### Preparation Method

**Titanium (commercial pure: grade 1-4)**

#### Recommended machines and additional consumables (not included)

**CUTTING**
- Equipment: ATM Brillian

**MOUNTING**
- Equipment: ATM Opal

**GRINDING/POLISHING**
- Sample size: Ø 40 mm

#### Pressure parameters and specimen size

<table>
<thead>
<tr>
<th>Specimen diameter [mm]</th>
<th>25</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divergence in pressure used in the preparation methods</td>
<td>-5 N...10 N</td>
<td>-5 N</td>
<td>0</td>
<td>+5 N</td>
<td>+5 N...10 N</td>
</tr>
</tbody>
</table>

#### Notes:
- ATM Item No. 92004492
- Eposil F has to be mixed with hydrogen peroxide (35%) in a ratio of 5:1 (safety advice: use personal protective equipment)
- Depends on the alloy

#### Beginners Guide

**CUTTING**
- Use suitable cut-off wheels for titanium (e.g. ATM Ti-AS wheels)
- Cutting speed max. 0.25 mm/s

**MOUNTING**
- Use mounting material for almost gap-free mounting
- Hot or cold mounting possible

**GRINDING**
- Grind with SiC paper/foil P320 (280)
- Thoroughly wash samples and holder under running water after each grinding step

**POLISHING**
- 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 titanium and not for other materials
- Rinse the cap of the Eposil F bottle after use, put cap back on

#### Notes:
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#### Sample Micrographs

**OK Sample polished**
- 10x micrograph of titanium after LAMBDA polishing
  - No traces of scratches
  - Clear structure/contour of the different phases

**NOK Sample polished**
- 10x micrograph of titanium after LAMBDA polishing
  - Sparse scratches from 0.1 µm polishing after LAMBDA
  - Clean sample and sample holder
  - Repeat LAMBDA step

- 10x micrograph of stainless steel etched with Kroll’s reagent
  - No traces of scratches
  - Clear structure