

NEWS

ISSUE #
01
2019



ENGINE BLADES FOR THE AEROSPACE INDUSTRY

Safer and more efficient
with an OTEC Finish

INTERNATIONAL AREA SALES TEAM

Individual customer requirements have
the highest priority for us as a sales team



**WE SMOOTH THE
ROUGH EDGES OF EVEN
THE TOUGHEST CASES**



**OTEC Precision Finishing:
A real boost for your carbide tools**

Whatever material a cutting tool is made of – it is extremely hard. This does make it highly resistant, but also means it is brittle and prone to breakage and problems with chip removal. Precisely rounding the cutting edges and polishing the chip groove with OTEC precision finishing machines extends service life and improves cutting values.

For drag, stream or pulse finishing, for wet and dry processes, for carbide tools of any kind, our machines give them both more power and more durability.

[Find out more at otec.de/toolmaking-industry](http://otec.de/toolmaking-industry)



OTEC SF1-ILS
Stream finishing machines
with chain loader

EDITORIAL



Dear Reader,

We're delighted to be back again with another edition of OTEC News giving you an insight into our developments and activities. 2018 was our best year ever in terms of sales and earnings! We're now preparing for the challenges of the year ahead. The current geopolitical landscape and certain economic indicators point to a tougher business climate in 2019.

But as ever, high customer satisfaction and innovation will be the key benchmarks by which we measure our success. We're absolutely committed to delivering tailored customer solutions and to continuously improving our processes and workflows. In doing so, our focus is on consistently enhancing our machinery and procedures to meet your needs, and putting in place new tools that make it even easier for you to work with us.

We would like to thank you for your continued trust in our products and services, and we look forward to working with you next year and beyond. Rest assured that we have some intriguing innovations, new perspectives and exciting events in the pipeline!

Kind regards

Soran Jota

Soran Jota
Managing Director

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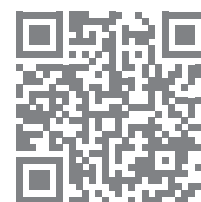
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OUR INTERNATIONAL AREA SALES TEAM

We appreciate that each customer is unique. That's why our sales team's top priority is to meet your individual needs. We aim to provide you with the perfect solution for your application needs.

Steadfast in our commitment to you, our sales team boasts specialist expertise in production processes and a detailed knowledge of machinery: this is essential to finding the ideal solution for you. This allows us to specify trouble-free operation and economical processes that suit your expectations and requirements perfectly.

At OTEC, our quality standards are universal and are managed by our International Area Sales Team. OTEC supplies over 80 countries around the world and works primarily with local partners. Thanks to a continuous transfer of knowledge and technology, as well as regular in-house training, we ensure that our customers receive the highest possible standards of care – no matter where they are in the world. It's important to us to provide a personal service to our international customers and partners. That's why each team consisting of the Area Sales Manager and Internal Sales Representatives focuses on its national territory and maintains close contact with the customer. We strive for direct communication channels and rapid response times. Each sales team is responsible for tasks ranging from sample processing enquiries and process definition, all the way up to offer preparation. Our sales team also handles orders for all standard machinery and processing equipment. And thanks to efficient team decision-making processes and effective overall organisation, every order goes smoothly.

Whether in New York, Moskau, Bangkok or Sydney, our fields sales managers are always on the move. So support from and close cooperation with the internal sales team at our company headquarters in Straubenhardt, south-west Germany, is vital. Teamwork is pivotal to us ensuring the best possible service at any time, in any place. Customer satisfaction is our top priority. That's why we're working together to develop new OTEC tools and solutions that will make it even easier for you to communicate with us. This includes the OTEC Service Portal (www.otec.de/service_portal), which gives our customers and partners a comprehensive overview of order status, machines purchased, spare parts and much more. ■





RAISING SMILES AND SPREADING HOPE

OTEC supports Bali's 'Solemen' Aid Project

Bali-based aid organisation Yayasan Solemen Indonesia is changing countless lives every single day. Formed in 2010, it is now a burgeoning organisation with a committed, well-trained team that pulls out all the stops to get help to those in need as quickly as possible. Solemen's dedication impressed us immediately. And after one of our employees paid a visit to the organisation on site, we had no hesitation in becoming a donor.

Solemen's founder Robert Epstone set up the aid programme to help the poor, the needy, the homeless and the disabled. The organisation focuses primarily on individual cases that are off the radar of the public authorities and often have no access to medical care. Solemen supports those who have fallen through the cracks of society and are receiving no help from existing health charities and government schemes. Many of them are hard to track down, largely because Balinese culture dictates that suffering,

illness, disability and poverty should be hidden from the outside world. These are the people that Solemen's Outreach Team was set up to find. The team consists of volunteer doctors and nurses along with local Solemen employees, and visits remote regions of the island to seek out those in need. Its case load is growing by the day. The team helps people like Ni Luh, who comes from a tiny village in Gianyar. A young girl with severe cerebral palsy, Ni Luh spent the first 13 years of her life lying on her back without proper medical care. Today her quality of life is much improved: she has a wheelchair, receives therapy and is growing up in a more caring environment. This and many other stories are a fantastic example of how Solemen is helping to ease the lives of disadvantaged families.

It is the most well-known and trusted charity on the island, but receives neither government funding nor support from major institutions. Instead, it

funds its work through personal donations, and partnerships with businesses. Sponsoring enables the Solemen team to do what it does best – sowing the seeds of hope and changing the lives of people in need. ■



SOLE MEN
Helping the disadvantaged in Bali

MILLENIA TECHNOLOGIES

OTEC Sales Partner for India



Millenia Technologies was established in 2009 and has worked tirelessly to become a leading business partner in the distribution of surface processing machinery. Founder Gautam Tiwari set up his Mumbai-based company in November 2009. It has since become OTEC Präzisionsfinish GmbH's exclusive sales partner in India. The country's large population and well-trained skilled workforce offer great promise, and OTEC anticipates ongoing growth in the Indian market.

Millenia is headquartered in Mumbai, with strategically located sales and service offices throughout the country. The first branch opened in Jaipur (Rajasthan), followed by

associated sales and marketing offices in Ahmedabad (Gujarat), Kolkata (West Bengal) and Chennai (Tamil Nadu). Its product portfolio is diverse and includes workpiece surface processing machinery for a wide variety of industries such as tooling, medical technology, jewellery, automotive and aerospace. Millenia's success is built on outstanding customer service and consultancy expertise.

The company's vision is to become a leading supplier of superior surface processing solutions and technologies in India. The firm offers high-quality products and cost-effective solutions delivered by well-trained employees, and has its own Finishing Center for process development. ■



ENGINE BLADES FOR THE AEROSPACE INDUSTRY

Safer and more efficient with an OTEC Finish

One of the most crucial components of a working engine system is its engine blades, such as turbine or compressor blades. A turbofan engine, for example, has many parts: at the front, the fan draws in the air and directs it into the compressor, which is composed of several blades arranged in a row and decreasing in size towards the end of a narrowing tube. Using a rotational movement, the suction air is compressed to up to a thirtieth of its volume, which in turn compresses and heats the gas. The air is then fed into the combustion chamber where it is mixed with injected kerosene and burned. The resulting energy propels the high-pressure turbine where the turbine blades driving the compressor are installed.

The downstream low-pressure turbine is also set in motion using this energy. The low-pressure turbine consists of longer turbine blades and is directly connected to the fan. The turbine ensures that the fan rotates. The fan not only sucks the air into the interior, but past the compressor and the turbine. The cold air, which is fed past the interior, generates the greatest propulsive force. The process inside the engine merely ensures that the engine remains running. So the exhaust gas flow produces 20% of the propulsion and the fan, 80%. Both the turbines and compressor blades are subject to high temperatures and pressures. Manufacturers have therefore implemented strict regulations for the production and processing methods used.

The engine blades used in the aerospace industry are usually made of materials that are difficult to machine and have a low tolerance that must be met to obtain the ideal air flow and maximum wear resistance. These components are exposed to extreme temperatures of up to 1,000°C. This means that the blade surfaces also have to be of the highest quality and optimally adapted to the conditions in the engine. OTEC has developed a special process to improve the efficiency and safety of engine blades and produce fewer defects.

Smoothing the air foil, i.e. the blade body, has a positive impact; depending on the required result, the surface can be smoothed to values of up to $R_a <$

0.2 μm in a few minutes, increasing blade efficiency. The material is removed evenly and only a minute amount is taken from the surface. Repairing the leading and trailing edges with precision rounding can reduce the quantity of rejected parts. The upstream machining process, e.g. blasting, can damage these edges. OTEC's method enables them to be rounded to a given radius and hence repaired. The rounding process is very precise and involves minimal material removal.

Deburring the root helps to improve safety by preventing the blade from becoming caught in the disc. Surface treatment not only prolongs the service life of the blades but increases their efficiency.





This is also the ideal preparation for coating the components. Smoothing and rounding the engine blades is possible in a single operation thanks to OTEC's innovative stream finishing process.

In the stream finishing process, the blades are clamped into the machine and lowered into a container of abrasive. Processing is carried out by both the rotation of the container and the movement of the workpiece in the media flow. The flow to the blades in the machine is clocked, i.e. the alignment angle of the workpiece changes at frequent intervals. This means processing can be precisely aligned to specific points on the workpiece, achieving a smooth surface and precise rounding without altering the shape of the blade. An important benefit of OTEC's process is the ultrashort machining times compared to conventional processes. Depending on the size and initial condition of the workpiece, the surface treatment of engine blades takes between 2 and 20 minutes. As the blades are clamped individually, no damage will occur to the workpiece surface. All processing steps can be carried out in

one machine. The SF-5 stream finishing system can process up to five engine blades at once, ensuring high output and cost efficiency. Tests conducted after OTEC processing show positive results for residual stress, fatigue strength and fluorescence control.

Engine blades are not only used in the aerospace industry, but also in the power sector. The surface treatment of blades from energy turbines can also be carried out in OTEC machines. ■



A turbine blade post- and pre-processing

PREVIEW

Preview – Our highlights in 2019!












Our CF series centrifugal polishing machines guarantee absolute reliability, sophisticated technology and perfect machining. We take pride in our CF series' new appearance. Our new design meets the most demanding requirements – with high-quality components and sturdier construction. We will be unveiling our redesigned CF at the Istanbul Jewelry Show from 21–24 March 2019. **WE LOOK FORWARD TO SEEING YOU!**

Save the date – OTEC invites you to its in-house exhibition!

Visit our in-house exhibition on 27 June 2019 at our headquarters in Straubenhardt-Conweiler, south-west Germany, and learn all about the various technologies and capabilities of our mass finishing machines and process technology and how their cost efficiency can benefit your specific application. Pick up some useful information in specialist presentations or in discussions with our staff and partners.

OTEC is on tour – Fairs in spring 2019

In spring 2019, we'll be represented both nationally and internationally at several trade fairs. We'd be pleased to show you the highlights of our machines and discuss processes and solutions from OTEC to meet your challenges – **WHY NOT VISIT US AT ONE OF THE FOLLOWING FAIRS?:**

 18 - 23 JANUARY 2019 T.GOLD INTERNATIONAL JEWELLERY TECHNOLOGY SHOW	Vicenzaoro T-Gold 18. – 23.01.2019	Vicenza Italy
 1999-2019 IMTEX	IMTEX Bangalore 24. – 30. 01.2019	Bangalore India
 2018 DESIGN ENGINEERING & MANUFACTURING SOLUTIONS EXPO DMS	DMS Tokyo 06. – 08.02.2019	Tokyo Japan
 TECMA	TECMA 05. – 08.03.2019	Mexico City Mexico
 WIN EUROPE Metal Working EUROPE	WIN Eurasia 14. – 17.03.2019	Istanbul Turkey
 10. Wernesgrüner WERNESGRÜNER WERKZEUGE SYMPOSIUM	Wernesgrüner Werkzeugsymposium 20. – 22.03.2019	Wernesgrün Germany
 ISTANBUL JEWELRY SHOW	Istanbul Jewelry Show 21. – 24.03.2019	Istanbul Turkey
 STOM Poland Kielce	STOM-TOOL 26. – 28.03.2019	Kielce Poland
 MECSPE TECHNOLOGIES FOR INNOVATION	MECSPE 28.03. – 30.03.2019	Parma Italy
 Demo Metal Vest	Demo Metal Vest 21. – 24.05.2019	Arad Rumania
 METALLOBRABOTKA 2019 - 2020 METALLOBRABOTKA 2019 - 2020	Metalloobrabotka 27. – 31.05.2019	Moskau Russia

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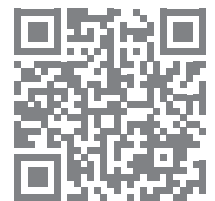
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