, plus significantly greater hardness, better adhesion and improved resistance to abrasive wear.

Recommended applications:

- Working of copper
- Dies for injection moulding and extrusion of plastics (especially those that release chlorine, fluorine or other aggressive volatiles in processing)



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 wear and 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

Material	DIN specification number	AISI specification number
Cold-work tool steels	1.2080	D3
	1.2363	A2
	1.2379*	D2
	1.2436	~D6
	1.2510	O1
	1.2550	S1
	1.2767	-
	1.2601	~D2
	1.2842**	O2
	1.2067	L3
	1.2360	-
	1.2746	-
	1.2826	-
1.2210**	L2	
Plastic mould steels	1.2316***	-
	1.2083***	420
	1.2085***	-
	1.2311	-
	1.2312	~P20
	1.2764**	-
Copper alloys	1.2738	-
	Copper-beryllium	-
	Brass	-
	Bronze	-

* Tempered below secondary hardening temperature

** With some restrictions

*** Tempered for corrosion resistance

Locations of Oerlikon Balzers

Headquarters

Oerlikon Balzers Coating AG
Balzers Technology and Service
Center
Iramali 18
LI-9496 Balzers
T +423 388 7500
www.oerlikon.com/balzers

Benelux

Oerlikon Balzers Coating Benelux NV
Schurhovenveld 4 050
B-3800 Sint-Truiden
T +32 11 69 30 40
www.oerlikon.com/balzers/be

Canada

Oerlikon Balzers Coating USA Inc.
3250 Harvester Road
Burlington, Ontario L7N 3W9
T +1 905 631 7094
www.oerlikon.com/balzers/us

India

Oerlikon Balzers Coating India Ltd.
EL-22, J Block
M.I.D.C. Bhosari
Pune 411 026
T +91 20 3061 6000
www.oerlikon.com/balzers/in

Nordic Countries

Oerlikon Balzers Coating Sweden AB
Buteljigatan 6
SE-117 43 Stockholm
T +46 8 681 4140
www.oerlikon.com/balzers/se

Singapore

Oerlikon Balzers Coating
Singapore Pte. Ltd.
21 Kian Teck Drive
Singapore 628838
T +65 62 68 62 27
www.oerlikon.com/balzers/sg

United Kingdom

Oerlikon Balzers Coating UK Ltd.
Bradbourne Drive, Tilbrook,
Milton Keynes, MK7 8AT
Great Britain
T +44 19 08 37 72 77
www.oerlikon.com/balzers/uk

USA

Oerlikon Balzers Coating USA, Inc.
1475 E. Woodfield Rd.
Suite 201
Schaumburg, IL 60173
United States
T +1 847 619-5541
www.oerlikon.com/balzers/us

Further coating centres:

Argentina, Austria, Brazil, China,
Czech Republic, France, Germany,
Hungary, Indonesia, Italy, Japan, Korea,
Liechtenstein, Malaysia, Mexico, Poland,
Portugal, Romania, Russia, Spain,
Switzerland, Thailand, Turkey

www.oerlikon.com/balzers