

Enhance product quality with **BALITHERM PRIMEFORM**

The high-performance, efficient heat treatment
for premium mold surfaces of every size



Plastics



Oerlikon offers 360° know-how in plastic injection with complete processing solutions



Take your efficiency to the next level with our **BALITHERM PRIMEFORM** solutions!

Standard

Low temperature

Non-critical surfaces

Critical steel grades for tempering

Mirror-polished
and textured surfaces

High-Quality

Low temperature

All surfaces and steel grades

Mirror-polished
and textured surfaces

BALITHERM PRIMEFORM – easy to repair independent of the surface

As an expert, you know that mirror-polished, laser- or chemically textured surfaces – and all other polished areas – are vulnerable to wear and scratches during production, mold maintenance, or improper handling. Repairs take time and reduce productivity.

That's why Oerlikon Balzers has developed solutions for every application, regardless of mold size. Whatever surface you have, protect it with one of the BALITHERM® PRIMEFORM solutions.

Extreme surface hardness

- Superb protection against abrasive wear
- Protection of mold against discolouration when using filled and recycled materials

Low coefficient of friction

- Prevents adhesion, e.g. sticking of melt
- Protection against seizure of moving mold parts – even when operated dry
- Reduction of sticking due to inert surface technology

Brilliant surface technology

- Improved mold filling and demolding
- BALINIT® coatings effort longer protection against surface deposits
- Improved corrosion resistance of amorphous carbon coatings

BALITHERM PRIMEFORM eliminates the risk of porosity

BALITHERM® PRIMEFORM is a plasma-assisted thermochemical process where the workpiece acts as a cathode. Ion bombardment is holding to the workpiece heats up, cleans the surface, provides active nitrogen and produces a gradient hardened diffusion layer.

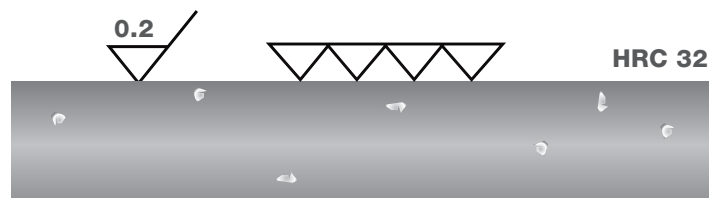
BALITHERM® PRIMEFORM is a process specifically developed for plastic injection and compression molds.

Diffusion treatment



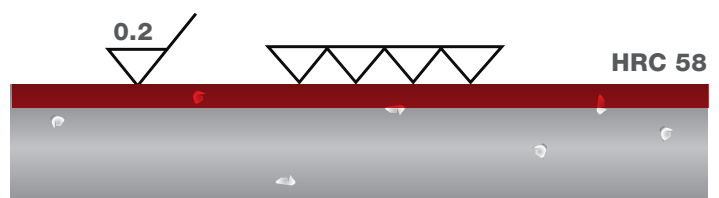
Without BALITHERM® PRIMEFORM

- P20 steel has natural porosity which will become evident during polishing across the entire section of the material.



With BALITHERM® PRIMEFORM

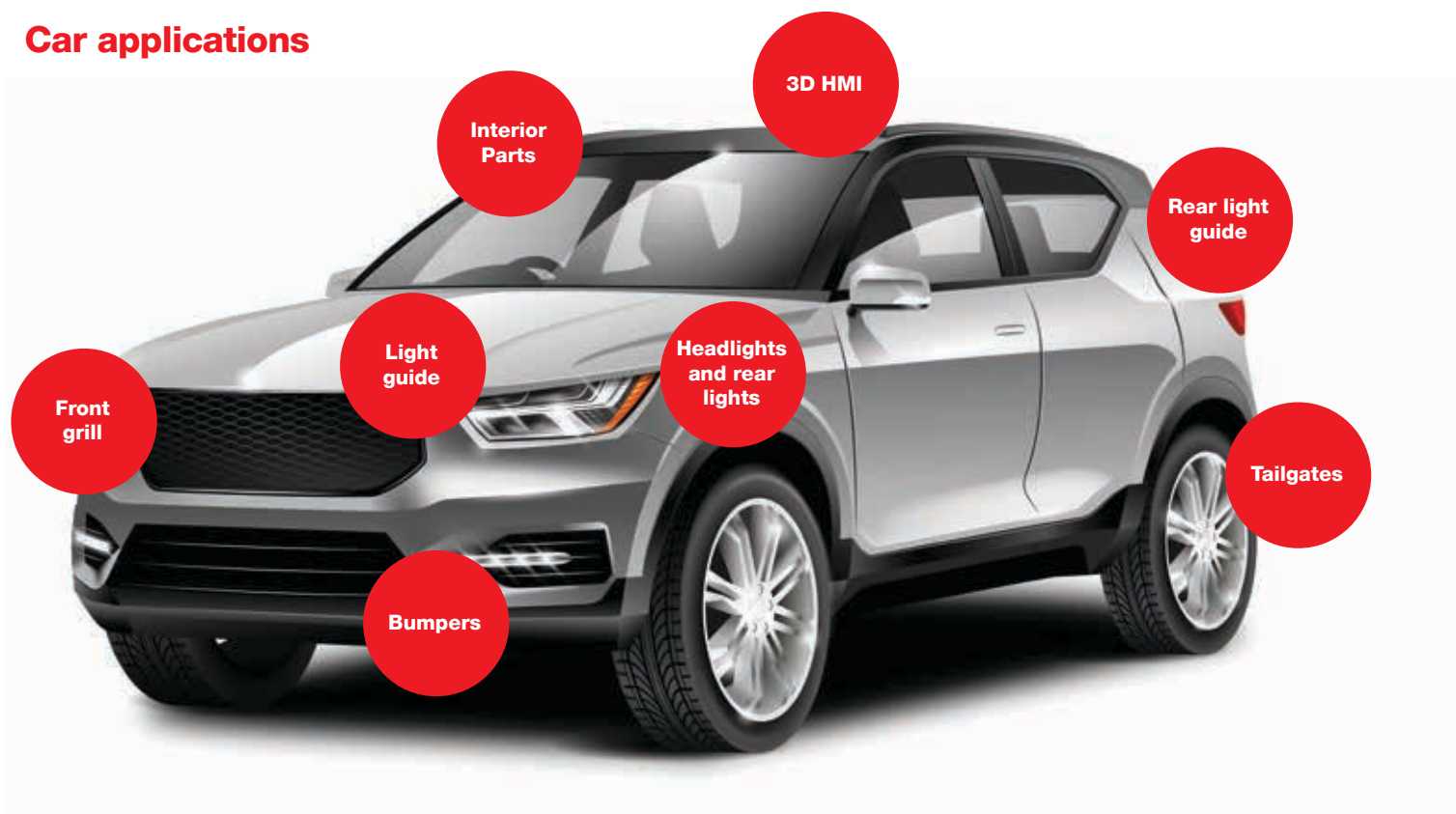
- BALITHERM® PRIMEFORM does not reduce the porosity, but it prevents the build-up of new porosity and "freezes" the mold in its initial condition (as approved by the customer).
- Reduced risk in operation during normal mold maintenance, both for textured and polished surfaces.



		BALITHERM® PRIMEFORM	
Service		Standard	High-Quality
Process temperature		380°C	380°C
HV Hardness (depending on steel quality and geometry)		HV1 up to 1,200	HV1 up to 1,200
Benefits			
Homogenous hardness increase for all mold geometries		●	●
High wear resistance against abrasive plastics; penetrates holes, pockets, ribs; consistently reduces residues caused by polymer outgassing		● ^{***}	● ^{***}
Excellent weldability even for mirror-polished surfaces		●	●
Extended mold service life (reduces parting line)		3x longer	3x longer
BALITHERM® PRIMEFORM is a diffusion process with no flaking issue		●	●
No dimensional changes as with other well-known technologies		●	●
Application examples			
Suitable for all chemical and laser grained textures with a depth less than 50 microns		●	●
Suitable for textures with a depth greater than 50 microns		● [*]	●
Technical polished surfaces up to 600 grain		● ^{**}	● ^{**}

* Gloss adjustment necessary / ** Post-polishing necessary / *** Plastics materials up to 40% glass or carbon fibres

Car applications



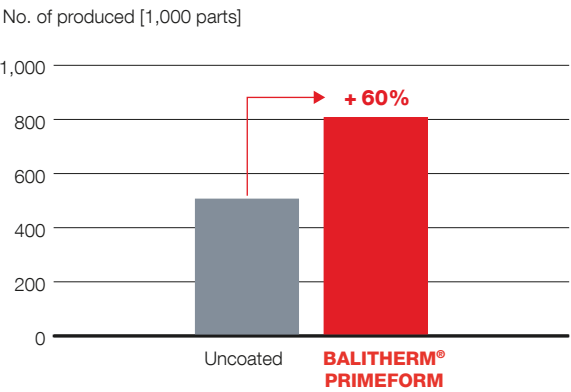
INNOVENTA giga – the answer for gigantic volumes and gigantic throughput



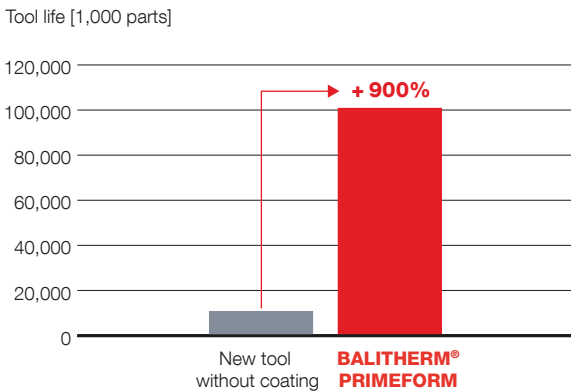
INNOVENTA giga is the solution for big forming tools. With a height of almost 1.5 m, even the biggest forming tools, can be heat treated. If it comes to giant volumes of tools, the INNOVENTA giga will definitely fulfil your demands.

- Perfect for very big forming tools
- Highest productivity in mass production with giant amount of tools
- All components installed on a single frame

BALITHERM® PRIMEFORM Injection big mold-IP structural part



BALITHERM® PRIMEFORM Injection molding interior panel



Tool	Injection big mold, SW718H, 2,150 x 1,100 x 770 mm BALITHERM® PRIMEFORM
Part produced	IP structural part
Challenge	Wear
Benefit	Wear resistance increased and less maintenance time
Source	Automotive Tier 1 supplier

Tool	Injection molds, steel 1.2343 ESU BALITHERM® PRIMEFORM
Part produced	Interior Panel
Challenge	Combination high gloss polished and laser grained surface
Benefit	The molds run 10 times longer with higher process reliability
Source	Automotive Tier 1 supplier

All given data are approximate values and depend on application, environment and test conditions.

Environmentally friendly
high-quality & high-hardness treatment!



Close to our customers – worldwide



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Canada
Mexico
USA

Americas

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Czech Republic
Finland
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Germany
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Italy
Liechtenstein
Luxembourg

Poland
Portugal
Romania
Slovakia
Spain
Sweden
Switzerland
Turkey
United Kingdom

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India
Indonesia
Japan
Malaysia
Philippines
Singapore

South Korea
Thailand
Vietnam

Asia

more than **35** customer centres in

Contact us now!

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