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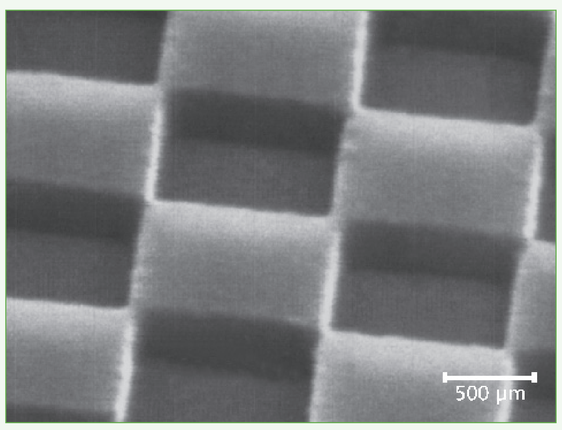
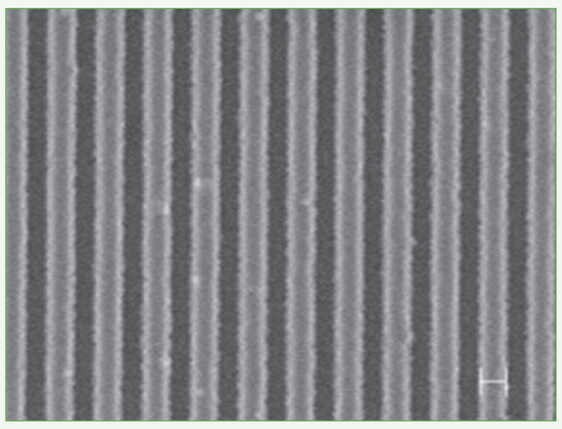
ma-N 2400 and mr-EBL 6000 - Negative Tone Photoresists

For thin Film E-beam or Deep UV Lithography

ma-N 2400 – E-beam and Deep UV sensitivity



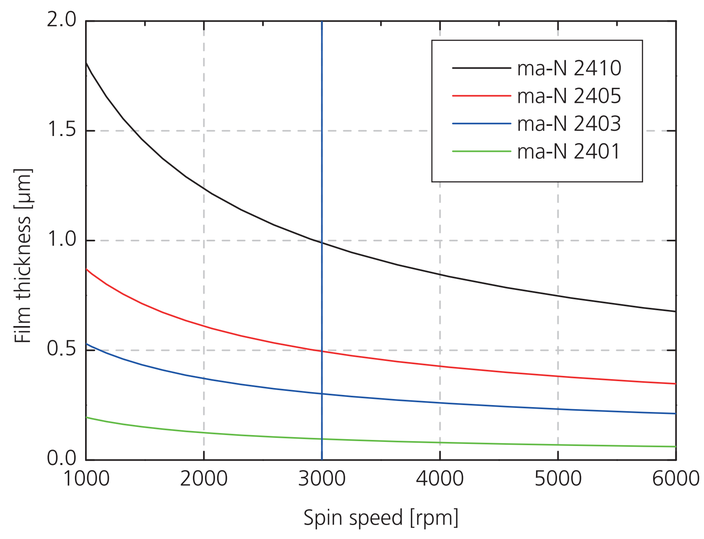
300 nm thick, chess pattern, e-beam
(Courtesy of IPHT Jena - Germany)



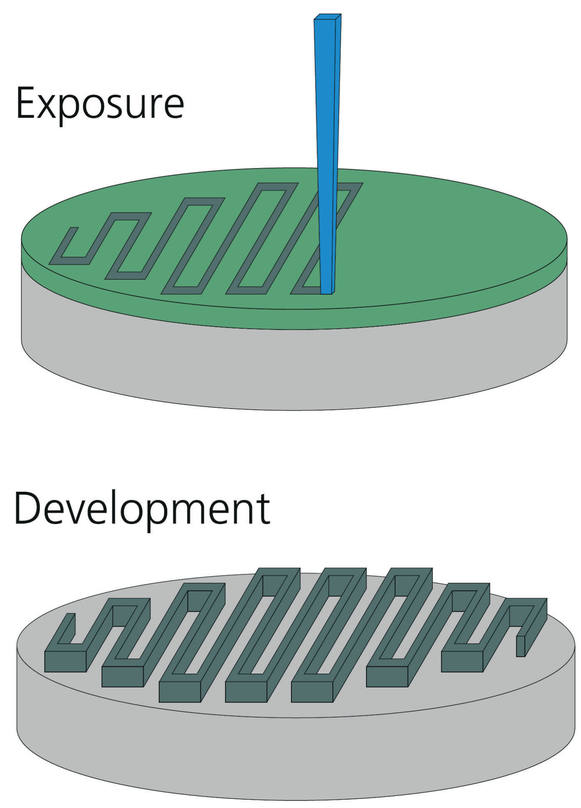
200 nm period patterns, 100 nm thickness,
DeepUV@266 nm
(Courtesy of EULITHA/ Zurich - Switzerland)

Unique features

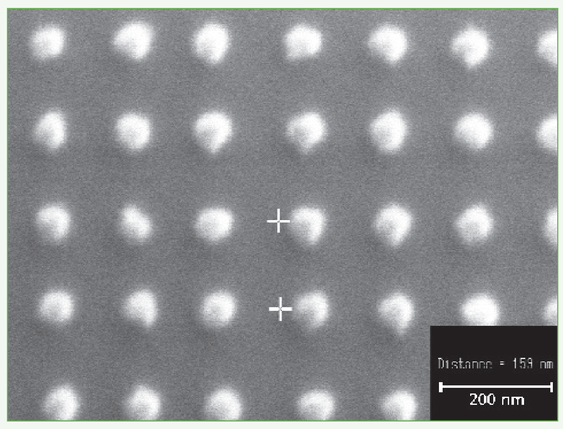
- ✓ **E-beam sensitivity:**
  - **20 - 45 µC/cm² @ 10 keV**
  - **80 - 200 µC/cm² @ 20 keV**
  - **95 - 300 µC/cm² @ 30 keV**
  - **150 - 350 µC/cm² @ 50 keV**
  - **240 - 550 µC/cm² @ 100 keV**
- ✓ **Deep UV sensitivity:**
  - **5 - 20 mJ/cm² @ 248/254/266nm**
- ✓ Aqueous alkaline development
- ✓ No post exposure bake
- ✓ Easy to remove
- ✓ Good thermal stability of the resist patterns
- ✓ High wet and dry etch resistance
- ✓ Good pattern transfer fidelity
- ✓ Resolution capability: 50 nm



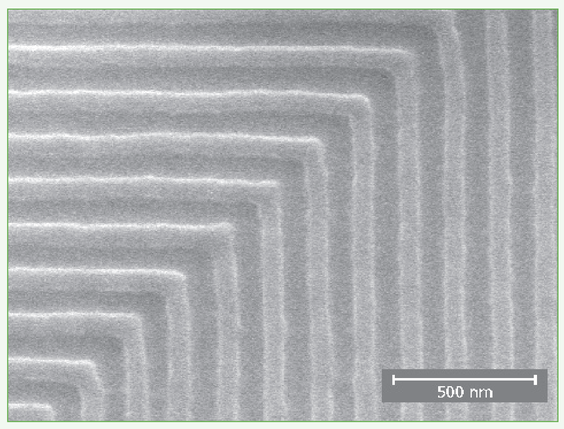
Process Flow



mr-EBL 6000 – High E-beam and UV sensitivity



100 nm thick, 80 nm dots, e-beam



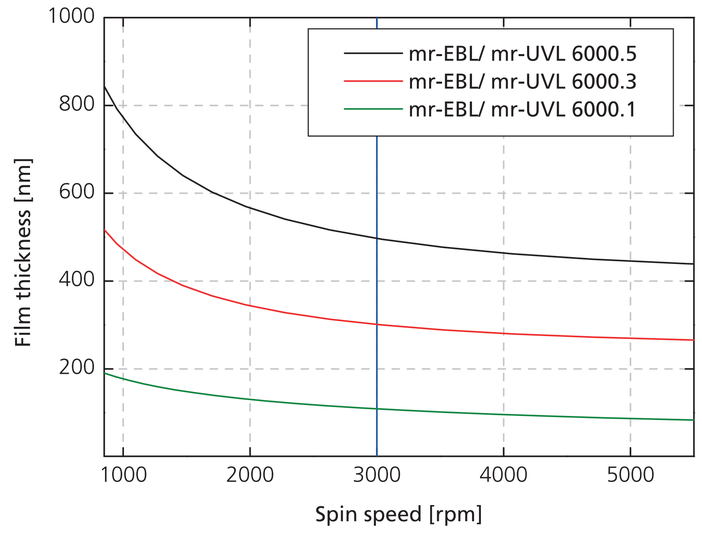
100 nm thick, 80 nm L/S, e-beam
(Courtesy of Fraunhofer HHI/Berlin - Germany)

Unique features

- ✓ **E-beam sensitivity:**
  - **2 - 6 µC/cm² @ 30 keV**
  - **2 - 6 µC/cm² @ 50 keV**
  - **8 - 15 µC/cm² @ 100 keV**
- ✓ **UV sensitivity:**
  - **400 - 550 mJ/cm² @ 365nm**
- ✓ Post exposure bake (PEB) necessary
- ✓ Development in organic solvents
- ✓ Excellent thermal stability of the resist patterns
- ✓ High dry and wet etch resistance
- ✓ Good pattern transfer fidelity
- ✓ Resolution capability: 80 nm

Applications

- Use in micro- and nanoelectronics
- Manufacturing of semiconductor devices
- Mask for etching, e.g. of Si, SiO_2, Si_3N_4 or metals
- Generation of sub 100 nm pattern
- Generation of stamps with nanopatterns



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