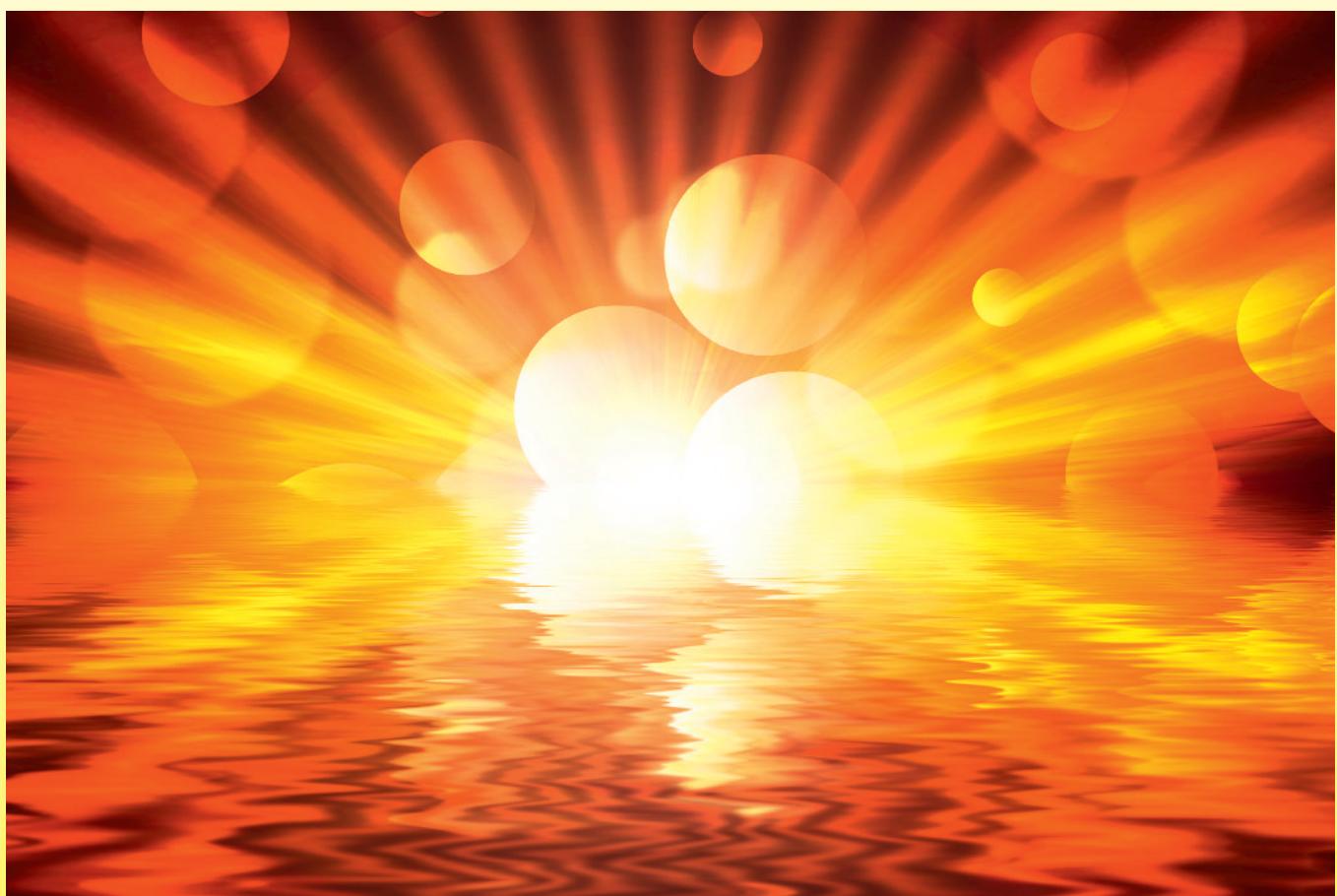




Surface-Technologies

The Finest in Finishing



- ▶ **Microblasting technologies**
- ▶ **Blasting machines**
- ▶ **Blasting shots**
- ▶ **Technology transfer**

What is microblasting technology?

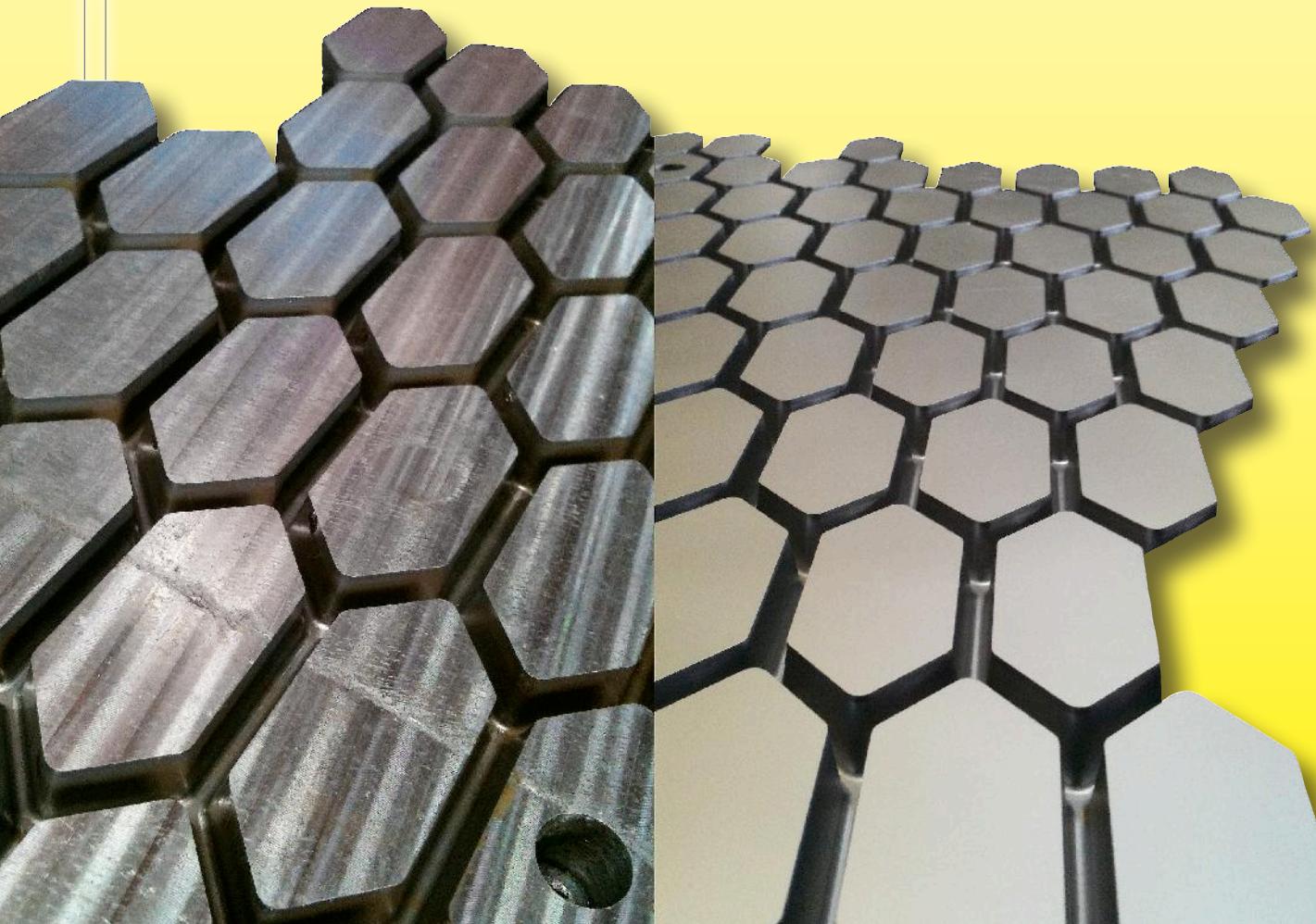
It is a dry, fine blasting process that uses blasting shots with defined grain sizes, hardnesses and geometries to influence the microtopography of surfaces of any kind and condition in order to change them positively.

Why do surfaces have to be microblasted?

- 100% pure base material with no loose particles
- No preferred direction, unlike in brush finishing
- Reproducible machining process
- Time and cost savings
- Optimum adherend surface for subsequent coatings
- Repair of mould cavities to produce VDI-compliant surfaces

Our objectives in microblasting technology

<ul style="list-style-type: none">• Surface cleaning• Surface densification• Increase in percentage contact areas	<ul style="list-style-type: none">• Micro deburring• Adherend surface preparation• Surface texturing	<ul style="list-style-type: none">• Reproducible surfaces• Technology transfer to the customer
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Areas of application

Demoulding blasting

Mould cavities are densified after the surface has been cleaned (2 steps technology) in order to reduce demoulding forces and reduce cycle times. Tribological additives are simultaneously dispersed into the mould surface in order to avoid material adhesion.



Electrode cleaning

Cu and graphite electrodes are uniformed after milling, i.e. loose parts are removed, surface pores opened and burrs removed (even in the case of miniature electrodes) so that the service life is extended, targeted blasting is carried out and surface roughness on the tool is reduced.



Adherend surface preparation

Defined surface topographies (structures) are produced for the mechanical anchoring of galvanic layers, PVD, CVD, metal injection and plasma coatings etc. Our range includes manual and automatic microblasting machines.



Structuring

Defined VDI-compliant surface geometries and roughness values for plastic injection moulds are generated. The erosion of mould cavities can sometimes be dispensed with. Surface structures can be applied straight after milling or grinding.



Selective Laser Melting (SLM)

The mould inserts, which are constructed with close-contour cooling using layering processes, should be uniformed and subsequently densified in at least 2 steps after final forming with iepco microblasting technology. This allows even denser mould surfaces and optimally demouldable mould cavities to be achieved.



Cutting and punching tool construction

Very wide range of applications, particularly with subsequent PVD, CVD or galvanic coating. Tangential rounding of the cut edges in the micro range (μm) optimises the service life of the tool edge. Application likewise in 2 steps: cleaning and edge rounding in the first stage, densification of the tool surface in the second microblasting step.

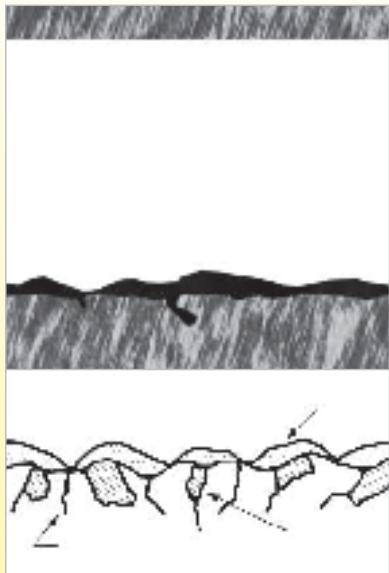


Microblasting technology

Overview of the technology

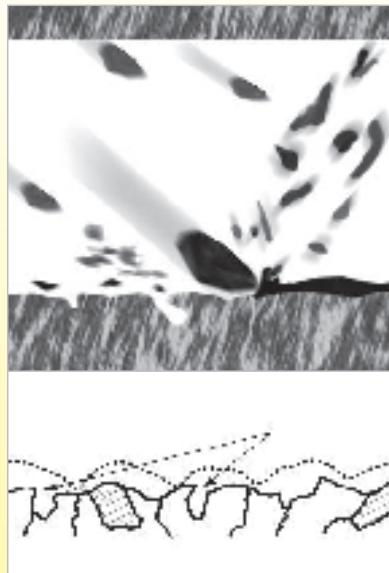
iepco microblasting in two steps

The technology presented below is to be applied for eroded surfaces, ground surfaces and HSC milled cavities and mould sections.



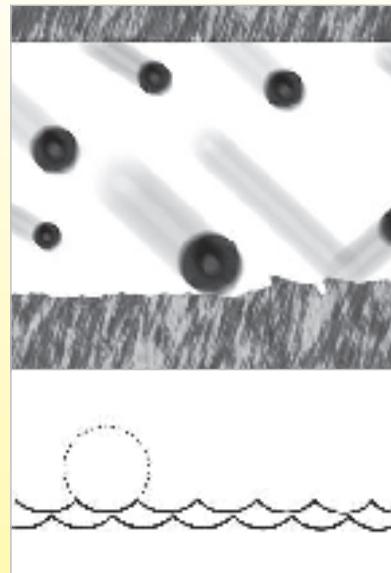
Eroded surface

The so called "white zone" adheres to the thermally damaged surface and can lead to problems in subsequent coating (PVD, CVD and galvanic). Thermal post-treatment is also negatively influenced.



Step 1: Cleaning

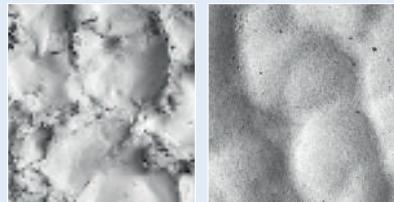
The surface is cleaned and uniformed with a fine, pointed microblasting shot that also removes all loose parts. The adherend surface prepared for all types of coating, if necessary.



Step 2: Densification

The mould surface is densified while tribological additives are simultaneously dispersed into the metal surface. The tribological properties are improved for a wide variety of applications.

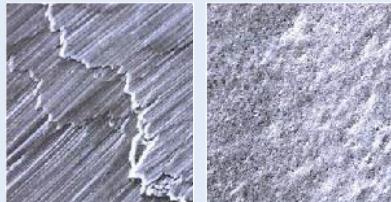
Example: Eroded surface



before

after

Example: Milled surface



before

after

Example: Ground surface



before

after

Furrowing, overheating and grinding wheel residues from grinding, steps from milling, splintering or base material stripping from HSC milling.

These sometimes undesired appearances after machining can be eliminated with iepco microblasting.



iepco soft blast-cleaning

In microblasting technology the "soft-blasting" process allows mould cavities, extruders and injection moulding screws as well as oversquirted hot runners to be cleaned easily.

All elastomer and plastic contamination and pigment and parting agent deposits can be removed in a very short space of time with a defined mixture of different plastic blasting abrasives. The process neither damages the edges of the mould nor changes the topography of the surface, enabling even structured and polished surfaces to be cleaned.

Advantages over conventional cleaning methods

- No thermal damage to the components and moulds
 - Time savings
 - No solvents required
 - Reproducible cleanliness
 - Environmentally friendly



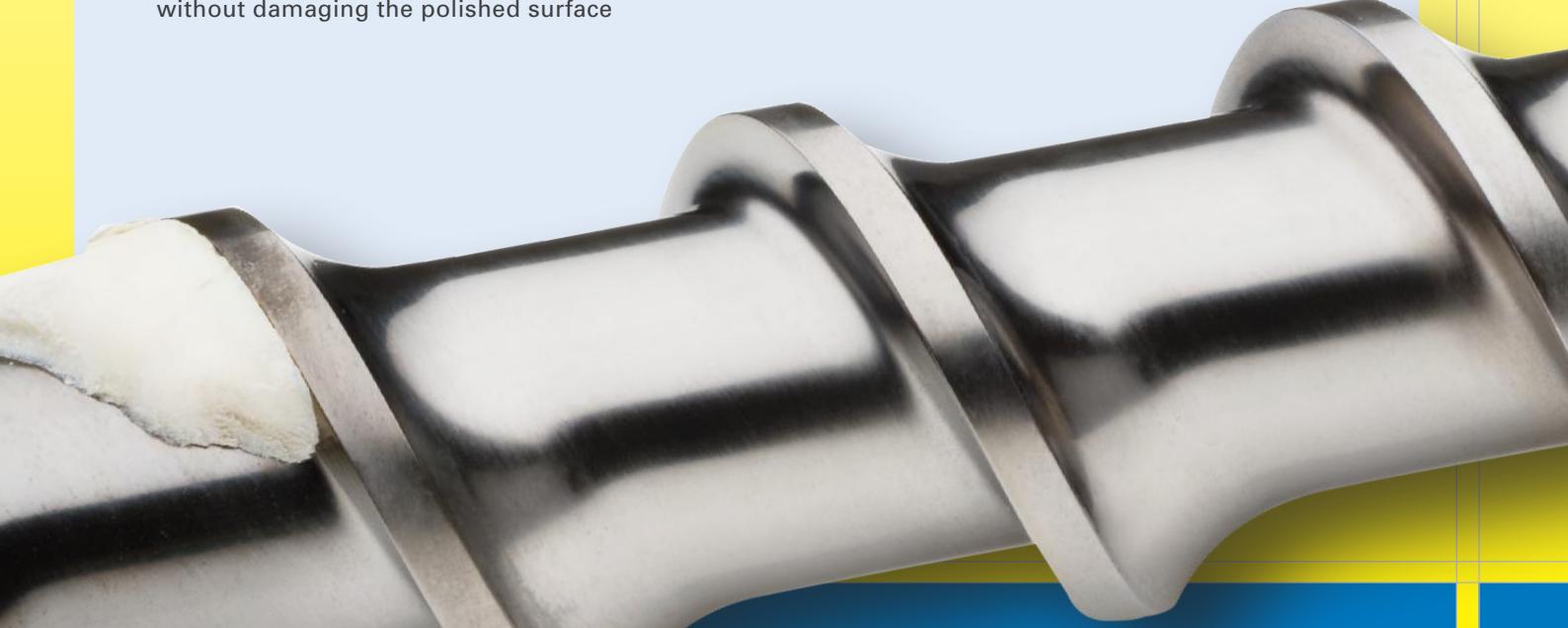
Before: Heavily contaminated hot runner components after removal



After: Abrasive-free cleaning using the soft-blasting method, with no thermal stress on the components

Example: Contaminated extruder screw

Injection moulding screw partly cleaned by "soft-blasting" without damaging the polished surface



Microblasting technology
Overview of the machines

PEENMATIC 770 S



Blasting chamber dimensions:	740x520x500 mm (WxDxH)
Machine type:	Injector blasting machine
Complete series:	PEENMATIC 550 PEENMATIC 620 S PEENMATIC 770 S PEENMATIC 850 S PEENMATIC 950 ZI PEENMATIC 1100 ZI PEENMATIC 1300 ZI

MICROPEEN 950 ZPD



Blasting chamber dimensions:	940x750x540 mm (WxDxH)
Machine type:	Pressure blasting machine
Complete series:	MICROPEEN 950 ZP MICROPEEN 1100 ZP MICROPEEN 1300 ZP

PEENMATIC 1500 SDKT



Blasting chamber dimensions:	1300x1300x840 mm (WxDxH)
Machine type:	Injector blasting machine
Version:	Tilting hood
Complete series:	PEENMATIC 1300 SDK PEENMATIC 1500 SDKT PEENMATIC 1800 SDKT

Blasting shots

Our IPECONORM abrasive media cover almost every area of application in the field of microblasting technology.

We can offer the following media:

- Special fused alumina
- Ceramic abrasives
- Silicates
- Rustfree abrasive media
- Hardened glass balls
- Plastic blasting abrasives
- Organic abrasive media for sensitive mould cavities
- Abrasive media with tribological additives on the surface of the blasting shots



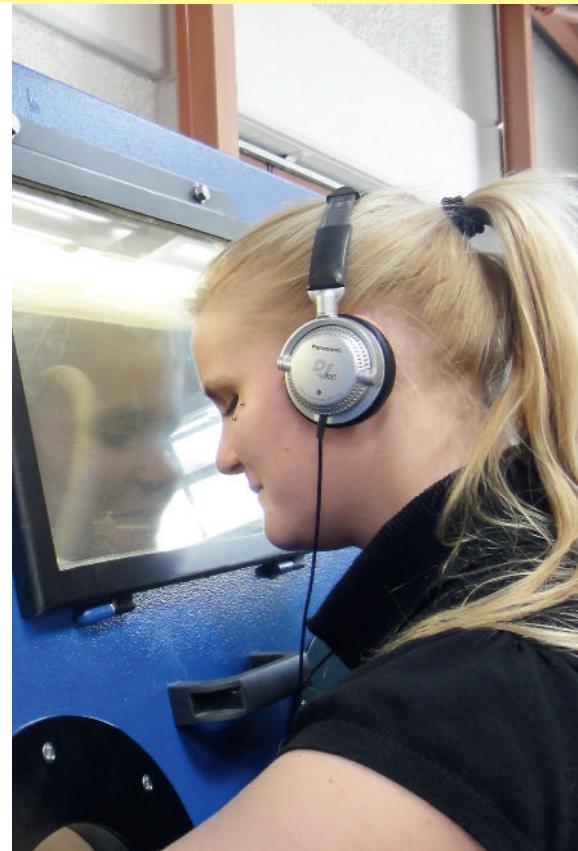
We also supply the application technology to go with our micro-blasting media and can mix or screen the abrasive media to suit your particular application.

Don't hesitate to ask us!

Our range of services

We can perform the following contract blasting for you at the iepco plant in Gippingen (Switzerland):

- Structuring to VDI requirements
- Demoulding blasting
- Cleaning blasting (soft-blasting) of extruders, injection moulding screws and mould cavities
- **HARDALLOY** and **SLIDEALLOY** surface coatings
These are hard, homogeneous and corrosion-resistant coatings with good tribological properties
- Finishing of prototypes, rapid tooling and SLM
- Shot-peening of diecasting tools
- Employee training to guarantee the transfer of technology to customers



iepco surface technologies for:

- ▶ **Rubber, silicone and polyurethane finishing**
- ▶ **Plastic and elastomer forming tools**
- ▶ **Aluminium diecasting and extrusion dies**
- ▶ **Punching, cutting, pressing and moulding tools**
- ▶ **Medical and pharmaceutical industry**
- ▶ **Textile, paper and printing industry**
- ▶ **Drive technology and engine construction**
- ▶ **Vehicle and aircraft construction**

iepco is your expert for the perfect finishing of surfaces. Our leading know-how is based on more than 40 years of experience. We combine the very latest technologies with comprehensive consulting services to offer cost-efficient complete solutions tailored specifically to your particular requirements

Find out more at www.iepco.ch and ask for a personal consultation.
Phone +41 (0)44 861 16 16



Surface-Technologies



Sales

iepco ag
Hofstrasse 21
CH-8181 Höri
Tel. +41 (0)44 861 16 16
Fax +41 (0)44 860 63 86

Production

iepco ag
Steiächerweg 10
CH-5316 Leuggern
Tel. +41 (0)56 268 80 40
Fax +41 (0)56 268 80 50



Service

iepco ag
Schiffmüliweg 31
CH-5316 Gippingen
Tel. +41 (0)56 245 33 91
Fax +41 (0)56 245 40 35

