Preparation method

Printed circuit board (non assembled)

Recommended machines and additional consumables (not included)
- **CUTTING**
  - Equipment: ATM Brilliant
  - Consumables: Cut-off wheel: corundum, resin bond
- **MOUNTING**
  - Equipment: Pressure unit
  - Consumables: Cold mounting: KEN 20
- **GRINDING/POLISHING**
  - Sample size: Ø 40 mm

Notes:

<table>
<thead>
<tr>
<th>STEP</th>
<th>MEDIUM</th>
<th>rpm</th>
<th>Single Pressure</th>
<th>min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planar grinding</td>
<td>SC-paper/foil P180 (180)</td>
<td>H2O</td>
<td>250-300</td>
<td>Synchronous Rotation</td>
</tr>
<tr>
<td>Grind SiC-paper/foil</td>
<td>SC-paper/foil P800 (500)</td>
<td>H2O</td>
<td>250-300</td>
<td>Synchronous Rotation</td>
</tr>
<tr>
<td>Grind SiC-paper/foil</td>
<td>SC-paper/foil P1200 (600)</td>
<td>H2O</td>
<td>250-300</td>
<td>Synchronous Rotation</td>
</tr>
<tr>
<td>Polish</td>
<td>GAMMA Dia-Complete Poly, 3 µm</td>
<td>H2O</td>
<td>120-150</td>
<td>Synchronous Rotation</td>
</tr>
<tr>
<td>Final polish</td>
<td>OMEGA Eposal, 0.06 µm</td>
<td>H2O</td>
<td>120-150</td>
<td>Counter Rotation</td>
</tr>
</tbody>
</table>

Notes:

BEGINNERS GUIDE

- Use suitable cut-off wheels for ferrous material (e.g. ATM FS-E wheels)
- Cutting speed max. 0.25 mm/s
- Use mounting method for almost gap-free mounting
- Cold mounting with pressure unit/vacuum
- Start grinding with SiC-paper/foil P180
- Continue with P800 and P1200
- Thoroughly wash samples and holder under running water after each grinding step
- 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
- Use the consumables only for printed circuit boards 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

SAMPLE MICROGRAPHS

OK Sample polished
- 30x micrograph of printed circuit board (non assembled) after OMEGA polishing
- No traces of scratches
- Clear structure/contour of the different phases

NOK Sample polished
- 30x micrograph of printed circuit board (non assembled) after OMEGA polishing
- Sparse scratches from 0.05 µm Eposal after OMEGA
- Clean all polishing disc with clean brush under running water
- Clean sample and sample holder
- Repeat OMEGA step

Notes: