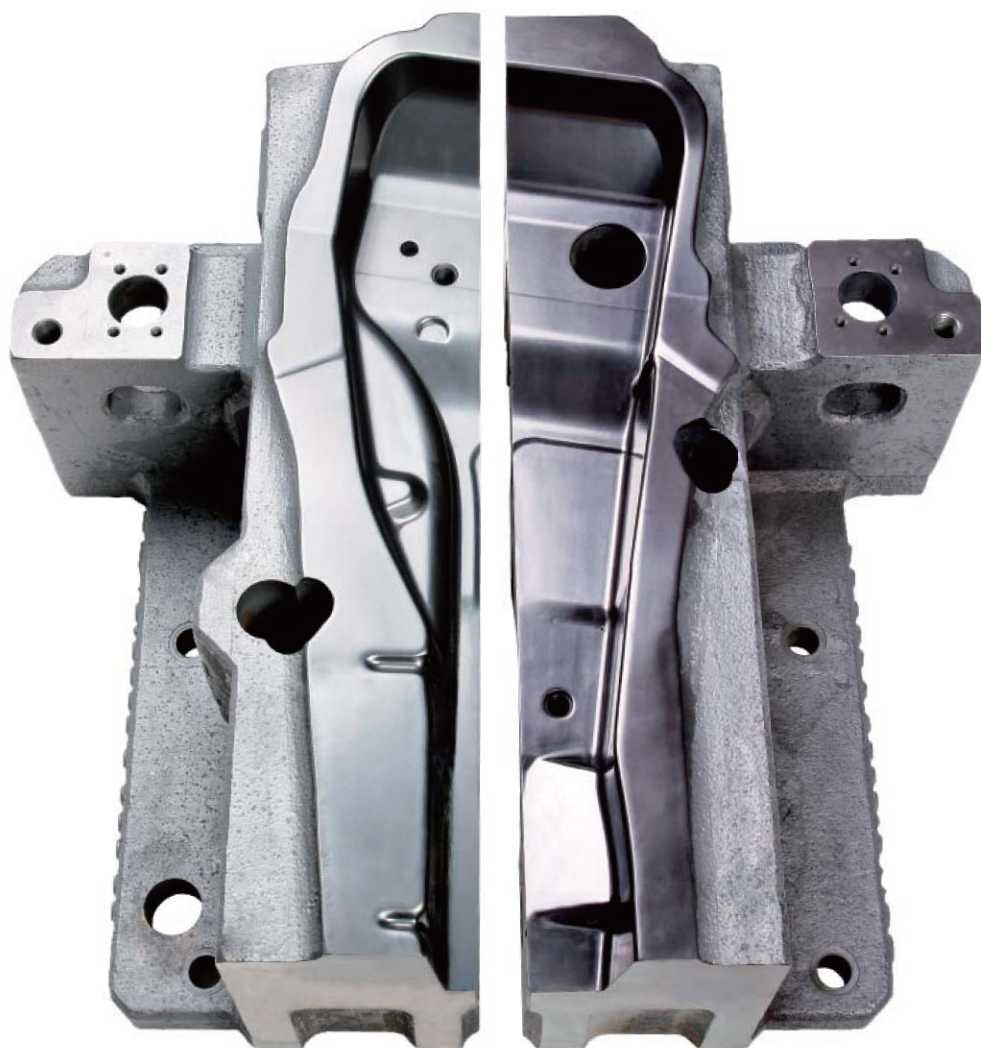


**ADVANCED Series:  
Good times for  
round edges**

**ADVANCED 系列：  
走进冲压成型模具的新时代**



# Optimised adhesion, improved surface support and resistance to abrasive wear

## 优化结合力、提升表面支撑及抗磨损性

Punching and forming tools as well as pressure die-casting moulds are exposed to complex stress profiles, particularly in edge zones. Moreover, significant stress gradients occur between the surface and the remaining volume of the tool.

冲压成型模具以及压铸模具都面临复杂的应力，特别是在刃口区域。此外，在工具表面和内在基体间还存在明显的应力渐变。

**Balzers' solution** The ADVANCED Series coatings developed by Oerlikon Balzers include a thermal treatment of the tool surface prior to the PVD process. This enhances the support effect of the surface and substantially improves the performance potential of the hard coating. Tool service life is prolonged by as much as 100%.

**巴尔查斯的解决方案** -巴尔查斯研发的 ADVANCED 系列涂层在PVD处理工艺前还包括了一个工具表面的热处理工艺。此工艺能提高工具表面的支撑力，并能显著改善超硬涂层的性能。工具使用寿命可提高一倍。

The ADVANCED Series is also an alternative for tools that so far have been treated with CVD or TD (Toyoda Diffusion) because of service life considerations. The PVD ADVANCED technology prevents geometrical and dimensional changes and delivers equivalent or better results.

ADVANCED系列因其延长了使用寿命，对目前做过CVD或TD处理的工具来说是一个替代方案。PVD ADVANCED技术不会在表面处理过程中发生几何形状和尺寸的变化，并能保证同样的使用寿命和性能。

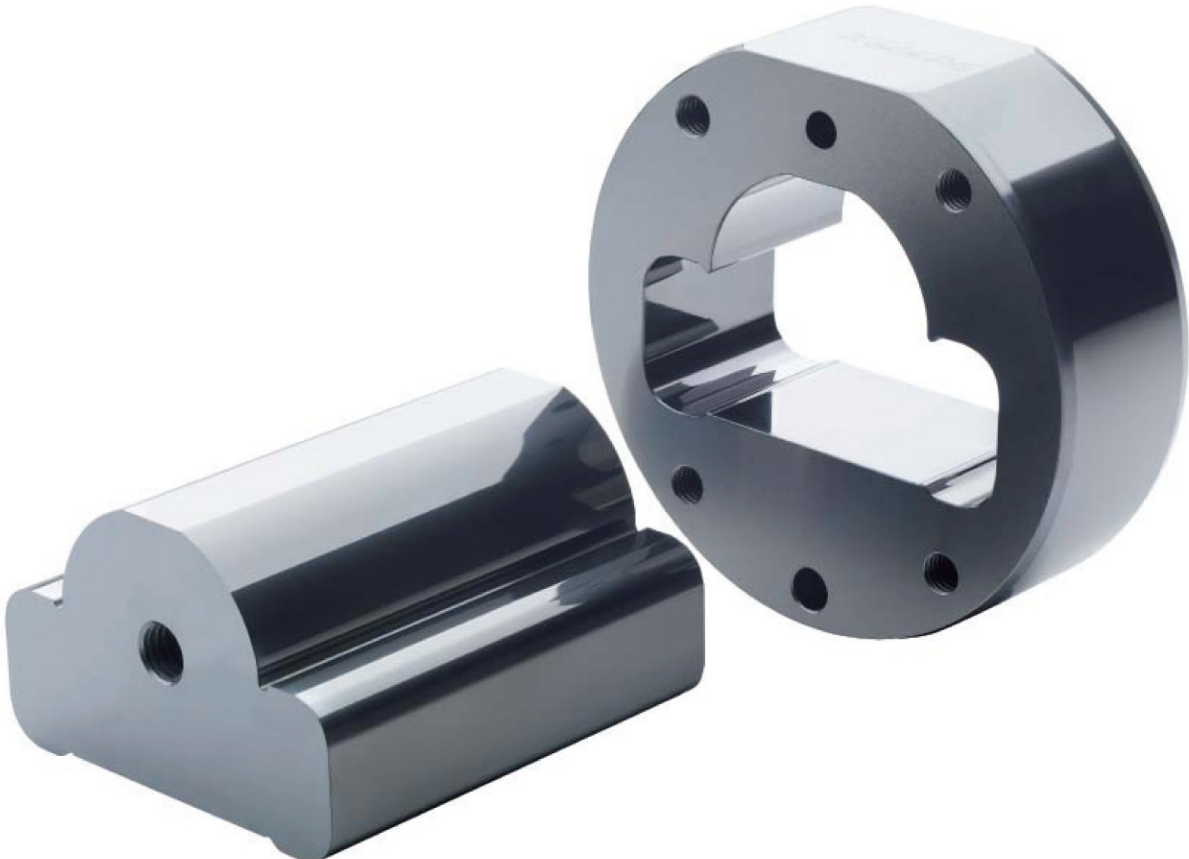
Oerlikon Balzers' BALINIT® FUTURA NANO ADVANCED, BALINIT® LUMENA ADVANCED, and BALINIT® ALCRONA PRO ADVANCED are optimised PVD coatings with perceptibly enhanced performance. Additional advantages of this series of coatings also include greater surface hardness and homogeneous hardness profiles.

欧瑞康巴尔查斯的涂层产品，包括BALINIT® FUTURA NANO ADVANCED, BALINIT® LUMENA ADVANCED, 和 BALINIT® ALCRONA PRO ADVANCED，都是优化的涂层，其性能得到了显著提高。该系列涂层还有有其他优势，比如：更高的表面硬度和均匀的硬度分布。

### Advantages 优势

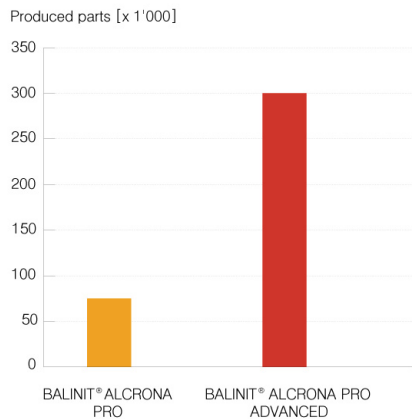
- Improved coating adhesion
- Higher load capacity
- Greater resistance to abrasive wear
- Less tendency to heat checking
- Greater resistance to crack initiation and propagation
- Optimised critical load

- 提升的涂层结合力
- 提高负载能力
- 更好的抗磨损性
- 减少热裂纹产生
- 减少裂纹的产生并延缓其传递
- 优化了临界负载



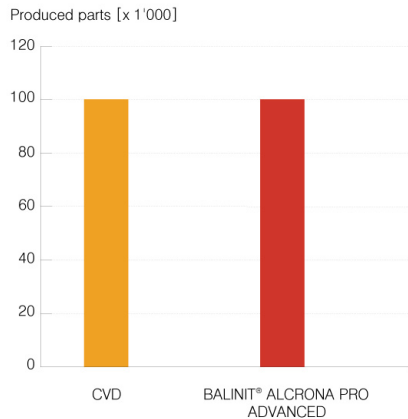
# Greater performance potential due to optimised parameters 参数优化激发潜在性能

## Success stories with BALINIT® ALCRONA PRO ADVANCED BALINIT® ALCRONA PRO ADVANCED 的成功案例



Application: Press forming  
Component: Bolt head  
Tool: Press forming punch  
Material: CPM1V (PM Steel)  
Coating: BALINIT® ALCRONA PRO ADVANCED  
Advantages: Longer service life  
Less machine downtime  
Less scrap

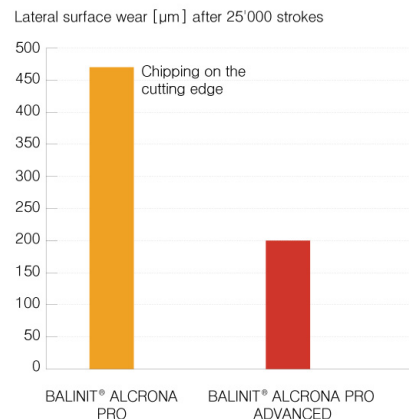
应用: 冲压成型  
零部件: 螺栓头  
工具: 冲压成型冲头  
材料: CPM1V (粉末冶金钢)  
涂层产品: BALINIT® ALCRONA PRO ADVANCED  
优势: 延长使用寿命  
减少设备停机时间  
降低废品率



Application: Blanking of 10–mm sheet steel  
Component: Pedal parts  
Tool: Blanking punch  
Material: 1.2379 (~ AISI D2), 61 HRC  
Coating: BALINIT® ALCRONA PRO ADVANCED  
Advantages: Same service life as with CVD

应用: 精冲10毫米的钢板  
零部件: 踏板部件  
工具: 冲模  
材料: 1.2379 (~ AISI D2), 61 HRC  
涂层产品: BALINIT® ALCRONA PRO ADVANCED  
优势: 使用寿命同CVD一样

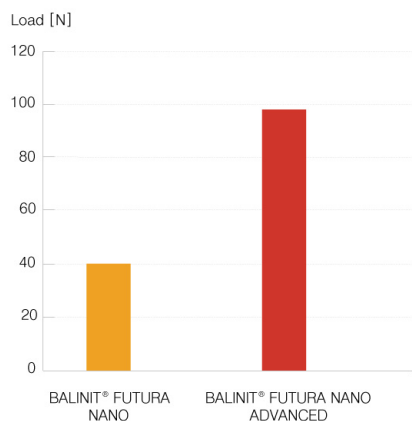
## Wear comparison 磨损状况对比



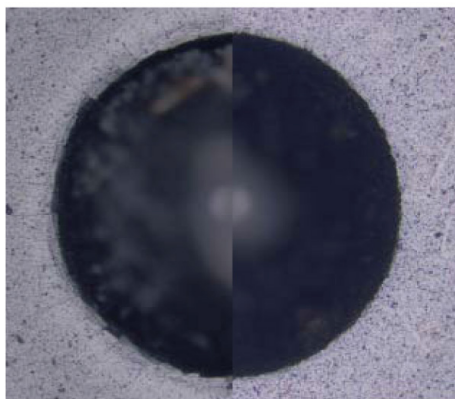
Application: Blanking of 4–mm sheet steel  
Component: Steering part  
Tool: Blanking punch  
Material: 1.2379 (~ AISI D2), 62 HRC  
Coating: BALINIT® ALCRONA PRO ADVANCED  
Advantages: Improved service life

应用: 精冲4毫米的钢板  
零部件: 转向装置部件  
工具: 冲模  
材料: 1.2379 (~ AISI D2), 62 HRC  
涂层产品: BALINIT® ALCRONA PRO ADVANCED  
优势: 提高使用寿命

## Improvement of critical load 临界负载的提高



## Hardness indentation 硬度试验压痕



BALINIT® ALCRONA PRO versus BALINIT® ALCRONA PRO ADVANCED: Less plastic deformation due to greater substrate surface hardness.

BALINIT® ALCRONA PRO 同BALINIT® ALCRONA PRO ADVANCED 的比较: 更高的表面硬度降低了塑性变形的程度。



# We are at your service. Worldwide.

## 我们在全球范围内为您服务

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