scia systems

scia Multi 500

MULTILAYER COATINGS FOR OPTICAL SUBSTRATES

Features & Benefits

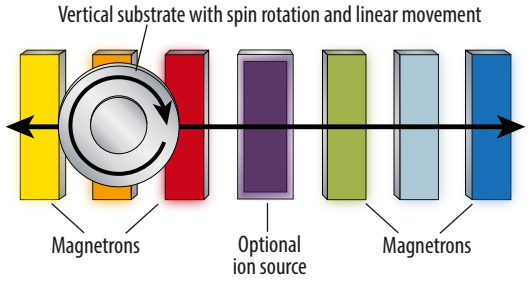
- Multilayer coating with inline arrangement of multiple process sources
- Uniform or gradient films on optical substrates by synchronized linear movement and spin rotation
- 6 linear magnetron sputter sources
- Optional surface treatment by ion source
- Vertical substrate orientation for minimized particle load

Applications

- Gradient multilayer coatings of mirrors for EUV
- Multilayer stacks for X-ray mirrors for beam line and analytic applications

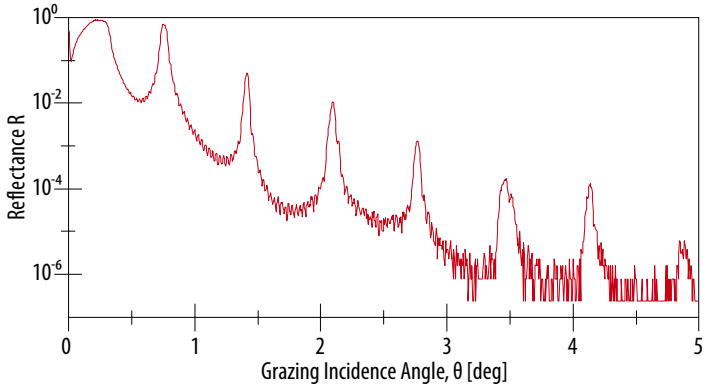
Principle

- Magnetron Sputtering
  - Inline arrangement with 6 magnetron sputter sources
  - Linear substrate movement past magnetrons and superimposed substrate rotation



Application Example

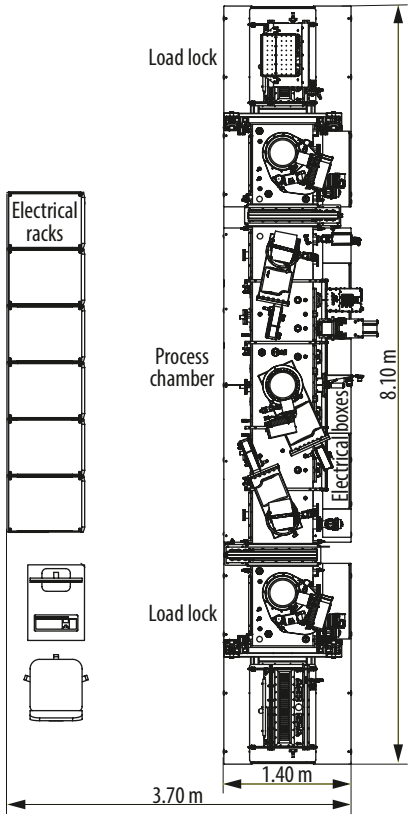
- Alternating stack of $(Si/Mo)_{23}$ for Bragg mirror
- Results show very reproducible thicknesses of each period



Measured XRR spectra with 23 periods

Technical Data

Substrate size (up to)	500 mm x 300 mm, 300 mm dia. for spin rotation
Sputter source	6 rectangular magnetrons (305 mm x 89 mm), ion source possible
Sputter modes	DC in cw or pulsed mode (1.5 or 3 kW) and/or RF (1.5 or 3 kW, 13.56 MHz)
Typical deposition rates	Mo: 48.9 nm x mm/min, Si: 35.8 nm x mm/min
Uniformity variation	< 1 % (σ/mean) over 300 mm dia.
Base pressure	< 5 x 10^{-8} mbar
System dimension (W x D x H)	8.10 m x 1.40 m x 2.80 m (without electrical rack and pumps)
Configuration	Inline system with load lock and loading station at both ends
Software interface	SECS II / GEM, OPC



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