



# WAFER HANDLING PLASMA inline

For more than twenty years, we have been developing innovative, highly efficient automation solutions that have proven themselves around the world. Thanks to our years of experience in basic technologies such as control technology, we can also turn highly complex customer requirements into solutions that pay off.

In this process step, the future solar cells in the inline or batch process are coated with silicon nitride, which gives it its typical blue colour. The passivation of the surfaces and volumes of the silicon wafers means the performance of the solar cell is significantly increased.

- High performance automation for loading and unloading of trays for processing in inline PECVD process systems
- Maximum output and highly precise adjustment to production requirements thanks to modular configuration and high-speed delta robot
- Over 10 years of outstanding quality and experience in automation of ARC processes
- Excellent process control (in-process) thanks to state-of-the-art measurement and breakage control

## Jonas & Redmann WHP<sub>inline</sub>

Wafer Handling Plasma inline is designed for the fully automatic loading and unloading of graphite trays with crystalline silicon wafers, which are used with inline systems for anti-reflection coatings and passivation. The WHP inline is specifically designed for series production and distinguishes itself through high uptime, maximum output, low maintenance costs and very little floor space. With this automation, Jonas & Redmann offer customers a flexible loading and unloading concept for Plasma Enhanced Chemical Vapor Deposition (PECVD) in inline processes. Thanks to highly precise and gentle wafer positioning, this concept ensures that customers can produce high-quality process goods. The compact and modularly configured WHP inline is available as stand-alone automation in double-end and single-end models, but can also be directly connected to the PSG wet bench using a conveyor belt transport system. Delta robots equipped with Bernoulli or vacuum grippers enable the system to grab and position the wafers quickly and gently. Faulty wafers and wafer breakages are recognized and resolved fully automatically. The standard system offers maximum compatibility and can be configured to suit systems from various process system manufacturers, tray dimensions and types of wet bench to be connected.

**Inspection** - As an option, the system can be fitted with a measuring device for visual color inspection and measuring sheet thickness.

### Connection to Transport and Linkage System

Customers also have the option of connecting the system to a fully automatic Jonas & Redmann transport and linking system.

**MES Connection** - The system can be fitted with an optional MES connection. All specified process parameters and measurement results are collected and linked to the relevant wafer ID. Information is transmitted to the production control system (material execution system, MES) using a specified interface.

TECHNICAL DATA	
throughput	up to > 4000 wafers/hr
uptime	> 97 %
breakage	< 0,1 %
wafer size	125 / 156
wafer thickness	130-240 µm
wafer input	automation carrier, magazine, box
wafer output	automation carrier, magazine, box

OPTIONS	
single-end design	<input type="checkbox"/>
double-end design	<input type="checkbox"/>
inspection system for colour and layer thickness	<input type="checkbox"/>
MES connection	<input type="checkbox"/>
connection to fully automated transport and linkage system	<input type="checkbox"/>
graphite-tray cleaning device	<input type="checkbox"/>