




Printed circuit boards (non assembled)











Recommended machines and additional consumables (not included)

 CUTTING	<b>Equipment</b> ATM Brillant	<b>Consumables</b> Cut-off wheel: diamond Anti-corrosion coolant
 MOUNTING	<b>Equipment</b> Pressure unit	<b>Consumables</b> Cold mounting: KEM 20
 GRINDING/ POLISHING	<b>Sample size</b> 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		 rpm		 Single Pressure N	 min
 Planar grinding	SiC-paper/foil P180 (180)	H <sub>2</sub> O	250-300	►► Synchronous Rotation	30	Until plane (slightly before point of interest)
 Grinding	SiC-paper/foil P800 (500)	H <sub>2</sub> O	250-300	►► Synchronous Rotation	25	1:00 (until point of interest)
 Grinding	SiC-paper/foil P1200 (600)	H <sub>2</sub> O	250-300	►► Synchronous Rotation	25	1:00 (until point of interest)
 Polishing	GAMMA	Dia-Complete Poly, 3 µm	120-150	►► Synchronous Rotation	30	3:00
 Final polishing	OMEGA	Eposal, 0.06 µm	120-150	◄◄ Counter Rotation	25	2:00 (H <sub>2</sub> O during final 0:30)

BEGINNERS GUIDE

 CUTTING	<ul style="list-style-type: none"><li>• Use suitable cut-off wheels (e.g. diamond wheels)</li><li>• Constant cutting speed max. 0.25 mm/s</li></ul>
 MOUNTING	<ul style="list-style-type: none"><li>• Use mounting material with high edge retention</li><li>• Cold mounting with pressure unit/vacuum</li></ul>
 GRINDING	<ul style="list-style-type: none"><li>• Start grinding with SiC-paper/foil P180</li><li>• Continue with P800 and P1200</li><li>• Thoroughly wash samples and holder under running water after each grinding step</li></ul>
 POLISHING	<ul style="list-style-type: none"><li>• Rinse the polishing discs with water and spin dry after use</li><li>• Do not stack discs with different diamond sizes</li><li>• Clean samples, holders and hands under running water before each polishing step</li><li>• Use ethanol and blow dryer to avoid water stains</li><li>• Check after each step under the microscope if polishing marks are of equal size and randomly oriented</li><li>• Rinse the OMEGA disc with water and spin dry after use</li><li>• Use the consumables only for printed circuit boards and not for other materials</li><li>• Rinse the cap of the Eposal bottle after use, put cap back on</li><li>• Use cosmetic tissues to clean possible traces of Eposal after the last polishing step</li></ul>

Notes:

SAMPLE MICROGRAPHS

OK Sample polished

20x micrograph of printed circuit board (non assembled) after OMEGA polishing

- No traces of scratches
- Clear structure/contour of the different phases



NOK Sample polished

20x micrograph of printed circuit board (non assembled) after OMEGA polishing

- Sparse scratches from 0.06 µm Eposal after OMEGA
  - » Clean all polishing discs with clean brush under running water
  - » Clean sample and sample holder
  - » Repeat OMEGA step



Notes: