

Thin Wafers Transfer System

Flexible Ultra thin wafers handling

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SPM developed a new system for flexible thin wafer transfer from 4 positions baskets to quartz carrier.

Handling flexible thin wafers is very hard for operators and require long time to load quartz carriers.

The system can perform the loading of wafers into quartz carrier catching them from basket and vice versa.

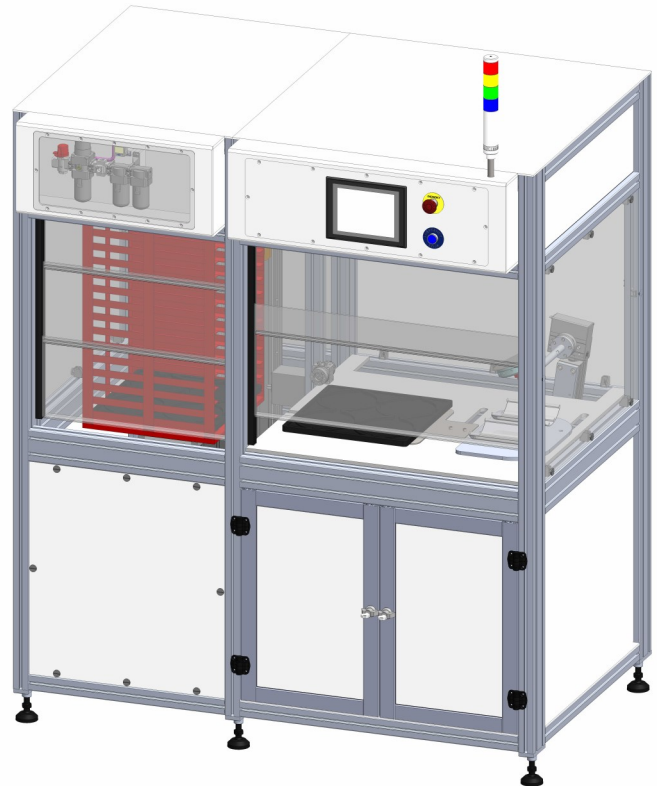
With our solution the needed time to load-unload 25 wafers is **less than 5 minutes**.

The **repeatability of the process** allow the *elimination of any wafer scratch and quartz carrier damage*, that are typical with manual operations.

The system can be configured in three versions:

- STANDARD (MANUAL BASKET AND CARRIER LOADING)
- MULTIPLE BASKETS MANAGEMENT (MANUAL CARRIER LOADING)
- FULL AUTO: MULTIPLE BASKETS + MULTIPLE CARRIERS MANAGEMENT

DELIVERY TIME: 3 working weeks.



The system is totally closed in a protected environment for safety and equipped with ionized air control to avoid electric charges formation.

All quotes are configurable from the touch screen, so the system is able to manage **different size wafers, baskets and carriers**.

The equipment is ruled by an OMRON PLC completed with high performance electric actuators.

There is a *8" touch screen* to control the equipment

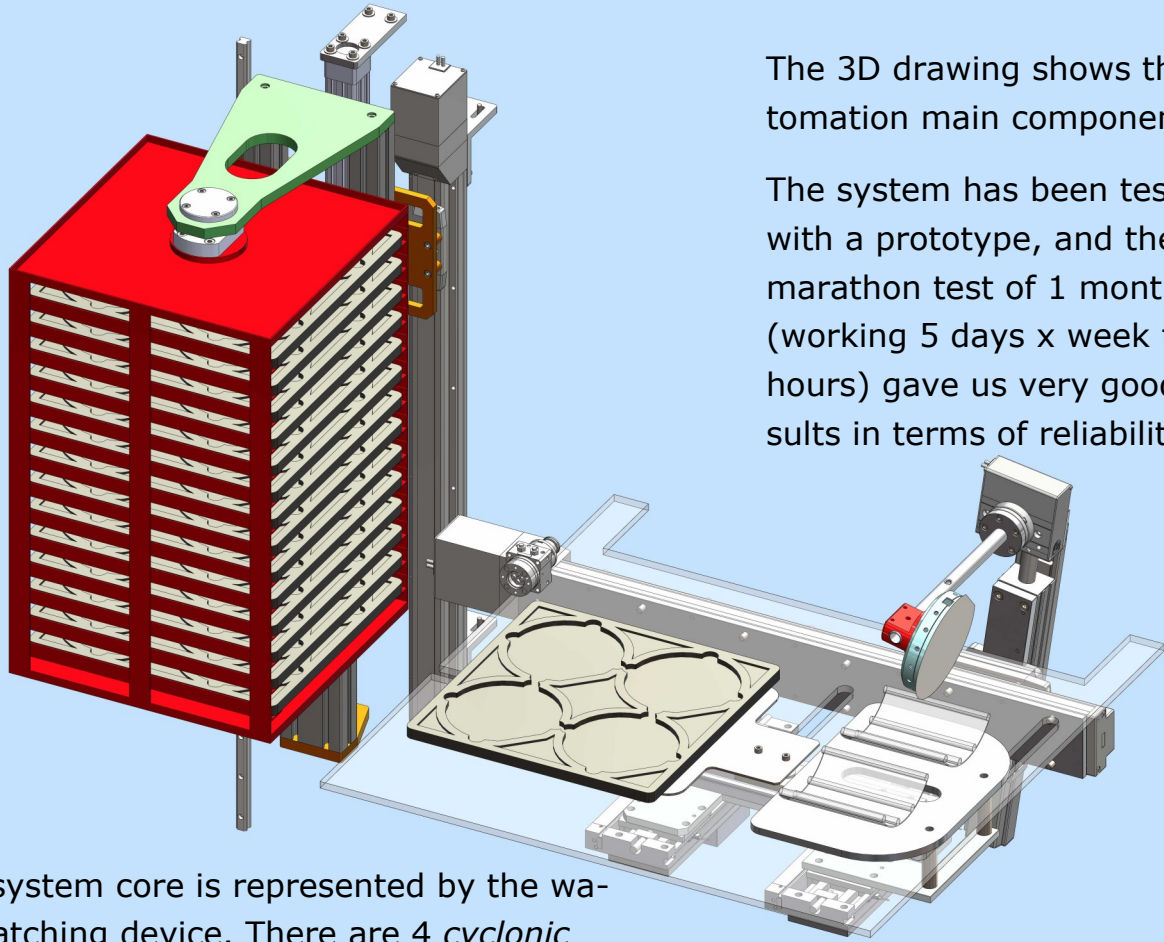
Front-end PROCESSING

10 February 2016



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AUTOMATION



The 3D drawing shows the automation main components.

The system has been tested with a prototype, and the marathon test of 1 month (working 5 days x week for 8 hours) gave us very good results in terms of reliability.

The system core is represented by the wafer catching device. There are 4 *cyclonic pads* installed on a high purity PTFE plate. Flexible thin wafers are so **transferred without contact**. An air cushion is created between the wafer and the PTFE plate. That permits to hold firmly the wafer and at the same time warrant **no scratch, marks or bending**, since there isn't the real contact of the wafer.

Precision of movement is warranted thanks to electrical actuator ruled by specific driver that communicate each other in a *Ethernet IP network*.

The PLC has the real-time complete control of the actuator position, speed, acceleration and deceleration.

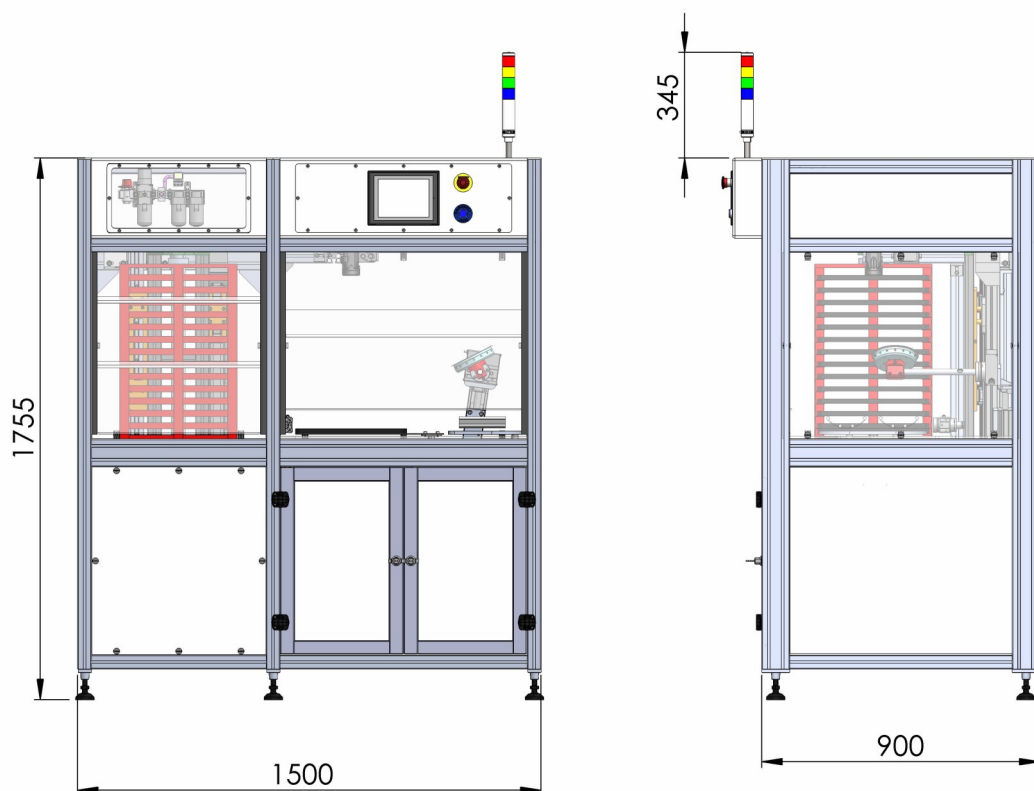
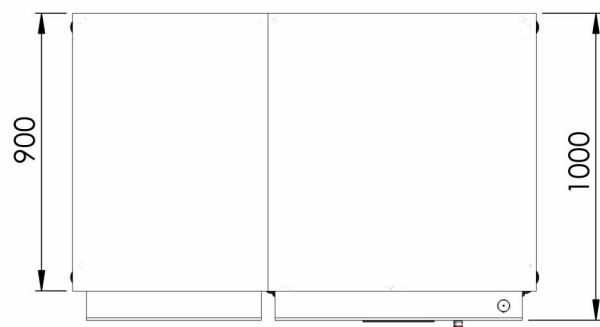
High precision optical fiber detects automatically the carrier first slot and actuators quotas are automatically changed accordingly.

Multiple Baskets Management system includes automatic the loading/unloading of baskets to allow the full carrier(s) load-unload *without operators intervention*.

Multiple Carriers Management option include a automatic table for carriers working position relocation.



Wafers Transfer System



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