

Partners in Mechatronic Innovation

Successful R&I 2025

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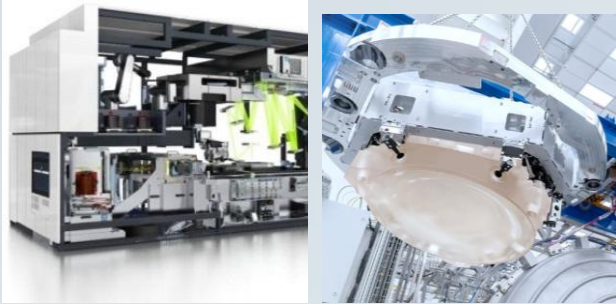
6-3-2025

Confidential



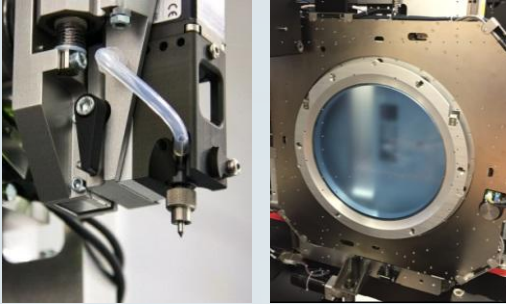
Equipment development

Semiconductor Front-end

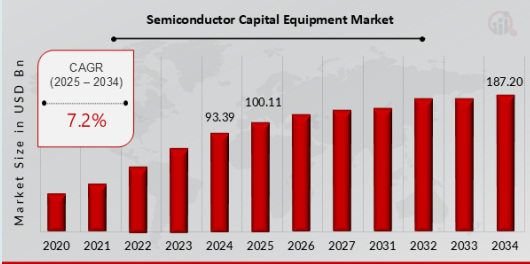


Accuracy sub nm – μm
 Accelerations $1 \mu\text{m/s}^2 - 500 \text{ m/s}^2$
 Environment UHV
 Thermal stability $\sim 1 \text{ mK}$
 Throughput 0-300 products/hours
Performance

Semiconductor Back-end

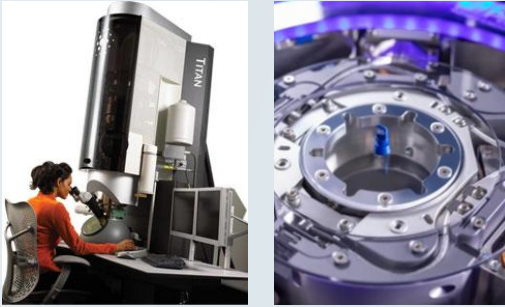


Accuracy sub $\mu\text{m} - \mu\text{m}$
 Accelerations 400 m/s^2
 Environment ISO1-7 Clean
 Throughput 20-72 kUph
Costs per die



100 Billion \$ Investments yearly in pursuit of Moore's law

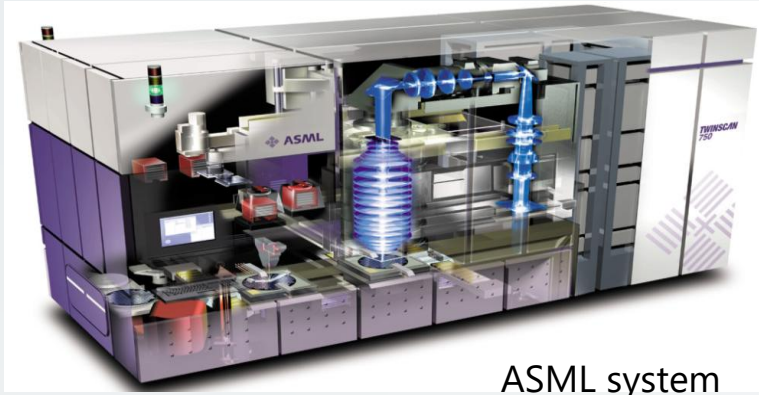
Scientific instrumentation



Accuracy nm – μm
 Environment UHV, Cryogenic, X-ray
 Throughput few products/hours
One of a kind

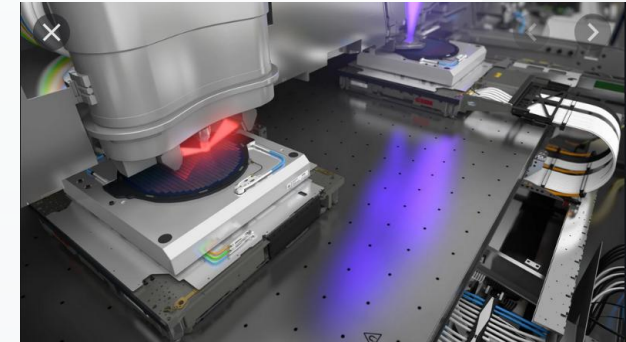


Front-end Lithography system: performance



ASML system

Throughput (200 Wafer/hour)



Magnetic levitated stages in vacuum



Stage

x00 m/s²

F1-car: 0 to 100 km/h in 1.5 sec

20 m/s²

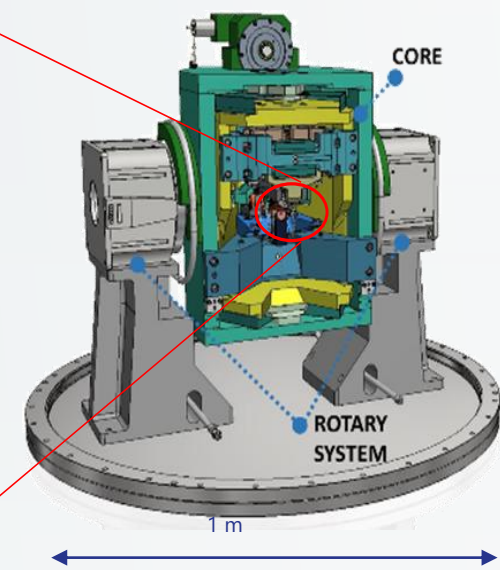
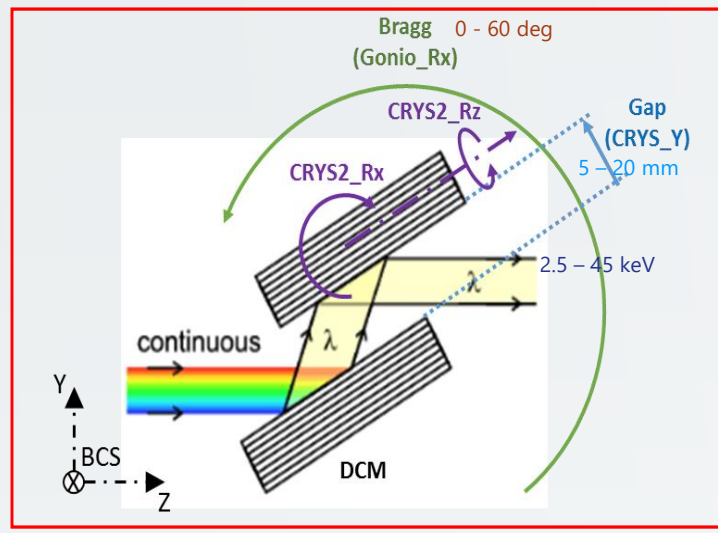
F16 Fighter:

50 m/s²

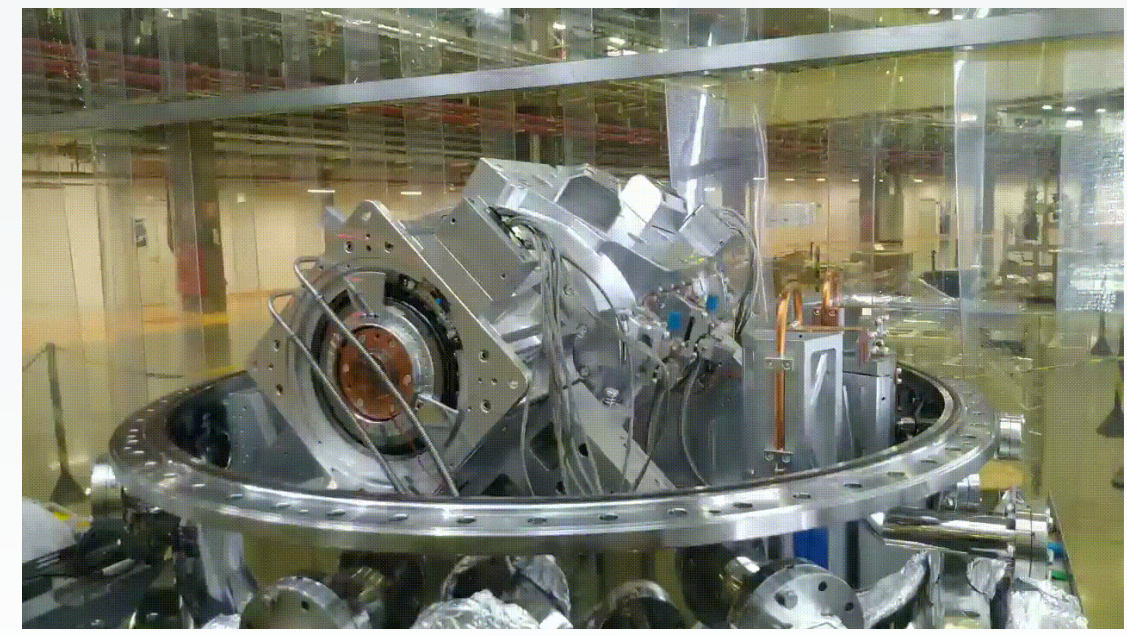
This all while maintaining:

- stage positioning error < 1 nm
- metrology error < 0.5 nm
- > 95% uptime

Example: Monochromator for Sirius



Static



Vs Dynamic

Societal challenges ask for innovations in research equipment

Breakthroughs in:

- Life sciences
- Material science

Potential project partners

- Scientific institutes
- Industry partners that supply (scientific) instrumentation as a product
- Universities



Thank you !



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