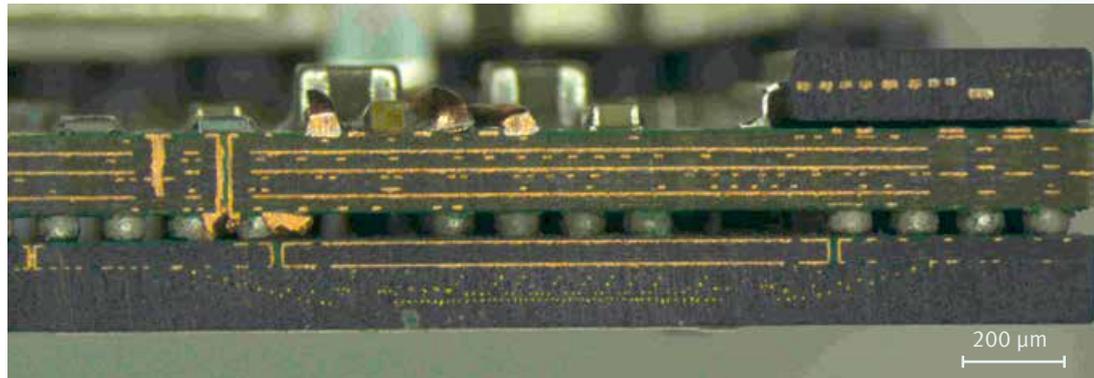
A large, colorful, and detailed microscopic image of a metal sample, showing various textures and colors like blue, yellow, and red, likely representing different phases or grain structures. The image is split diagonally by a white triangle that contains the text.

PRECISION SYSTEMS  
FOR SAMPLE  
PREPARATION

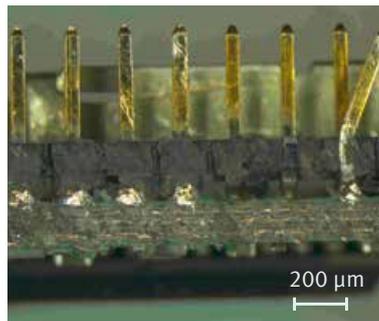
# EXAKT CUTTING & GRINDING SYSTEMS

## ARE YOU TIRED OF DAMAGED SAMPLES?

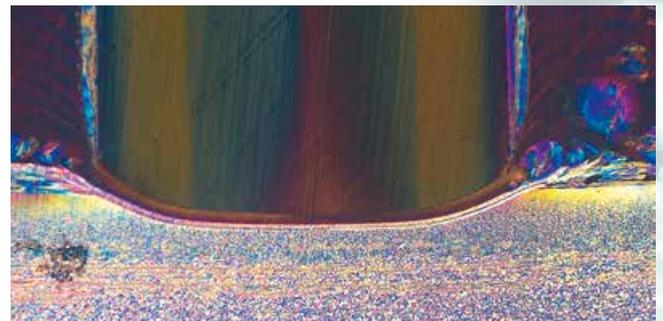
GET THE EXAKT RESULTS!



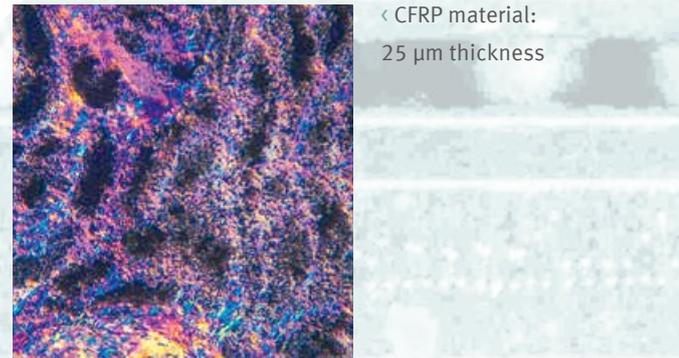
Circuit board cut with EXAKT diamond band saw



Damaged circuit board after crosscut with rotary cut-off wheel



Welding seam in polymer 100 µm thickness



< CFRP material:  
25 µm thickness

THE SOLUTION FOR  
HIGH QUALITY SAMPLES



EXAKT 300 CP diamond band saw

PRECISE THIN  
SECTIONS  
DOWN TO  
THE MICRON

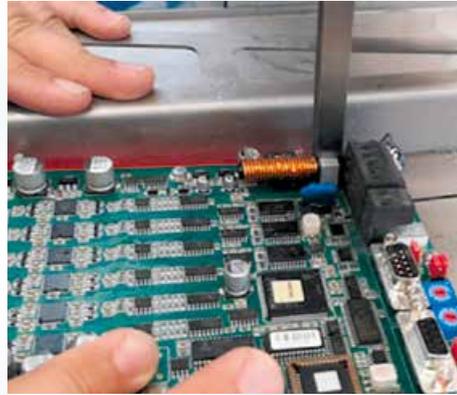


EXAKT 400 CS grinding system

# DIAMOND BAND SAWS

## FIRST CLASS SOLUTIONS FOR EFFICIENT SAMPLE CUTTING

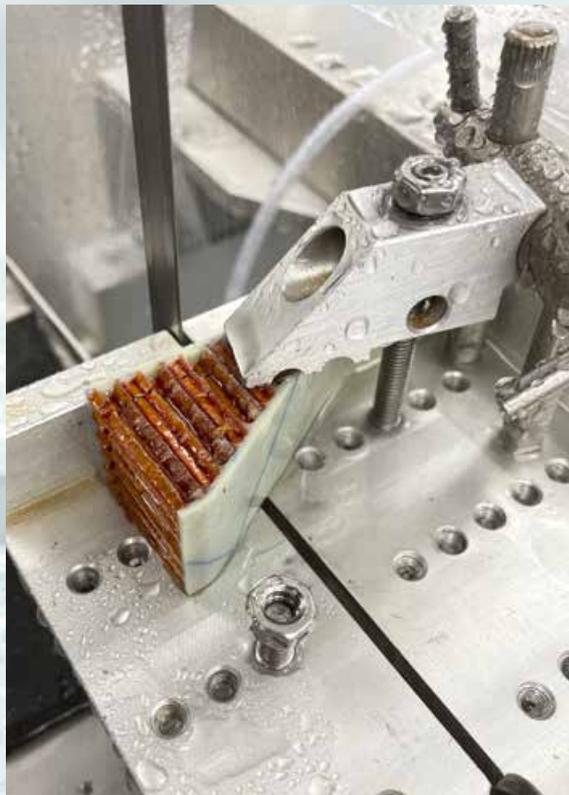
- › Maximum operator safety
- › Maximum sample utilisation with minimal kerf-loss
- › Efficient process creates perfect cutting surfaces & excellent roughness values
- › Flexible sample mounting solutions for efficient work processes
- › Variety of diamond and boron nitride cutting bands for different fineness



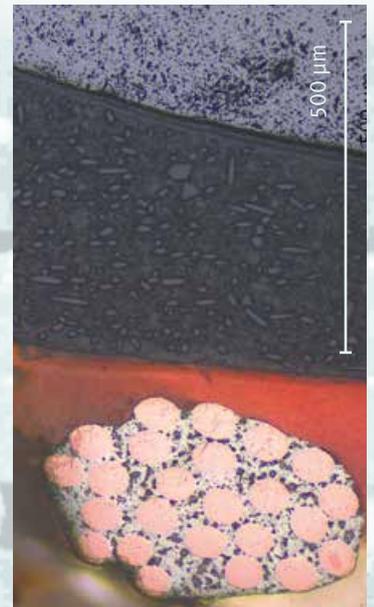
Precise cut through a circuit board



Cutting process – syringe



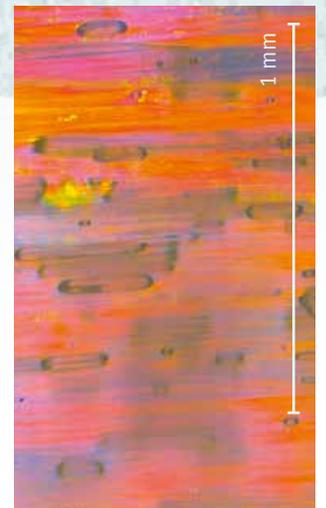
Cutting of complex components



Circuit board: metal – ceramics – polymer



Cut through a smartphone

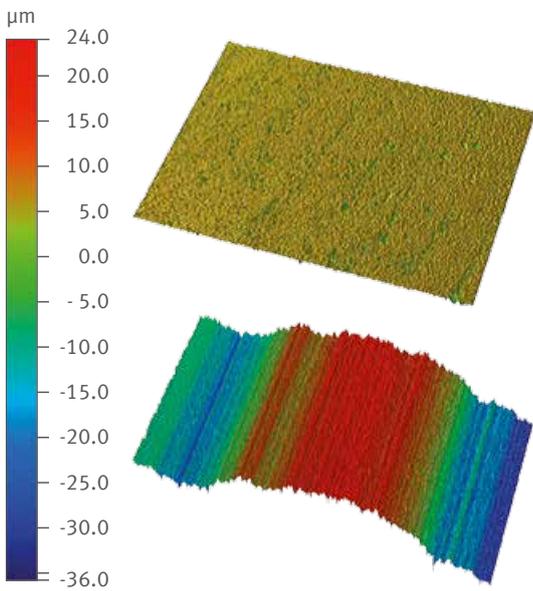


Glass-fibre reinforced polymer

# DIAMOND BAND SAWS

VERSATILE RANGE OF

THE QUICKEST WAY TO PRODUCE PERFECT CUTS – EVERY TIME



Comparison of roughness values EXAKT band saw (top) with wire saw (bottom)

- › Oscillating sample movement in CP mode reduces deformations
- › Maintains perfect surface quality while reducing cutting time
- › Reduces burrs, fraying and tears of the cutting surface
- › No grinding of separation deformations necessary

Precision parallel guide

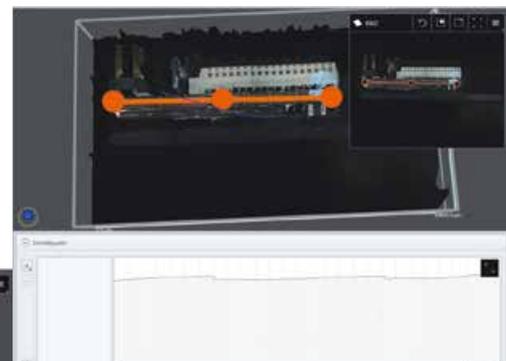
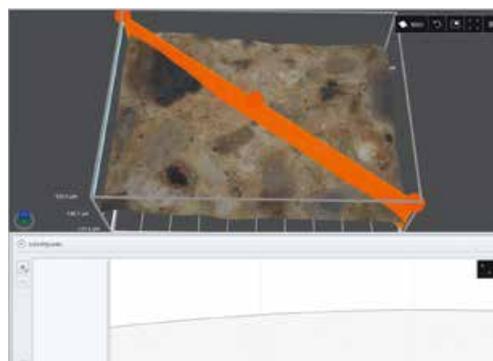


Variable sample fixation

## EXAKT CONTACT POINT PROCESS

- › The EXAKT CP cutting process uses targeted energy input for precise and gentle cuts
- › Precisely guided cuts even for complex material samples
- › Ideal for cutting material compounds with different degrees of hardness
- › Very few topographic fluctuations

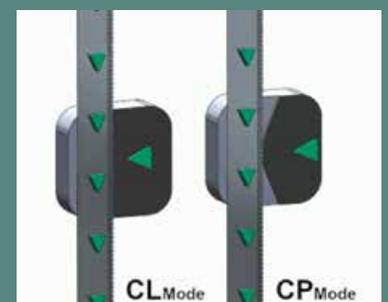
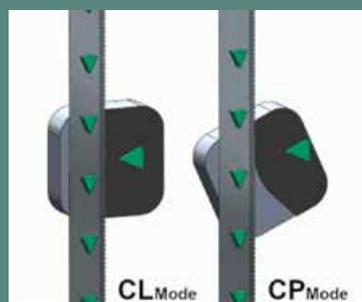
- › Surface measurement of circuit board: homogeneous cut of varied materials with no burrs or breaks on cavities



‹ Surface measurement of high-temperature ceramics: consistent and fast sample cut using Contact Point process. The surface quality is maintained.

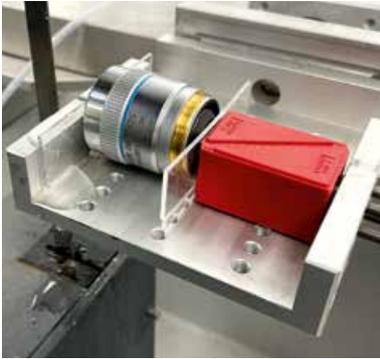
## CONTACT POINT PROCESS (CP-MODE)

In CP-mode the sample rotates in an oscillating motion. The sample is cut gently at a specific point and not across the entire cut surface, as is the case in CL-Mode.



SAMPLE HOLDERS – WE OFFER THE SOLUTION TO YOUR PROBLEM

Universal sample holder



Working table

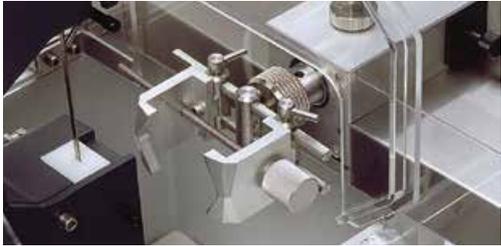


Vacuum plate



Universal clamping device

Clamp sample holder



Clamp for round objects

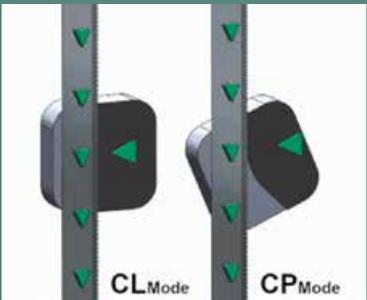
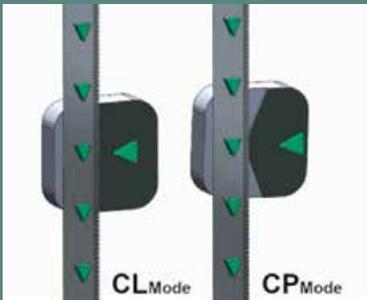
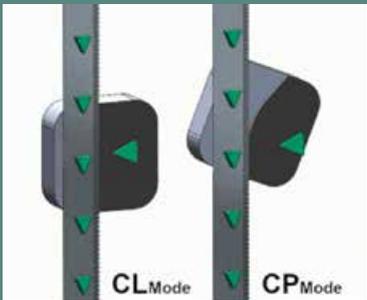


Tailstock

EXAKT sample holders easily accommodate our clients' needs – contact us for the perfect solution.



Customised solutions



# DIAMOND BAND SAWS

## EXPERIENCE THE EXAKT

### universal

Sapphire Waver:  
separating the second  
hardest mineral  
after the diamond –  
not a problem for EXAKT



Precisely separate  
a wide variety  
of metals & metal  
composites –  
here: hardened  
steel with boron  
nitride cutting  
band



### gentle

Glass, metal, ceramics:  
separate composites without  
embedding – surprisingly easy



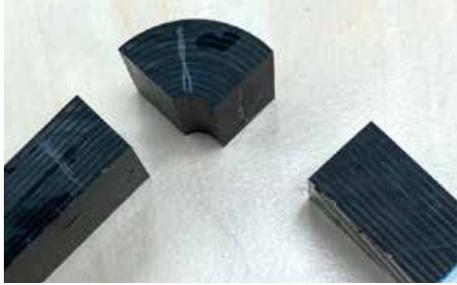
Glass bodies: flat parallel cutting panes of  
hard and brittle materials – no breakage

## CUTTING PROCESS: HIGH-PERFORMANCE CERAMICS



# WOW! FACTOR

Metal-Carbon composite



Cross-section of lens

reliable

time saving

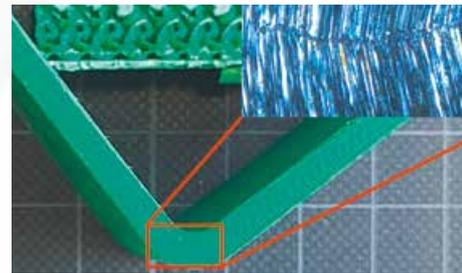


Ceramics cube



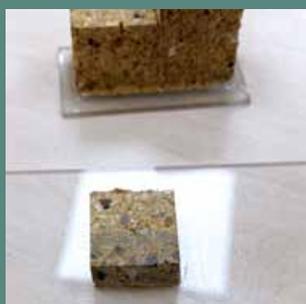
Separation of biological materials  
Here: cut through wood

Rubber gasket with metal components:  
no smearing



Additive component: targeted preparation  
successfully processed

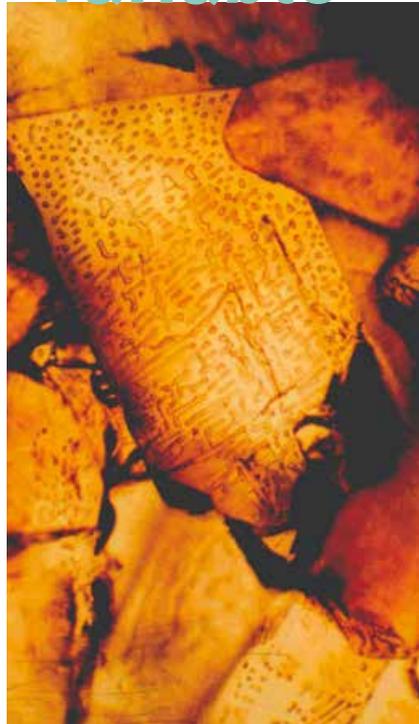
practical



# THIN SECTION SYSTEM

# EXPERIENCE

variable

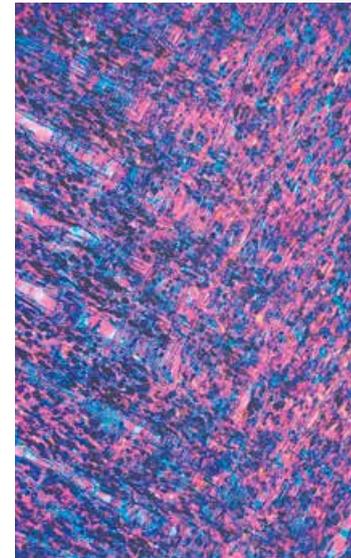


Rock salt with fluid inclusions:  
micron accurate cuts made possible  
with an anhydrous preparation

precise

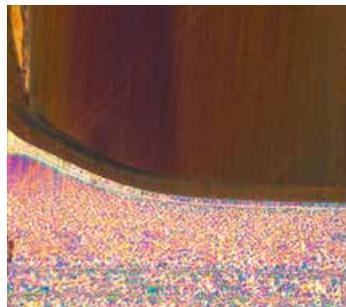


High-temperature ceramics

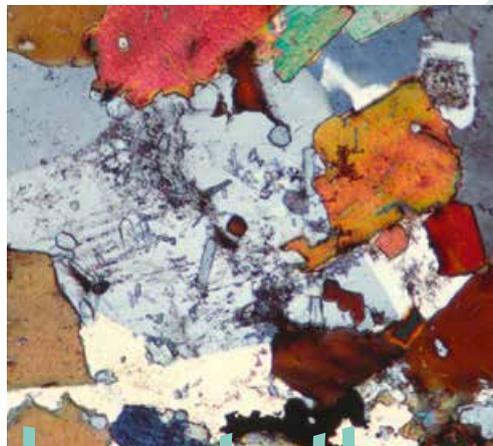


Plastic 3D  
printing:  
samples with  
the same  
grinding  
thickness  
are required  
in product  
development

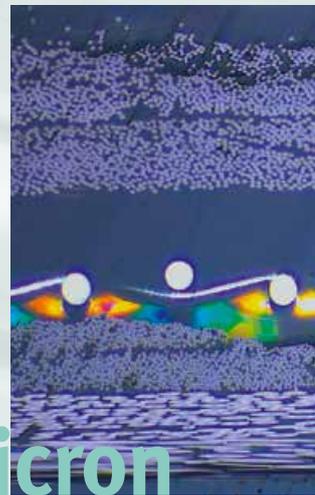
Polymer weld seam:  
weld transition  
zones made visible  
by precisely setting  
target thickness



Natural stone granite: defined  
ground thickness (27 µm)  
for mineral analysis is possible  
without much effort



down to the micron

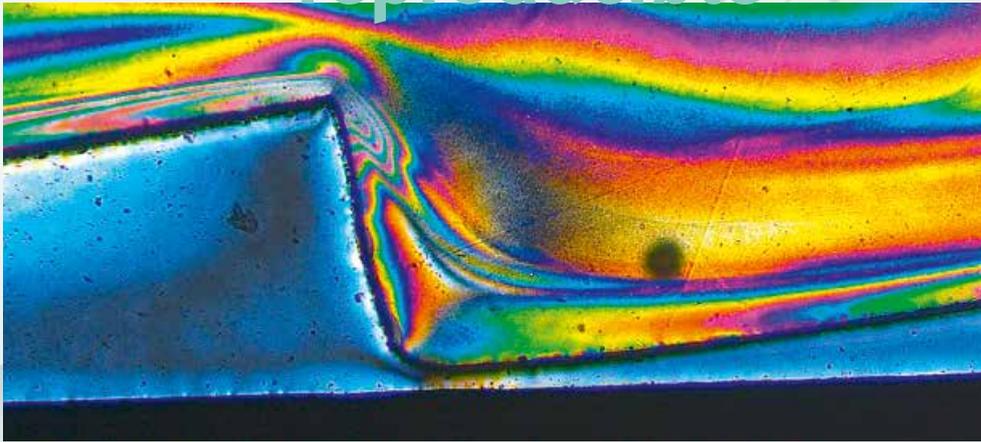


## GRINDING PROCESS: POLYMER COMPOUND



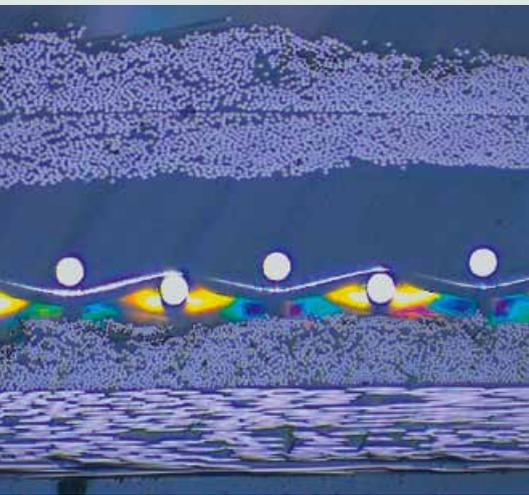
# THE EXAKT WOW! FACTOR

reproducible

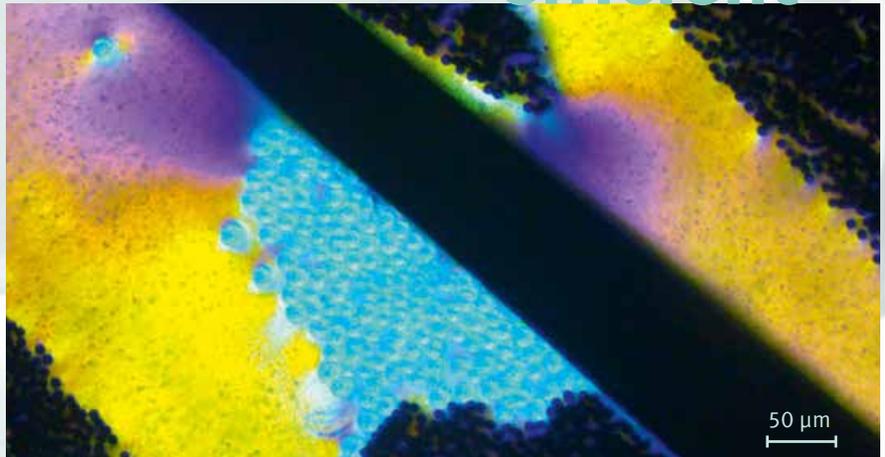


Thermoset: Anisotropies

efficient



Grinding CFRP: polished, with metal components



GRP-CFRP material: preparation of composites with hard and soft components without artifacts



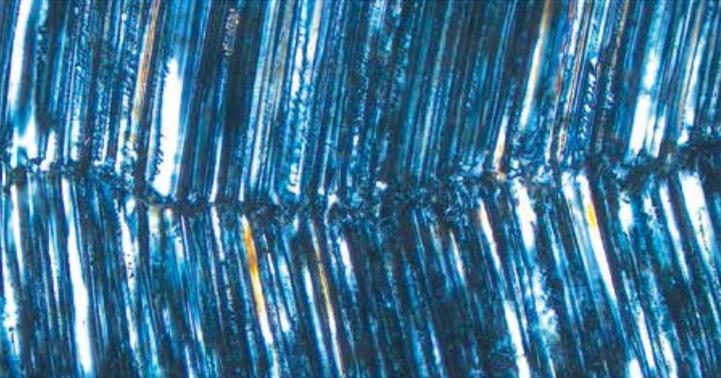
Thin section K320-105μm-02DL



Thin section K4000-24μm-01DLP

# THIN SECTION SYSTEM

## RELIABLE SAMPLE GRINDING PROCESSES

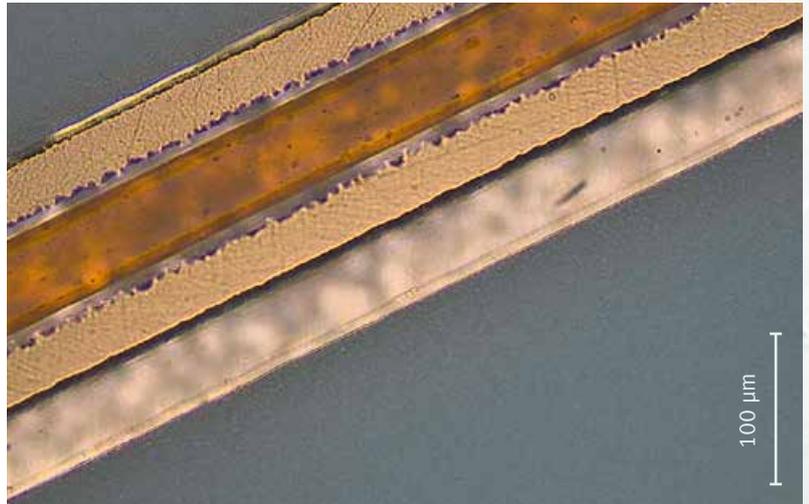


Glass fibre reinforced polymer, additively manufactured:  
contact zone between layers in thin section (25 µm thickness)

- › Continuous real-time control of grinding removal in micron steps
- › Gentle and controlled removal due to gravimetric adjustment of the grinding force
- › Homogeneous & reproducible grinding pattern



Ceramics, filter system: thin section of hard and brittle materials



Copper-plastic foil: polished thin section for inspection in reflected and transmitted light (simultaneously)



EXAKT 400 CS grinding system

*“However, this sophisticated technology continues to surprise. Despite being a single-cut process, the reproducibility, which is extremely important for serial preparation, needs mentioning in addition to the outstanding quality of the cut samples. This technique is ideal for the described examinations. It is particularly suited for components and materials that have been additively manufactured and show significant differences, e.g. in hardness or other special qualities.”*

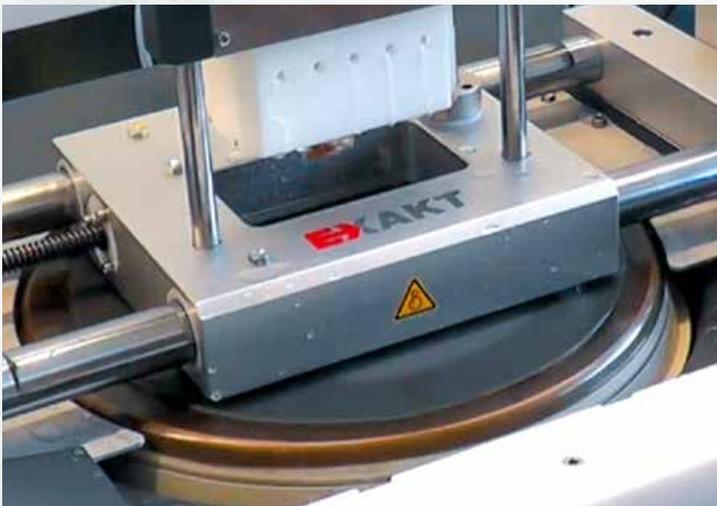
Translated quote from book “Präparation und Mikroskopie für nichtmetallische Werkstoffe und Verbund”; author: Martin Kern.

## PRECISE ANALYSIS THROUGH MAXIMUM CONSISTENCY



Oscillation plate

- › Easily adaptable due to vacuum plate fixation for a variety of slide sizes
- › User-friendly operation
- › Minimises grinding paper wear



Vacuum head with slide



Setting and measurement of grinding removal down to the micron



User-friendly mounting of the slide with sample



Specifically developed microscope slides

WE ARE CONVINCED:  
WE CAN CREATE THE  
THINNEST SAMPLES  
POSSIBLE BY HAND!

# EXAKT TECHNICAL CENTRE

## CUSTOMISED PROCESSES FOR CUTTING AND GRINDING YOUR SAMPLES



The EXAKT team supports you in the development of tailor-made solutions for your application. We are happy to share our in-depth expertise and experience in our in-house laboratory.



First class equipment



Collaborative approach



Precision is our passion

## ENSURE QUALITY AND PRODUCTIVITY IN THE LONG-TERM

- › Education and training – get best results quickly
- › Skilled and on site – benefit from our qualified service
- › Reliable and precise – limit machine downtime through regular maintenance
- › Original EXAKT spare parts and consumables – quality and reliability guaranteed



Professional support



The application examples were processed and documented by the company MicroKern, Berlin. We recommend Micro Kern regarding thin section production and microscopy.

Our partner is happy to advise you on your applications and problems.

# EXAKT CUTTING & GRINDING SYSTEMS



EXAKT 300 CL/CP

## EXAKT 300 CL/CP

Max. cutting height	100 mm
Max. cutting width	70 mm
Cutting band speed	10–560 m/min
Footprint (W x D x H)	1000 x 800 x 850 mm
Weight base unit	approx. 50 kg
Electrical connection	Option 1: 1 x 220–240 (50-60 Hz) Option 2: 1 x 100–110 (50-60 Hz)



EXAKT 302

## EXAKT 302

Max. cutting height	110 mm
Max. cutting width	180 mm
Cutting band speed	1000–1200 m/min (depending on AC frequency)
Footprint (W x D)	600 x 580 mm
Height	720–740 mm
Weight	approx. 40 kg
Electrical connection	Option 1: 1 x 220–240 (50–60 Hz) Option 2: 1 x 100–110 (50–60 Hz) Option 3: 1 x 100–115 (60 Hz)



EXAKT 310 CP

## EXAKT 310 CP

Max. cutting height	205 mm
Max. cutting width	165 mm
Cutting band speed	10 m/min
Footprint (W x D x H)	1000 x 1200 x 1350 mm
Weight	approx. 160 kg
Electrical connection	Option 1: 1 x 220–240 (50–60 Hz) Option 2: 1 x 100–110 (50–60 Hz)



EXAKT 311

## EXAKT 311

Max. cutting height	160 mm
Max. cutting width	165 mm
Cutting band speed	10 m/min
Footprint (W x D x H)	1100 x 1400 x 1350 mm
Weight	approx. 180 kg
Electrical connection	Option 1: 1 x 220–240 (50–60 Hz) Option 2: 1 x 100–110 (50–60 Hz)



EXAKT 400 CS

## EXAKT 400 CS

Max. sample size  
Footprint (W x D x H)  
Weight  
Electrical connection

50 x 100 mm for planar objects  
1000 x 800 x 700 mm  
approx. 90 kg  
Option 1: 1 x 220–240 (50–60 Hz)  
Option 2: 1 x 100–110 (50–60 Hz)

## VARIETY OF SAMPLES

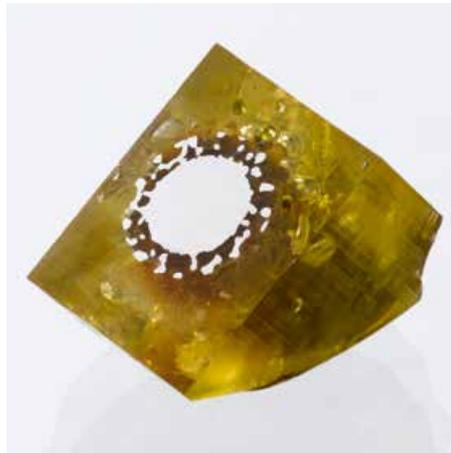


◀ Cut of a delicate shell



Rubber seal

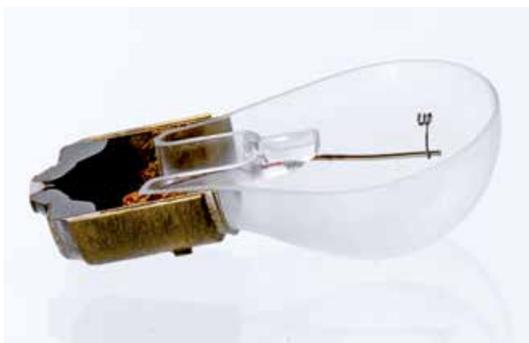
Copper cable



Cut of embedded hip implant



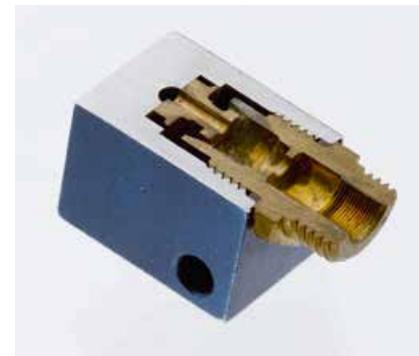
Anchor motor



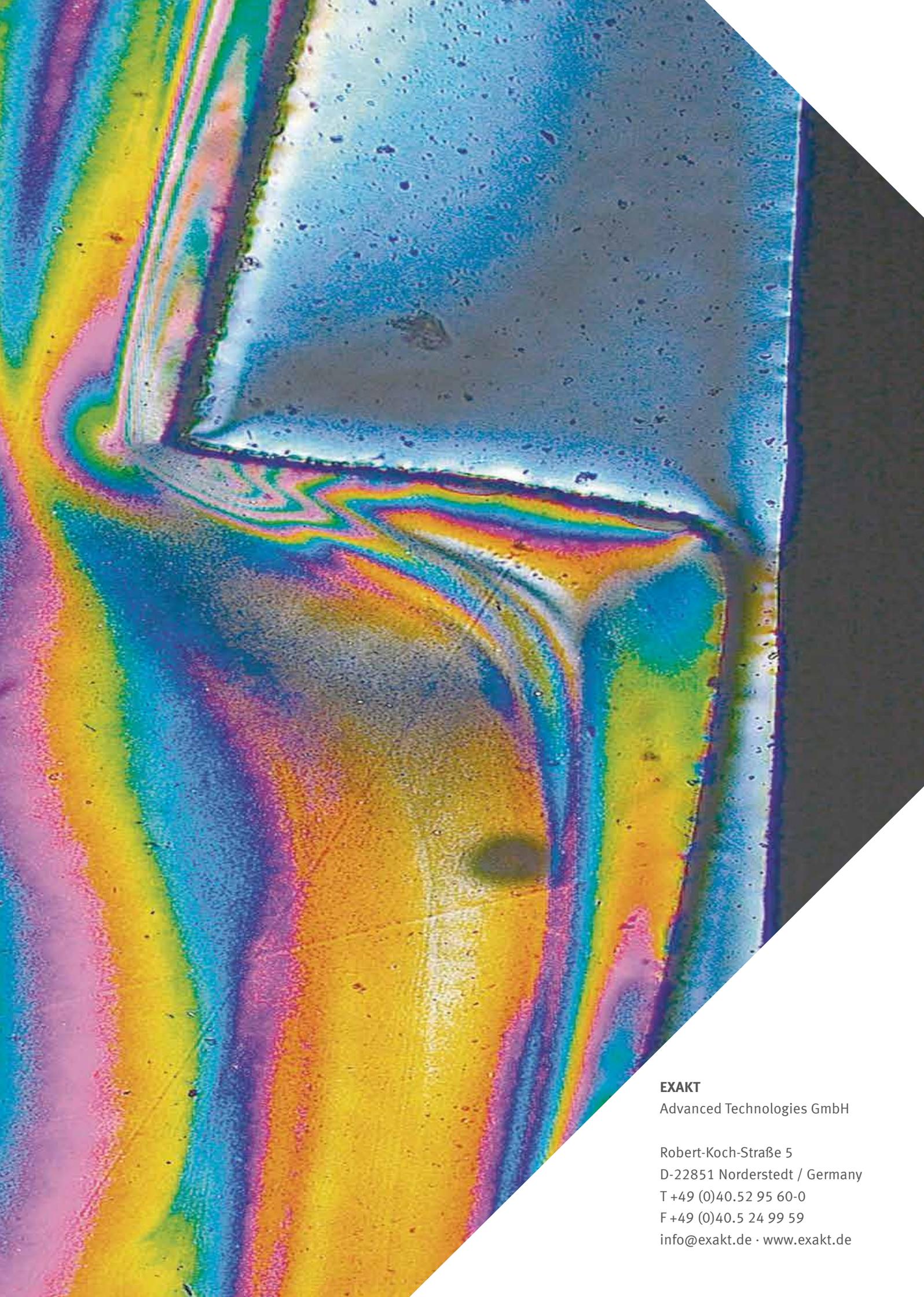
Cut through bulb



Cut of a camera lens



Valve



**EXAKT**

Advanced Technologies GmbH

Robert-Koch-Straße 5

D-22851 Norderstedt / Germany

T +49 (0)40.52 95 60-0

F +49 (0)40.5 24 99 59

info@exakt.de · www.exakt.de