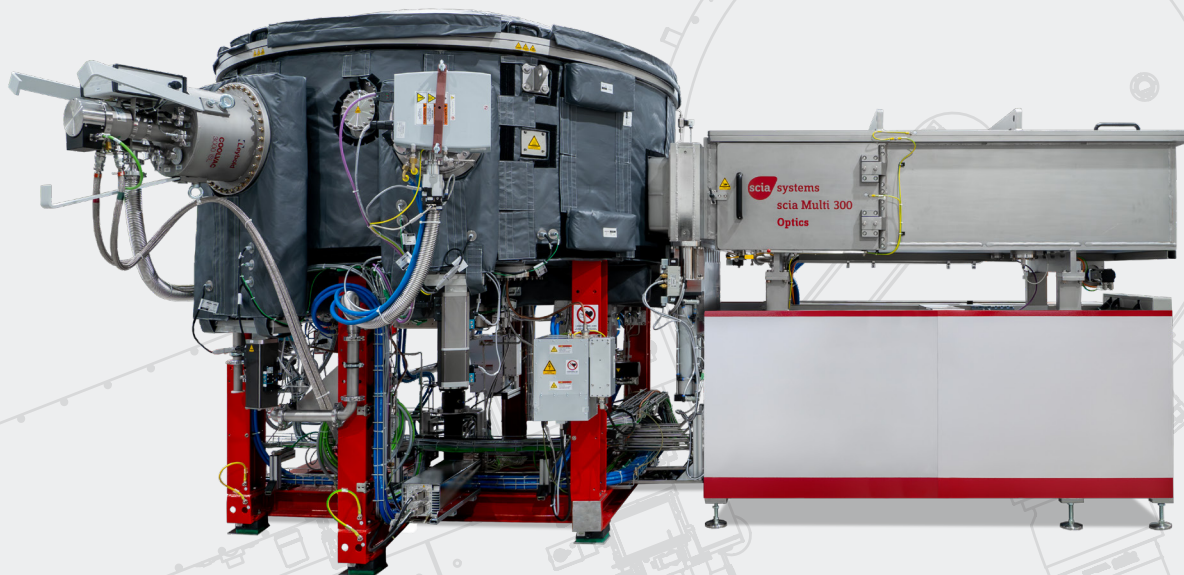




scia Multi 300 Optics with manual carrier loading

scia Multi 300

Wafer/Optics

UNIFORM MULTILAYERS ON 300 mm SUBSTRATES

Features & Benefits

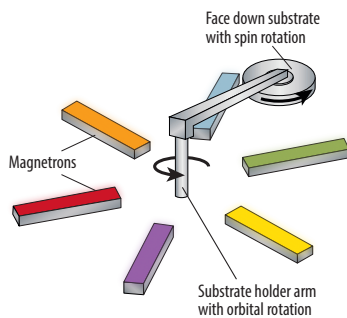
- Excellent uniformity over 300 mm substrate area
- Synchronized orbital and spin rotation for uniform multilayer films on wafers
- Up to 6 magnetrons (for optical application)
- Up to 4 magnetrons (for wafer application), each with shutter unit
- Carrier based sample processing
- Sample face-down orientation

Applications

- TMR and GMR multilayers on flat samples on scia Multi 300 Wafer
- Soft X-ray and EUV gradient multilayers for mirrors on scia Multi 300 Optics

Principle

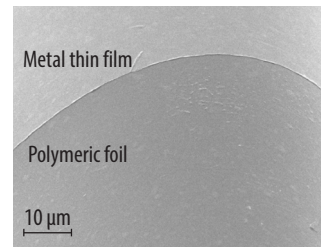
- Magnetron Sputtering
 - Circular substrate movement across magnetrons, each orbital rotation completes one period of the stack
 - Compensation of individual emission profiles of the magnetrons by pre-calculating the orbital rotation profiles



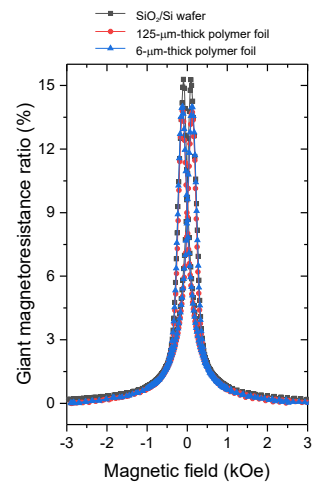
scia Multi 300 Optics

Application Example

- Manufacturing of GMR sensors by Helmholtz-Zentrum Dresden-Rossendorf (HZDR) on scia Multi 300 Wafer
- Samples prepared on different substrate materials (rigid wafer and polymeric foils) lead to the same sensor performance



View of sensor under an angle with electron microscopy



Comparison of several magneto-resistance curves on different substrate types

Technical Data

	scia Multi 300 Wafer	scia Multi 300 Optics
Substrate size (up to)	300 mm dia.	
Sputter source	4 rectangular magnetrons (381 mm x 89 mm)	6 rectangular magnetrons (381 mm x 89 mm)
Sputter modes	DC in cw or pulsed mode (1 kW) and/or RF (1 kW, 13.56 MHz)	
Typical deposition rates (static)	Cu: 50 nm/min, Co: 30 nm/min	Mo: 30 nm/min, Si: 20 nm/min Ar, Kr (O ₂ , N ₂ not possible)
Uniformity variation	< 0.6 % (σ/mean) over 300 mm dia. mm dia.	
Base pressure	< 8 x 10 ⁻⁸ mbar	
System dimension (W x D x H)	3.60 m x 2.70 m x 2.30 m (without electrical rack and pumps)	
Loading / Samples dimension	Wafer handling up to 300 mm wafer max. 0.5 kg	Carrier handling of mirrors up to 300 mm, 80 mm high, 30 kg
Software interface	SECS II / GEM, OPC	

