

An ingenious combination: The BALINIT DUPLEX Series!

The ideal solution for more efficiency and productivity.



Metal Forming



BALINIT DUPLEX Series: The groundbreaking combination of nitriding and BALINIT coatings.

Heavy-use forming tools must be able to withstand extreme loads and at the same time be productive and efficient while remaining process reliable for manufacturing. This is why you should trust Oerlikon Balzers, a worldwide leader in technology for wear-protection solutions. The BALINIT® DUPLEX Series is the groundbreaking result of two wear-protection

solutions that have been combined: On the one hand, nitriding, a thermochemical diffusion method; on the other, the wear-resistant PVD coating that has proven itself around the world under the brand name BALINIT®. Together, they yield advantages that are decisive for the success of your forming tools and, in turn, for your demanding manufacturing process:

Nitriding

- Increases the surface hardness
- Creates a homogeneous hardness profile
- Increases compressive strength
- Improves hot hardness



BALINIT® coatings

- Extreme hardness
- High thermal stability
- Protection against abrasive wear
- Low chemical reactivity

Reduces mechanical material fatigue

e.g. crack formation due to cyclical loading

Reduces plastic deformation

e.g. when yield stresses are exceeded due to extreme pressure

Reduces abrasive wear

due to nitride layer and improved supporting effect

Lower tool costs due to increased tool service life

Lower production costs due to less machine downtime and better workpiece quality

Lower maintenance costs due to longer maintenance intervals and less associated expenditure

The BALINIT® DUPLEX-Series

For high-level productivity and manufacturing process reliability



Demonstrably first class: The performance of the BALINIT DUPLEX Series.



BALINIT® LUMENA DUPLEX: Sheet metal forming of hinges

Tool

Deep-drawing die, tool steel K340

Tool dimensions

180 x 180 x 120 mm

Workpiece

Hinge of high-strength steel (5 mm plate thickness)

Challenge

Untreated: Cold welding after 500 cycle

The solution:

BALINIT® LUMENA DUPLEX

- Reduces cold welding
- Higher workpiece quality
- Moderate wear only after 100,000 cycles

Take advantage of the outstanding coating properties for your heavy load forming tools!

	BALINIT® ALCRONA PRO DUPLEX	BALINIT® LUMENA DUPLEX
Coating material	AlCrN	TiAlN
Max. service temperature	> 1,100 °C	900 °C
Micro hardness (HV 0.05)	3,200	3,400
Coefficient of friction	0.35	0.30 - 0.35
DUPLEX process temperature	480 °C	480 °C
Coating colour	Light grey	Violet grey

Application recommendations:

	BALINIT® ALCRONA PRO DUPLEX	BALINIT® LUMENA DUPLEX
Sheet metal forming Tensile strength > 500 N/mm ²	++	+++
Massive forming	++	+++
Hot forming	+++	++

Take advantage of our high-performance BALINIT DUPLEX Series. Drop us a line or give us a call now!

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