

WT3600-Series

Automated Wafer Transfer and Buffer Station



Automated Wafer Transfer and Buffer Station for Photovoltaic Silicon Wafers



Extensive automation systems are essential for the economic production of solar cells and the necessary reduction of costs.

SINGULUS offers fully automated wafer transfer and buffer stations for silicon wafers based photovoltaic production lines. The modular concept (versatile basic platform) allows connecting different types of production lines from different vendors.

The system is able to cover batch and inline job floor concepts to optimize throughput. Multiple parallel incoming conveyors are possible. Clocked and continuous substrate flow is supported.

A handling unit for transferring the wafers is built in the WT3600-Series. Integrated breakage detection systems and camera based positioning systems guarantee the correct wafer transfer and positioning. Buffer stations consisting of rotation tables are storing the wafers in a customer specified carrier system.

The WT3600-Series can be configured as an input station with buffer, as an output station with buffer or as a transfer station with buffer.

The input station picks up wafers from the integrated buffer and moves the wafers to the following system. The output station receives wafers

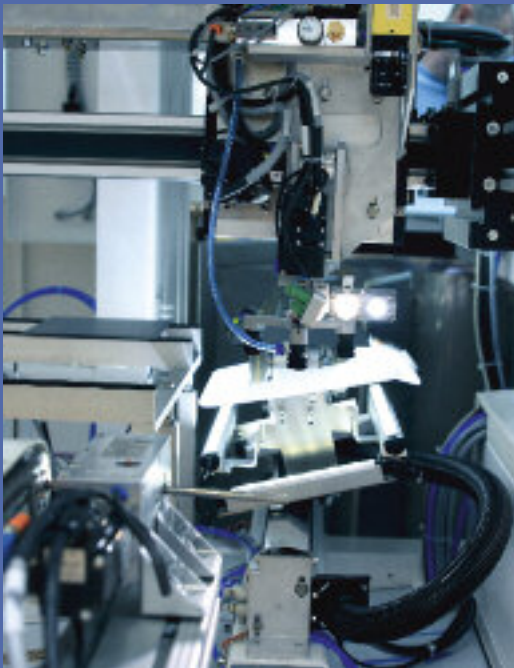
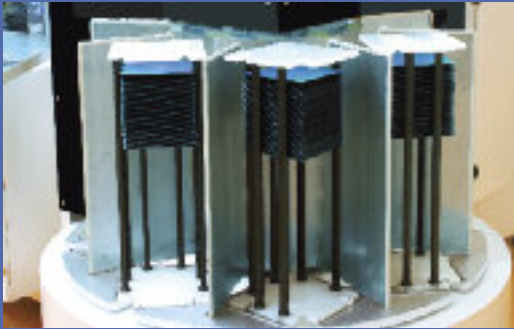
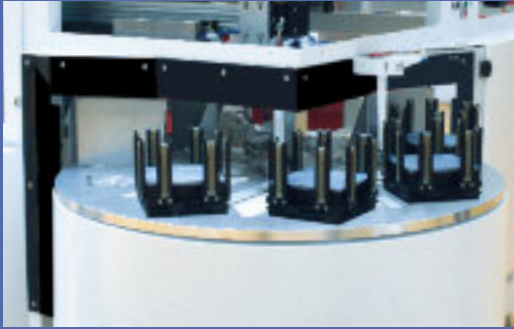
from the output conveyor of the previous system and stores them into the integrated buffer. The transfer station takes wafers from the conveyors of the previous system and transfers them to the conveyors of the following system. Multiple parallel conveyors from the previous or following system can be served. The integrated breakage detection system and the camera based positioning system guarantees the correct wafer movement.

Features

- _ Versatile basic platform, easily adaptable to the required function
- _ Fully automated wafer transfer from previous to following system
- _ Integrated buffers with customer specified carriers
- _ Multiple parallel conveyors are served
- _ Clocked and continuous substrate flow is supported
- _ Wafer can be taken out or fed in from stack or cassette
- _ Vision system for position detection, exact positioning and breakage detection
- _ Cost-conscious: systems are optimized and reduce to the core-requirements
- _ Transfer capability: up to 3,600 wafer /hour

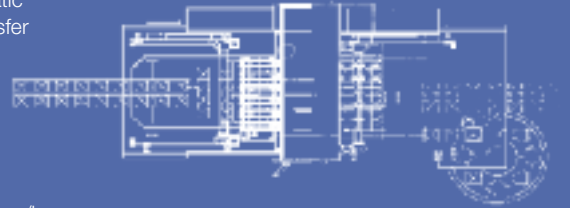
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Batch & Inline



Example Batch to Inline 1

- _ Manual loading with automatic position correction and transfer into following system
- _ Automatic transfer of previous system to following conveyors or buffering into ACI cassette or stacker boxes
- _ Transfer capacity 1,500 wafers/hour
- _ Wet bench final clean



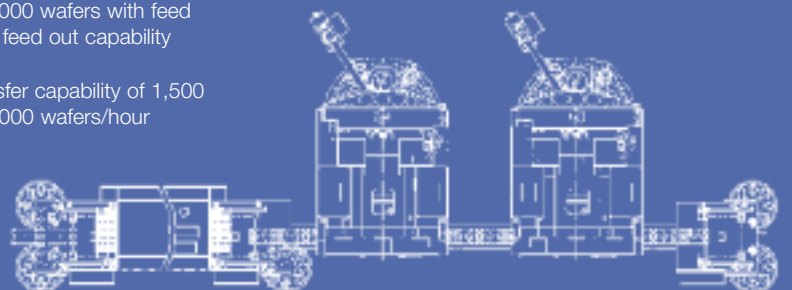
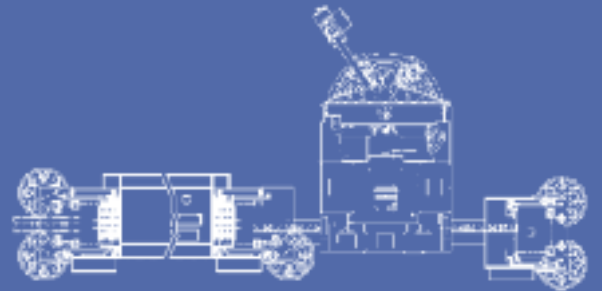
Example Batch to Inline 2

- _ Automatic transfer from ACI cassettes into wet isotexture or PSG
- _ Automatic transfer of wet isotexture or PSG into ACI cassette or stacker boxes
- _ Automatic transfer from or to previous or following system
- _ Transfer capacity 3,000 wafers/hour



Example Inline to Inline

- _ Automatic transfer from PSG into PECVD tool
- _ Unloading from clocked or continuous parallel conveyors with direct transfer to PECVD tool
- _ Intermediate storage capacity by cassette 500 to 1,000 wafers with feed in or feed out capability
- _ Transfer capability of 1,500 or 3,000 wafers/hour



Example Inline to multiple Inline

- _ Automatic transfer between multiple inline systems
- _ Transfer from clocked or continuous parallel conveyors to multiple parallel or single conveyors
- _ Optionally intermediate storage with feed in or feed out capability can be easily retrofit
- _ Transfer capability up to 3,600 wafers/hour





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