scia systems

POLISHING ERROR CORRECTION

scia Finish 1500

Features & Benefits

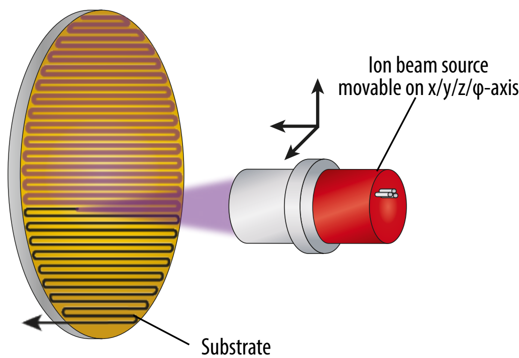
- Long term stable process for repeatable quality of optical components
- Excellent precision on large areas
- High removal rates for high throughput
- Easy loading of large substrates due to sliding doors
- Designed for high volume production with short down pumping times

Applications

- Final surface form error correction of lenses and mirrors
  - Telescope mirrors (Zerodur®, SiC, LTEM)
  - Conventional optics (quartz and other glasses)
  - Ion beam figuring of X-ray optics (Si)

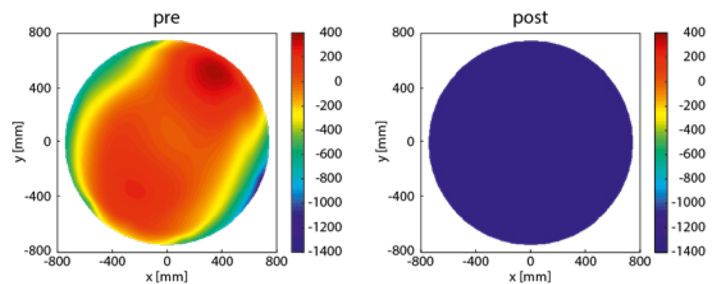
Principle

- Ion Beam Figuring (IBF)
  - Focused broad ion beam scans across substrate surface in vertical setup for low contamination
  - Dwell time control to remove different amounts of material



Application Example

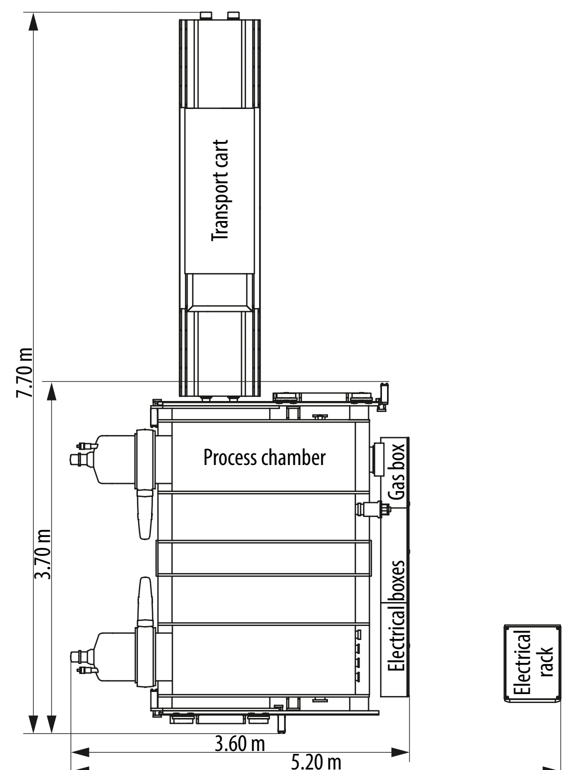
- Ion beam figuring of SiN over 1500 mm, simulated
  - Standard deviation: Pre: 256 nm Post: 1.9 nm
  - Range Pre: 1550 nm Post: 85 nm



Pre (left) and post (right) ion beam figuring results

Technical Data

Substrate size (up to)	1500 mm dia., 400 kg
Axis performance	Max. velocity 0.15 m/s, max. acceleration 15 m/s^2
Ion beam source	37 mm circular RF source (RF37-i) with 7 ... 15 mm (FWHM) or 120 mm circular RF source (RF120-m) with 16 ... 36 mm (FWHM), optional second ion beam source
Neutralizer	RF plasma bridge neutralizer (N-RF)
Typical removal rate	SiO_2: 14 mm^3/h (RF37-i), 96 mm^3/h (RF120-m)
Thickness variation after IBF	< 0.5 nm RMS (dependent on input quality)
Base pressure	< 1 x 10^{-6} mbar
System dimensions (W x D x H)	3.60 m x 7.70 m x 3.40 m (without electrical rack and pumps)
Configurations	Single chamber with sliding doors, manual loading with transport cart, 3, 4 or 5-axis control system for ion beam motion
Software interfaces	SECS II / GEM, OPC



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