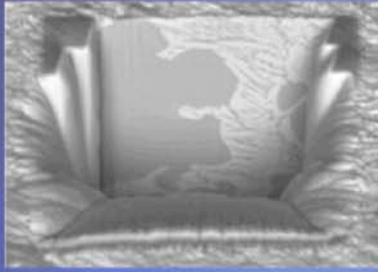
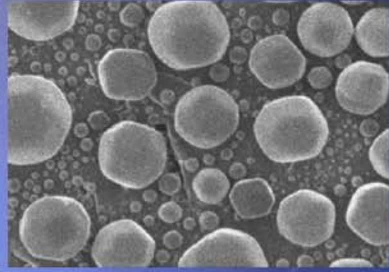
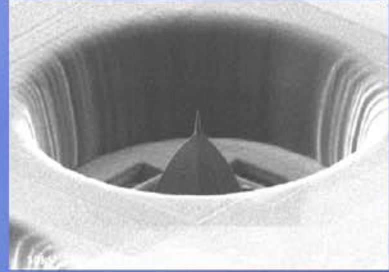
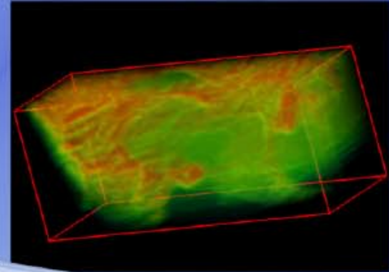
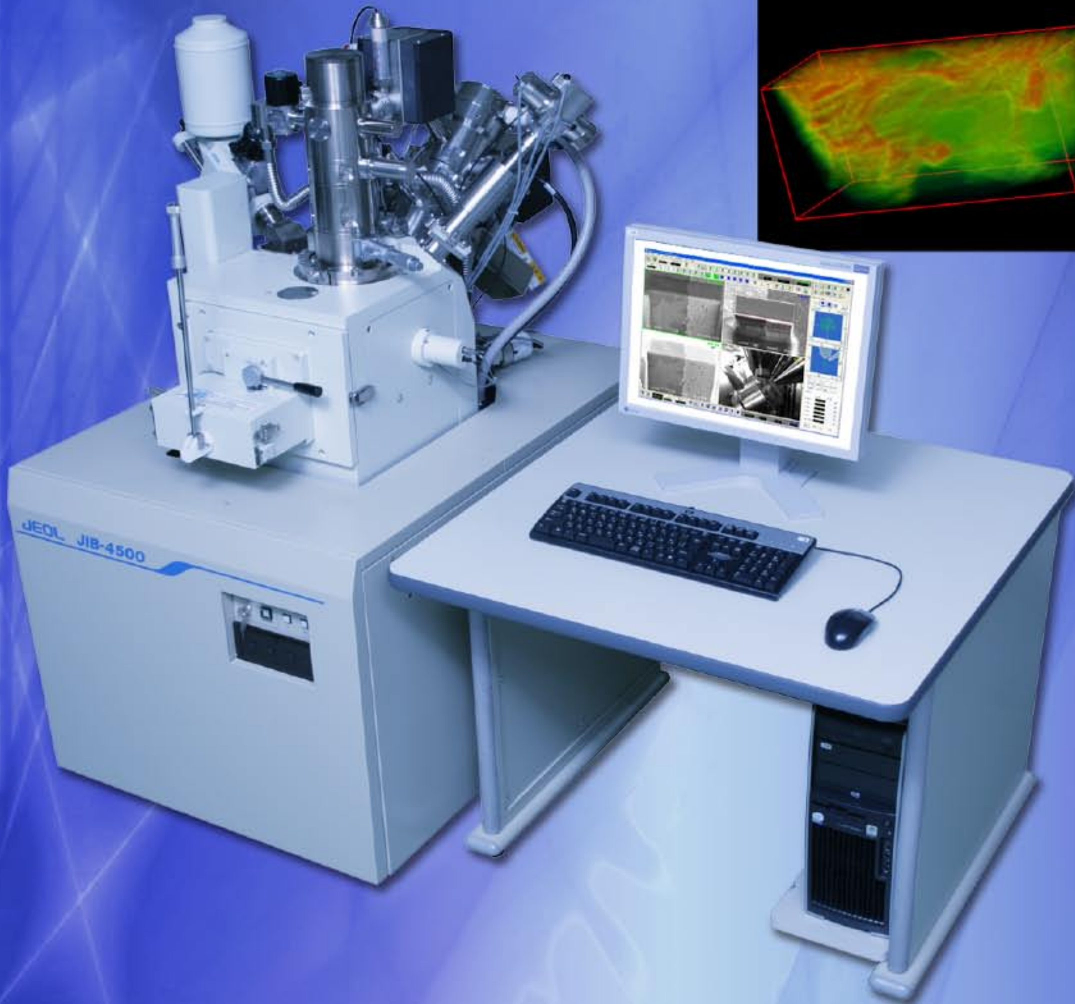











# MultiBeam

JEOL

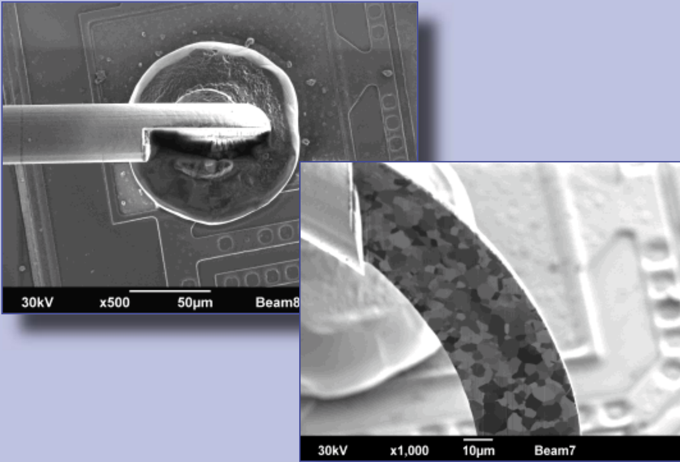
# MultiBeam

## *High performance SEM and micro milling FIB*

*New, easy-to-use MultiBeam system combines high resolution ion optics with the most popular SEM column in the world. The JIB-4500 MultiBeam offers increased throughput and productivity for a variety of applications, from viewing to analysis to micro milling.*

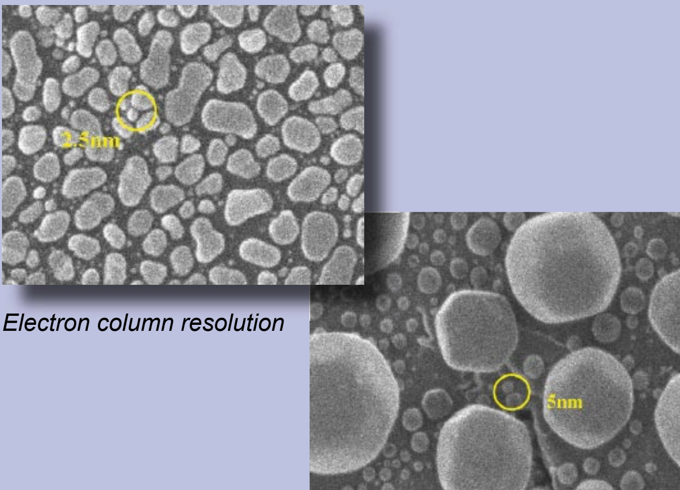
### *Large current milling mode*

- Enhances throughput from large milling area (maximum milling current 30 nA).




### *High resolution electron ($LaB_6$) and ion optics*

- Provides stable imaging for milling/monitoring over extended periods of time.




*Electron column resolution*

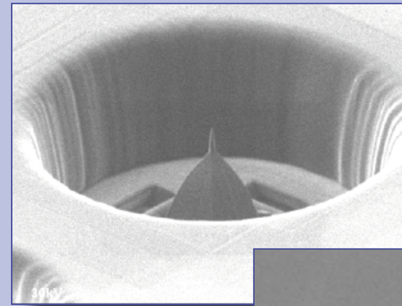
*Ion column resolution*

### *Charge-free imaging and analysis*

- Low vacuum system standard for non-conductive specimens

### *Bitmap milling system*

- Enables deposition and milling of binary image data stored in BMP file.
- Supports 3D nano milling with continuous access to multiple bitmap data.



### *Standard airlock system for fast and easy sample loading*

- Fast sample loading through airlock chamber.
- Maximum sample size: 150mm wafer.

### *Low mag mode identifies milling positions*

- Milling position initially identified at minimum magnification of 5X in SEM.
- Transition to milling mode is easily made at minimum magnification of 30X in FIB.

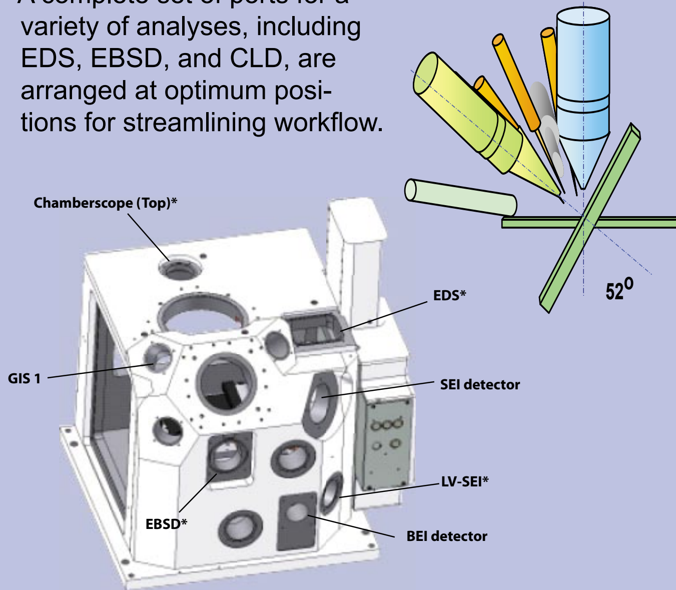
# MultiBeam *High performance SEM and micro milling FIB*

## *Monitor milling in real time*

- Simultaneous SEM imaging of FIB milling process.
- Effectively prepares TEM thin film samples to optimum thickness.

## *A complete set of ports for all your applications*

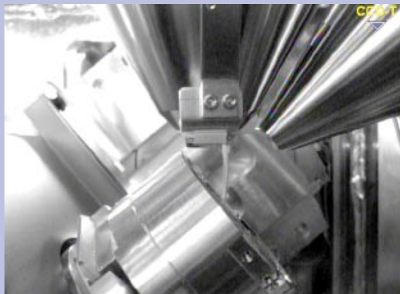
- Large stage is capable of image milling of sample areas up to 76mm.
- A complete set of ports for a variety of analyses, including EDS, EBSD, and CLD, are arranged at optimum positions for streamlining workflow.




* Optional accessories

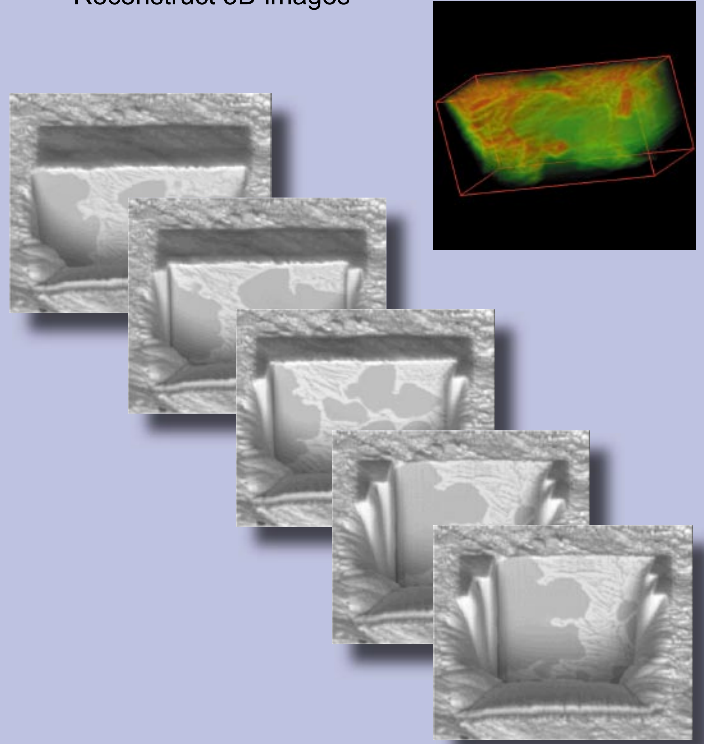
## *Optional chamberscope verifies sample positions*

- Effective for verifying positional relationships with other options including gas injection system.



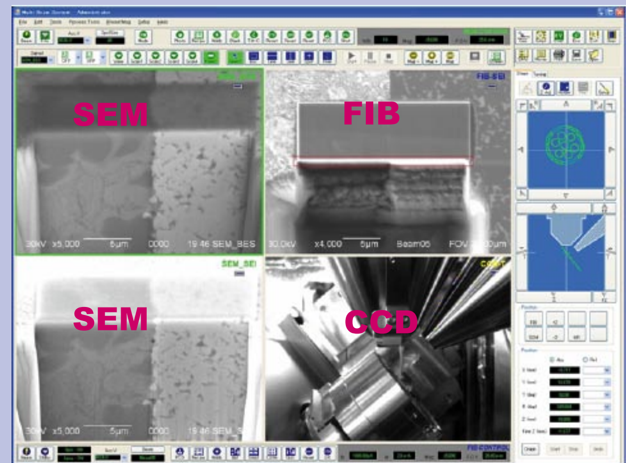
## *Serial slicing and sampling - $S^3$ ™*

- Monitor slicing and fabrication in process.
- Reconstruct 3D images



## *User friendly, easy to learn*

- Modern, clearly marked GUI.
- Visual, intuitive operation from SEM/FIB condition setting to milling and monitoring.



# MultiBeam

## *High performance SEM and micro milling FIB*

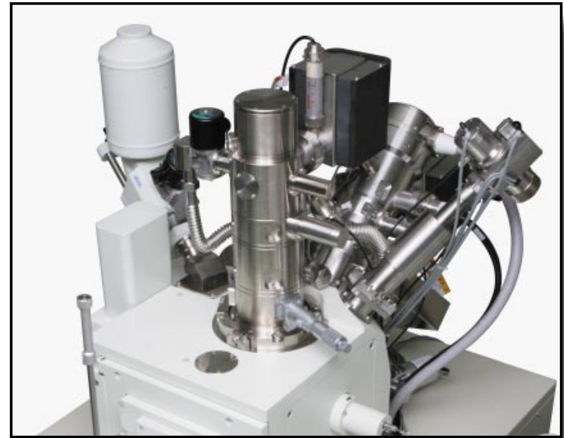
## Principal Specifications

**FIB**

| | |
|---|---|
| Ion source | Ga liquid metal ion source |
| Resolution | 5nm @ 30kV |
| Accelerating voltage | 1 to 30kV (in steps) |
| Magnification | 30x (for wide view)<br>100X to 300,000X |
| Maximum beam current | 30nA (at 30kV) |

**SEM**

| | |
|---|---|
| Beam source | LaB6 |
| Resolution | 2.5nm @ 30kV |
| Accelerating voltage | 0.3 to 30kV (in steps) |
| Magnification | 5X to 300,000X |
| Maximum beam current | 1,000nA (at 30kV) |
| Goniometer stage | X: 76mm; Y: 76mm;<br>Z: 5 to 48mm<br>Z' for eucentric point adjustment<br>T: -10° to 90°; R: 360° endless |
| Vacuum pump | SIP (x2), TMP/RP (x2) |
| Standard features | Low vacuum (LV)<br>Backscatter detector (BEI)<br>Gas injection unit (1) |



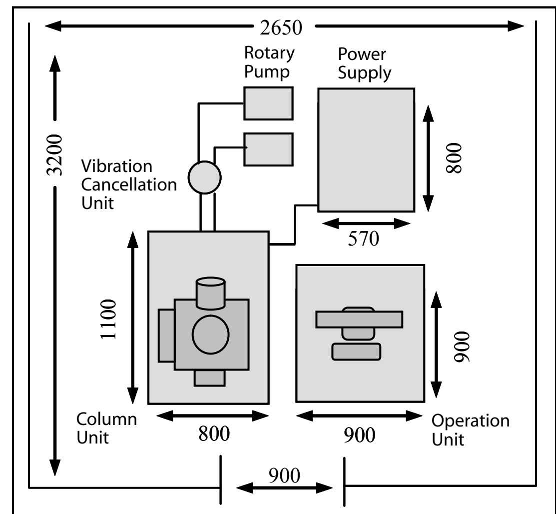
## Optional Attachments

Chamber scope - top mount/side mount
Gas injection system
External scan interface for SEM
EDS, EBSD, CLD

## Installation Requirements

| | |
|---|---|
| Power | Single phase 100V± 10%<br>50/60 Hz, 3 kVA (x2) |
| Ground | One, 100 ohm or less |
| Dry nitrogen gas | 0.4 to 0.7 MPa |
| Room temperature | 18 to 25°C |
| Humidity | 60% or less |

*Specifications subject to change without notice.*




JEOL USA, Inc.

For more information, contact your local sales office, email salesinfo@jeol.com, or visit www.jeolusa.com.

11 Dearborn Road • Peabody, MA 01960
Tel: 978-535-5900 • FAX: 978-536-2205

5653 Stoneridge Drive • Pleasanton, CA 94588
Tel: 925-737-1748 • FAX: 925-737-1794

10/07