NEWS RELEASE

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**Hitachi High-Technologies Launches Sale of New SU3500 Scanning Electron Microscope**
**-Enables fast, high-resolution observations during low acceleration voltages-**

Hitachi High-Technologies Corporation (TOKYO: 8036, Hitachi High-Tech) announces the launch today of the SU3500 Scanning Electron Microscope, a new tool that improves resolution imaging during low acceleration voltages to deliver more accurate and higher resolution observations.

Scanning electron microscopes (or SEMs) are tools that enable observation of the surface structure of matter at the microscopic level. As such, SEMs have recognized utility and are utilized in various ways. Some of the most prominent applications for these tools today range from research and development work across a broad spectrum of industry, particularly nanotechnology and biotechnology-related fields, to quality control. Hitachi's low-vacuum SEM series has proven especially popular and has a strong reputation among customers worldwide. The low-vacuum observation method (6 to 270 Pa) that this series employs allows for the observation of non-conductive specimens for mounting electronic devices, and water-containing specimens, such as cultured cell lines that are garnering attention in regenerative medicine, without the need for specimen preparation .

In developing the new SU3500 low-vacuum SEM, Hitachi High-Tech improved SEM image observation capacity by completely overhauling the electron optics system, enabling secondary electron imaging at a resolution of 7 nm at 3 kV, and back-scattered electron imaging at a resolution of 10 nm at 5 kV. Redesigned signal processing technology, meanwhile, allows for observation of brighter images with less noise even during fast scanning speeds. These key changes now make it possible to retain a high degree of operability even when focusing or stigma adjustments.

The SU3500 was also developed with "live stereoscopic" function*1. This function evolved from the incorporation of technology originally developed as part of the Japan Science and Technology Agency's Technology for Advanced Measurement and Analysis Program as part of its promotion of research results. Development was led by Hitachi High-Tech, in conjunction with Eizo Nanao Corporation, Niigata University, and Shizuoka University. When used, this function moves at fast scanning speeds to build a three-dimensional SEM image for real-time image observation, eliminating the need to tilt the specimen for analysis. What's more, low-vacuum functionality is now standard on the SU3500, allowing observation of insulation specimens with no need for specimen preparation, enabling the tool to support development and analysis in an even broader range of fields. An Ultra Variable-pressure Detector (UVD) has also been developed as a new optional feature for the SU3500 that makes observations possible across low to high acceleration voltages, and under specimen chamber pressures ranging from several to several hundred Pa.

The SU3500 is slated to launch on May 11, 2012, with product shipments scheduled to begin from August 2012. Hitachi High-Tech is projecting that it will sell 200 units of the SU3500 each year.

Hitachi High-Tech will exhibit the SU3500 panel as a part of the commercial exhibition in the 68th annual meeting of the Japanese Society of Microscopy held at the Tsukuba International Congress Center from Monday, May 14 to Wednesday, May 16, 2012.

*1: This optional function will be available soon.

**SU3500 Scanning Electron Microscope**

**<Main Features>**

1. Newly designed electron optics system allows a guaranteed high resolution of 7nm at a low 3kV (SE) and 10nm at a low 5kV (BSE).
2. Newly designed electron optics system and signal processing technology enable observations with less noise at fast scanning speeds even under low acceleration voltages
3. Equipped with newly designed high-speed auto features (brightness and contrast, focus)
4. Development of a "live stereoscopic" function that allows stereo SEM images without tilting the specimen
5. Development of an Ultra Variable-pressure Detector (UVD), making observations possible under a wide range of acceleration voltages and specimen chamber pressure conditions

**<Main Specifications>**

| **Specifications** | **SU3500** |
|---|---|
| **Secondary electron image resolution*2** | 3.0 nm (Acceleration voltage: 30 kV, high-vacuum mode)<br>7.0 nm (Acceleration voltage: 3 kV, high-vacuum mode) |
| **Back-scattered electron image resolution*2** | 4.0 nm (Acceleration voltage: 30 kV, low-vacuum mode)<br>10.0 nm (Acceleration voltage: 5 kV, high-vacuum mode) |
| **Acceleration voltage** | 0.3 to 30 kV |
| **Magnification** | 5x to 300,000x (photo magnification), 7x to 800,000x (actual display magnification) |
| **Specimen stage** | X: 0 to 100 mm, Y: 0 to 50 mm, Z: 5 to 65 mm,<br>T: -20° to 90°, R: 360° |
| **Maximum loadable specimen size** | 200 mm diameter |
| **Maximum observable area** | 130 mm diameter (with rotation) |
| **Maximum specimen height** | 80 mm (WD=10 mm) |

*2: Smallest particle gap measured in SEM images from Hitachi High-Tech specimens

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