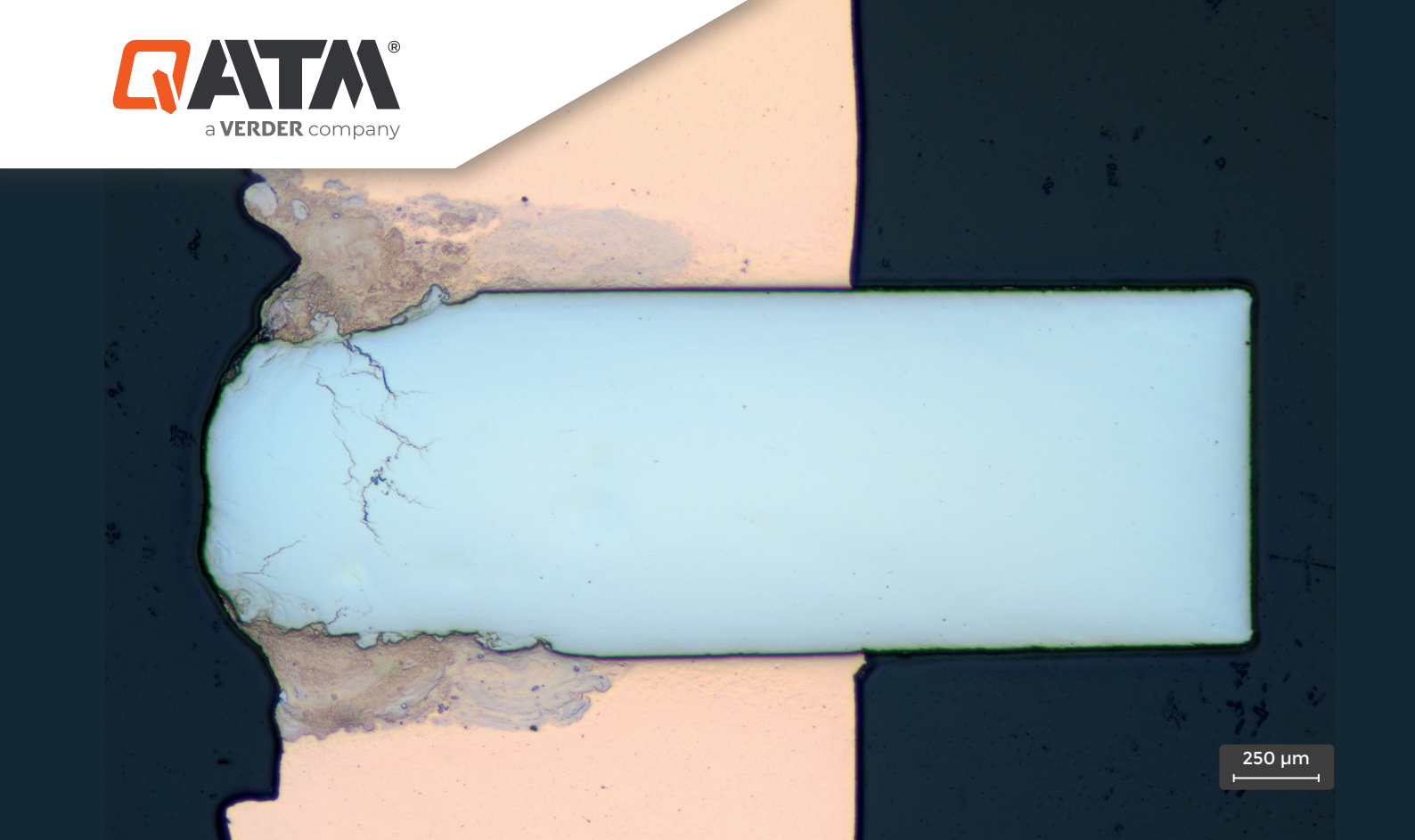




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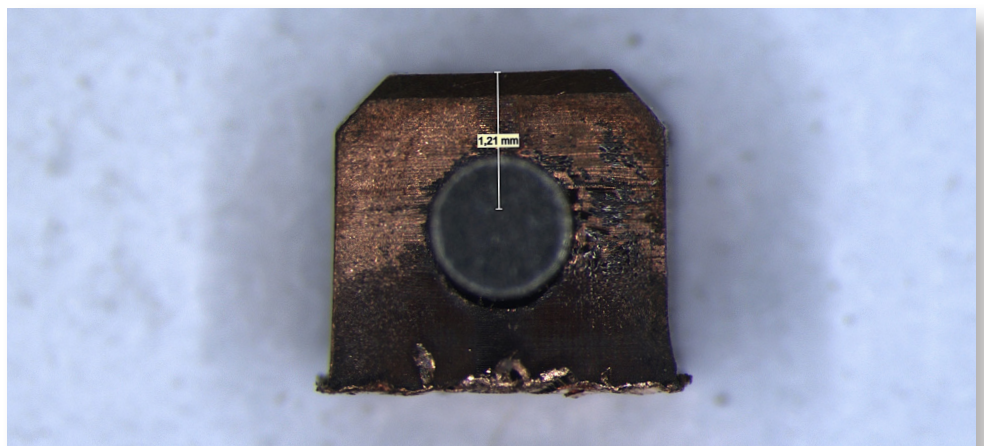
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METALLOGRAPHIC PREPARATION OF A SOLDER JOINT ON A COPPER-NICKEL SAMPLE

Objective:

The aim of the preparation was to grind and polish a delicate copper-nickel sample down to its center in order to subsequently perform a metallographic evaluation of the bond or solder joint. To do this, the sample was first cold-mounted. It was then ground down to the center of the sample using a diamond cup grinder on the Qcut 200 A precision cut-off machine. Final preparation was performed using the Qpol GO 1 grinding and polishing machine.

As-received sample





Cold mounting material Qpox 93

The mounted sample

COLD MOUNTING

Mounting Material	Qpox 93
Mixing ratio	100 : 26
Curing time	8 - 12 h
Mounting mould	Qmould Grey
Accessories	- Infiltration unit - Mixing cup - Mixing stick
Notes	The sample should be securely fixed on the mould beforehand, e.g. with a drop of superglue!



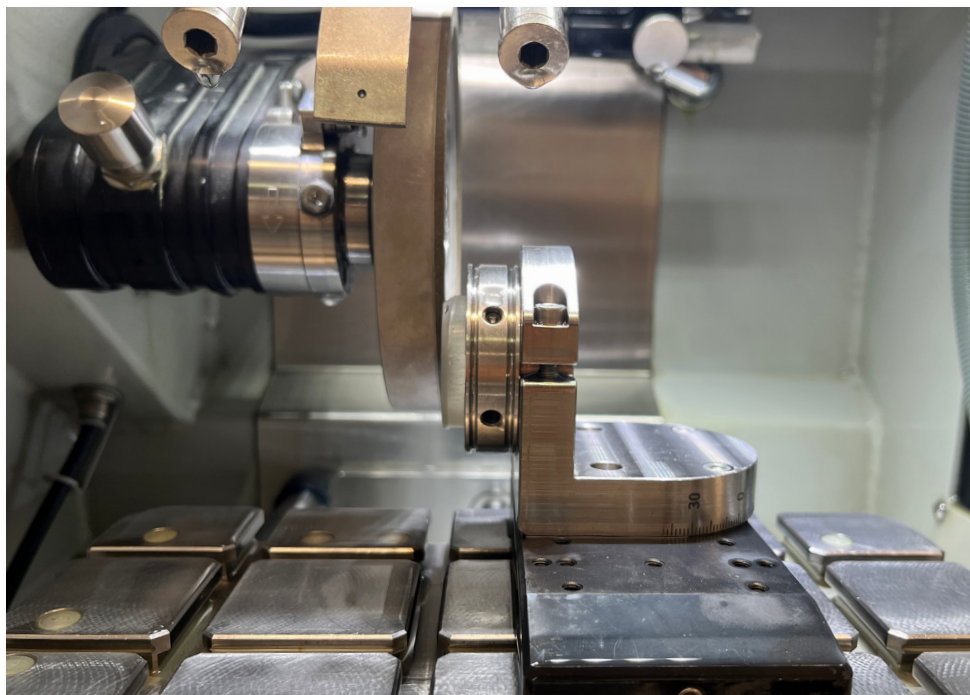
GRINDING WITH CUP GRINDER



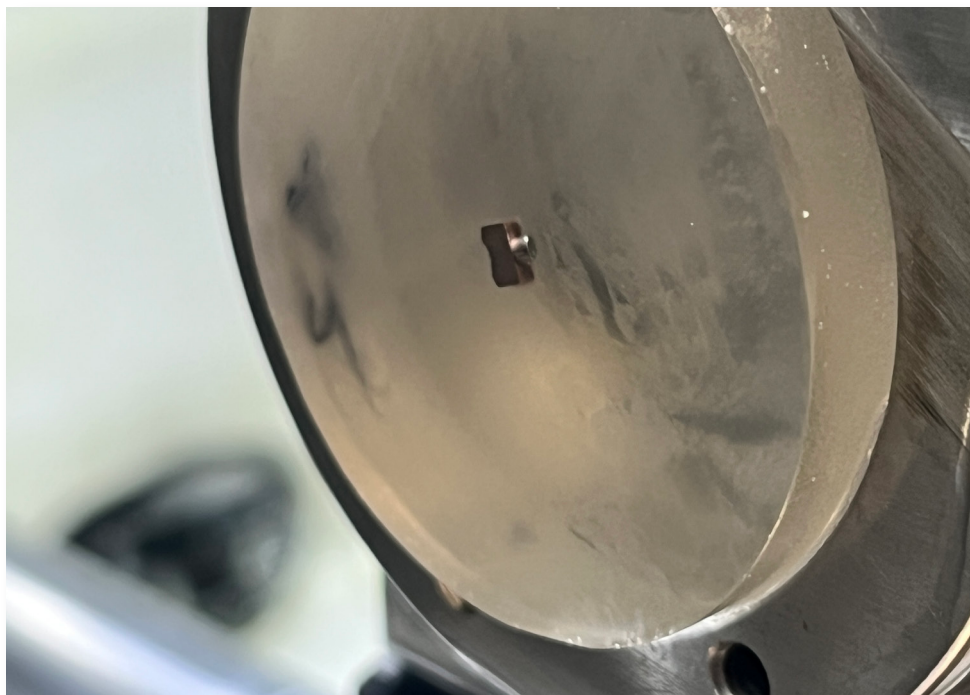
Precision cut-off machine
Qcut 200 A

Device	Qcut 200 A	
Cup grinder	Diamond cup grinder D151	
Coolant and anti-corrosion agent	Coolant and anti-corrosion agent standard	
Clamping tool	- Easy clamping plate S - Easy vertical adapter - Standard sample holder	
Grinding method	Cross-section (X-axis)	
Grinding distance	50 mm	
Parameter	- Grinding speed 15 mm/s - Grinding cycles 5x - 0.05 mm - Cup grinder speed 2500 rpm	
Notes	By starting the process, the sample should be moved slowly to touch the grinding cup!	

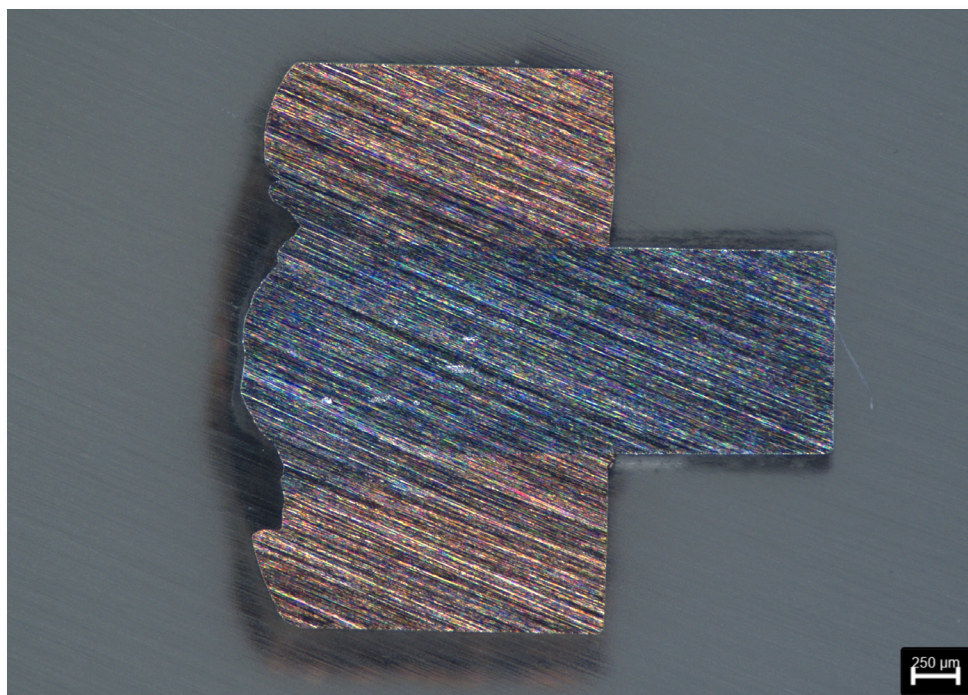
Place the sample in the Qcut 200 A machine for target preparation



The sample after grinding with the cup grinder



The sample after grinding with the cup grinder
under a stereomicroscope – 25 : 1



Automatic grinding and polishing
machine Qpol GO 1

GRINDING/POLISHING

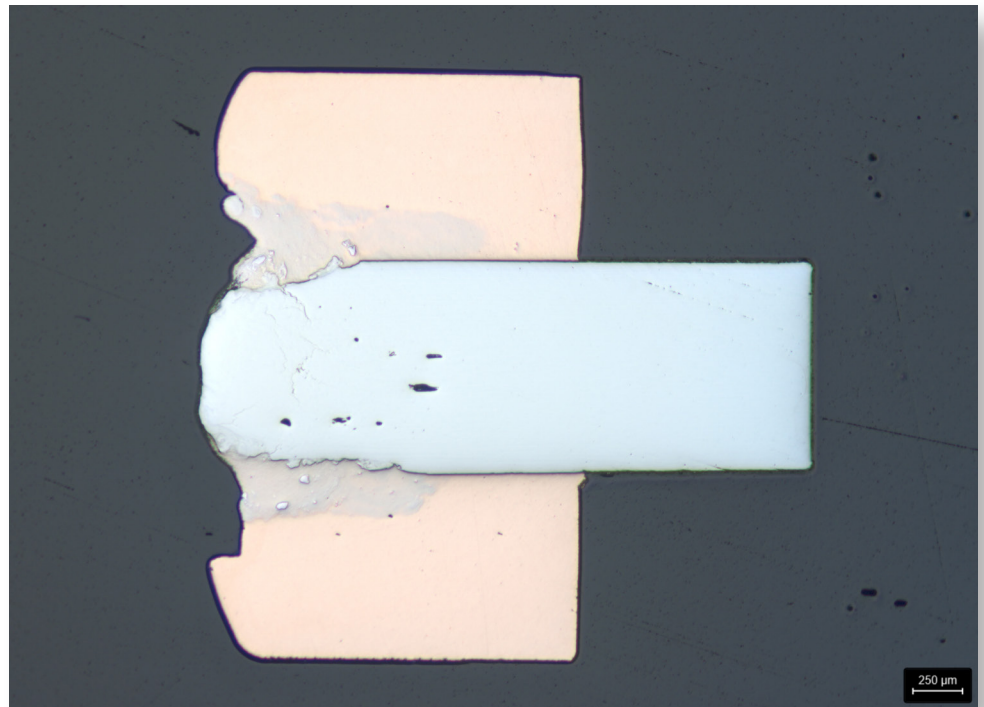
Device	Qpol GO 1	
Sample holder	6 x Ø 40 mm	Artikelnr.: Z5445025
Pressure	Single pressure	

STEP	MEDIUM		 rpm	 rpm	 Single pressure N	 min
 Grinding	SiC Paper P1200 (self-adhesive) + X-Tap	H ₂ O	200	120 ►► Synchronous Rotation	20	0:30
 Polishing	GAMMA	Diamond suspension 3 µm, Poly + alc. Lubricant	150	120 ◄◄ Counter Rotation	25	2:00
 Polishing	ZETA	Diamond suspension 1 µm, Poly + alc. Lubricant	150	120 ►► Synchronous Rotation	25	1:30
 Final polishing	OMEGA (optional)	Eposil F 0.1 µm	100	90 ◄◄ Counter Rotation	20	1:30 (Rinsing time : 30 s)

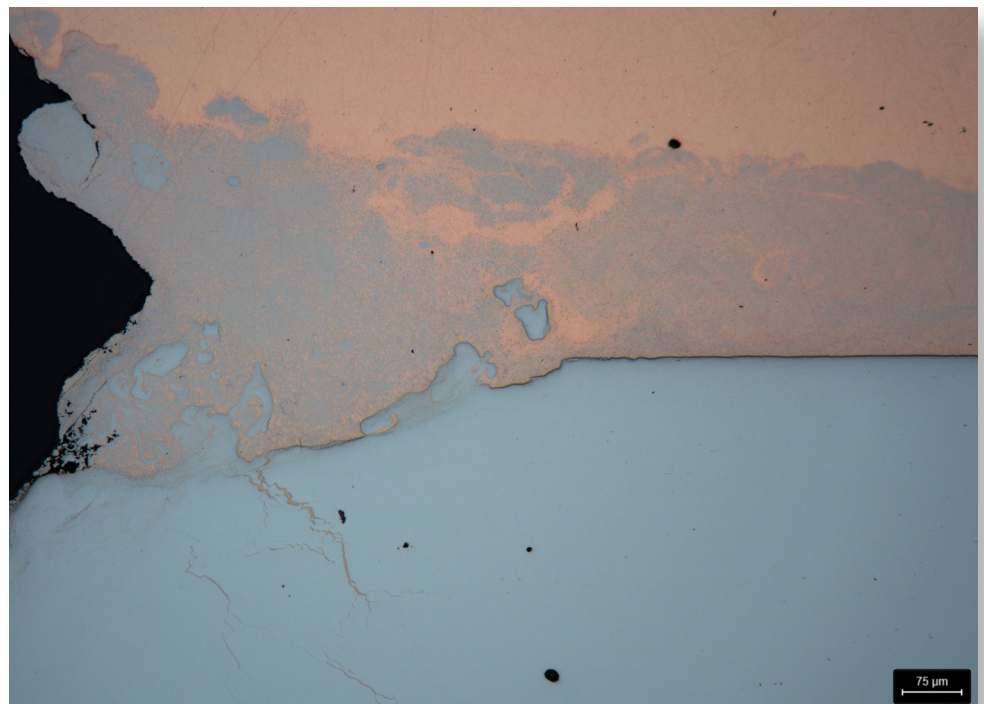
Notes

- Pre-dosing for 3 µm and 1 µm: 3 s
- Dosing interval and dosing duration for diamond suspension 3 µm and 1 µm: Every 40 s for 1.3 s
- Dosing interval and dosing duration for lubricant: Every 60 s for 1.3 s
- Dosing interval and Dosing duration for fine polishing suspension: Every 20 s for 1.3 s

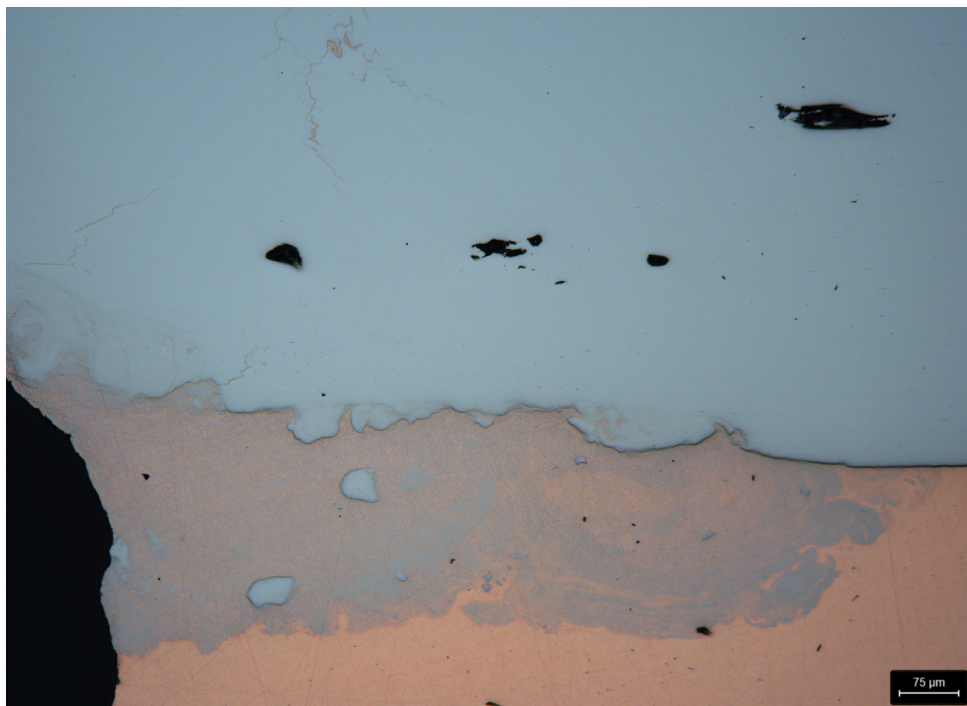
The Sample after 1 μm polishing – 25 : 1



Solder joint and the diffusion zone
after 1 μm polishing – 100 : 1



Solder joint and the diffusion zone
after 1 µm polishing – 100 : 1



OUR PRODUCT OF THE MONTH

DIAMOND CUP GRINDERS

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- | Defect analyses
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