

Spray coatings (metallic, ceramic)

Recommended machines and additional consumables (not included)

CUTTING	Equipment ATM Brillant	Consumables Cut-off wheel: diamond, resin bond Anti-corrosion coolant
MOUNTING	Equipment Vacuum	Consumables Cold mounting: KEM 90
GRINDING/ POLISHING	Sample size Ø 40 mm	

Pressure parameters and specimen size

Specimen diameter [mm]	25	30	40	50	60
Divergence in pressure used in the preparation methods	-(5 N...10 N)	-5 N	0	+5 N	+(5 N...10 N)

Notes:

STEP	MEDIUM	H ₂ O	rpm		Single Pressure N	min
Planar grinding	SiC-paper/foil P240 (180)	H ₂ O	250-300	▶▶ Synchronous Rotation	30	Until plane
Grinding	SiC-paper/foil P800 (280)	H ₂ O	250-300	▶▶ Synchronous Rotation	30	1:30
Pre-Polishing	BETA	Dia-Complete Poly, 9 µm	120-150	◀◀ Counter Rotation	25	5:00-8:00*
Polishing	DELTA	Dia-Complete Poly, 3 µm	120-150	▶▶ Synchronous Rotation	30	5:00-8:00*
Final polishing	OMEGA	Eposal, 0.06 µm	120-150	◀◀ Counter Rotation	25	2:00 (H ₂ O during final 0:30)

* Until homogeneous porosity -> next polishing step

BEGINNERS GUIDE

CUTTING	<ul style="list-style-type: none"> Use suitable cut-off wheels for ferrous/ceramic material (e.g. ATM FS-E wheels) Constant cutting speed max. 0.25 mm/s
MOUNTING	<ul style="list-style-type: none"> Use mounting material with high edge retention Cold mounting under vacuum
GRINDING	<ul style="list-style-type: none"> Start grinding with SiC-paper/foil P240 (180) Continue with P800 (280) Thoroughly wash samples and holder under running water after each grinding step
POLISHING	<ul style="list-style-type: none"> Rinse the polishing discs with water and spin dry after use Do not stack discs with different diamond sizes Clean samples, holders and hands under running water before each polishing step Use ethanol and blow dryer to avoid water stains Check after each step under the microscope if polishing marks are of equal size and randomly oriented Rinse the OMEGA disc with water and spin dry after use Use the consumables only for spray coatings and not for other materials Rinse the cap of the Eposal bottle after use, put cap back on Use cosmetic tissues to clean possible traces of Eposal after the last polishing step

Notes:

SAMPLE MICROGRAPHS

OK Sample polished

10x micrograph of spray coating after OMEGA polishing

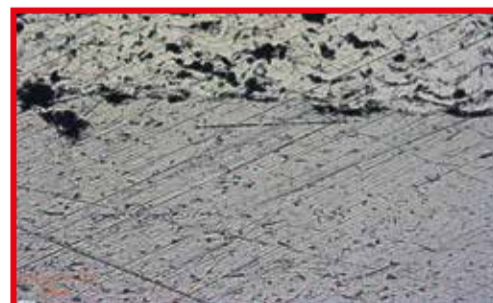
- No traces of scratches
- Clear structure/contour of the different phases/ of the layer
- Clean homogeneous surface



NOK Sample polished

10x micrograph of spray coating after OMEGA polishing

- Sparse scratches from 3 µm diamond after DELTA
 - » Clean all polishing discs with clean brush under running water
 - » Clean sample and sample holder
 - » Repeat grinding step P800 and continue



Notes: