

Introduction of Medium Current Ion Implanter EXCEED3000AH-8C

-New 200mm Tool-



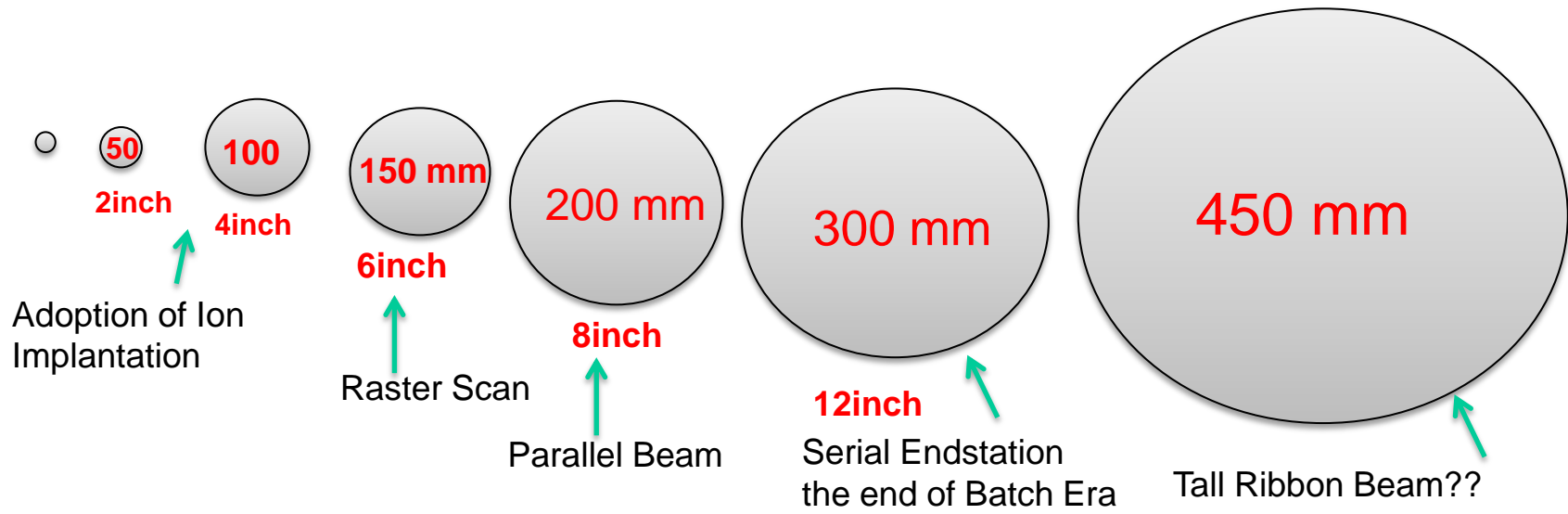
JTG Seminar Semicon West July, 2016

Nissin Ion Equipment Co., Ltd.

Contents

- History of Si Wafer Size and Related Architecture of Ion Implanters
- Outlook of 200mm Production
- Legacy Tool Issues in General
- Nissin Ion's Solution EXCEED3000AH-8C
- Tool Layout, Specifications and Options
- Conclusion

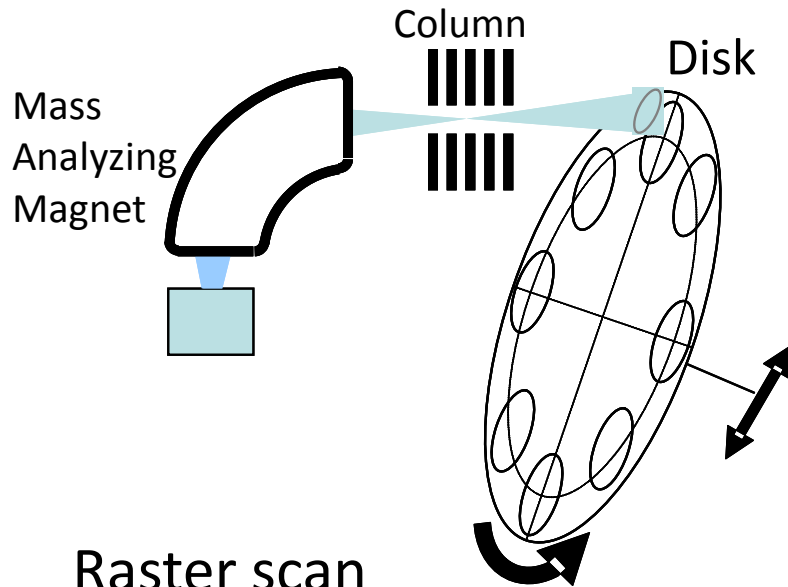
Wafer Size and Beam Line Architecture



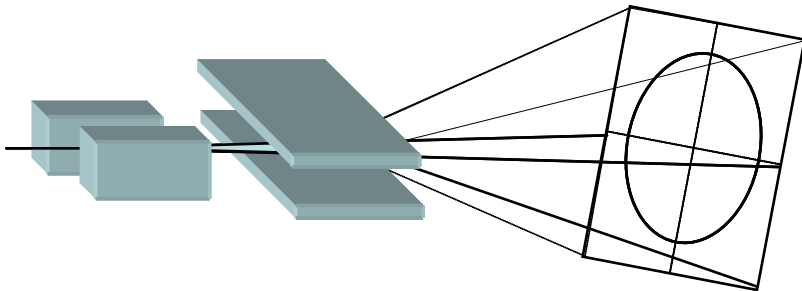
	200mm Implanters	300mm Implanters
Nissin	EXCEED2000/2000A	EXCEED2300/3000
ACS/SEN	NV8200/8250	OPTIMA MD /MC3
AM/V	E220/E500	VIISta810/900
ULV	IPZ9000	IW630

Beam Line

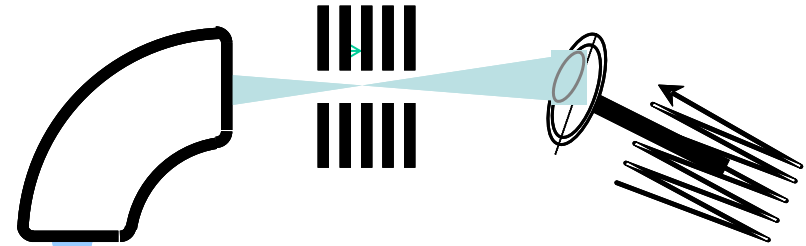
Batch Process Acceleration



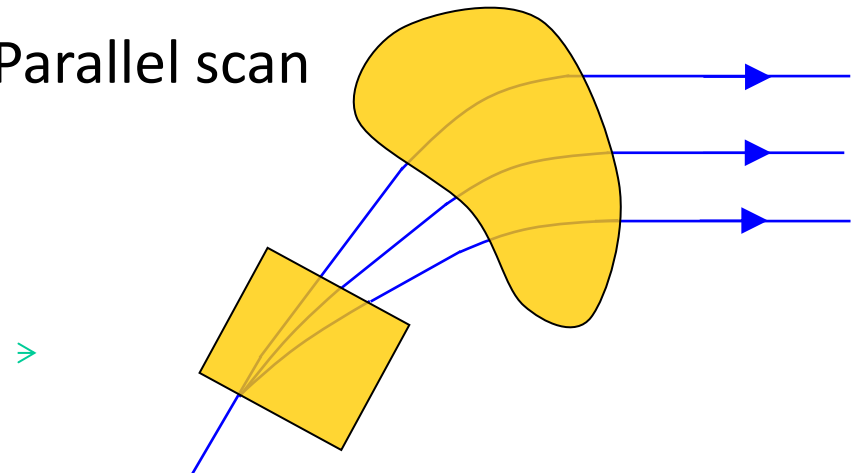
Raster scan



Serial Process

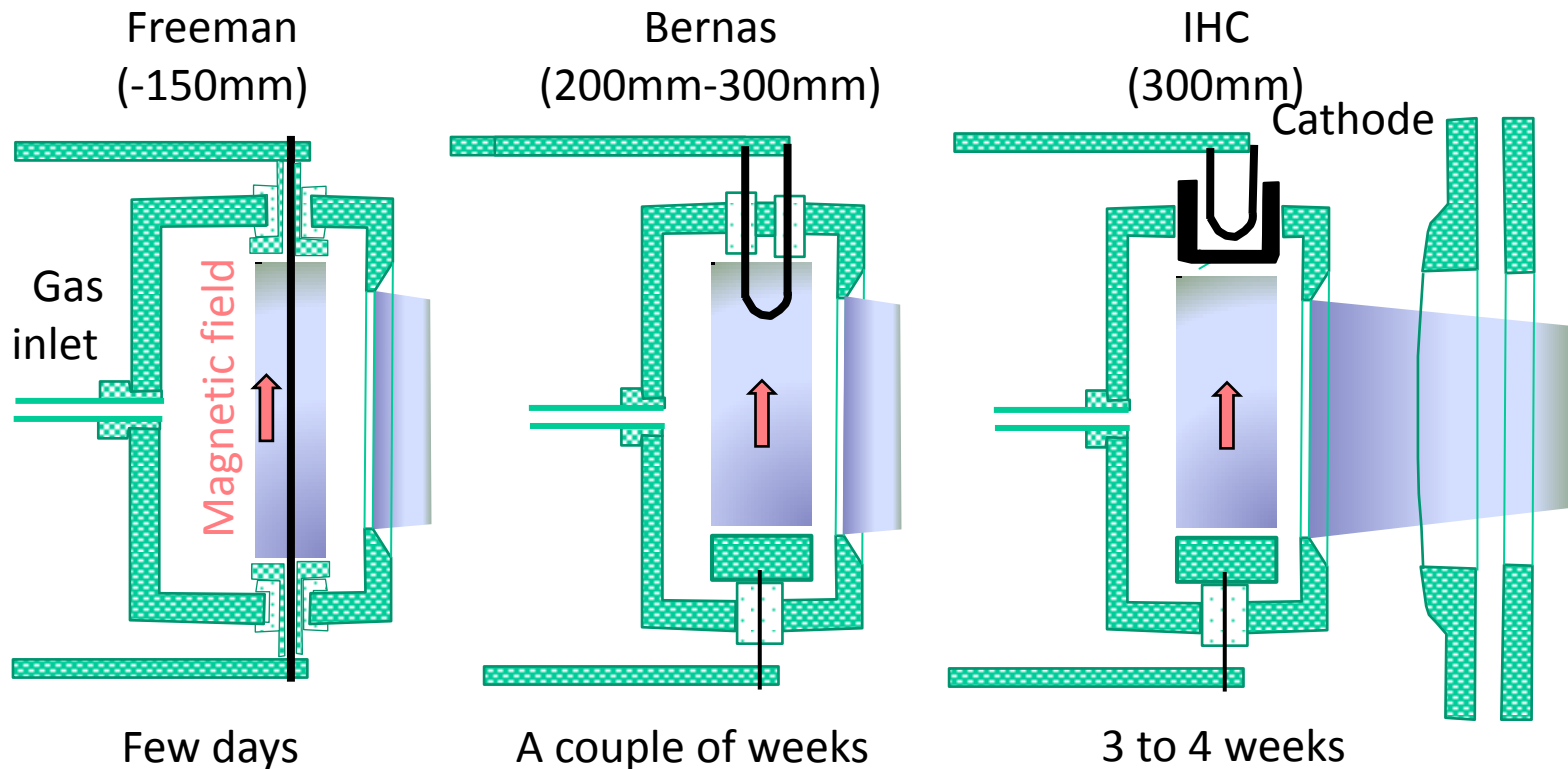


Parallel scan



Transition of Ion Source

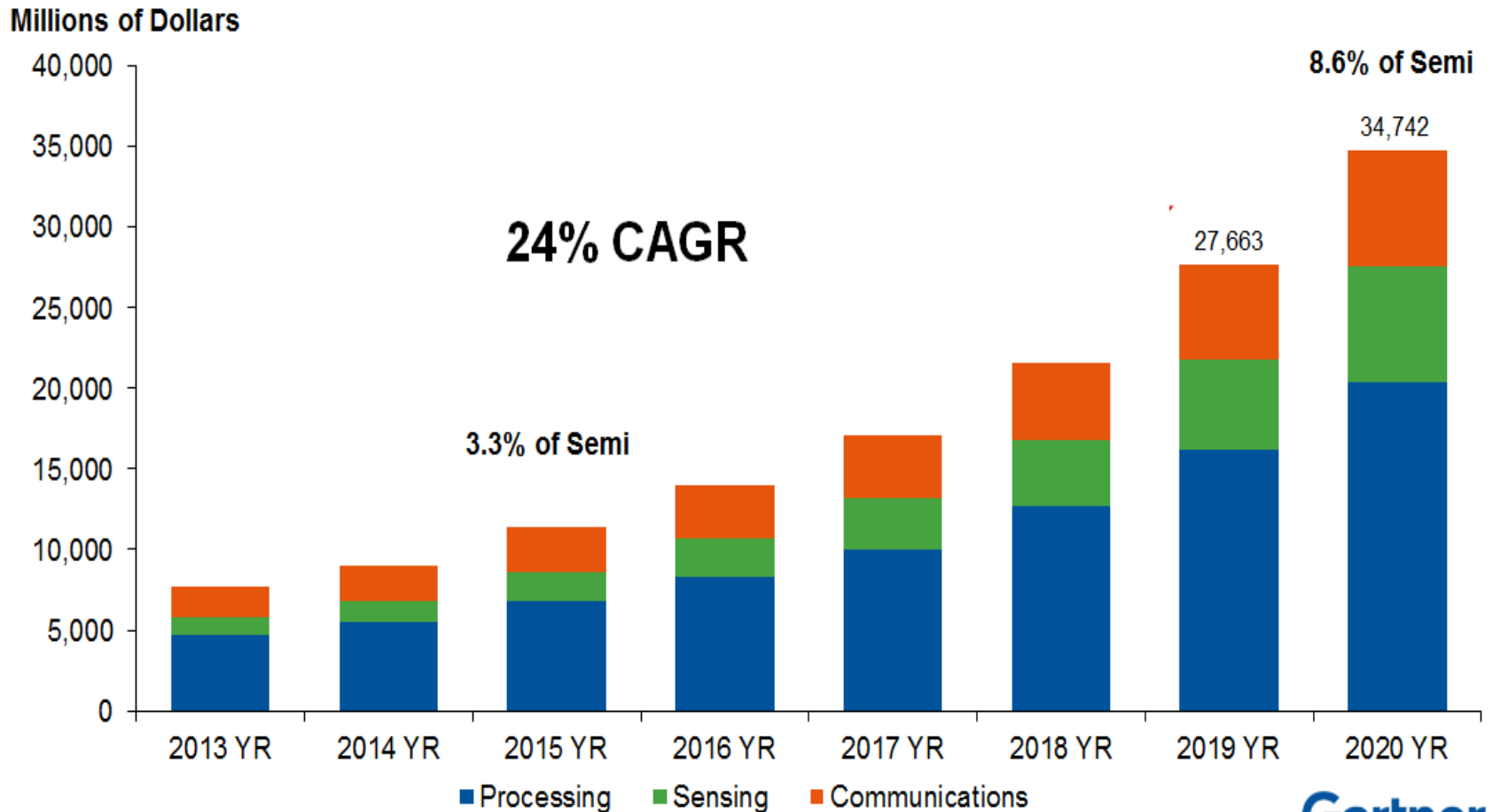
- Higher beam current and longer source life are constantly under development for ion implanters.



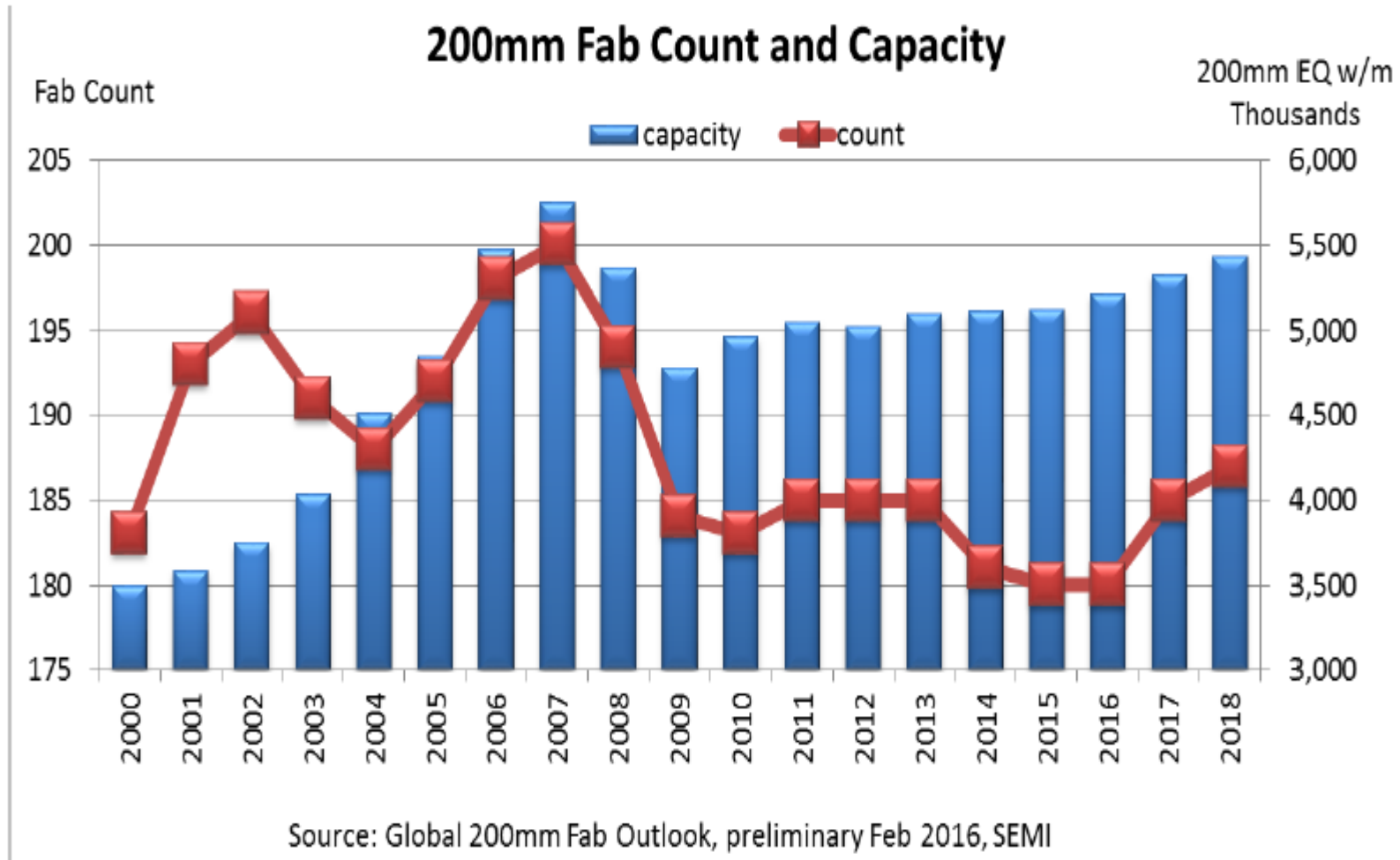
Typical Life time of ion source

The Semiconductor Manufacturing Forecast

The IoT Rapid Growth, Early Production of 200mm Wafers is expected to be a key due to nature of required devices.



The Global 200mm Fab Outlook



The Global 200mm Fab Outlook

- 33Fabs closed from 2008 to 2014, and 15 Fabs switched their production to 300mm wafers.
- “Lehman Shock” in 2009.
- 200mm Fab closures declines after 2016.
- Estimated ~10 Fabs started production from 2015 to 2017.(Most of them are Power, Analog devices, and MEMS)
- By 2018, the production capacity of 200mm Fabs are expected to increase to their 2006 level (almost all time high!).

Legacy Tool Issues in General

- Many models and versions, difficult to support
 - Model XXX, XXXH, XXXHP, XXXHPX, over more than 20 years of period.
 - OEMs wanted to sell “upgrades” but there were certain limits and borders for certain models and could not keep up forever.
 - OEMs did not have control over discontinued parts.
ex: PCs, Programmable Controllers, Motors, Scan Axes, Power Supply Units, Sensor Units, etc.
 - eBay is not the best place to find and obtain required parts -unknown part history, safety issue, DoA, etc.
 - Second source vendors may be available, but how are they reliable and dependable?

Legacy Tool Issues in General (cont'd)

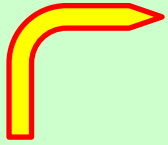
- Lower wafer output compared to that of 300mm tools.
- Typically they do not support the most advanced process requirements that were developed for 300mm (depends on design rule and device type).
 - Particles, Metals, Beam Angle Controls, etc.

Nissin Ion Implanters and their applications

Medium Current Implanter



EXCEED3000AH-8C/9600A-8C



Customized tools for
8 Inch users

- 430WPH-E/S
- Field -Proven Performance
- Latest Parts

EXCEED3000AH/9600A
-Ev, -Evo, -Evo2

High Current Implanter



BeyEX/-H (Beyond EXCEED)

NIC's latest models

- 500WPH-E/S
- Higher Productivity Kits for Low Energy
- Precise Angle Control System



CLARIS

-Cluster ion implantation



Luxion

-Broad sheet beam



IMPHEAT

Power Devices

- 500°C Implantation system
- High current Al ion beam
- RT implant capability

The EXCEED3000AH-8C is Nissin Ion's solution to the legacy 8inch wafer tools

Improved Throughput

- Much **higher Throughput** compared to existing tools in 8 inch wafer fabrications.

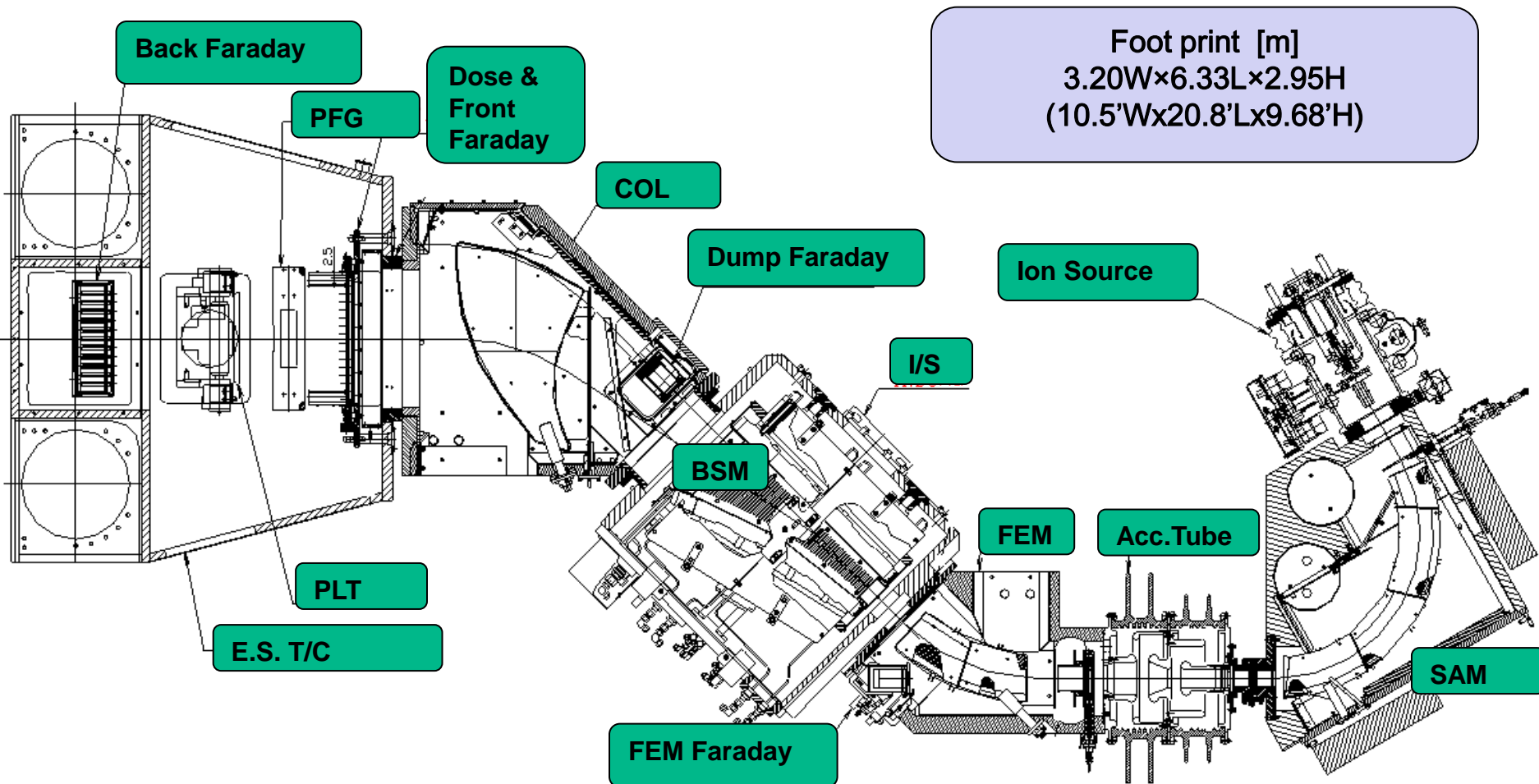
Reduced Cost of Ownership

- Specialized in the performance required in the 8 inch wafer lines and established high tool up time and reliability enables to **reduce total cost of ownership** with a vertically integrated service team controlled by the OEM.

Solution to Discontinued models and parts

- Capable of a **continuous supply** of models whose specification is the same as our basic one's called EXCEED, and of their product parts.
- No need for customers to go to eBay or second source suppliers.

Tool Layout of EXCEED3000AH-8C



Conclusion

- EXCEED3000AH-8C
 - is fully backed up by the OEM with a full factory warranty.
 - Supported with “award winning” vertically integrated support structure.
 - No third party support required.
 - can be easily optimized for a specific 200mm production requirement.
 - has field-proven reliability and high tool uptime of EXCEED series implanters.
 - offers significantly improved CoO.