

Aspects of Grating Fabrication

X-ray lithography

necessary: X-ray mask

- low contrast for $<90\mu\text{m}$ height

- high contrast for $>90\mu\text{m}$ height

options

substrate: $200\mu\text{m}$ silicon ($<90\mu\text{m}$ Au)

($525\mu\text{m}$ [Ø70mm] or $675\mu\text{m}$ [Ø100mm] for gold heights $>90\mu\text{m}$)

$525\mu\text{m}$ silicon (70mm, $>90\mu\text{m}$ Au)

$675\mu\text{m}$ silicon (100mm, $>90\mu\text{m}$ Au)

$500\mu\text{m}$ or $1000\mu\text{m}$ graphite

laserlithography

necessary: CAD (layout)

substrate: $200\mu\text{m}$ silicon

aspect ratio <3 and period $>4,5\mu\text{m}$

absorption grating

gold height $<90\mu\text{m}$

or

phase grating

nickel or gold

Ø70mm or Ø100mm

(no graphite as substrate)

absorption grating

gold height $>90\mu\text{m}$

Ø70mm or Ø100mm

phase grating

4 inch

nickel or gold

max. Ø85mm

phase grating

6 inch

nickel or gold

max. Ø130mm