

New XRF Instrument Measures the Smallest Features in Semiconductor / Microelectronics Manufacturing

Schaumburg, IL. May 29, 2018. Bowman, a US manufacturer and global service provider for quality labs using XRF measurement technology, has introduced a new instrument for the smallest features in semiconductors and microelectronics.

Bowman's W Series uses poly-capillary optics to focus the X-ray beam to 7.5 μm FWHM, the world's smallest beam size for coating thickness analysis using XRF technology. A 150X magnification camera is used to measure features on that scale; it is accompanied by a secondary, low-magnification camera for live-viewing samples and birds-eye macro-view imaging. Bowman's dual-camera system lets operators see the entire part, click the image to zoom with the high-mag camera, and pinpoint the feature to be programmed and measured.



A programmable X-Y stage with precision less than $\pm 1 \mu\text{m}$ for each axis is used to select and measure multiple points; Bowman pattern recognition



software and auto-focus features also do this automatically. The system's 3D mapping capability can be used to view the topography of a coating on a part such as a silicon wafer.



The standard configuration of W Series instruments includes 7.5 μm optics with molybdenum anode tube (chromium and tungsten are optional) and a high-resolution, large-window Silicon Drift Detector which processes more than 2 million counts per second. Silicon Drift Detectors are the standard, industry-wide, for complex films. Their high count rate capability is key to achieving a low minimum detection limit (MDL) and highest spectral resolution.

The W Series is the 7th model in Bowman's XRF instrument suite. Like others in the portfolio, it simultaneously measures up to 5 coating layers and runs advanced Xralizer software to quantify coating thickness from the detected photons. Xralizer software combines intuitive visual controls with time-saving shortcuts, extensive search capability, and "one-click" reporting. The software also simplifies user creation of new applications.



Bowman is a leading manufacturer of precision XRF coating measurement systems, with a robust local service network that provides same-day response for every XRF requirement, worldwide. Equipment evaluation, selection, commissioning, maintenance and modernization is provided for users of all Bowman instruments, as well as other XRF brands. All Bowman systems are manufactured in the USA.

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