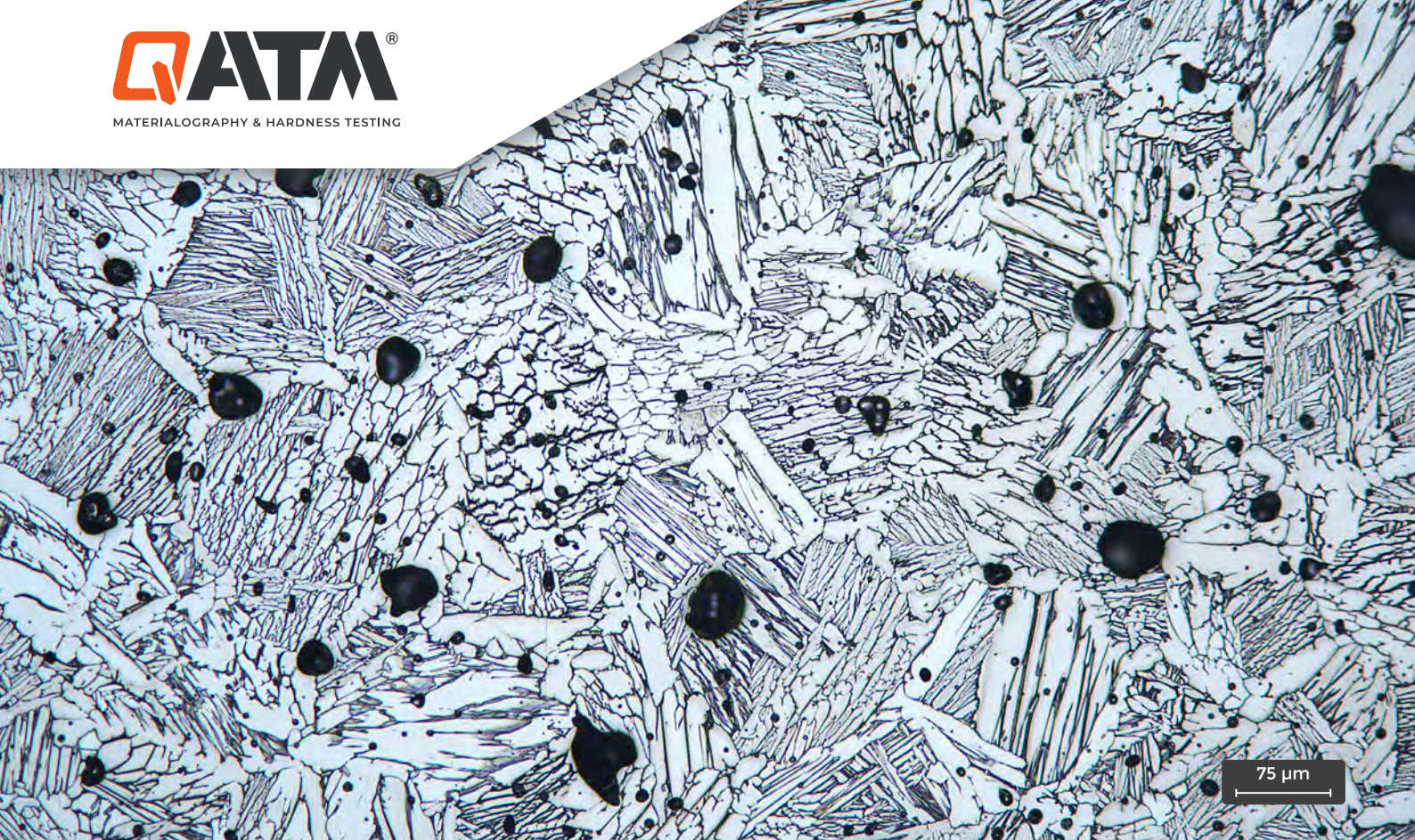




ATM Qness GmbH
Emil-Reinert-Str. 2
57636 Mammelzen
Germany

Phone +49 2681 9539-0
E-Mail info@qatm.com

ATM Qness GmbH
Reitbauernweg 26
5440 Golling
Austria

Phone +43 6244 34393
E-Mail info.at@qatm.com

www.qatm.com

ADDITIVE MANUFACTURED Ti64 SAMPLE

Objective:

The microstructure of the additive manufactured titanium sample (Ti-6Al-4V) after application of the HIP process is to be visualized and analyzed.

CUTTING

Device	Qcut 200 A	
Cut-off disc	SiC-cut-off disc	Item no.: 92004998
Coolant and anti-corrosion agent	ATM Cool Cut	Item no.: 95004146
Clamping tool	- Qtool 40	Item no.: Z2270200
	- Easy-clamping plate S	Item no.: Z2236030
Cutting method	Automatic horizontal cutting (X-axis)	
Parameter	- Feed speed	0.1 mm/s
	- Pulse parameter	Without pulse
	- Cut-off disc rotational speed	4000 rpm

Note



Precision cut-off machine
Qcut 200 A

Recommended clamping tool
with clamped sample



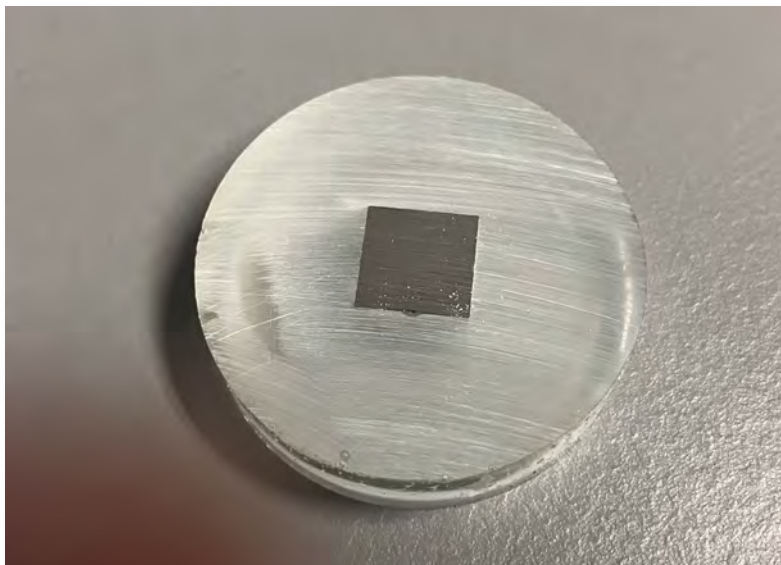
Cold mounting material Qpox 92

COLD MOUNTING

Mounting Material	Qpox 92
Mixing ratio	4 : 1 (Resin : Hardener), gravimetric
Curing time	12 h
Mounting mould	PP mould, Ø 40 mm
Accessories	- Mixing cups - Mixing sticks - Infiltration unit - Scale
Notes	

We recommend to use the infiltration unit (M6500001) for the cold mounting process

The mounted sample





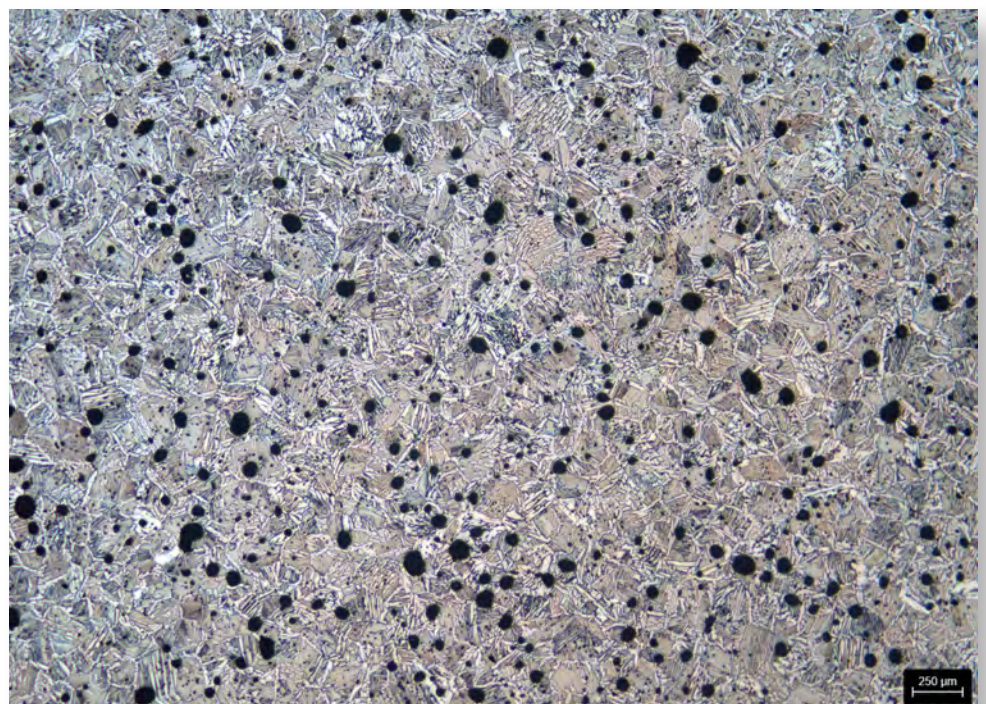
Automatic grinding and polishing machine Qpol 300 A1 Eco+

GRINDING/POLISHING

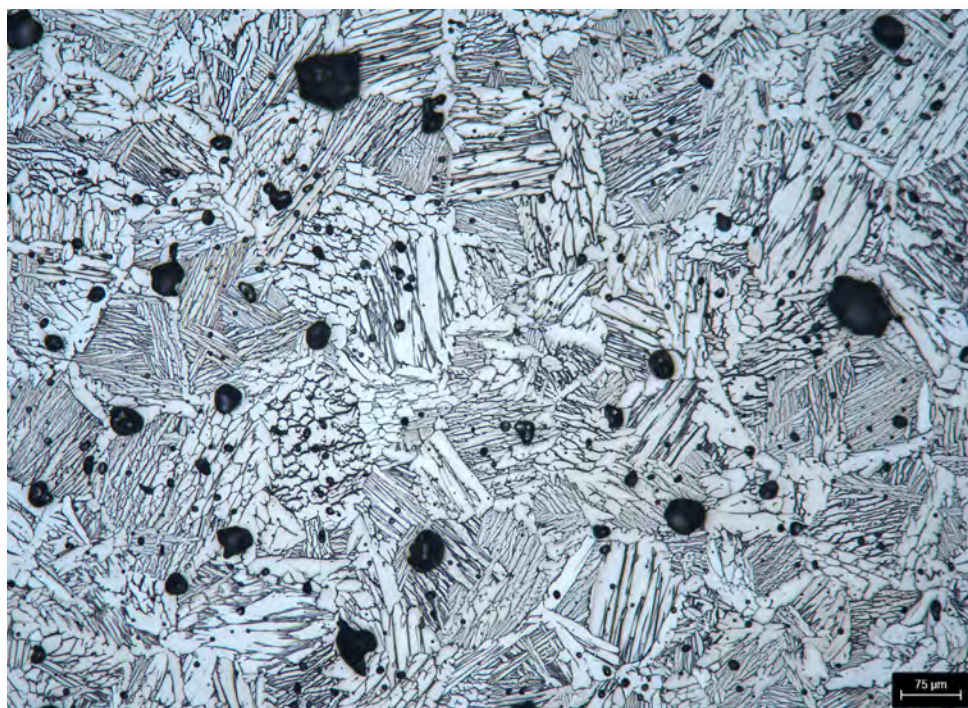
Device	Qpol 300 A1 Eco+	
Sample holder	6 x Ø 40 mm	Item no.: Z5446025
Pressure	Single pressure	

Step	MEDIUM		 rpm	 rpm	 Single pressure N	 min
 Pre-Grinding	SiC-Paper with foil backing P320	H ₂ O	200	120 ◄► Counter Rotation	30	Till flat (1:00)
 Grinding	SiC-Paper with foil backing P800	H ₂ O	200	120 ►► Synchronous Rotation	30	1:00
 Pre-Polishing	BETA	Diamond suspension Poly, 9 µm	150	120 ►► Synchronous Rotation	30	7:00
 Fine polishing	OMEGA	EPOSIL F* 0.1 µm	100	80 ◄► Counter Rotation	35	7:00 (Rinsing time 0:10)
 Etching (chem.)	Etchant KROLL	-	-	-	-	0:30
Notes	- Pre-dosing for diamond suspension 9 µm = 2 s - Dosing interval and dosing duration for Dia. Suspension 9 µm: Every 40 s for 1.5 s - Pre-dosing for Eposil F = 2 s - Dosing interval and Dosing duration for fine polishing suspension: Every 25 s for 1.5 s - *Mix Eposil F with hydrogen peroxide (H₂O₂). Mixing ratio 10:1					

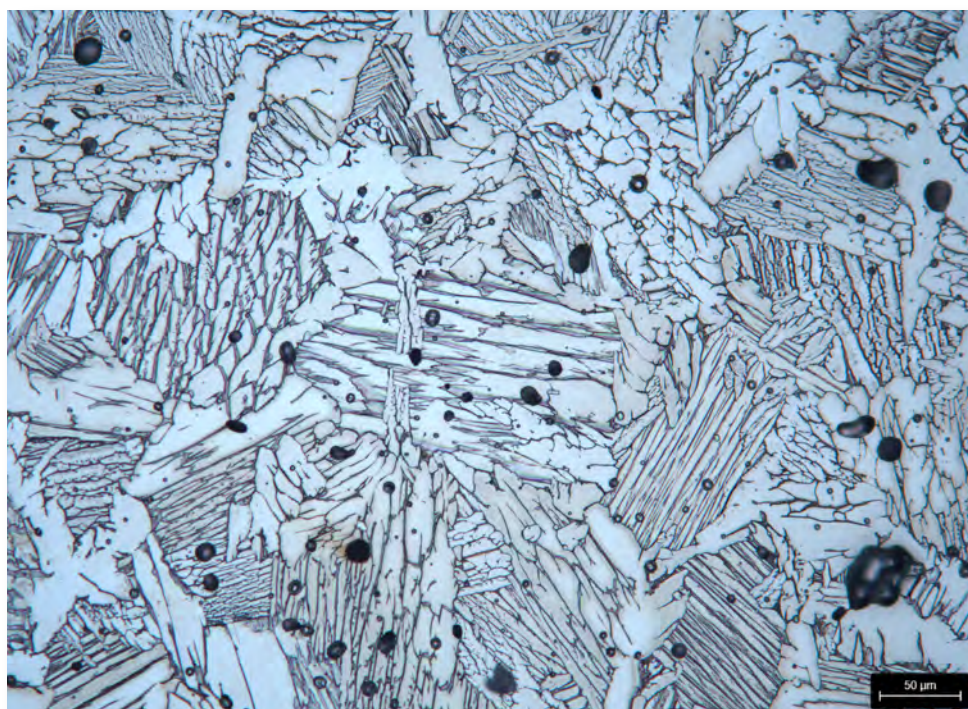
The microstructure of the Ti-sample - 25 x



Microstructure consisting of the alpha-beta phase. Alpha-phase is the light phase and the beta phase is the darker one. Pores are black and round - 100 x



Microstructure as in previous illustration - 200 x



Find out more at
www.qatm.com