



Applied Materials Extends Leadership in Metal Oxide Display Manufacturing Technology

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- *New PVD and PECVD systems support unique deposition technologies optimized for high-volume production of metal oxide thin-film transistor-based ultra-high resolution displays*
- *Accelerating roadmap for large-area TVs and highest resolution, low power consumption screens for mobile devices*

SANTA CLARA, Calif., October 16, 2013 - Applied Materials, Inc. today announced new technology systems for manufacturing large size and ultra-high definition ([UHD LCD](#) and [OLED](#) displays that meet consumer demand for greater screen performance, clarity, color and brightness. The [Applied AKT-PiVot® 55K DT PVD](#), [Applied AKT-PiVot 25K DT PVD](#) and [Applied AKT 55KS PECVD](#) systems extend Applied's leadership in [metal oxide](#) (MO) films and technologies for smaller, faster [thin film transistors](#) (TFTs) required to create high-resolution displays. Through precision materials engineering and productivity innovations, these [PVD](#) and [PECVD](#) systems provide an optimized, cost-effective solution for volume production of future MO-enabled displays.

MO-based TFTs help enable low-power, high-resolution smart phones and tablets as well as some OLED TV technologies. Future 4K TVs are also expected to adopt MO TFTs. The uniformity and particle control of Applied's PVD and CVD systems help customers deliver these new display technologies with high yield in mass production.

"Our new PVD and PECVD systems will accelerate display industry roadmaps by enabling customers to transition to MO materials using proven technologies," said Ali Salehpour, senior vice president and general manager, Applied Global Services and Growth Markets. "We worked closely with customers to develop these solutions to address their critical uniformity, particle control and stability challenges, clearing major implementation hurdles, especially with regard to OLED. We can support the various product strategies of our customers by expanding these solutions to different substrate sizes, allowing for multiple technology paths for manufacturing large-area TVs or energy-efficient screens for mobile devices."

Applied's AKT-PiVot DT PVD systems (55K for 2200mm x 2500mm and 25K for 1500mm x 1850mm substrates) extend the company's proprietary rotary cathode array technology to deliver proven highly uniform, homogeneous and low-defect, active-layer deposition for MO (e.g. [IGZO](#)), as well as interconnect metals and pixel electrodes. Enabling high TFT stability with uniform PiVot-deposited IGZO films is critical for display quality, and is key to realizing MO [backplanes](#) for small- and large-area OLEDs. As TFTs get smaller and substrates get larger, the impact of uniformity and particles on yield is significantly magnified. The systems' self-cleaning rotary targets with directional plasma control deliver notably fewer defects and outstanding uniformity compared to conventional planar targets. To effectively provide this high-value performance cost, the system's independent dual processing tracks on a single platform provide high production capacity in a small footprint. The deposition of robust, mura-free IGZO films, combined with uniform, low defect metals, pixel electrodes and new integrated passivation layers (AIOx), allows for unprecedented technical performance and flexibility.

Applied's new AKT 55KS PECVD system brings market-leading precision PECVD technology to 2200mm x 2500mm size substrates. It deposits a [dielectric](#)-layer interface for MO transistors with a new advanced-quality silicon oxide (SiO₂) process that minimizes hydrogen impurities to improve long-term transistor stability and optimize screen performance. By maintaining the uniformity performance and particle control required to achieve high production yields, the AKT-55KS PECVD system provides a rapid, easy to implement path for manufacturing high-quality MO displays.

For more information about Applied's solutions for display manufacturing, please visit www.appliedmaterials.com/display.

Applied Materials, Inc. (Nasdaq:AMAT) is the global leader in providing innovative equipment, services and software to enable the manufacture of advanced semiconductor, flat panel display and solar photovoltaic products. Our technologies help make innovations like smartphones, flat screen TVs and solar panels more affordable and accessible to consumers and businesses around the world. Learn more at www.appliedmaterials.com.

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[PHOTO: The Applied AKT-PiVot® DT PVD System for 25K and 55K](#)

[PHOTO: The Applied AKT 55KS PECVD System](#)

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