

# NEWS RELEASE

**Hitachi High-Tech**

**HITACHI**

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November 29, 2010

## **Hitachi High-Tech Launches New IM4000 Ion Milling System**

A 2-in-1 hybrid ion milling system capable of both cross-section and flat ion milling

Hitachi High-Technologies Corporation (TOKYO:8036, Hitachi High-Tech) today announced the release of the hybrid IM4000 Ion Milling System from December 1. The system is used to prepare specimens for SEM imaging and analysis such as EDX and EBSD, and is capable of both cross-section and flat ion milling.

The ion milling system uses a wide Argon ion beam to irradiate specimens and uses the sputtering effect\* to polish the surface without stressing it, making it useful in a multitude of different fields and applications such as semiconductors, materials, research, and quality control.

The newly-developed IM4000 features a removable specimen holder that allows for both cross-section milling, where the ion beam irradiates the specimen from above and cuts a planar cross-section through the specimen along the edge of a mask located between the specimen and ion gun, and flat milling, where a wide and smooth surface of approximately 5mm in diameter is achieved by shifting the ion beam axis and specimen rotational axis, and irradiating the specimen from an angle between 30–80°.

The IM4000 also features a high milling rate ion gun with a processing speed of 300µm/hr (3 times faster than previous models\*\*) that dramatically reduces the time required for time-consuming cross-section milling.

Hitachi High-Tech will have a demonstration system on display at SEMICON Japan 2010 at Makuhari Messe from December 1. Deliveries are scheduled to begin from March 2011 and Hitachi High-Tech expects sales of 150 systems for the year.

\*The effect of molecules and atoms being expelled from the surface of a specimen when struck by accelerated ions.

\*\*Compared to the E-3500 (2005) on a silicon specimen.

■ Specifications

Item	Description	
	Cross-sectionmillingholder	Flatmillingholder
Gas	Argongas	
Acceleratingvoltage	0–6kV	
Maximummillingrate (Si)	Approx.300µm/hr	Approx.2µm/hr
Maximumspecimen size	20W×12D×7Hmm	ø50×25Hmm
Gasflowratecontrol system	Massflowcontroller	
Evacuationsystem	Turbomolecularpump(33L/s)+Rotarypump(135L/minat50Hz, 162L/minat60Hz)	
Size	616W×705D×312Hmm	
Weight	Mainunit48kg+Rotarypump28kg	

■ Keyfeatures

Hybridsystemcapableofbothcross-sectionandflatmilling

Crosssectionmilling: Theionbeamirradiatesthe specimenfromaboveandcutsaplanarcross sectionthroughthespecimenalongtheedgeofa sklocatedbetweenthespecimenandiongun. Flatmilling: A wideandsmoothsurfaceofapproxim ately5mmdiameterisachievedbyshifting theionbeamaxisandspecimenrotationalaxis, and irradiatingthespecimenfromananglebetween 30–80°.

Highthroughputcrosssectionmilling

Ahighmillingrateiongunwithaspeedof300µm/h reducestheprocessingtimeby66% (comparedtotheE-3500, releasedin2005).

Removablestageunit

Thespecimenstageunitisdesignedtoberemovable toenabletheaccurateandconvenient adjustmentofthemillingpositionandspecimen.



IM4000 Ion Milling System

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