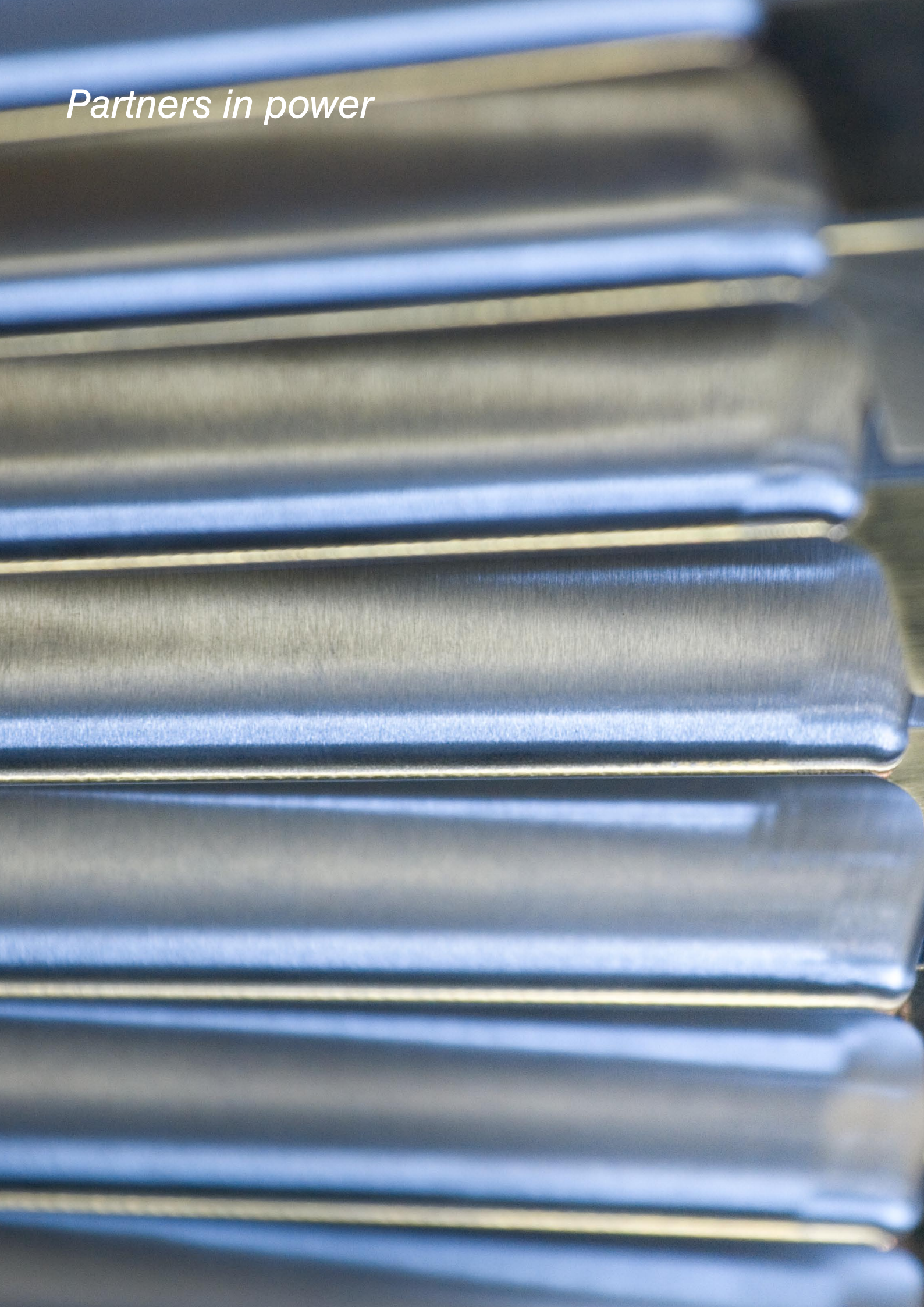


partners in power



Partners in power





From the raw materials up to a turbine blade that is ready for installation

Precision, reliability, technical competence and technological leadership are always essential factors for the successful manufacturing of complex components for steam and gas turbines.

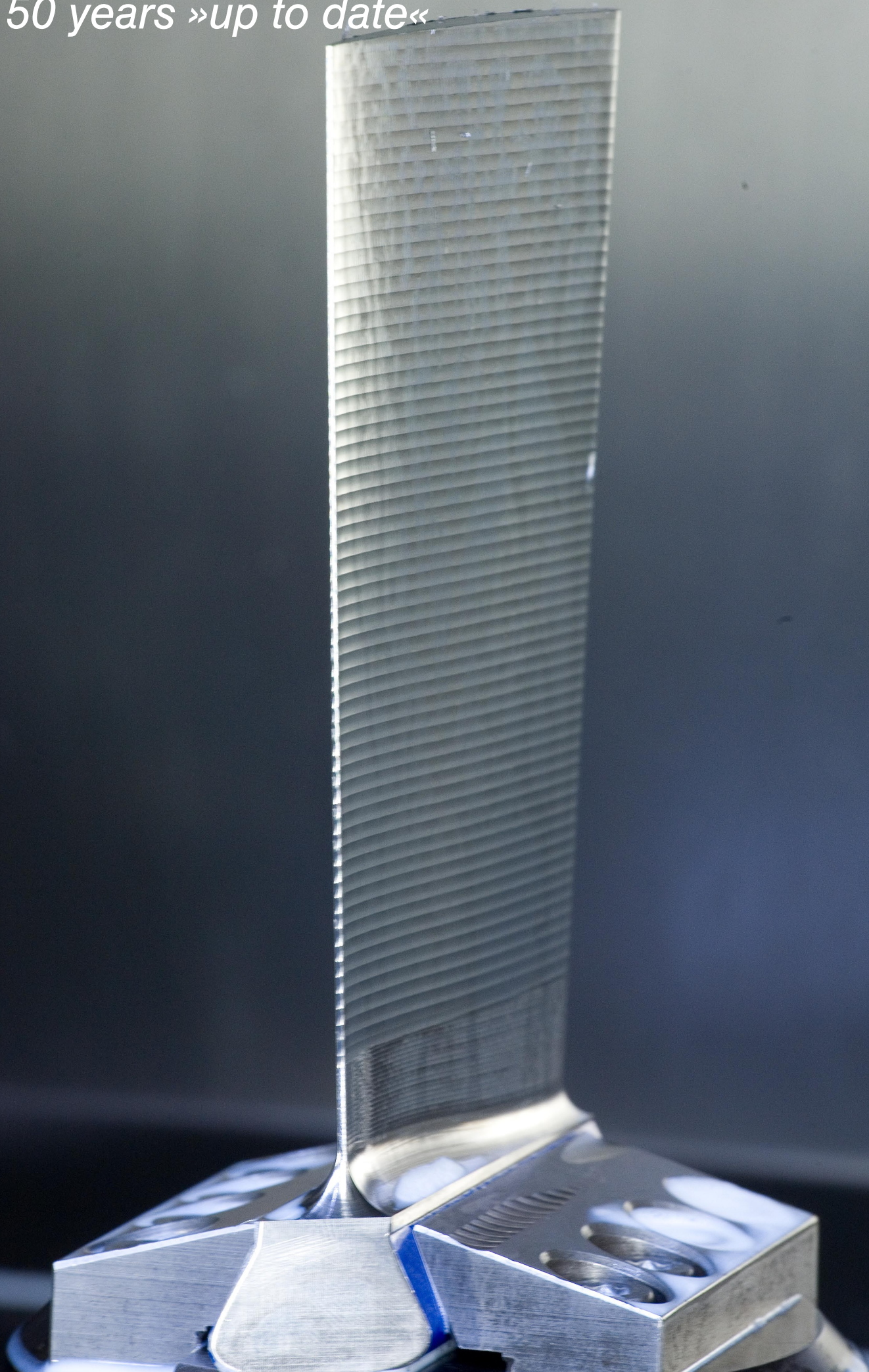
In addition to experience in the handling of state-of-the-art CNC technology a continuous quality chain is also of crucial importance for a brilliant result. The ground-breaking co-operation with our holding company, Walzwerke Einsal GmbH, with its long-time experience in production of creep-resistant special steels for blading turns Energietechnik Einsal GmbH into a unique one-stop-shop with uninterrupted quality chain – from bar stock up to finished machined and ready to install turbine blades.

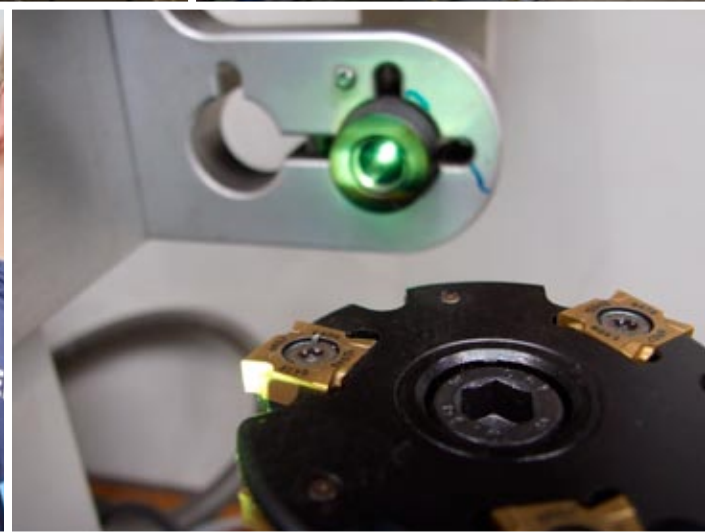


This inimitable combination of bundled know-how makes ETE your “partner in power”. Our medium-sized characteristics in connection with financial solidity guarantee a high flexibility for both, the handling of major projects as well as for the production of small batches and single components.

This almost proverbial Einsal flexibility made ETE one of Europe’s leading, independent producers of turbine blades and we enjoy the confidence and trust of all important companies in turbine industry.

50 years »up to date«





100 % customer satisfaction

50 years

ETE can rely on more than 50 years experience in machining of creep resistant steels for the manufacturing of turbine blades. In addition to martensitic and ferritic special steels we are also best qualified in processing titanium and nickel-base-alloys.

Nowadays we produce on state of the art 4 and 5 axis CNC centres which enable us to realize every imaginable blade configuration. Our machines are serviced directly by our experienced and well skilled staff which is used to work with most modern softwares. This know-how, in connection with our complete maintenance scheme and the consistent modernization and optimization of the equipment you can trust in high process reliability, unconditional on-time-delivery policies and competitive pricing in line with market requirements. It is always our aim to achieve a customer satisfaction of 100 % - we will not be satisfied with less.

Capacities



Mill 550 Twin

SIEMENS

POWER TEMP

WKS-DHMAPR15 13RE-WP
R136AL MIT
Programm Start
RDV

Kind aktiv

ZK8, Stand in Hub

Position	Bestwert	Masterpunkt	S1
X1	177.84882 mm	0.00020	Ist 9548.435 U
+Y1	18.43521 mm	0.03777	Soll 9549.000 U
+Z1	157.85924 mm	0.00030	Pos 0 gr
+A1	153.22227 grd	0.81023	Leistung 100.0 %
B1	5.00000 grd	0.00000	

Leistung 2%

Werkzeug

Werkzeug	Vorschub (mm/min)
Ist	24163.42645 1
Soll	25739.01020

Werkzeug
ZK8
vorigewähltes Werkzeug
K48
G01 G40

Über- WSK DRF Ver- Programm Salz- Handrad Program-
speichern SKK schreibung Reeinl. Suchlauf Korrek

SIEMENS

Emergency Stop Button

Keypad with function keys (F1-F12), alphanumeric keys (A1-Z, S1), and a numeric keypad.



List of Technology Capacities

CNC - milling and turning centers

- 1 x Alzmetall GX 1400/5-FDT – 5 axes

CNC - milling centers

- 1 x Liechti turbomill 1400i - 5 axes
- 1 x Liechti g-mill 550 twin – 5 axes
- 1 x Liechti turbomill 1200g – 5 axes
- 1 x Hermle C40 dynamic - 5 axes
- 3 x Deckel Maho DMU 80P - 5 axes
- 2 x Starrag SX-051 B - 5 axes
- 2 x Starrag HX-155/15 - 5 axes
- 2 x Correa CF 22 horizontal bed-type milling machine – 4 axes
- 1 x CWK 500 – 4 axes
- 1 x CWK 400 – 4 axes

CNC - milling machines

- 1 x Hermle UWF 900W universal milling machine

other

- 1 x Kasto CNC - high power sawing machine
- 1 x Behringer - high power sawing machine
- 1 x Nill & Ritz CNC - label and sinking machine

planar surface grinding machine

- 1 x ELB SW 6 VA II
- 1 x ELB Perfekt BD10 SPS

grinding machines

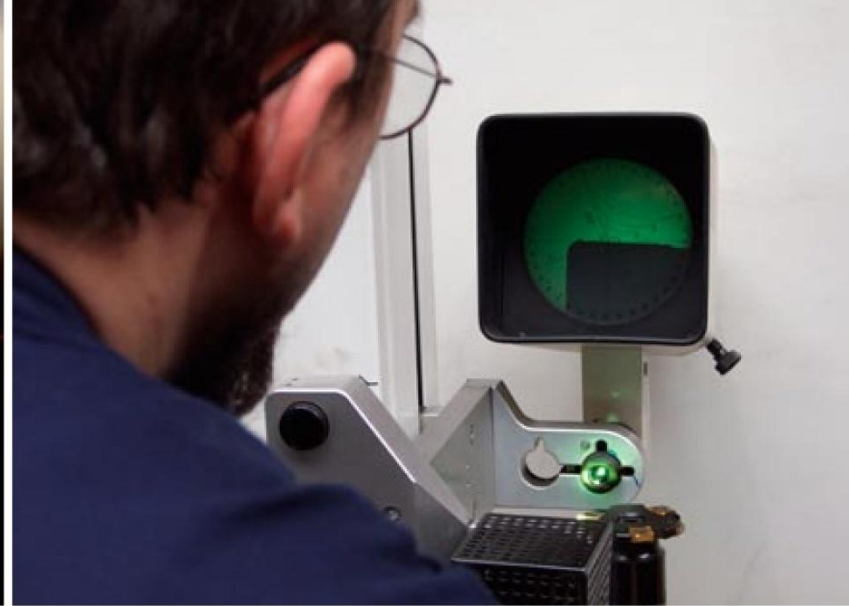
- Fa. Löser & Fa. Stahl

quality assurance

- 2 x Zeiss UMC 850 CNC - measuring machine
- 1 x Karl Deutsch Magnet - magnetic flew detector Deutromat UWE 900
- 1 x Spectrotest JR - Prüfsystem
- roughness measuring machine and others

Reverse Engineering

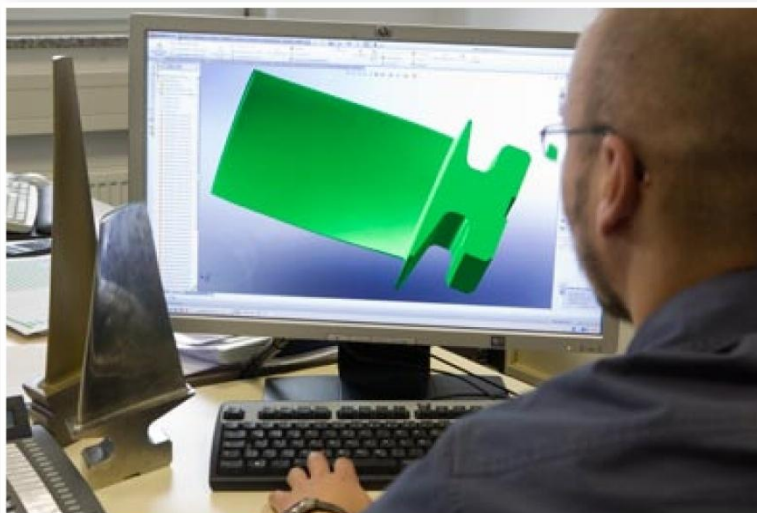




Reconstructing and optimising Reverse Engineering

The sense of material and operation are very important for the production of steam turbine and compressor blades. During the construction of the components and the determination of the optimal production process route state-of-the-art CAD and CAM versions are used. But only the know-how of our experienced engineers in our engineering and construction departments leads to the proverbial ETE quality.

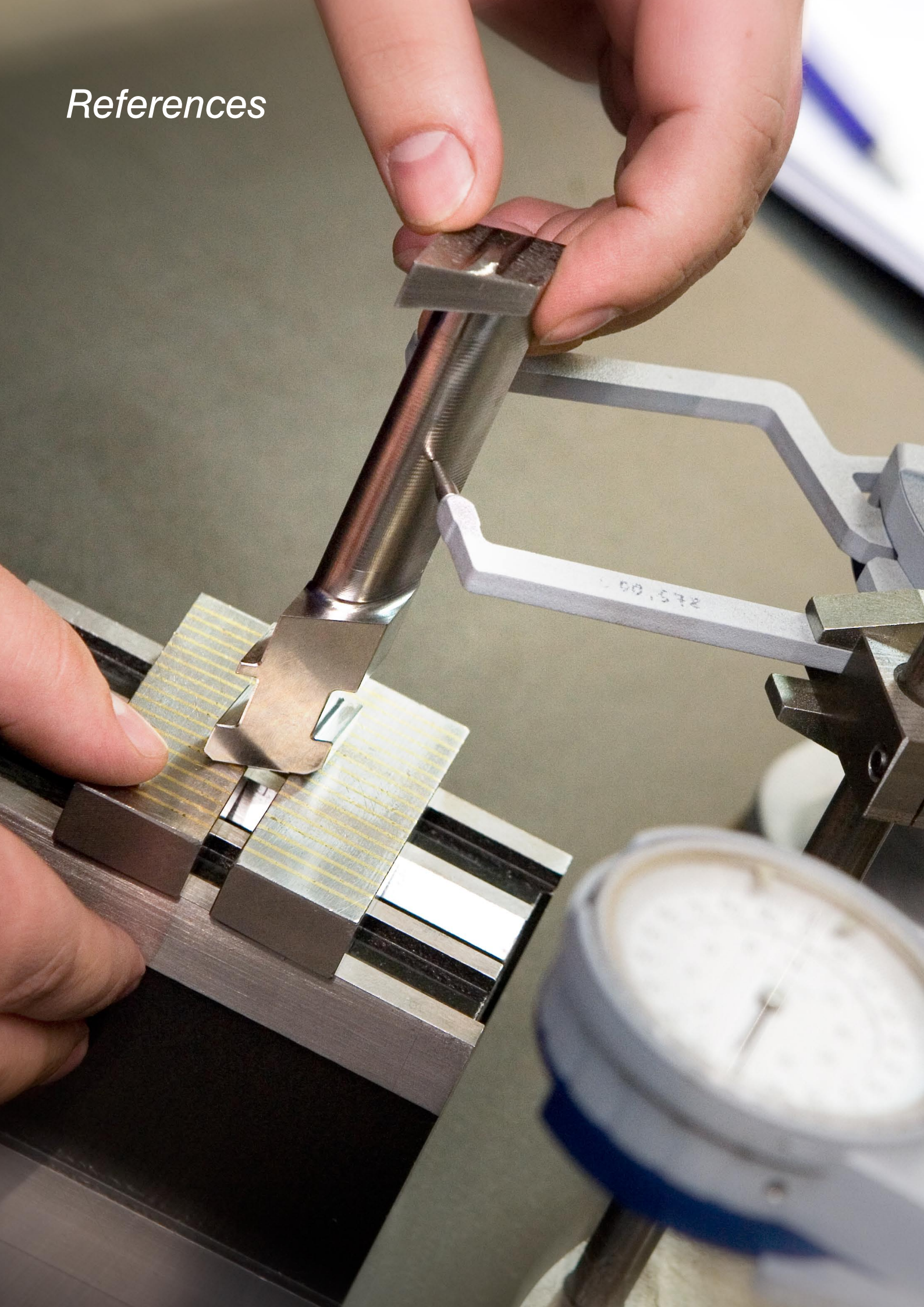
We are able to process all customer data efficiently, starting from classical component drawing



to coordinate-sets up to the reconstruction and optimization of complete turbine blade sets on the basis of sample blades, including optionally required measurements on site.

Please contact us. Our experience members of staff will support you with both – word and deeds.

References





Constant quality inspires confidence

References

High availability of machinery and technical know how of the staff are the requirements for high quality performance and best process security.

Our produced quality is documented and controlled by a complete in-process quality inspection right from the start – beginning from bar stock up to the documentation of finished parts according to your requirements. The basis of our quality management system is the aircraft standard EN 9100:2009

Quality and reliability provide confidence. Our reference customers are:

Industrial application

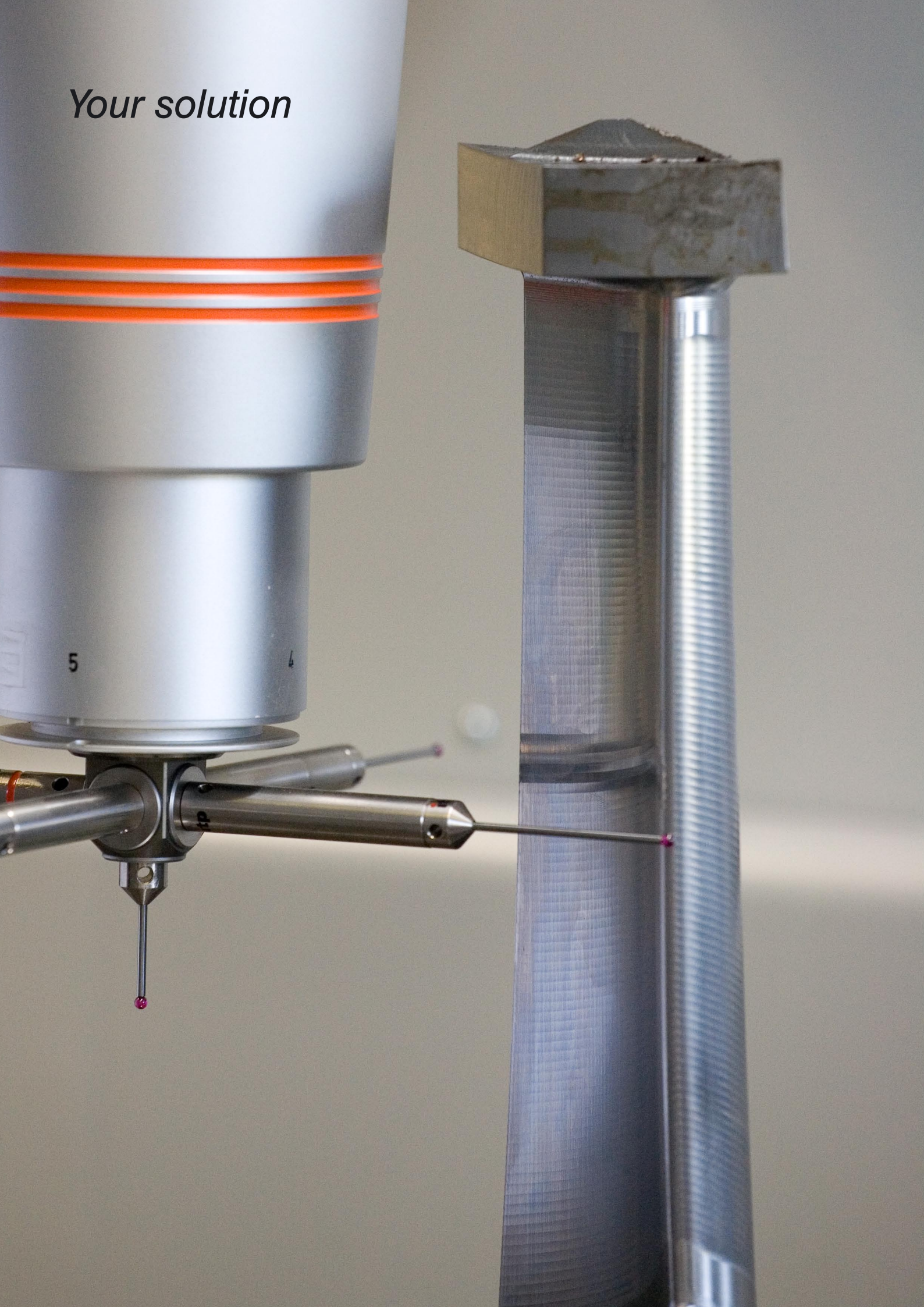
- **Alstom Power**
- **Ansaldo Energia**
- **BHEL**
- **EON**
- **General Electric – Power & Water**
- **MAN Turbo**
- **RWE**
- **Siemens Energy**
- **Voith Sulzer**

Aircraft application

- **AneCom Aero Test**
- **RLC - Callender**

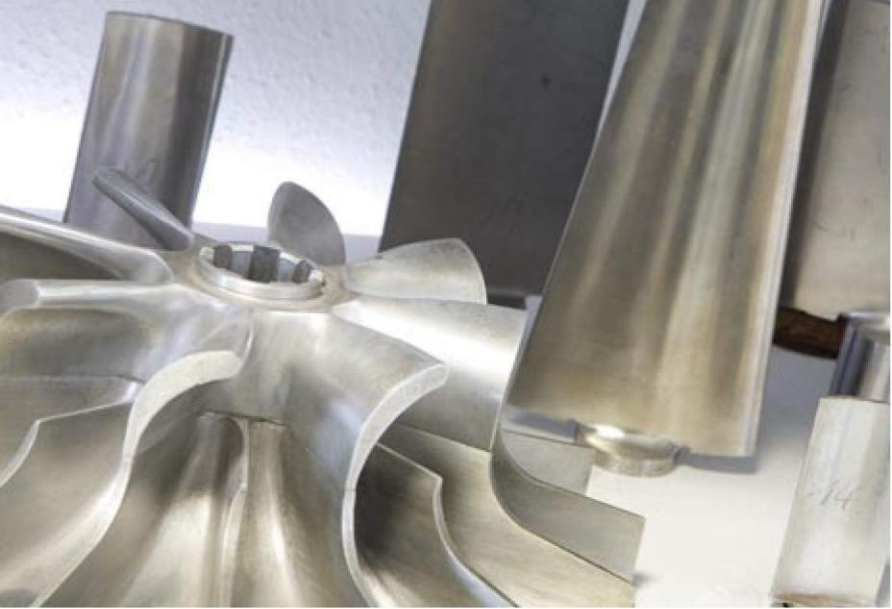
and many others.

Your solution



made in Germany





Certified quality
made in Germany

CERTIFICATE

DEKRA

 **ENERGIETECHNIK EINSAL GMBH**
Turbinenbedarf in Perfektion

EN 9100:2009

DEKRA Certification GmbH hereby certifies that the company

Energietechnik Einsal GmbH

Scope of certification:
Manufacture and distribution of all kinds of turbine components,
milling technology

Certified location:
D-93138 Lappersdorf, Am Kuffholz 2

Certification structure: Single Site

has introduced and effectively implemented a quality management system conforming to the specified standard (EN 9100:2009, based on ISO 9001:2008 and equivalent in technical terms to AS 9100C and JISQ 9100:2009). This is verified in certification audit report No. A13051026. The audit was performed in accordance with EN 9104-001:2013.

This certificate is valid from 2014-09-19 to 2017-09-18 Certificate registration no.: 880914017
Duplicate

DEKRA Certification GmbH
Stuttgart, 2014-09-19

Lack of fulfilment on conditions as set out in the Certification Agreement may render this certificate invalid

DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de
Page 1 of 1



Energietechnik Einsal GmbH

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