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ion beam services
the total ion implantation solution

IMC-200 Series IBS Research & Production Ion Implanters

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...Tools that fill the gaps

- Native processing of next technologies and new generation substrates
- Brand new equipment tailor-made for research applications
- Production tool for 6'' substrates and below



...Features

- Simple and powerful User Interface
- Optimized design for easy maintenance
- Maximum reliability guaranteed
- Small footprint compared to std research tool
- Full customizable for more flexibility and higher versatility



...Quick Data

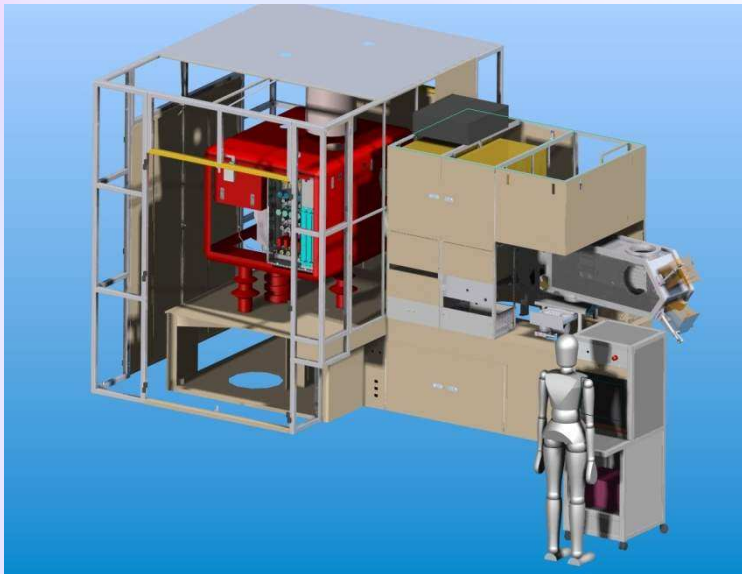
- Wafer size:
 - From small samples to 6'' wafers
- Energy range:
 - 5 keV to 200 keV single charge energies
 - Multi-charging capability
- Dose range :
 - from 5×10^{10} to 5×10^{18} at/cm²
- Beam current up to 1500 μ A
- -100 °C to 600 °C capabilities



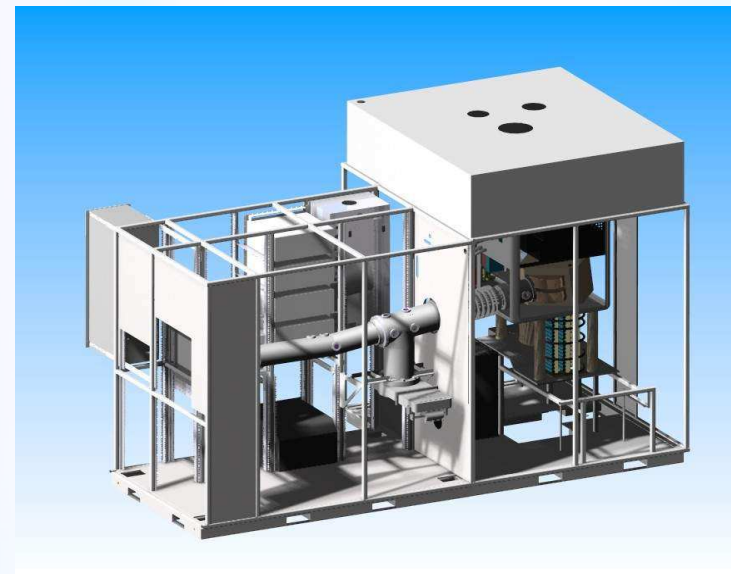
...Tool Conception

- Preliminary 3D design
- Based on two different existing beam lines

Varian DF/CF... series beam line



Axcelis NV-x200 beam line





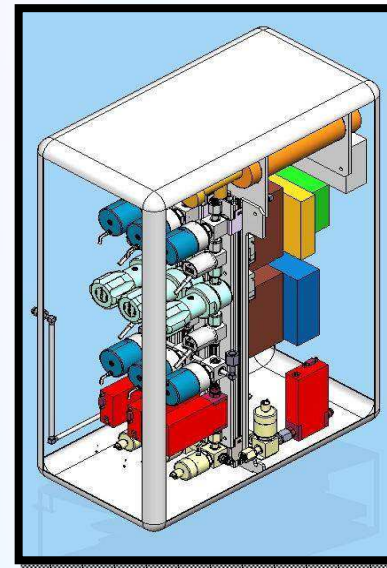
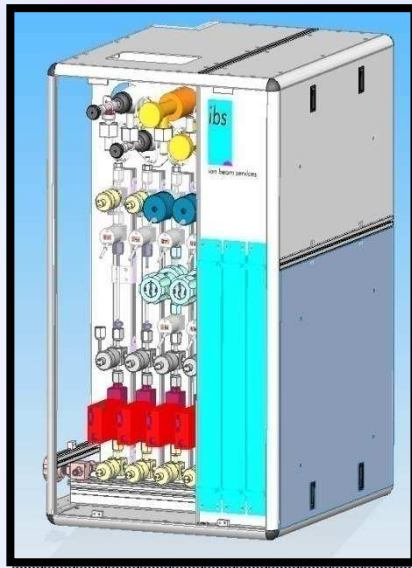
...*Frame preparation*



- Specific frame designed according to selected options
- Specific treatment to prevent charging
- Paint hardened in oven for greater longevity

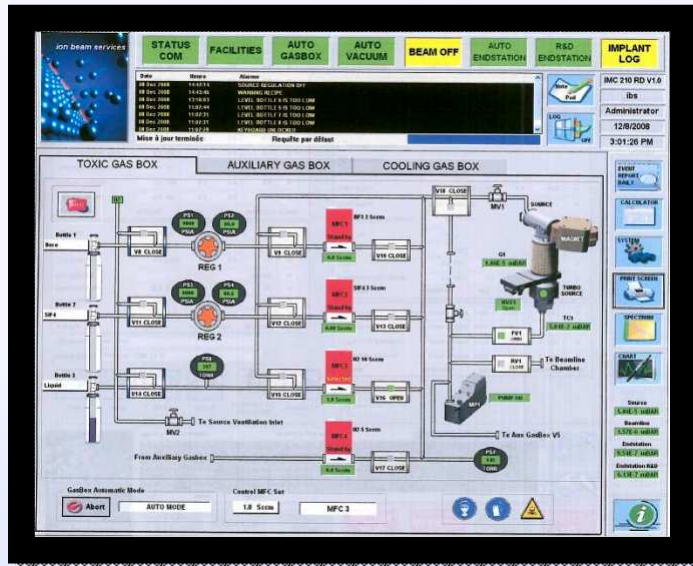
...Gas Delivery

- Gas Box design adapted to configuration:
 - High Pressure, SDS® or UPTIME® Compatible
 - Up to 4 active gases and 4 neutral gases available (extension)





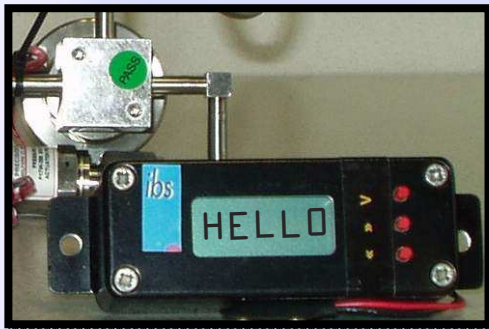
...Gas Delivery



- Controlled and monitored by user interface software



- Fitted with IBS patented IMT[®] gas bottle management system



...*Electrical design*

☛ Schneider electrical components

- World leader for industrial electrical devices
- Parts available from distributors anywhere
- Market availability of 10 years minimum

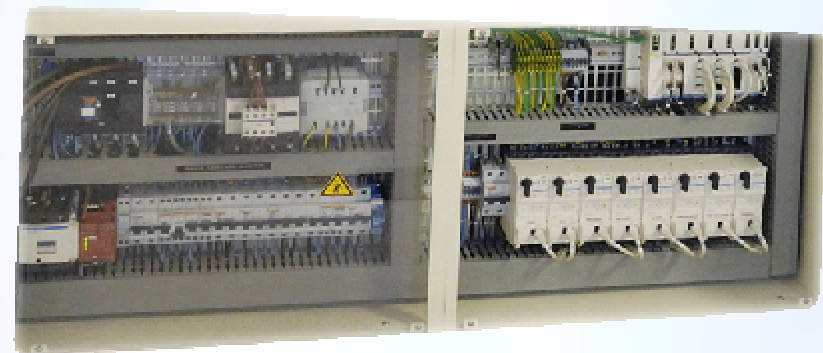
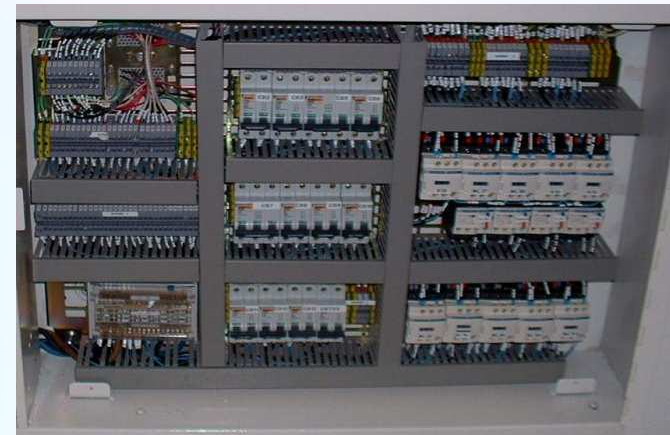


☛ 'Smart' components

- 'All in one' pumps contactors
- Communications from/to user interface

☛ LockOut-TagOut (LOTO) ready

☛ CE Compliant



...Control & Command

☐ Schneider PLC Automation Management

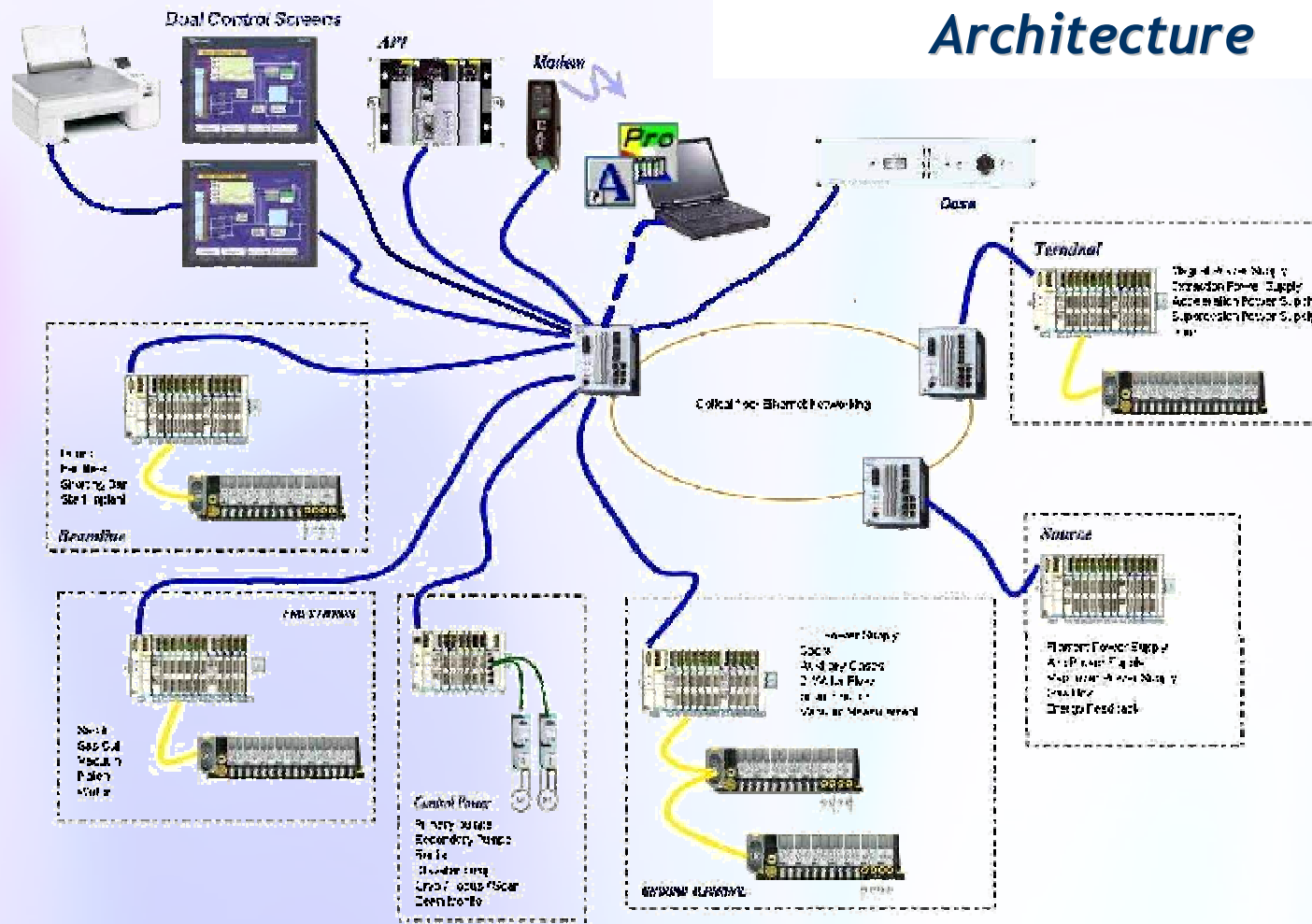
- Widely used in automotive, food & pharmaceutical industry
- Higher reliability than PC based control



☐ Easy maintenance

- TCP/IP internal network with DHCP server for modules communications & self configuration
- Only one type of analog and digital boards throughout the system for minimum spare parts use
- Self-diagnostic electronics for easy troubleshooting
- Very long cycle time and available at any local electronics distributors

...Control & Command Architecture

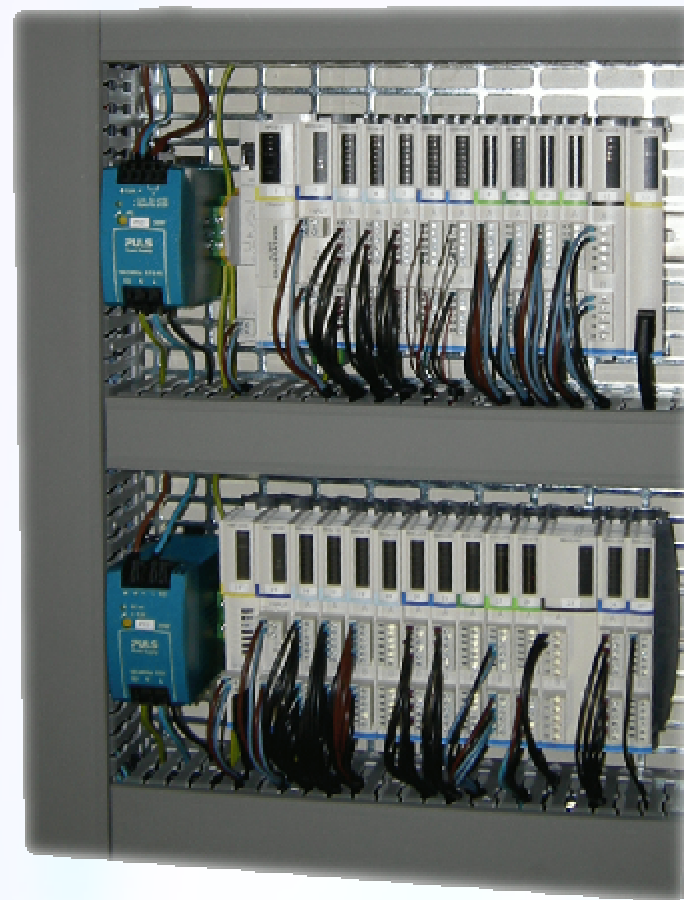


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IMC 200 Series...



...Control & Command Modules



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...User Interface

- Intuitive and easy to use interface
 - Touch screen, mouse or keyboard as standard
 - No sub menus
- Access management
 - from secure operator use to full parameters access
- Tuning and Modus
 - Semi-auto implantation with pre-selected recipes
 - Safety stand-by modus after implantation
 - Safety shut-down after errors
- Maintenance routines
- Datalogging, Mass spectrum, Interlocking, ...





...User Interface

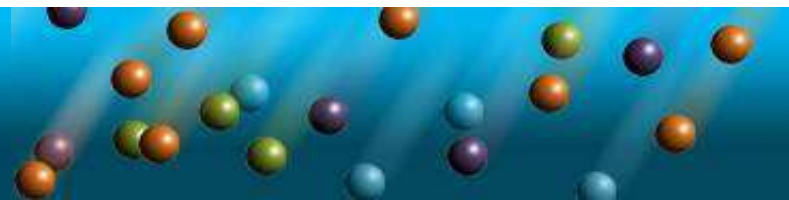
The screenshot displays the IMC 200 Series user interface, which is divided into several functional areas:

- Top Status Bar:** Contains buttons for **STATUS COM**, **FACILITIES**, **GASBOX**, **AUTO VACUUM**, **BEAM OFF**, **MANU ENDSTATION**, **R&D ENDSTATION**, and **IMPLANT**. It also shows a date and time display (5:24:41 PM).
- Main Control Panel:** Features a large schematic diagram of the ion beam system with various components labeled (e.g., RV1, VV1, TC1, FV1, etc.). A central control area includes buttons for **REGENE CRYO PUMP**, **Beamline**, **ES Process**, and **R&D EndStation**.
- Right Panel (Parameter Control):** Contains a detailed control interface with buttons for **AUTO VACUUM**, **BEAM OFF**, **MANU END/STATION**, and **IMPLANT**. It includes a **SYSTEM** status window, a **CHART** display, and a large section for **EXTRACTION ANALYSIS ACCEL BEAMLINE BEAM** parameters. This section includes controls for **Analyz Magnet**, **Post Accel**, **Total Energie**, **Beam steering**, **Beam Filter**, **Focus**, **Flow high cool**, and **Suppressor bias**.
- Bottom Panel:** Contains a row of large, color-coded buttons: **IMPLANT** (green), **START DOSE** (green), **RESET DOSE** (orange), **HOLD DOSE** (orange), **STOP BACH IMPLANT** (green), **TX SCOPE** (green), **TY SCOPE** (green), **XZ SCOPE** (green), and **TOGGLE SCOPE** (green).

...Scanning & Dose integration

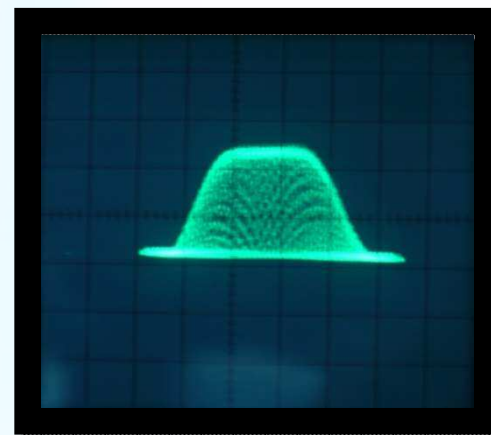
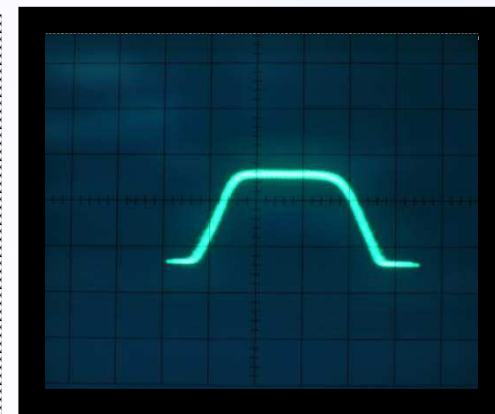
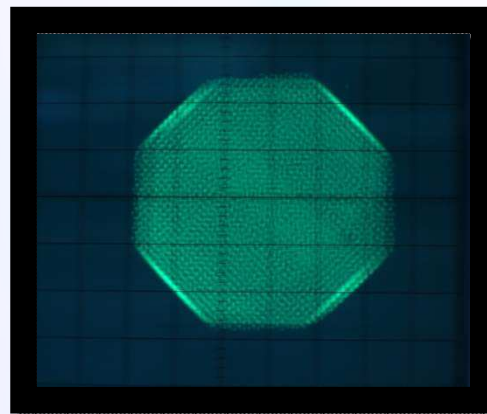
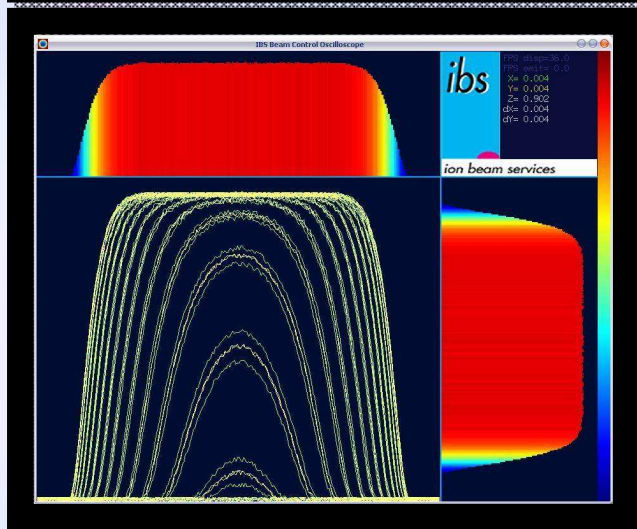
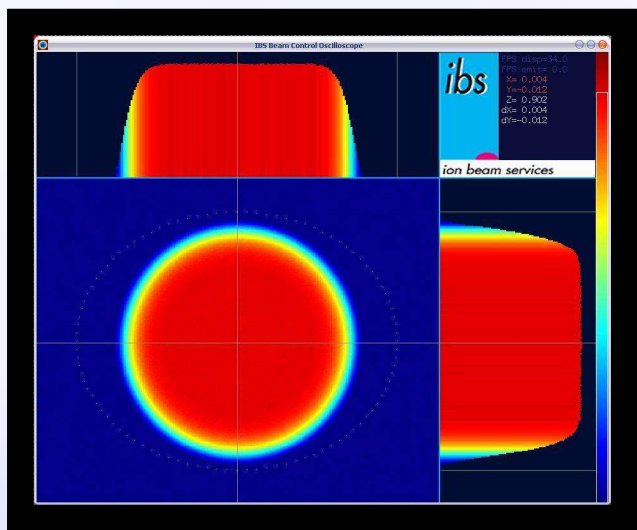
- Joystick interface
 - For easier and finer tuning
- Dose management
 - Dose hold & restart
 - From 5×10^{10} to 5×10^{18} at/cm²
- Digital vectored scanner
 - Programmable patterns
 - Integration of correction factors
 - Optimization per application
 - Integrated oscilloscope display



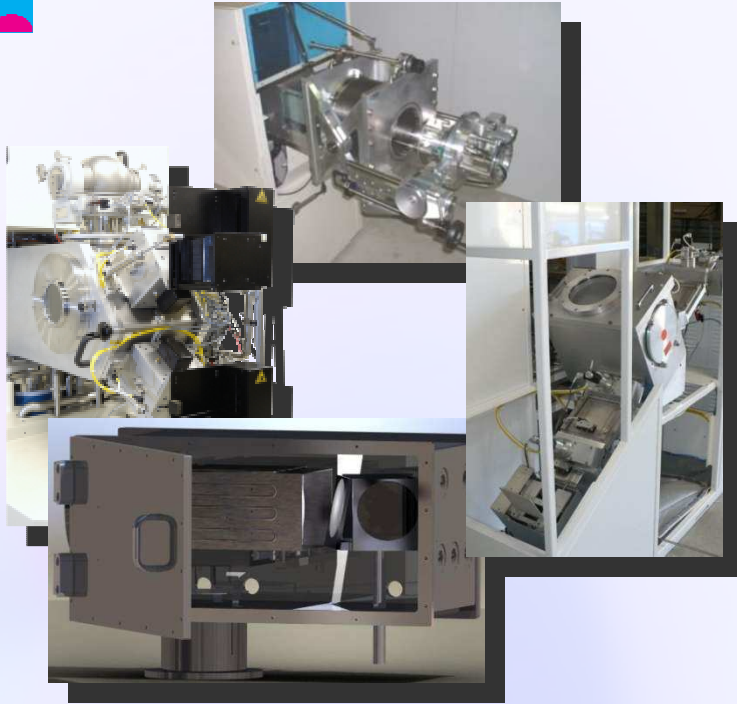


...Scanning & Dose integration

Set-up screen



...End station - Handling

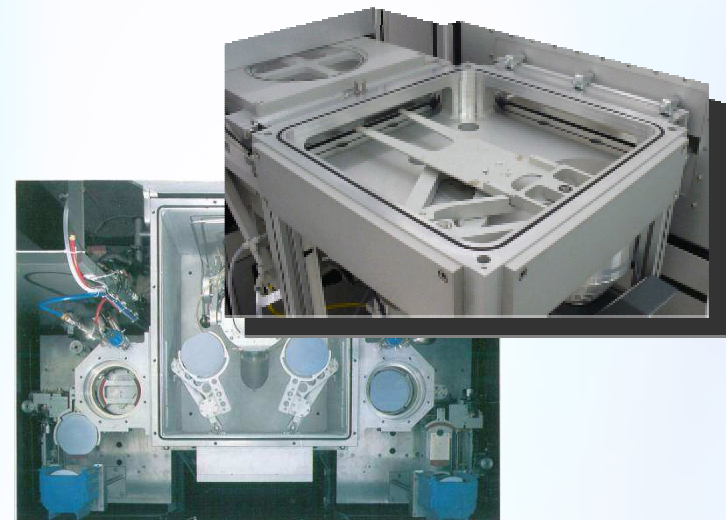


Manual loading / gravity loading

- Research applications
- Very sensitive substrates
- Unusual geometry substrates
- Single or Multi wafers

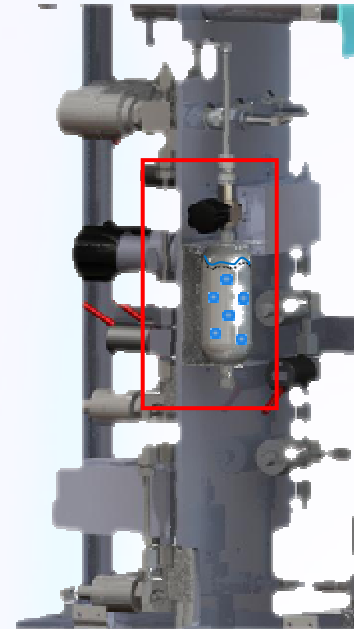
Full automatic robot loading

- Production applications
- Low contamination
- Wafer alignment
- Load lock



... *Species sourcing*

- Special ion sources
 - Sputtering source
 - IBS Aluminium vaporizer
 - Bernas + vaporizer combo
- Liquid deliveries
 - TiCl₄, CCl₄ ...
- Exotic processes
 - Optical applications: Er, In, Yb ...
 - Material properties research





...List of available species

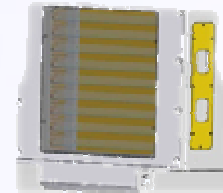
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
I	H																	He
II	Li	Be											B	C	N	O	F	Ne
III	Na	Mg											Al	Si	P	S	Cl	Ar
IV	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
V	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
VI	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
VII	Fr	Ra	Ac															
VIII				Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	
IX				Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	



... Options and more

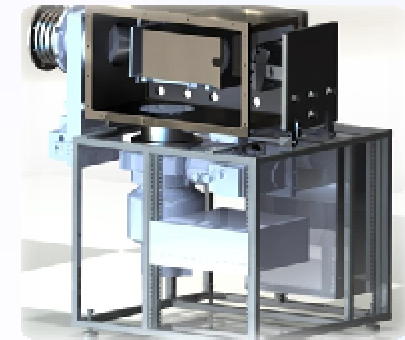
Cold Implantation:

- -100 °C liquid N2 platen
- Enhanced gas cooled platen system



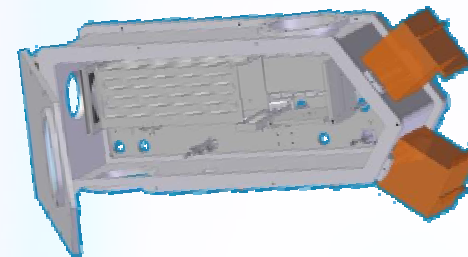
Hot Implantation:

- 600 °C lamp heated platen
- Specific chamber extension



Low contamination:

- Load locks upgrade (wafer)
- Specific materials and coatings (beam)



Enhanced vacuum kits

According to requirements, we always adapt, modify and further develop and design to fulfill satisfaction of customer



... Advantages

- Based on proven beam line systems
- High Configurability to fit individual requirements
- Suitable for research and production
- Easy-to-operate and -maintain design
- Maximum Reliability using proven and well-known technologies and automation system
- Parts Independency from IBS and worldwide Availability via regional distributors



... *IBS offers*

- +20 years experience and services in ion implantation area
- **Cost-competitive solution:**
 - Adaptable tool version to match customer budget
 - “Evolutive”: Pre-set of future options
- Ready-to-implant package with parts start-up kit
- Installation, Training and Maintenance coverage
- Variable warranty period
- **Full support services:**
 - Sub-assy refurbishment, Electronics repair, Parts and consumables supply
 - Technical support via our FSE staff
 - Process support via our R&D/ Production Dpt



... Realizations



IMC 210RD v6 (NV4206 based)
 -Hot implant chamber extension
 -2 Gas Boxes with 1 liquid line



IMC 200RD v5 (CF3000 based)
 -Multi-platen configuration
 -Silicon coated beam line

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« A global service dedicated to customer support in the field of ion implantation »

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