



scia Inline 400

ULTRA-SHARP EDGES FOR BLADES

Features & Benefits

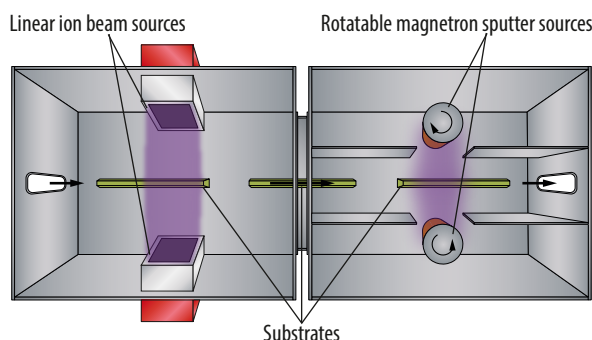
- Deburring station for ultra-sharp substrate edges
- Carrier-based handling to address various substrate dimensions
- Vertical layout enables double-sided processing for extreme high throughput in volume production
- Inline arrangement with multiple process chambers and roller track transport system

Applications

- Tip shaping of razor blades, microtome blades or sharp medical tools (syringes) for a durable coating adhesion
- Coating of adhesive and/or functional layers on razor blades and microtome blades

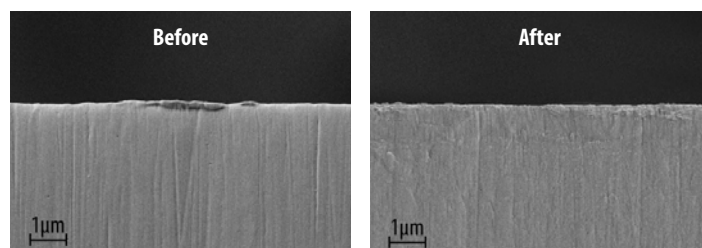
Principle

- Ion Beam Etching (IBE) and Magnetron Sputtering
 - Inline arrangement with linear substrate movement
 - Chamber one with ion beam sources for pre-cleaning and chamber two with magnetrons for double-sided coating of the substrates



Application Example

- Tip shaping of cutter blades realized by ion beam etching
 - Left: Unsharpened blade with strong burr
 - Right: Optimized blade with smoothed surface for better coating adhesion



SEM pictures of cutter blades before and after tip shaping

Technical Data

Substrate size	Individual sizes loaded on carrier, carrier size up to 450 mm x 400 mm
Ion beam source	Two 380 mm linear microwave ECR sources (LIN380-e)
Sputter source	Two rotatable magnetrons with 680 mm length
Typical deposition rate	SiO ₂ : 85 nm x mm/s (dynamic rate)
Uniformity variation	≤ 10 % (σ/mean)
Throughput	12 Carrier/h ≙ up to 500,000 blades/h
Base pressure	< 1 x 10 ⁻⁶ mbar
System dimensions (W x D x H)	6.10 m x 1.60 m x 1.95 m, for 2 process chambers (without electrical rack and pumps)
Configurations	Inline system with several etching and coating chambers, roller track transport system, 2 load locks and 2 atmospheric stations for loading and unloading
Software interfaces	SECS II / GEM, OPC

