1 Large scale pulse compression grating on a 12 inch wafer.
2 Diffractive elements after dicing process.
3 Blazed grating according to the effective media approach in fused silica.

**DIFFRACTIVE OPTICAL ELEMENTS**

**CMN** offers the design, manufacturing optimized data preparation, the manufacturing and the characterization of diffractive optical elements for EUV to FIR applications inclusively processing and assembly in whole systems.

**Manufacturing**
- (Chemically Amplified) Resist technology
- Multilevel lithographic structuring on the electron beam writer VISTEC SB350 OS
- Reactive ion beam etching

**Technological environment**
- Ion beam figuring of substrates up to 9"
- Coating technology (HRC, ARC)
- UV Replication, nano imprint
- Wafer dicing & Ultra precision machining
- Wafer scale integration
- Micro assembly

**Technical parameters: Electron beam lithography / Ion beam etching**
- Standard substrates up to 12"
- Critical dimension < 65 nm
- CD tolerance ± 10 nm
- Writing grid 1 nm
- Overlay accuracy ± 20 nm
- Etching aspect ratio ≤ 1:10
- Etching depth tolerance ± 10 nm

**Characterization**
- Microscopy (UV, SEM, FIB, AFM)
- Diffraction efficiency
- Stray light analysis
- Wave front detection up to 11"

**Selected applications**
- Beam splitting, shaping, deflection
- Computer generated holograms
- Photonic crystals, effective media
- fs – pulse compression gratings

* Special substrates and materials on request