



# surface

THE OTEC MAGAZINE

## LEGAL INFORMATION

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## OTEC PREPARES FOR A NEW GENERATION TO TAKE THE HELM

In conversation with Nico Gegenheimer

## ELECTRO FINISHING INNOVATION

OTEC's new generation of machine technology for high-gloss surfaces

## PERFECT SURFACES FOR MIXED TOOL BATCHES

The SF-PLS automation solution

Made  
in  
Germany





**OTEC is synonymous with trademark German quality, best-in-class products, customer focus and expertise. This includes a presence at all major trade fairs.**

OTEC attaches great importance to nurturing partnerships, staying in touch and exchanging ideas. This is key to our success story as a mid-sized, fast-growing company that has carved out a reputation as a leading innovator.

OTEC is not only an expert at your side but also a trailblazer, constantly delivering technological innovations that set standards in every industry. Stay on the ball with us and find out more!



**Trade Fairs**

<https://www.otec.de/en/news/trade-fairs-and-events/>

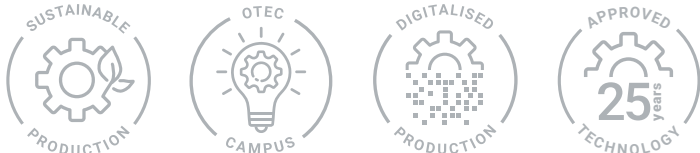
# Stay up to date with our products and our people in the latest OTEC “Surface” Contents

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# Welcome to OTEC!



With a devastating war on our doorstep, persistent post-pandemic sluggishness, soaring interest rates and gloomy economic forecasts, life and society are far from back to normal.

Meanwhile, on top of these circumstances the automotive industry is changing significantly. The former flagship of the German economy is facing a growing crowd of competitors, all vying for market share. In the age of combustion engines, German technology was arguably the benchmark that everyone aspired to, but the tide has now turned. Furthermore, recent policy decisions are adding to people's uncertainty and putting the brakes on consumer spending.

But in the face of all these challenges, we must focus on our strengths and confront whatever life throws at us with passion and creativity. We are also seeing a noticeably "human" turning point here in the digital age. People are taking centre stage again. Trust is high on the agenda, as is awareness of traditional values and a healthy environment.

On the whole, we are still comparatively well off – we have enough

to eat and plenty of free time. We must draw on these positives to muster our strength and energy in tackling the problems we currently face. In this respect, the younger generation has an especially important role to play. We need their determination and drive in order to meet and overcome these challenges.

That includes the young people at OTEC, like my sons Nico and Florian, who are ready to forge ahead proactively and energetically in the spirit of innovation. Despite everything, OTEC is in good shape and looking to the future with great confidence.

With kind regards,

**Helmut Gegenheimer**  
CEO, OTEC



*„Despite everything, OTEC is in good shape and looking to the future with great confidence.“*

**OTEC is out there leading the way**  
Clockwise: Nico Gegenheimer welcomes visitors to the OTEC in-house exhibition, the OTEC trade fair team at IDS in Cologne, OTEC presents at the "Beruf Aktuell" vocational training fair in Pforzheim, Lukas Göhler gives a lecture on mass finishing technology at the Institute of Production Science at Karlsruhe Institute of Technology





# Innovators by tradition

After more than a quarter of a century, this year will see a new generation of management take the helm at OTEC Präzisionsfinish GmbH. From a start-up for polishing machines in the jewellery and watchmaking industry, we have evolved into an established multinational serving a wide range of industries. By constantly expanding our areas of application and providing perfect combinations of machinery and abrasives, we have built a large and loyal customer base. Nico Gegenheimer discusses his values and the company's future direction.

## **Nico, how does it feel to follow in your father's footsteps and continue leading the company he founded?**

**Nico Gegenheimer:** It's both an immense challenge and a great honour to continue my father's legacy with the help of our employees. My father transformed OTEC from a garage start-up into a major enterprise. My goal is to continue his success story and hopefully even improve on it. He's a tough act to follow, but I'm proud of the influence I've already had on our digital transformation and process development over the past few years.

## **Did you always have a clear plan to take over management of the company, and how did you prepare for it?**

**Nico Gegenheimer:** I started working at OTEC as a cleaner to supplement my pocket money. So I developed a bond with the company early on and had the opportunity to watch our production operations evolve over a long period. The plan to take over the company within five years began to take shape during my studies. My degree in industrial engineering played a role in that. The five-year plan started with my officially joining the company full-time, where I supported and managed several departments. That gave me the chance to get to know our processes and products and to start influencing them.

## **What valuable lessons have you learned from your father?**

**Nico Gegenheimer:** My father has always taught me to approach things with a cool head and not to make hasty decisions. I particularly appreciate that about him, and see him as a great role model in terms of the respect he shows our employees. He emphasises the importance of learning from them and incorporating their expertise in decision-making processes. Another thing I admire about him is that despite OTEC's success, he's still genuine. He doesn't put on airs and graces.

My father also believes in flat hierarchies and short decision chains, and that's very much the OTEC way. Last but not least, he always encourages me not to be afraid of challenges – or of making mistakes, as they give us the opportunity to learn and

constantly improve. Having respect for others and maintaining open and transparent communication is the key to success at all levels. You can only learn new things if you stay open to experiencing them.

## **Can you share some past success stories and explain how innovation is rooted in OTEC's heritage?**

**Nico Gegenheimer:** We've achieved great success by constantly questioning, improving and reinventing existing processes. That has been a cornerstone of our philosophy since OTEC was founded. My father reinvented the Disc Finishing process, but many other innovations have emerged through collaboration with our employees. We have a large Development department that deals exclusively with improvements and new products. That's pretty unusual for a company of our size.

And finally, from my point of view, our corporate culture is incredibly helpful when it comes to being open to change and taking it forward appropriately.

## **What's new at OTEC right now? Which innovations are you particularly proud of?**

**Nico Gegenheimer:** I'm particularly proud of the diversity in our staff team. We have long-serving employees celebrating their 25th anniversary, as well as talented newcomers who bring us valuable experience and great ideas. The positive working atmosphere and the dedication of the staff are a real joy.

In terms of products, the Electro Finishing Process is a perfect addition to our portfolio. I'm looking forward to lots of fantastic new products in that area. Especially for our existing customers who aim to optimise their processes as much as possible, the EF-Series has the potential to push the boundaries of mass finishing even further.

## **In your view, what's the key to success at OTEC Präzisionsfinish GmbH?**

**Nico Gegenheimer:** Stability, quality, expertise, reliability and trust.

From my perspective, the key to our success lies in the wide-ranging expertise of our worldwide network of over 80 sales partners. Those are the factors that enable us to offer our long-standing customers high-quality solutions and earn their trust.

Also, we've always embraced market challenges and adapted our products accordingly. We actively seek out new applications and continuously develop our products to meet market demands. That flexibility and adaptability are also key to our success.

## **How do you plan to take the company forward, and what personal goals have you set for the future?**

**Nico Gegenheimer:** First and foremost, I want to ensure that the management transition between the generations goes smoothly and without compromising quality. We'll continue to position ourselves as the market leader in mass finishing and Electro Finishing, and maintain our reputation with customers as reliable experts in precision surface finishing. I would anticipate significant growth in digital technology, automation and artificial intelligence for specific use cases.

## **Finally, what message would you like to send to your employees, customers and partners?**

**Nico Gegenheimer:** Personally, and on behalf of the entire management team, I'd like to thank you for the trust you have placed in OTEC. OTEC is underpinned by a strong, motivated team dedicated to quality and continuous innovation in mass finishing and Electro Finishing.

We're passionate about creating perfect surfaces worldwide, with innovative German machine technology and practical solutions. We are committed to ensuring that our customers benefit from our products and services and that their individual requirements are met.

I would also like to thank all employees for the trust and support I have received and continue to receive over the years. Without such a fantastic, helpful team, my decision to take on the leading role so soon would have been much harder. Knowing they're behind me – and that there are people I can turn to for advice and help when I'm faced with challenges and difficult decisions – really means a lot. I truly appreciate it!

## Nico Gegenheimer

CEO, OTEC



The earth  
is not  
a disc.

Innovative  
ideas  
change  
the world.

OTEC – ELECTRO FINISHING SOLUTIONS



**The first evidence that the Earth is round was attributed to Aristotle.** Thales of Miletus (625–547 AD) may have been the first person to ponder the shape of the Earth. But his somewhat controversial idea was that the Earth was a flat disc floating on water. The great philosophers and naturalists Pythagoras (580–495 BC) and Plato (428–348 BC) assumed the Earth to be spherical, which was considered more rational. **Aristotle (384–322 BC), who was Plato’s brightest student, used observation to produce the first evidence that the Earth was round. For example, he observed the Earth’s shadow on the Moon during a lunar eclipse.**

Electro Finishing

Surface perfection  
reinvented

More information





Innovative surface finishing

# Electro Finishing – surface perfection reinvented

OTEC's new generation of machine technology ensures high-gloss surfaces on workpieces with intricate structures or complex geometries, leading the way in all industries. Suitable for components with varying dimensions and a vast spectrum of materials, our machines take surface quality to a whole new level. Electro Finishing delivers high-gloss results even in hard-to-reach areas. The ultimate in reliability, precision and efficiency.

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**Electro Finishing (EF) is a high-precision surface finishing process used mainly for metallic workpieces.**

In this electrochemical (anodic) material removal process, the workpiece is immersed in a special EF abrasive. Electro Finishing is mainly used to gently smooth and polish surfaces even in the smallest of corners. The process is particularly effective in overcoming the limitations of mass finishing.

Electro Finishing gives workpieces a smooth metallic surface without affecting the microstructure while improving corrosion resistance and permanently enhancing the shine. As a fast, effective and precise method of obtaining high-quality surfaces that meet the demanding requirements of modern industry, it has numerous advantages over other surface finishing processes.

**The right machine solution for every requirement:**

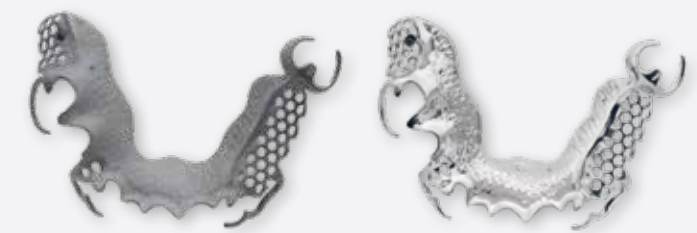
**EF-Smart T/S:** Compact table-top machine for the dental industry (T) or the jewellery industry (S). Gently smooths and polishes stone-set jewellery or workpieces with complex geometries, even in the smallest corners.

**EF-Compact:** Table-top machine for jewellery parts with larger dimensions, such as chokers or bangles. Mechanical finishing helps to minimise manual tasks. As such, it combines top quality with cost-effectiveness.

**EF-Flex:** Modular machine for jewellery and other manufacturing industries, with a capacity of up to 40 workpieces per process container, and up to 3 process containers. Perfect process reliability, processing even in the smallest of corners, and extremely short process times ensure cost-effectiveness and high-volume processing.

**EF-Performance:** High-performance, cost-effective machine with multiple holders on each of 3 stations for medical, toolmaking or aerospace workpieces with complex geometries. Maximum gloss even in the smallest of corners and surface polishing without micro-scratches – suitable for large parts. Reliable, precise and efficient, this technology sets new standards in surface quality and cost-effectiveness.

Backed by over 25 years' experience in creating perfect surfaces, OTEC Electro Finishing Technology is the perfect complement to the established mass finishing process.



Denture clasps (cobalt chromium)



Jewellery (brass)



Extruder screw (stainless steel)



Belt buckle (stainless steel)



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# Leading-edge innovation

*“OTEC technology delivers high-gloss surfaces”*



EF-Flex: Loaded e.g. with up to 40 workpieces per process container



EF-Performance: Loaded e.g. with up to 27 knee joints at 3 stations

The innovative Electro Finishing Process delivers high-gloss surfaces for a wide range of industries including jewellery, medical, dental, aerospace, additive manufacturing, toolmaking, automotive, food and textiles.

OTEC's Electro Finishing portfolio is groundbreaking technology for a wide range of workpiece sizes, setting new standards in surface quality.

Highly versatile, it can be used for a wide variety of materials.

**Highlights**

- High-gloss polishing with maximum gloss and no micro-scratches
- Intricate structures are maintained and are smoothed and polished gently with the minimum of mechanical stress
- Precise, even processing of hard-to-reach areas and complex geometries
- Achieves roughness values as low as Ra 0.01 µm
- Short process times with reproducible results
- Machine processing replaces time-consuming manual tasks
- Minimal media jamming thanks to tiny, spherical particles
- Safe for users as the particles in the specially developed conductive liquid are free from cyanide and hydrogen fluoride
- Improved corrosion resistance thanks to Electro Finishing







For OTEC's 25th anniversary, we embarked on a challenging joint project to create a special pinot noir. OTEC staff members helped with the whole process, from tending the vines, to harvesting the grapes, pressing, and ageing in the wine cellar. Using traditional methods and working in the vineyard side by side with experienced winemakers from the company, we produced an anniversary wine worthy of the occasion.



*Wine growing is a family tradition at OTEC. The wines of the Jota & Gegenheimer brothers have a unique aroma. The vines, planted by their mother, are originally produced using traditional methods, the quality of OTEC satisfies even discerning palates. A full-bodied, rich red wine with an aroma to match.*



**"Life is much too short to drink bad wine."**  
In the spirit of Goethe, enjoyment and camaraderie are valued and nurtured at OTEC. Just like the family's decades-old vines. Traditions are roots that promote cohesion. The same applies to our dealings with customers, partners and suppliers. Reliable partnership is part of the OTEC philosophy. Tastings are always at the ready on special occasions. Cheers!

**25**  
YEARS

Up-to-date  
OTEC live





Perfect surfaces for mixed tool batches

# Flexible precision



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With the SF-PLS (Prisma Loading System) solution, proven OTEC Stream Finishing Processes meet smart automation. Rounding cutting edges, chip-space polishing and coat smoothing? Simply enter the required process on the touch panel to start the automatic selection of process parameters. The specially designed prism pallets enable rapid loading and unloading of the tools for finishing, regardless of component length and diameter.

Loading via linear unit and double gripper



Universal 2-finger gripping system



Prism-grooved pallets with unsorted tools



**OTEC Stream Finishing Technology significantly improves the quality of machining tools. Precise rounding and smoothing of cutting edges increases tool life and ensures less chipping as well as better chip removal. Much lower frictional forces on workpieces with coatings means much lower wear. Special polishing processes minimise corrosion, which means that no additional corrosion protection is necessary for months.**

**Flexible processes for tools**

Our new and advanced Stream Finishing Unit is remarkably flexible. It reliably produces an even finish, no matter how complex the workpiece geometry. It also extends tool life and improves cutting values by using a special granulate for high-precision cutting edge rounding on tools and a high-gloss polish on flutes. And because cutting edges are prepared and polished in a single step, the process is highly efficient.

Highlights of the technology include automation, minimal processing times and high process reliability. The unit's high processing forces ensure faster and more targeted removal of roughness, specially for applications where smoothness is required even for the smallest of workpieces.

**Fast tool preparation in mixed batches**

The integrated pallet loading system with this unit is the ultimate in flexibility and ease of operation. Tool batches with random diameters and in random order are pre-sorted in prism-shaped grooves on up to 18 pallets. The automated loading unit is then used for fully automatic workpiece removal and return for tools with a wide variety of parameters such as length and diameter.

A 2-finger gripping system and the prism-shaped grooved pallets ensure optimum workpiece gripping and eliminate time-consuming retooling for different workpiece dimensions. This enables un-manned runtimes of up to 20 hours, depending on the processing times for the individual parts and processing tasks.



**Smart automation**

As well as normal job mode, where processing parameters are individually defined for specific cutting tools, the OTEC SF-PLS offers the very best high-tech for ease of operation with randomly mixed tool batches. It detects a huge variety of tool diameters with precision and finishes the tools fully automatically and reliably using optimum, predefined processes.

Simply preselect your program on the touch panel, activate the finishing task you require, get the loading unit ready with the trolley, and start unmanned operation.

In addition to the standard software, which enables full control over all process parameters, the SF-PLS also has a flex mode for flexible operation. This is the result of decades of experience by OTEC's Stream Finishing experts as process parameters for each tool diameter and desired finishing result are stored in the machine control system.



Milling tool before processing



Milling tool after processing

## Stream Finishing

Automated surface perfection  
More information



*“Stream Finishing Technology meets smart automation”*

# Technology Highlight OTEC process simulation

Process simulation aims to fine-tune existing processes or to speed up process specification for complex components. It can carry out extensive analyses, compare processes and find new ways to obtain the perfect result. Simulations produce innovative new processes for ever more complex components with increasing requirements.

**OTEC's process simulation is based on DEM (discrete element method) particle simulation, which takes new developments to the next level and offers many benefits:**

- Simplifies process specifications for new workpieces
- Improves process understanding through visual insights
- Gives realistic and validated representation of process flow conditions
- Analyses contact mechanisms occurring on workpiece
- Supports process development for complex finishing tasks
- Helps devise new processes and identify optimisation potential

**Cost savings of up to 90%**

Process simulation not only saves on material and energy costs but also reduces process configuration time by up to 90%. Unlike traditional processing configuration, process simulation neither requires real workpieces to be processed or materials to be used, nor does it involve manufacturing work in upstream processes. It can also calculate and analyse the flow conditions across the entire workpiece.

**Optimised and new processes for perfect results**

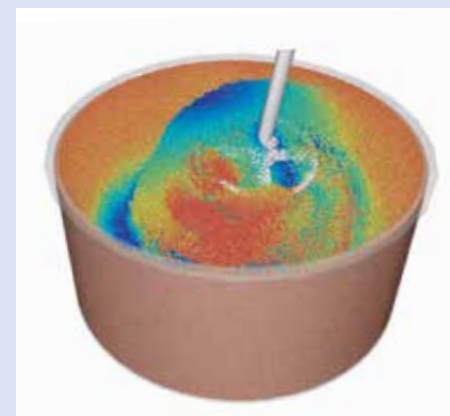
OTEC process simulation can provide a detailed process analysis by identifying stagnation points and flow separation, analysing pressures, speeds and contact times on the workpiece surface and adjusting workpiece orientation to achieve optimised flow characteristics. This ensures faster and more homogeneous smoothing.

## Process simulation

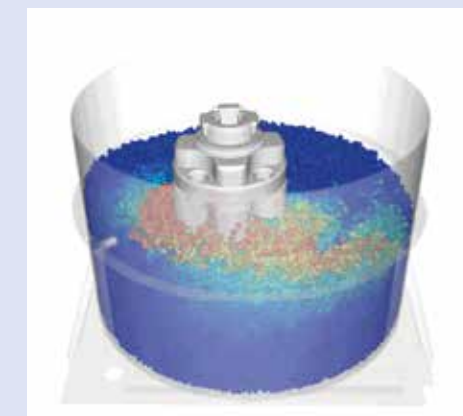
Technology Highlight  
More information



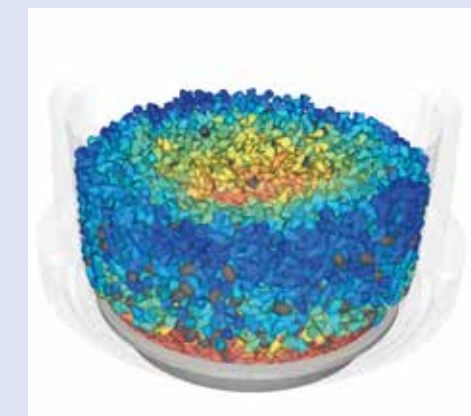
### Visual representation of a simulated process flow



Stream Finishing Process



Drag Finishing Process



Disc Finishing Process



“OTEC is on the road to success, which means our corporate identity should match up to our products.”



**Team Marketing**  
Simon, Andrea, Vivian, Nicolai

## How marketing skilfully stages OTEC innovations.

**Where does OTEC documentation at trade fairs and on our website actually come from? And what about our new trade fair stand? Be it freebies, brochures, flyers, ads or web pages, our four-strong Marketing team is the driving force behind them. OTEC is on the road to success, which means our corporate identity should match up to our products – professional across the board. Our marketers put a great deal of passion and expertise into creating customer-focused concepts that skilfully stage OTEC innovations.**

### From one trade fair to the next ... preparation is everything

Designing, fitting out and organising trade fair stands as well as events like workshops or webinars requires a lot of organisational talent and the ability to improvise if something does not go to plan. Spinning all those plates and coordinating the many parties involved in a successful event is sometimes quite challenging. In the run up to the event, things can get pretty intense. Vivian Wasner manages this with consummate professionalism and commitment. She calmly takes care of every last-minute request from colleagues who are on the road. Overseeing all marketing projects and managing SEA/SEO are just some of her wide-ranging tasks.

### OTEC through the lens

When it comes to photos, videos and all media in which they are used, Nicolai is ready to leap into action. Beauty is in the eye of the beholder – in this case, OTEC’s customers. How can we best stage the product? What information do we need to convey? Be it impactful videos with a suitable soundtrack, photo shoots or adept image editing, Nicolai is our man for digital media and corresponding channels

on the web. He juggles tools like cameras, drones, tablets and mobile phones casually and skilfully. And if something in the hardware or software is not quite gelling, he almost always has an idea. A digital problem solver and imaginative mind in many creative applications.

### Communication at all levels

Andrea Ruckober’s well-trained eye is responsible for OTEC’s corporate identity and for ensuring its professional implementation at all levels. She is in charge of corporate design and everything that needs to be expressed in OTEC’s brand voice. Her passion is coming up with clear, striking statements that leave a lasting impression, as well as aesthetic designs that make OTEC an unmistakable brand. With an abundance of experience and flair, she devises strong, impactful messages and routinely uses a wide variety of media channels.

### OTEC on track

A passionate doer, questioner and leader, Simon Stamm is the go-to person at OTEC when projects need to get rolling and things require a closer look. His metier is keeping an eye on the big picture to move OTEC forward and ensure we stay on target. As the central point of contact for Sales and Marketing, he has mastered the art of moving and shaking diplomatically, expertly and confidently. He takes an enthusiastic and critical approach, and in all things OTEC, he’s always on track.







# “What counts for me is the sheer variety!”

OTEC is a fast-growing, successful, medium-sized mechanical engineering company in a dynamic market. So we are always on the lookout for committed people. If you like taking the initiative and diving into exciting tasks as part of a highly motivated team, this is the place for you! Tamara Kies, Internal Sales employee in International Sales, is a bona fide OTEC success story.

### High-powered career woman finds innovative company on course for expansion

First a technical college entrance qualification, then training as an industrial clerk for international marketing and foreign trade at OTEC before kicking off her career in international sales, and finally, as if that were not enough, in parallel with her day job she achieved Chamber of Commerce certificates as an industrial business administrator and training supervisor. Tamara is the full package; versatility personified. And at OTEC, her watchful manager gives her plenty of freedom to find her way through demanding tasks, and constantly offers her new and empowering challenges, which she takes on with absolute dedication.



### Charismatic, competent and multitasked

Tamara Kies takes it all in her stride and loves the variety her job throws at her. She's found her vocation, and the smile on her face says it all. This is also exactly the quality that makes her the perfect OTEC employee. Day after day, she approaches her work with professionalism, skill, enthusiasm, dedication and a great deal of organisational talent. Her tasks range from the demanding preparation of quotes, order processing – with all the talent for improvisation that occasional “rush jobs” require now and then – to trainee support, visits to trade fairs, company event planning and even her very own projects, like the new MyOTEC portal which is part of the company's digital transformation.

When there's a new machine application video or a roadshow that requires a model, she dons protective goggles and off she goes! Friendly and knowledgeable, she's raring to go. Dealing with people, always facing new challenges and “sheer variety” is exactly what counts for her. Plus the sociable working atmosphere with colleagues, some of whom have become friends. A real problem solver – perfect for OTEC. What's the best moment she can remember off the top of her head? When Helmut and Nico Gegenheimer praised her personally for how wonderfully she represented OTEC at the trade fair. The praise was honest and warm-hearted. If that's not motivation, what is? It's also what sets OTEC apart as a family-run business: opportunity, visibility and hands-on involvement. Just your thing? Then join the OTEC team!



*“I can make a real contribution here.”*

**Adrian Kofler** (pictured right)

**Industry Manager for Aerospace in Technical Sales**

“Ideas very often get implemented here. Unlike in a large corporation, you can actually bring your ideas to fruition. Implementation is always a team effort and other colleagues pitch in, which ultimately leads to excellent and well thought-out solutions.

It makes me really proud to know that OTEC machines are produced with my ideas and thought processes, for optimised components that at some point will fly around the world or be launched into space.”



## OTEC benefits

- Staff restaurant
- Above-average pay and regular pay rises
- Extensive social benefits, e.g. supplementary company health insurance and company pension scheme
- Child care allowance
- Lots of perks and festivities





“Highly efficient & reliable”

# Precision finishing with more bite in the dental laboratory

Process optimisation, cost efficiency, reliably high quality and simpler handling for the production of custom-made aligners and bite splints – OTEC supplies a customised machine concept for the precise processing of dental objects in a large dental laboratory from Frankfurt am Main.

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Aligners



Bite splints

Smoothly polished surfaces on aligners and rounded edges on bite splints are essential for patient comfort.

The dental industry is booming and promises enormous potential for growth in the future. There is particular demand for bite splints, custom-made plastic parts designed to help prevent excessive clenching and grinding of teeth. Health insurance covers the cost of a bite splint for a couple of years now. Aligners – transparent braces used to straighten teeth – are more popular than ever with patients. Both trends are accelerating production needs enormously in dental laboratories. In the quest for an optimal manufacturing process for these particular dental objects, a large dental laboratory based in Frankfurt quickly realised that they are in the best hands with an experienced manufacturer and partner like OTEC.

**With a tailor-made customer solution for faster processes and higher production volumes**

From the very first contact at the world’s leading trade fair IDS in Cologne, the customer was convinced by the OTEC machine concept with customised processing for their special application. The leased



machine from a competitor, which they used previously, had to be replaced as quickly as possible because it took up too much space, was difficult to handle, had slow processing times and inadequate production volumes. The dental laboratory from Frankfurt was impressed by the customised process development in the OTEC Finishing Center. Their main focus was on getting the very best processing results for their workpieces. The OTEC solution delivers maximum precision finishing for the homogeneous, smooth surfaces of custom-made dental objects required in the dental industry.

**Machine processing starts at turbo speed in the dental laboratory**

CF-Series Disc Finishing Machines are designed for rapid, flawless surface processing on a wide variety of workpieces. The unit is modular in design and can be configured to meet the exact requirements of the customer. Depending on requirements, the unit is designed with a container volume of 9, 18 or 50 litres. The laboratory opted for a machine with 2 x 18 litre container volume. Up to 30 bite splints or aligners are now processed at the same time. A much higher output than before.

**Up to 20 times more effective processing and high-quality results**

OTEC develops the perfect process for every part. Ceramic abrasives are used as bulk materials for mass finishing in the dental laboratory. The delicate workpieces are added to the fixed container along with



Maxi-Dental: Compact Disc Finishing Unit for bite splints



CF 1x18: Stand-alone Disc Finishing Unit for aligners and bite splints



the abrasives. When the disc turns, the contents are set in motion in a toroidal flow. Centrifuging the bulk materials and workpieces makes this process highly intensive – up to 20 times more effective than with competitor machines. The results are of the highest quality. The processing time was reduced to 15 to 60 minutes, depending on the load.

**The result:** perfect processing results even faster and more reliably from now on.

**Easy handling impresses the laboratory employees**

“Particularly our employees, who are the ones actually using the unit, are more than convinced and are happy with the much easier handling of the unit – especially compared with the previous unit”, confirms the customer about one of the many highlights of their OTEC unit that was particularly important for dental technicians in the laboratory.



CF-Series Application video



Maxi-Dental Application video







SF-Auto and OTEC WT-Loop centrifuge

*“E-mobility – environmentally friendly surface optimisation”*

## Perfect high-performance surfaces for drive shafts

Functional reliability, cost-effectiveness and the use of environmentally friendly technology were the particular challenges for processing electric drive shafts from a well-known Polish automotive supplier. With OTEC machines, optimal surface tolerances are achieved on parts for electric high-speed drives where absolute functional reliability is of the greatest importance.

### Function-relevant surface tolerances

The automotive supplier and renowned drive specialist contacted OTEC looking for an efficient, cost-saving and above all reliable solution for optimising the surfaces of drive shafts in electric trucks. To guarantee the critically important functional reliability, exact surface roughness parameters had to be adhered to. The increasing demand for electric trucks is giving rise to high quantities in production and thus requires a high level of automation during processing and handling. It was also necessary to find an optimal solution in order to take into account an already tight timeframe.

### Customised Stream Finishing solution

A customised process designed to fully meet the exacting surface requirements was developed in the OTEC Finishing Center. The requested roughness parameters for the drive shafts were achieved by means of mass finishing technology using what is called the Stream Finishing Process.

With the SF Technology, workpieces are clamped in a holder and lowered into a rotating container filled with an abrasive or polishing medium. The granulate-type abrasive circulates around the workpieces, thereby ensuring even, homogeneous abrasion. By adjusting the processing parameters and the type of abrasive used, both highly abrasive and fine polishing processes can be performed with just one machine.

### Customised automation technology

The solution for this particular requirement from the e-mobility sector is suitable for series production and was achieved using an SF Machine with 3 spindles which can automatically process 3 workpieces at the same time.

### Benefits of OTEC surface processing

- Narrow tolerances of multiple surface roughness parameters are met
- Isotropic surface topography
- Fast processing of 3 workpieces in less than 5 minutes
- The process-related introduction of internal compressive stresses eliminates the need for a subsequent blasting procedure
- Easy automation and integration in the production line

The use of a waste water centrifuge and the corresponding recirculation system means that the OTEC solution is environmentally friendly and saves resources. Over 95% of the costs for fresh water and waste water disposal can be saved using the centrifugal water recirculation system.

### Proactive customer care for optimum process reliability

In order to be able to manufacture and deliver drive shafts during the machine setup time, the customer's start of production was supported by OTEC internal subcontracting. Following the successful setup and testing of the Stream Finishing Machine, the unit was integrated fully into the automotive supplier's production process. Continued support from OTEC Process Development and OTEC After-Sales will guarantee excellent process reliability and efficient use of the unit on a long-term basis.

### The surface is now the top performer

The use of the OTEC Stream Finishing Unit leads to effective resource and cost savings while at the same time achieving the required surface roughness parameters and surface properties. The extremely high technical demands of high-speed electric drives in terms of optimal functioning and resilience are reliably met and the service life of the parts is increased significantly while at the same time reducing maintenance costs.

**The particular properties of the mass-finished surface topography with its pronounced isotropy and the internal compressive stresses that are introduced make the drive shafts top performers.**





“Sociable knowledge transfer”

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## OTEC Campus – Work & Lunch series

The Work & Lunch event is part of proactive knowledge transfer at the OTEC Campus. At regular intervals, OTEC organises industry-specific half-day training sessions on site in small working groups, complete with culinary delights from the company’s own restaurant. Discover how to optimise your machinery with our finishing portfolio. Tips and tricks from the experts and a constructive exchange of ideas are *the* know-how booster for your production operations!

**Optimising your finishing results while maximising your cost-effectiveness**

is the goal of OTEC experts, whatever your sector-specific requirements. Always seeking the optimum solution for customers, OTEC is constantly refining and rethinking innovative machine solutions and creative finishing techniques.

Which influential parameters for the perfect surface can be fine-tuned to make them even more efficient? What is the best way to extend the life of abrasives, reduce process costs even further and obtain maximum output? What is the perfect surface for the specific customer? How can we achieve it, or improve it going forward?

Look over the shoulder of our team of experts at the Finishing Center, ask questions and put forward your ideas! Gain interesting behind-the-scenes insights on a tour of our Production operations. We look forward to sharing our many years of expertise on all the latest innovations, rounded off with a relaxed closing session over lunch.

With kind regards,

**Lukas Göhler**

Head of Finishing Center

**Sven Schmidt**

Area Sales Manager







# Take your production digital with OTEC

More information



*Machine control, remote maintenance and self-learning and self-testing machines result in maximum process reliability and use of capacity. We have developed digitalisation tools for our machines so that we can open up these possibilities for OTEC customers.*



Condition monitoring



Energy monitoring



Usability products

## Level 1 and 2 digitalisation packages

To prepare your machines for digital production, we offer two digitalisation packages, "OTEC Industry 4.0 Ready" and "OTEC Industry 4.0 Advanced".

The "Ready" package (Level 1) is the basis for all OTEC software packages. It provides all machine data, connection to a company network, plus remote control and remote maintenance.

The "Advanced" package (Level 2), in conjunction with the "Ready" package and an industrial PC, also allows the collected data to be processed in various ways, e.g. via the cloud, as graphics, and for data storage in large databases.

OTEC machines already come equipped for the different levels of digitalisation. Based on the requirements of your process, you can decide which level to use.

## OTEC Controlling Tools at a glance

Many OTEC machines come equipped with Controlling Tools such as energy Monitoring and Condition Monitoring as standard, allowing you to continuously improve your machines' energy performance.

## OTEC Energy Monitoring

Records consumption data for electricity, water and compressed air, available in three software levels.

## OTEC Condition Monitoring

This tool gives you the option of recording, analysing and archiving machine data so that you can permanently monitor machine condition and take advantage of machine self-diagnosis or self-testing. It also enables early detection of a possible machine standstill. Accessed via an industrial PC on the machine, the Condition Monitoring system allows analysis and self-diagnosis of the archived data. Energy Monitoring and Condition Monitoring are available for the OTEC SF-Series.

## OTEC Usability Products

Our additional user products make routine activities on the machine during finishing processes much easier for OTEC customers: barcode scanners for larger process batches, an additional password level for more convenient user administration, and an electronic key system for quick log-in.

The digital transformation of production is constantly advancing in leaps and bounds. OTEC can take you on this exciting journey to the technology of the future!

# Comprehensive expertise with over 80 partners worldwide

## Personal business relationships are integral to OTEC's success

OTEC is synonymous with trademark German quality, customer focus, expertise through experienced local partners, technology that has been tried and tested over many years in a host of industries, and reliable machines, supported by 24/7 customer service via our service hotline.

To keep your workflow running at its best, OTEC sales partners stay up to date with the latest technology and are always there to listen to your specific concerns. Our established, experienced and reliable OTEC partner network spans the world.

## OTEC Service – we speak your language

Customer satisfaction is important. In addition to the usual services, OTEC offers individually tailored packages such as special maintenance agreements. We also manage our stock with foresight so that we can deliver your spare parts quickly.

## MyOTEC – your convenient customer portal

On the MyOTEC platform, you can find information about abrasives, spare parts and the machines you have purchased, or download the latest safety data sheets. Quick, easy and convenient. Simply log in to see everything at a glance.

## Optional customised services

To round off the OTEC portfolio, we offer training courses on how to get the best from your machines and abrasives, as well as remote maintenance options.

