



# Welcome to small panel processing – up to **310x310 mm!**

Since the launch of our first panel sputtering equipment in 2016, Evatec has become a leading supplier during early “take-up”. As the panel size has not really been standardized, our CLUSTERLINE® 600 has given high flexibility in this regard and can be configured based on the customer specific format going up to 650x650 mm. Our Head of Semiconductor & Advanced Packaging, **Admir Asanoski**, answers questions about the latest developments at Evatec when it comes to small panel processing for 300x300 mm or 310x310 mm.

## **01** What is driving the demand for 310x310 mm solutions?

In general, panel-level packaging (PLP) offers better material utilization than wafer-level packaging (WLP), leading to overall cost reductions regardless of size. The growing demand for smaller panels, such as 310x310 mm, is primarily driven by Artificial intelligence (AI) and high-performance computing (HPC) applications.

Smaller panels enable tighter control of critical dimensions and overlay accuracy, which is essential for these advanced applications. They also deliver higher yields thanks to reduced warpage, lower mechanical stress, and lower defect density compared to larger panels.

That said, demand for larger panel formats will continue to expand in parallel, particularly for mobile devices and next-generation IC substrate applications.



## 02 What experience do we already have for 310x310 mm solutions?

We are already delivering proven solutions for both 300x300 mm and 310x310 mm formats based on our CLUSTERLINE® 600 platform. Customers value that this equipment and the associated processes are well-established in production environments and can be easily adapted for smaller panel sizes.

Another key advantage is the panel size flexibility our system provides, a major factor in customers choosing this solution.

Looking ahead, we are exploring multi-panel handling capabilities that would enable processing of up to four small panels simultaneously, supporting customers as they scale their production capacity to the next level.

## 04 What's the approach to the new tool and what can customers expect?

In many ways, the new dedicated platform is primarily the result of an engineering effort rather than a new development project. It combines the proven strengths of our 12-inch wafer equipment “CLUSTERLINE® 300 & HEXAGON” and our panel system “CLUSTERLINE® 600”, incorporating the necessary adaptations for the smaller panel size.

The system is built on our existing cluster wafer platform, ensuring the smallest possible footprint. This platform has already been production-proven in applications such as Backside Metallization (BSM) as a Thermal Interface Material (TIM) for heat dissipation, BSM / Frontside Metallization for power devices, optical coatings, and many other processes.

By integrating our established degas pre-treatment and Arctic Etch technology, customers can achieve rapid process integration for their specific small panel sizes while maintaining the same high performance and reliability as our existing systems.

This development marks an important milestone for Evatec, enabling customers to rely on a single source for both wafer and panel-level solutions. In addition to Ti/Cu RDL seed deposition, the new platform will also support our BSM / TIM process, featuring a highly efficient gold (Au) source that reduces target investment compared to conventional flat targets.

## 03 So why now develop a dedicated 310x310 mm tool?

While the CLUSTERLINE® 600 offers clear advantages and has proven its versatility in processing smaller panels, there are certain trade-offs that motivated the introduction of a dedicated small panel equipment.

Key drivers include footprint constraints, cleanroom cost considerations, and the need to optimize initial CAPEX investment for our customers.

This new tool will expand our panel-level product portfolio, providing customers with greater flexibility and the ability to select the system that best matches their production requirements and strategic goals.

## 05 How are you fast tracking the project?

To accelerate the engineering of the new system, we are leveraging our existing designs, proven technologies, and established supplier network. A strategy that ensures a fast time-to-market while maintaining the highest quality standards. Equally important, we are working closely with customers, involving them from the beginning, to ensure that all technical and operational requirements are met prior to delivery. A smooth installation and ramp-up phase is also an essential topic. This will be supported by our local Sales & Service Organizations (SSOs), who already have extensive experience with the existing platforms. In addition, we provide comprehensive customer training and on-site support (see article on page 12, LAYERS 9) from Evatec specialists to guarantee a seamless transition into high-volume production.

## 06 How can customers find out more about the tool and explore how it can meet their needs?

Customers can contact their local SSO for details on the tool, timelines, and how it fits their needs.



### Advanced Packaging

#### CLUSTERLINE® 600



#### HEXAGON



#### CLUSTERLINE® 300



Panel Level

Wafer Level 300 mm

Combining all strengths  
in one dedicated platform

#### EVATEC SOLUTION CLUSTERLINE® 310



- The base will remain and be used from our wafer equipment CLUSTERLINE® 300
- First application – RDL with 480 mm planar targets
- Second application – BSM with special source for Au