

An ingenious combination: The BALINIT DUPLEX Series!

具有突破性的结合：

BALINIT DUPLEX 系列！

The ideal solution for more efficiency and productivity.

理想的高效多产解决方案。



Metal Forming



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

BALINIT DUPLEX系列：渗氮和BALINIT涂层的开创性结合。

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

反复使用的模具必须要经受极大的负载，同时在保持生产稳定性的前提下，具有更高的生产力和效率。这是您信赖欧瑞康巴尔查斯-全球耐磨保护解决方案技术领导者-的原因。BALINIT® DUPLEX 系列是两个耐磨保护的突破性结合：一

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: 方面，渗氮，热化学扩散法;另一方面是BALINIT® 品牌下，已在全世界广泛使用的抗磨损PVD涂层。两者的结合，它们的优势对于您成型模具的成功起决定性作用。其次，对您高标准的生产工艺也有决定性的影响。

Nitriding 渗氮

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

提升表面硬度
产生一个均匀的硬度层
提升抗压强度
提高红硬性



BALINIT® coatings BALINIT®涂层

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

高硬度
高热稳定性
抗磨损保护
低化学敏感性

Reduces mechanical material fatigue

减少机械材料疲劳
e.g. crack formation due to cyclical loading
例如：循环荷载导致裂缝产生

Reduces plastic deformation

减少塑料变形
e.g. when yield stresses are exceeded due to extreme pressure
例如：高压导致超过材料屈服强度

Reduces abrasive wear

减少磨料磨损
due to nitride layer and improved supporting effect
由于氮化层和支持作用提升

Lower tool costs due to increased tool service life

由于使用寿命提高使得工具成本降低

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

停机时间减少以及工件质量提高生产成本降低

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

维修间隔延长以及相应支出减少带来维修成本减少

The BALINIT® DUPLEX-Series BALINIT®DUPLEX系列

For high-level productivity and manufacturing process reliability

带来高水平的生产力和生产流程的稳定性



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

经验证一流的：BALINIT DUPLEX系列的性能。



BALINIT® LUMENA DUPLEX: Sheet metal forming of hinges

钣金成型铰链

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

工具

拉伸模，模具钢 K340

工具尺寸

180 x 180 x 120 mm

工件

高强度钢铰链 (5 mm 板厚度)

挑战

未涂层：打500次后需发生冷焊

The solution:

BALINIT® LUMENA DUPLEX

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

解决方案：

- 冷焊减少
- 工具质量提高
- 打100,000次后略有磨损

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

为了您的高负载成型模具，请使用完美性能的涂层！

	BALINIT® ALCRONA PRO DUPLEX	BALINIT® LUMENA DUPLEX
Coating material 涂层材料	AlCrN	TiAlN
Max. service temperature 最高适用温度	> 1,100 °C	900 °C
Micro hardness (HV 0.05) 微硬度 (HV 0.05)	3,200	3,400
Coefficient of friction 摩擦系数	0.35	0.30 - 0.35
DUPLEX process temperature DUPLEX 工艺温度	480 °C	480 °C
Coating colour 涂层颜色	Light grey 浅灰色	Violet grey 灰紫色

Application recommendations:

应用推荐：

	BALINIT® ALCRONA PRO DUPLEX	BALINIT® LUMENA DUPLEX
Sheet metal forming 钣金成型 Tensile strength > 500 N/mm ² 拉伸强度>500 N/mm ²	++	+++
Massive forming 体积成型	++	+++
Hot forming 热成型	+++	++

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

使用高性能的BALINIT DUPLEX系列。

请通过以下方式联系我们！

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our locations at:

您可以通过以下链接查询所有涂层
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