

Metal die casting with BALINIT

More endurance, more productivity,
more reliable production



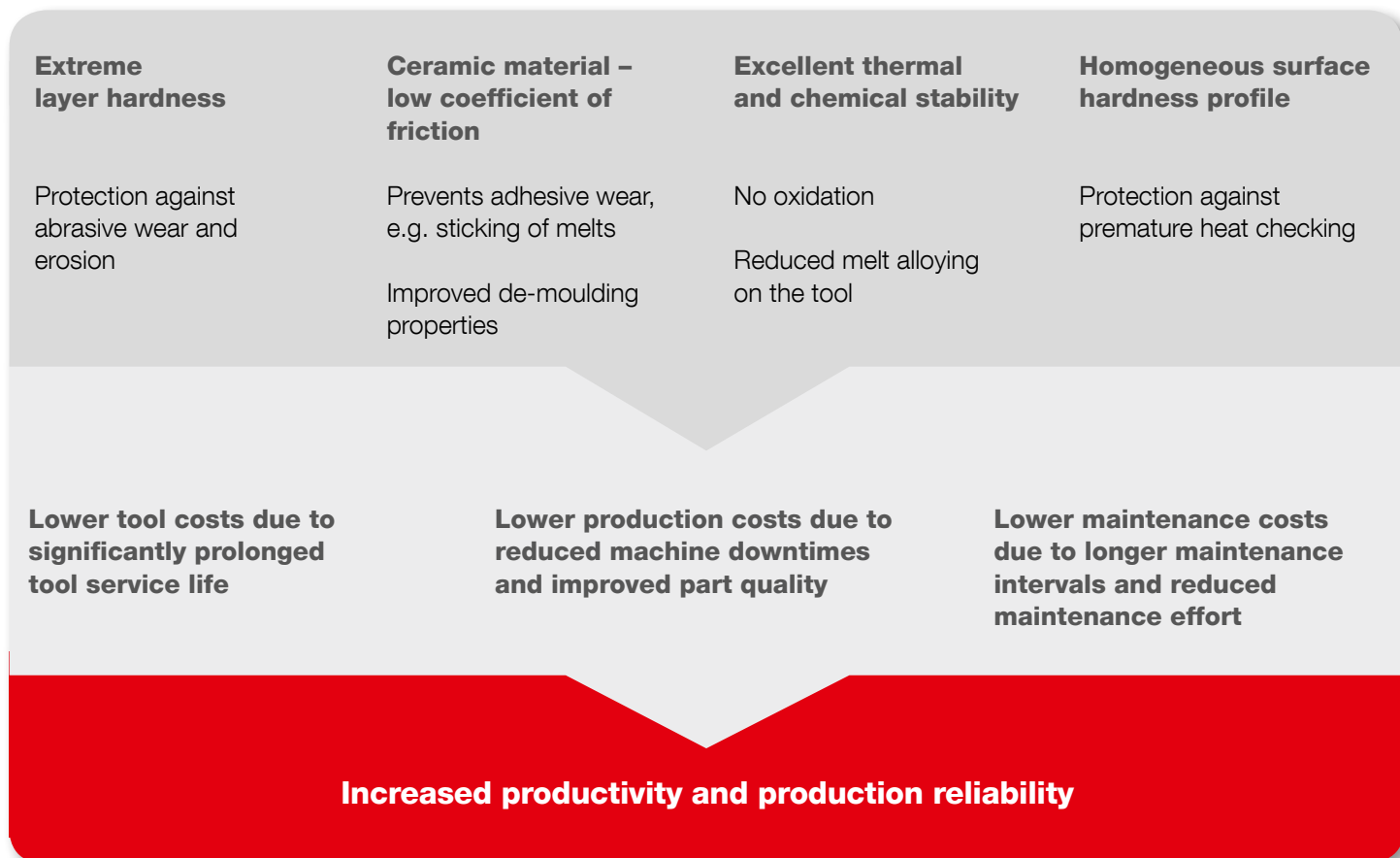
Die Casting



Successful moulding – Oerlikon Balzers is your strong partner

When it comes to metal die casting, the quality of the coating on the mould surface is crucial for success. BALINIT® coatings from Oerlikon Balzers, the leader in advanced PVD coating solutions, are ideal.

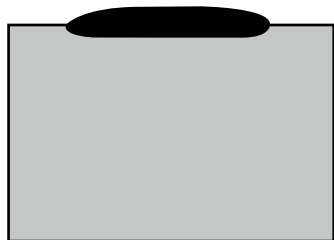
BALINIT® coatings are multi-functional, have unique properties and increase the long-term cost-effectiveness and productivity of the production process.



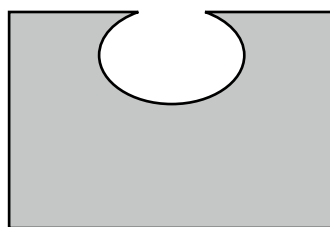
BALINIT protects against wear in die casting



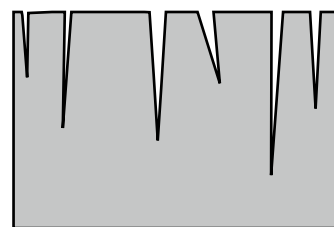
Against erosion and abrasion



Against melt sticking



Against oxidation and alloying

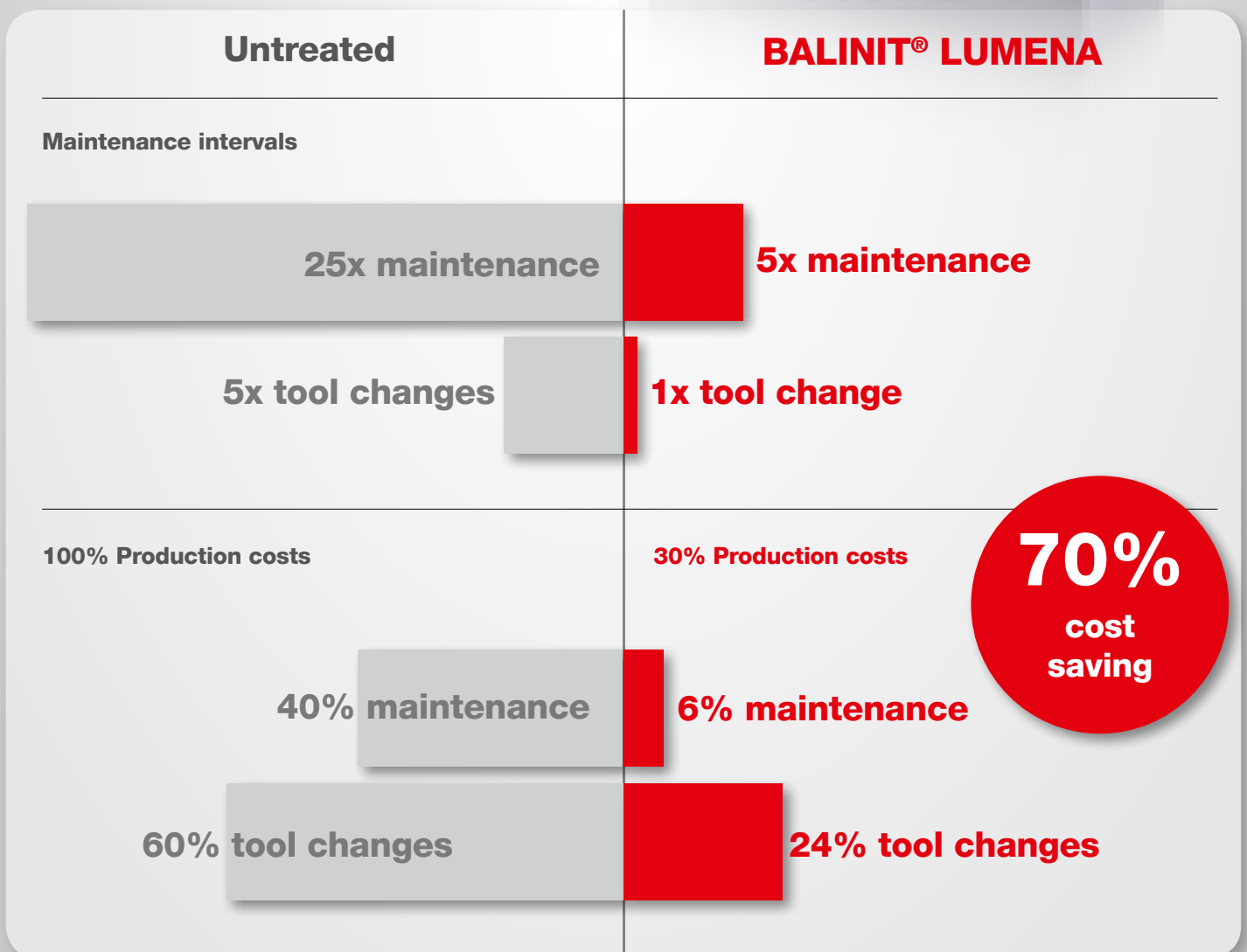


Against premature heat checking

**BALINIT allows you to achieve maximum yield:
100% performance –
70% cost saving**



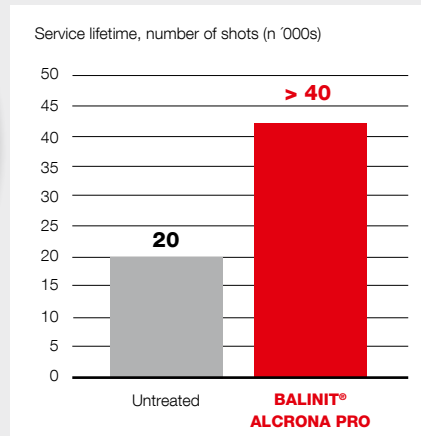
Maintenance intervals and resulting maintenance and production costs for 30,000 shots



Impressive proof of performance for our BALINIT coatings



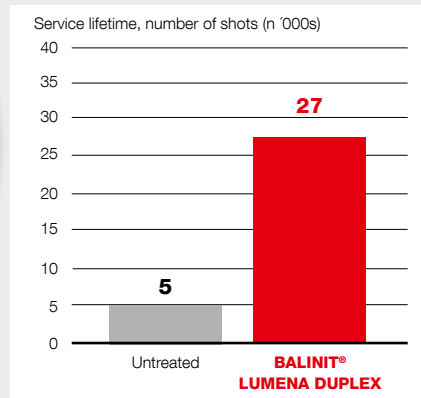
In best form: BALINIT® ALCRONA PRO for mould cores



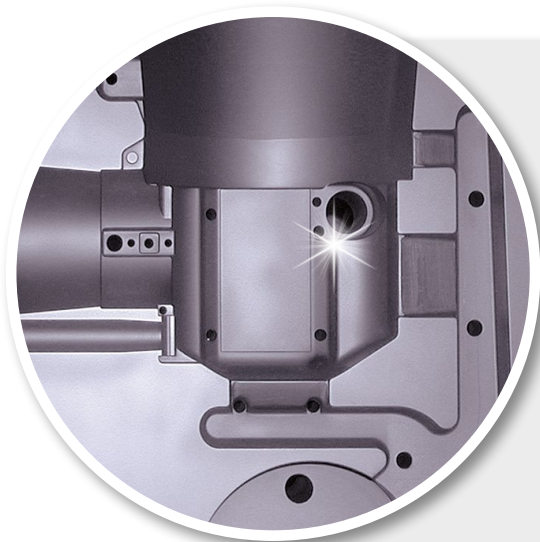
| | |
|---------------------------------------|---|
| Tool | Mould cores, Steel 1.2343 (AISI H11, ~SKD 61) |
| Workpiece | Gear box for automotive industry |
| Cutting data | Tool length: 150 mm Diameter: 30 mm |
| Challenge | Untreated: Damage to the mould core primarily caused by adhesive wear |
| Solution: BALINIT® ALCRONA PRO | - Significantly less adhesive wear - Over 50% longer tool service life |



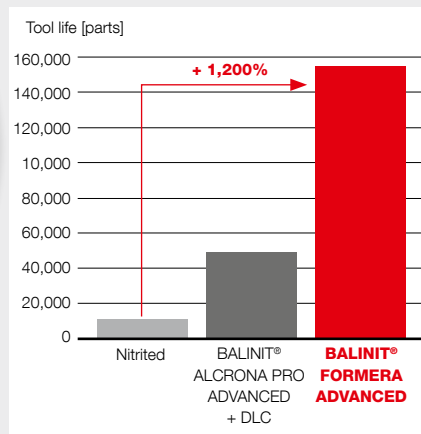
In peak form: BALINIT® LUMENA DUPLEX for mould inserts



| | |
|--|---|
| Tool | Water jacket, Steel 1.2344 (AISI H13, SKD 61) |
| Workpiece | Cylinder block made from 380 aluminium alloy |
| Machine | 4,000 t |
| Challenge | Untreated: Heat checking, alloying, sticking |
| Solution BALINIT® LUMENA DUPLEX | - Reduction of alloying - Higher component quality - Less maintenance work - Significantly delayed heat checking formation |



Core Pins die casting: BALINIT® FORMERA ADVANCED



| | |
|---|--|
| Tool | 1.2343 46±2 HRC |
| Workpiece | Valve Body Aluminium 9% Si (226 Alloy) |
| Challenge | Pins in direct shot area at the sprue |
| Solution BALINIT® FORMERA ADVANCED | - No Cleaning - No Maintenance - Less Machine downtime - No core pin change |

Rely on first-class coating properties for your metal die casting

| | BALINIT® ALCRONA PRO* | BALINIT® LUMENA* | BALINIT® FORMERA* |
|---|--|---------------------------------|----------------------------------|
| Recommendations for use | Core pins, small parts | Cavities, water jackets, moulds | Core pins, moulds, water jackets |
| Coating material | AlCrN-based | TiAlN | CrAlN-based |
| Coating hardness HIT (GPa) | 36 +/- 3 | 33 +/- 3 | 28 +/- 2 |
| Coefficient of friction (dry) vs. steel | 0.35 | 0.30 - 0.35 | 0.35 +/- 0.1 |
| Coating thickness (µm) | depends on application | depends on application | depends on application |
| Abrasive wear | high | medium | high |
| Coating temperature (°C) | < 500 | 450 | 480 |
| Coating colour | Light grey | Violet-grey | Silver-light grey |
| Max. service temp. (°C) | High resistance to thermal fatigue until | | |
| | 1,100 | 900 | > 900 |

*Also available as ADVANCED or DUPLEX versions. All given data are approximate values, they depend on application, environment and test condition.

Recommendations for use

| | BALINIT® ALCRONA PRO | BALINIT® LUMENA | BALINIT® FORMERA |
|--------------------------------|----------------------|-----------------|------------------|
| Core | +++ | ++ | +++ |
| Water jacket | ++ | +++ | +++ |
| Mould | ++ | +++ | +++ |
| Si-content in casting material | | | |



Also interested in high-performing die casting moulds? Contact us today!

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