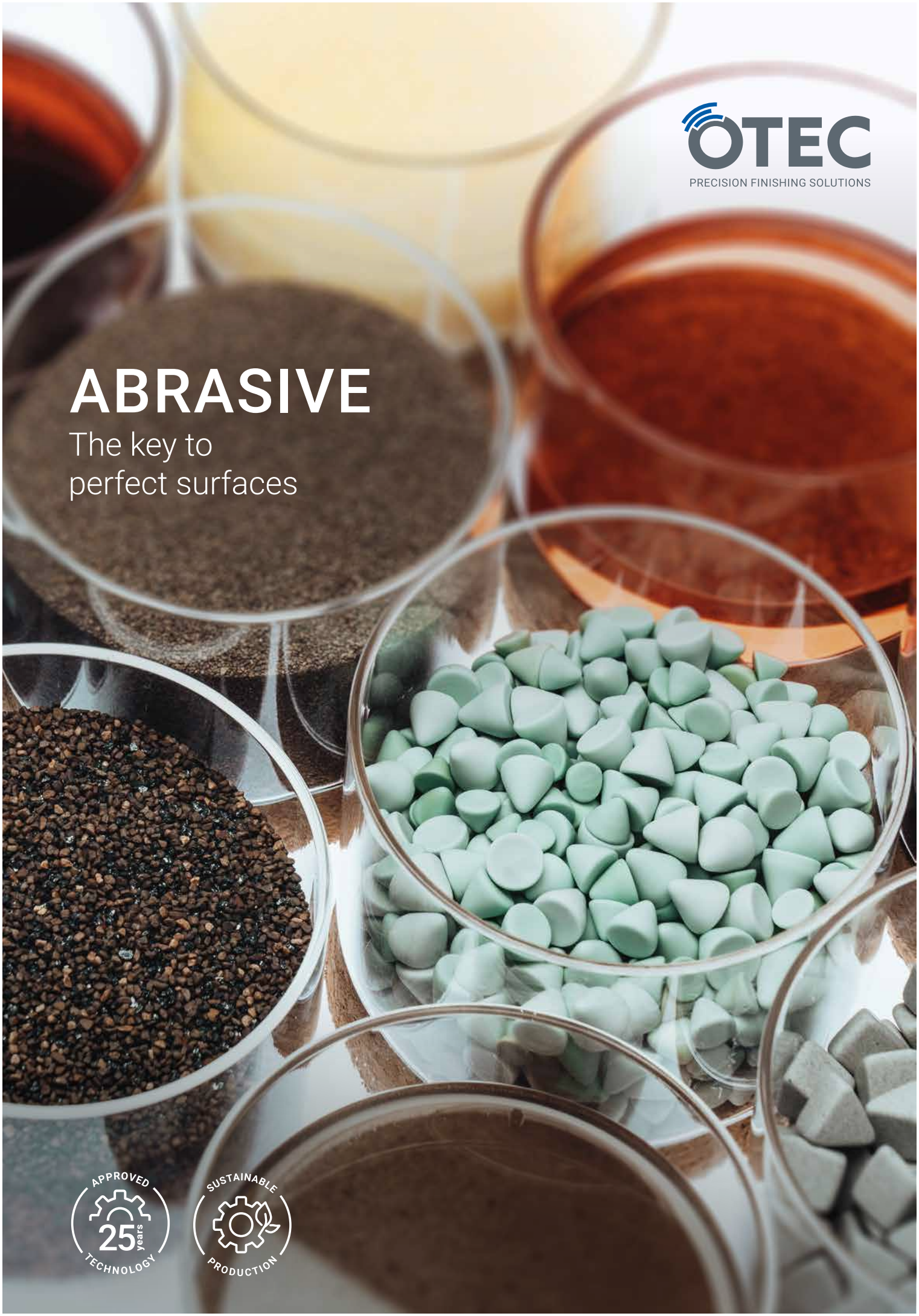
OTEC

PRECISION FINISHING SOLUTIONS

ABRASIVE

The key to perfect surfaces



Contents

Everything from a single source

COMPLETE SOLUTIONS
FROM OTEC

1. Two Ways One Brand:
New dimensions of surface processing

Everything from a single source – mass finishing and Electro Finishing. Whether you use one process or combine both processes, perfect surfaces result from the interaction between machine, process and abrasive. We develop and design solutions tailored to suit your specific surface requirements.

2. Abrasives for every task

Choosing the right combination of abrasives is a major factor in ensuring your success. Whether for grinding, polishing or deburring, we offer the ideal solution for your application. Our experts are always at your side to provide any support you need.

3. Industry expertise to meet the most demanding requirements

Every industry must contend with its own challenges. The key to perfect surfaces lies in combining the spirit of innovation with experience. We have been committed to building trust-based relationships and custom solutions for over 25 years. From jewellery to tools, from medical applications to aerospace: you can rely on us to ensure perfect surfaces now and in the future, anywhere in the world.

4. Sustainably cost-effective solutions

For us, environmental protection and cost savings go hand in hand. Our units are highly flexible and long lived. We prioritise environmentally friendly technologies and resource-saving solutions when selecting our processes. We are constantly optimising our production site to strive for CO_2 neutrality and set a good example.

MyOTEC –
your customer portal

You can also find our abrasives online at myOTEC. You can order everything you require for a perfect surface simply and conveniently in our customer portal.

OTEC'S **RANGE OF PROCESSES**

MASS FINISHING

Mass finishing is a highly effective surface process. It involves processing the workpieces with polishing or grinding bodies to achieve perfect surface results. For over 25 years, our extensive process development expertise and cutting-edge technology have enabled us to find the ideal solutions for your mass finishing processes anywhere in the world.

ELECTRO FINISHING

The new OTEC surface processing generation achieves a flawless gloss level. OTEC's Electro Finishing Technology is the perfect addition to established mass finishing. Ideal for complex geometries, Electro Finishing delivers high-gloss results even in hard-to-reach areas.

Polishing

Produces surfaces with the same high-quality results as manual polishing (Ra < 0.01 µm), with minimal material removal. Our processing methods are technologically advanced and efficient. This improves surface quality, minimises friction and enhances appearance.

Smoothing

Our mass finishing process produces distinctive plateau-like surfaces. This special surface structure significantly improves abrasion properties and noise emissions. Smoothing the surfaces additionally reduces friction and wear.

Rounding

Targeted and uniform rounding of edges is a decisive option for increasing edge stability. Using Drag Finishing and Stream Finishing Units enables you to achieve µm-accurate rounding simply and reliably.

Deburring

Using our machines, you can process cut edges, fraying or splinters to ensure burr-free workpieces. They not only simplify assembly but also prevent possible assembly malfunctions. What is more, they reduce the risk of cut injuries and improve the feel.

Mass finishing

Mass finishing is a tried-and-tested surface processing method which, depending on the workpiece, is carried out using the bulk goods process or piece goods process. With the bulk goods process in the Disc Finishing Unit, the workpieces are added to the fixed container along with the abrasives. When the disc turns, the contents are set in motion in a toroidal flow. Moving the workpieces and granulate makes this processing highly intensive.

We use Stream Finishing and Drag Finishing Machines for workpieces which are not suitable for the bulk goods process. With these machines, the workpieces are clamped and processed individually. This ensures precise, targeted surface processing which meets the specific requirements of each workpiece.

Thanks to many years of process development work and the use of ultra-modern machine and process technologies, we have been offering optimal solutions for perfect surface processing for over 25 years. This long-standing experience and expertise make us a reliable partner for companies in various industries which depend on high-quality, precisely processed surfaces.

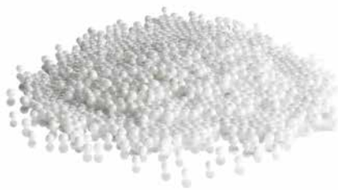
Wet Finishing

GRINDING AND POLISHING BODIES

For efficient mass finishing

Grinding and polishing bodies play a decisive role in efficient mass finishing processes. They are classified based on various criteria such as the abrasive's design and composition, the shape and size, the separation properties and the process water treatment. Our wide range of products enables us to address specific requirements for individual workpieces and process parameters in a flexible manner.

Zirconia Balls



Very hard and therefore very durable balls made of zirconium oxide
Colour: White
Properties: No material removal during processing, only smoothing and compaction
Use: High-gloss polishing

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Ball size
G-Zy	● ○ ○ ○ ○ ○ ○	● ● ● ● ● ● ●	0.8–1.0 mm 1.2–1.4 mm 2.0–2.5 mm

Ceramic Abrasives

Ceramic-bonded grinding body
Colour: Grey
Properties: High density, hard base material
Use: Primarily for grinding

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Form: Triangle Size a/b mm (D)	Triangle (diagonal cut) Size a/b mm (S)	Ellipse Size a/b/c mm (E)	Cylinder** (diagonal cut) Size a/b mm (ZS)	Tristar Size a/b mm (DZ)	Diamond Size a/b mm (SR)
P	●○○○○○○	●●●●●●●	-	-	-	1/3, 2/2, 2/5, 3/5, 3/10, 4/10, 5/10, 7/15	3/3 SK* 4/4 SK* 6/6 SK* 10/10 SK*	-
M	●●●●○○○	●●○○○○○	6/6, 8/8, 13/13	-	-	6/13	6/6, 4/4, 8/8	-
S	●●●●●○○	●○○○○○○	3/3, 4/4, 6/6, 6/10, 10/8, 10/10, 13/13	4/10, 6/10	-	2/5, 3/5, 3/10, 4/10, 5/10, 6/13, 8/15, 7/15	4/4, 6/6, 10/10	3/3
BS	●●●●●●●	●○○○○○○	6/6, 10/10	-	-	-	6/6	-
SF	●●●●●●●	●●●○○○○	4/4, 6/6, 10/10	-	15/15/6	7/15, 6/10	-	-

*very sharp-edged **also available without diagonal cut
Additional sizes and qualities on request. Ordering example: Form D, type S, size 6/10 = DS 6/10

Plastic Grinding Chips

Plastic-bonded grinding body
Properties: Low density, soft base material
Use: Primarily for grinding and fine grinding

Type	Colour	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Form: Cones Size a mm (K)	Pyramids Size a=b mm (P)
M	Mint green	●●●●○○○	●●●●●○○	6, 10, 12	10, 12, 15
X*	White	●●●○○○○	●●●●●○○	10, 12	10, 12, 15
A	Red	●●●○○○○	●●●○○○○	10, 12	6, 10
O	Blue	●●●●○○○	●●●○○○○	10, 12	6, 10, 12
T	Purple	●●●●●●○	●●●○○○○	10, 12	10, 12

*suitable for grinding zirconia jewellery
Ordering example: Form K, quality X, size 10 mm = KX10
Available pre-rolled

Stainless Steel Media

Rounded stainless steel pins
Colour: Steel grey
Properties: No material removal during processing, only smoothing and compaction and removal of imperfections and brightening
Use: High-gloss polishing and pressure deburring, removing scale

Type	Grinding performance low ⟶ high	Surface fine ⟶ coarse	Size	Geometry
M 3/5	●○○○○○○	●●●●●●○	0.3 x 5.0 mm	Pin
M 5/5	●○○○○○○	●●●●●●○	0.5 x 5.0 mm	Pin
M 10/7	●○○○○○○	●●●●●●○	1.0 x 7.0 mm	Pin

The following applies to all items: Additional sizes on request

Microfinishing Grinding Bodies

Fine-grain ceramic bodies
Colour: Brown
Properties: Very high density, low roughness, abrasion resistant
Use: Deburring, fine grinding and polishing

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Size	Geometry
KXMA 16	●●○○○○○	●●●●●●●	1.0–1.4 mm	Undefined
KXMA 20	●●○○○○○	●●●●●●●	0.8–1.2 mm	Undefined
KXMA 24	●●○○○○○	●●●●●●●	0.6–0.8 mm	Undefined
GXMA 16	●●●○○○○	●●●●●●●	0.8–1.4 mm	Balls
GXMA 24	●●●○○○○	●●●●○○○	0.6–1.0 mm	Balls
GXMA 36	●●●○○○○	●●●●●●●	0.4–0.7 mm	Balls

The following applies to all items: Additional sizes and qualities on request

COMPOUND

For clean, corrosion-free workpieces

Compounds are decisive for quality assurance in the mass finishing process. They stabilise all process components and achieve a trouble-free overall process. In circulation processes, Compounds and process water cleaners ensure stable operation and minimise maintenance costs.

Compounds maintain the high performance of grinding bodies and polishing bodies and protect processed surfaces. They are re-usable and assist in the separation of contaminants in interaction with process water cleaners.

Compound

Compounds consisting, among other things, of tensides and complexing agents to bind dirt and remove the dissolved dirt particles from the process

Properties: They ensure clean, bright and corrosion-free workpieces during the mass finishing process

Use: For metals and plastic

Type	SC 3	SC 5	SC 13	SC 15	SC 21	SC 23	SC 25	SC 42	SC 45
Description	Suitable for soft alloys, brightening, as additive for Stainless Steel Media and Zirconia Balls	Universal compound for polishing, brightening, for all precious metals and non-ferrous metals	Universal compound for all ferrous and non-ferrous metals, with corrosion protection	Universal compound (specially for ferrous metals), with corrosion protection, low foaming	Universal compound with very good foaming, brightening, for all metals	Suitable for microfiltration, good cleaning effect and corrosion protection	Polishing compound for non-ferrous metals (particularly aluminium), brightening	Universal compound with very good oil transport, with corrosion protection	Universal compound for all metals
pH value	4.5	6	8	9.5	7.5	9	5	9.1	9.0
Dosing	1–5%	3–5%	1–5%	1–5%	1–5%	1–5%	1–5%	3–5%	1–5%
Material									
Aluminium	✔	✔	✔	✔	✔	✔	✔	✔	✔
Steel/iron			✔	✔		✔		✔	✔
Inconel		✔	✔	✔	✔			✔	✔
Titanium		✔		✔					
Brass/copper				✔	✔	✔	✔	✔	
Task									
Deburring		✔	✔	✔	✔	✔		✔	✔
Grinding		✔	✔	✔	✔	✔		✔	✔
Polishing	✔	✔	✔		✔	✔	✔		✔
Suitable for centrifuging				✔				✔	✔
Suitable for microfiltration					✔	✔			
Effect									
Corrosion protection			●●○	●●●		●●○		●●○	●●●
Brightening	●●●	●●○	●○○	●○○	●●○	●○○	●●○	●●○	●●○
Cleaning	●○○	●●○	●●○	●○○	●○○	●●○	●○○	●●●	●●●
Degreasing				●○○	●○○			●●●	●●●
Foam forming	●●●	●●○	●○○		●○○	●○○	●●●	●○○	

●●● Very good/high ●● Good/medium ● Conditional/low

Additional Compounds available on request

Process water treatment

Process components

Workpieces | Grinding bodies | Compound

OTEC mass finishing units

Disc Finishing Units Drag Finishing Units
Stream Finishing Units

Process water treatment systems

Centrifuge | Process water treatment station

Process water aids

Defoamer
Process water cleaner
Bactericide

Use the OTEC test kit to find the right water-Compound mixture for your application. We would also be glad to assist you with retrofitting process water treatment on existing units.

Get in touch with us for more information and specific applications.

Process water treatment

OTEC's process water treatment systems are highly effective and sustainable water management solutions. Re-using the treated process water (with the aid of a centrifuge, for example) helps to save significant quantities of Compound and fresh water. All components are ideally matched, enabling consistently high process quality while conserving resources and reducing costs.

Dry Finishing

POLISHING BODIES

For efficient surface refinement

Polishing bodies fulfil a purpose similar to that of grinding bodies, but with specific properties enabling high-quality surface refinement. They are extremely hard and have a low abrasion level, ensuring a long service life.

Plastic Polishing Chips

Lens-shaped polishing bodies with consistent geometry

Colour: White

Properties: No dust formation during polishing

Use: Primarily high-gloss polishing

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Size	Geometry
LFPP 3	● ○ ○ ○ ○ ○ ○	● ● ● ● ● ● ●	3 mm	Lens
LFP 3	● ○ ○ ○ ○ ○ ○	● ● ● ● ● ● ●	3 mm	Lens

The following applies to all items: Additional sizes and qualities on request

GRANULATES

Effective surface processing with mass finishing granulates

Mass finishing granulates play a decisive role in surface processing and offer a wide range of application options. They are classified based on their specific properties and applications.

HSC Granulate

Colour: Brown-grey
Properties: High surface quality
Use: Edge rounding, smoothing and polishing, deburring hard metal tools

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Grain
HSC 1/200-1	●●●●●●●	●●○○○○○	Coarse
HSC 1/200-3	●●●●●●○	●●●○○○○	Coarse
HSC 1/200-4	●●●●●○○	●●●○○○○	Medium
HSC 1/300-5	●●●●○○○	●●●●○○○	Medium
HSC 1/300	●●●○○○○	●●●●○○○	Medium
HSC 1/500	●●○○○○○	●●●●●○○	Fine

Corn Granulate

Colour: Brown
Properties: Very high surface quality
Use: Mirror-finish polishing

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Grain	Properties	Use
M 4 impregnated with PP 02 polishing powder					
M 4/300	●○○○○○○	●●●●●●○	0.8–1.3 mm	Produces very smooth, high-gloss surfaces	For implants in the medical devices industry or for cylinder surfaces in motor sports
M 4/400	●○○○○○○	●●●●●●○	0.4–0.8 mm		
M 5 impregnated with PP 04 polishing powder					
M 5/300	●○○○○○○	●●●●●●●	0.8–1.3 mm	Produces high-gloss, scratch-free surfaces	For implants in the medical devices industry or for cylinder surfaces in motor sports, for timepieces in the jewellery industry and in precision technology
M 5/400	●○○○○○○	●●●●●●●	0.4–0.8 mm		

The following applies to all items: Additional sizes and qualities on request

Walnut Shell Granulate

Colour: Brown
Properties: High surface quality
Use: Smoothing and polishing decorative parts

Type	Smoothing low ⟶ high	Surface smooth ⟶ high gloss	Grain	Properties	Use
H 1 impregnated with polishing paste					
H 1/30	●●○○○○○	●●●●○○○	4.0–6.0 mm	Produces high-gloss polished surfaces	High-gloss polishing of non-ferrous metals, jewellery, titanium and steel alloys
H 1/50	●●●○○○○	●●●●○○○	2.4–4.0 mm		
H 1/100	●●○○○○○	●●●●●○○	1.7–2.4 mm		
H 1/200	●●○○○○○	●●●●●○○	1.3–1.7 mm		
H 1/300	●○○○○○○	●●●●●●○	0.8–1.3 mm		
H 1/400	●○○○○○○	●●●●●●○	0.4–0.8 mm		
H 1/500	○○○○○○○	●●●●●●●	0.2–0.4 mm		
H 2 impregnated with grinding paste					
H 2/30	●●●●○○○	●●●○○○○	4.0–6.0 mm	Reduces the ‘orange peel’ effect on stamped and moulded parts	Fine grinding and deburring of stamped non-ferrous metal parts
H 2/50	●●●○○○○	●●●○○○○	2.4–4.0 mm		
H 2/100	●●○○○○○	●●●●○○○	1.7–2.4 mm		
H 2/200	●●○○○○○	●●●●○○○	1.3–1.7 mm		
H 2/300	●●○○○○○	●●●●●○○	0.8–1.3 mm		
H 3 impregnated with PP 01 polishing powder					
H 3/400	●●●●●○○	●●●○○○○	0.4–0.8 mm	Produces glossy polished surfaces	Smoothing, edge rounding and polishing hard metals and ceramics
H 4 impregnated with PP 02 polishing powder					
H 4/400	●○○○○○○	●●●●●●●	0.4–0.8 mm	Produces high-gloss polished surfaces	Smoothing, edge rounding and polishing hard metals and ceramics
H 4/500	●○○○○○○	●●●●●●●	0.2–0.4 mm		

The following applies to all items: Additional sizes and qualities on request

Walnut Shell Granulate is also available unimpregnated (Walnut Shell Granulate H 0).
It must be impregnated with grinding or polishing paste when used for the first time. Dosage: 2–3 teaspoons / 5 kg of Walnut Shell Granulate.

Additives

Wet Grinding Paste

Paste for enhancing the material removal rate of grinding bodies and polishing bodies

Properties: Roughening blunt grinding bodies. Produces medium roughness.

Use: Wet grinding process

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Applications	Properties
SP 62	●●●●●●○	●●○○○○○	Metals	Used in combination with porcelain polishing bodies, also suitable for roughening blunt grinding bodies

Dry Polishing Paste

Polishing paste in combination with granulates for Dry Finishing

Properties: Very good surface smoothing

Use: In combination with granulates in dry processing

Type	Smoothing low ⟶ high	Surface smooth ⟶ high gloss	Applications	Properties
P 1	●●●●●●○	●●●●●●●	Precious metals, brass	
P 2	●●●●●○○	●●●●●●●	Gold, brass	Very liquid
P 6	●●●●●○○	●●●●●●●	Precious metals	Odourless
P 10	●●●●●○○	●●●●●●●	Silver	
P 16	●●●●●○○	●●●●●○○	Steel alloys	Suitable for the pharmaceutical industry
P 28	●●●●●●●	●●●●●○○	Steel alloy, titanium	Good corrosion protection

The following applies to all items: Additional sizes and qualities on request

Dry Grinding Paste

Grinding paste in combination with granulates for Dry Finishing

Properties: Medium to high material removal rate

Use: In combination with granulates in dry processing

Type	Grinding performance low ⟶ high	Surface smooth ⟶ high gloss	Applications	Properties
SP 15	●●●●●●○	●●●○○○○	Steel	Removing small burrs, smoothing after wet grinding to avoid the 'orange peel' effect
SP 26	●●●●○○○	●●●●○○○	Non-ferrous metals	

Polishing powder

Polishing powder in combination with Grinding Oils and granulates for Dry Finishing

Properties: High-quality, smooth, high-gloss surfaces

Use: For sufficient adhesion on polishing granulates when Grinding Oils and greases are used

Type	Polishing performance low ⟶ high	Surface smooth ⟶ high gloss	Applications	Properties
M 10	●●●●○○○	●●●●●●●	Precious metals, brass	
M 18	●●●●●●●	●●●●●●○	Steel, titanium	Polishing steel parts, e.g. tool holders
M 21	●●●●●●○	●●●●●●●	Non-ferrous metals	Fine polish
PP 01	●●●●●●●	●●●●●○○	Ceramics, hard metals	
PP 02	●●●●●○○	●●●●●●○	Ceramics, hard metals, CoCr	Polishing implants
PP 04	●●●●○○○	●●●●●●●	Ceramics, hard metals, CoCr	Polishing implants

Grinding Oil

Grinding Oil in combination with granulates for Dry Finishing and polishing powders

Properties: Establishes a connection between the carrier material and the polishing powder.
Dust binding, e.g. with HSC granulates

Use: Also suitable for relubrication of dry granulate

Type	Properties
HL 10	Vegetable oil-based Grinding Oil
HL 11	Mineral oil-based Grinding Oil

Electro Finishing

Electro Finishing (EF) is a high-precision process for surface finishing of metallic workpieces using an external source of electric current. In this electrochemical (anodic) material removal process, the workpiece is immersed in a special Electro Finishing abrasive. Electro Finishing is primarily used for smoothing and polishing surfaces with complex geometries. The process is particularly effective for processing difficult materials such as stainless steel, titanium and other alloys. Electro Finishing gives workpieces a smooth metallic surface without affecting the microstructure while improving corrosion resistance and permanently enhancing the shine.

MyOTEC – your customer portal
You can also find our abrasives online at myOTEC. You can order everything you require for a perfect surface simply and conveniently in our customer portal.

Made
in
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