

NoTouch™ Transfer Station

a flexible integration component

Tru-Si's NoTouch™ Transfer Station enables the automatic loading and unloading of wafers in and out of cassettes and wafer stacking pods. The fully integrated NoTouch™ robotic end effector permits automatic handling of flexible ultra thin to rigid full thickness wafers without physical contact. Silicon, GaAs, InP, and other similar material can all be handled within the same unit. Even extremely uneven surfaces, such as bumped or dirty wafers, are no problem for Tru-Si's NoTouch™ Transfer Station.

Full flexibility is built into the Transfer Station to enable loading/unloading of either cassettes or wafer stacking pods from multiple vendors without requiring any hardware changes. Automatic sensor detection of wafers in a cassette, cross slotted wafers, wafers in a pod, separators in a pod, and foam in a pod are all incorporated into the design.

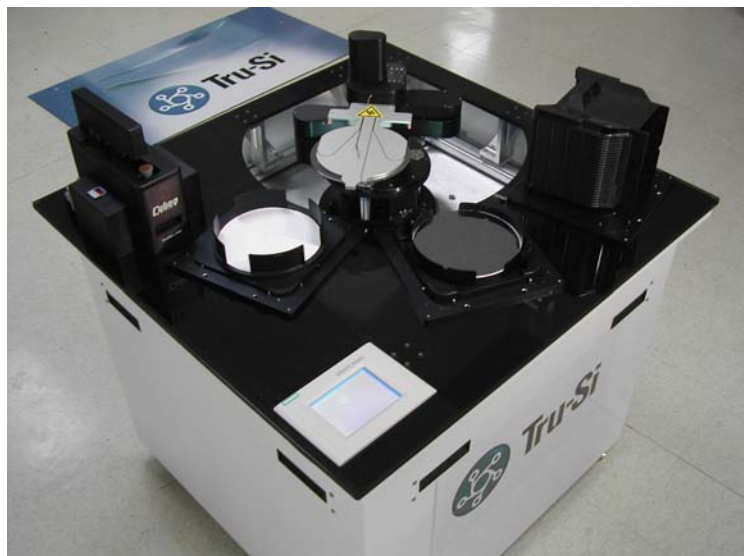
The Transfer Station is configured with an input position, an output position, and a pod for storage of separators. Wafers can optionally be aligned as they are moved from the input station to the output station. An easy to use operator interface terminal (OIT) is utilized to receive commands and to display station status.

Wafers are levitated on the Transfer Station's NoTouch™ end effector using multiple gas vortices to provide an evenly distributed lifting force that picks up and holds the wafer flat. Each of the gas vortices produces a mini tornado that creates a low pressure above the wafer. But since air is being blown out of the vortices, the wafer is suspended in equilibrium between the blowing air and the low pressure lifting force.

Front side protection of devices or bumps is unnecessary since no physical contact is made between the wafer and NoTouch™ end effector. Even wet or dirty wafers can be handled with ease.

Holding gas can be compressed air (CDA), dry nitrogen, or any other inert gas. If the gas is from a compressed source, wafers will be held in place during a power loss.

Tru-Si's NoTouch™ Transfer Stations are available in 100mm, 125mm, 150mm, 200mm and 300 mm sizes. Size change kits are available to give even more flexibility to the Transfer Station. Time required for an operator to change station size is less than one minute.



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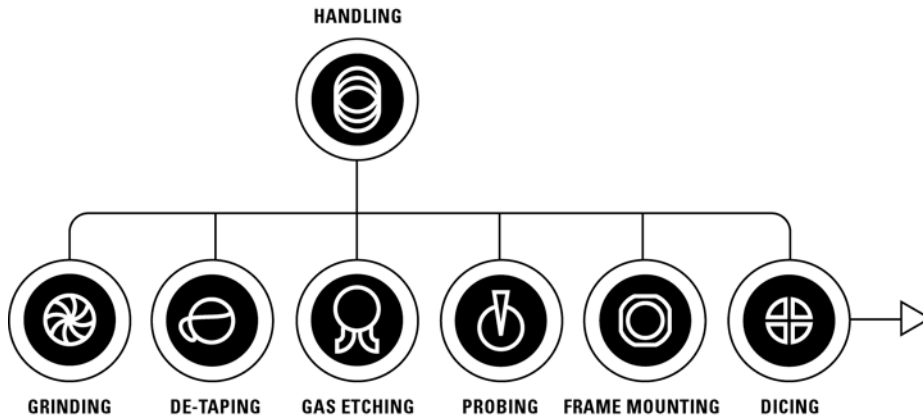
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Specifications

Size: L 40 in. (1 m) X D 40 in. (1 m) X H 40 in. (1 m)
Weight: 500 Pounds (230 kg)
Throughput: Up to 180 WPH
Gas Flow: 3.5 CFM (100 LPM)
Pressure: 80 PSI
Power: 120VAC, 50/60 Hz, 5A

Tru-Si's NoTouch™ Transfer Station Advantages

- Uses NoTouch™ (non contact) end effecor
 - Handles ultra thin to full thickness wafers
- Handles Silicon, GaAs, InP, and other materials
 - Bumped or dirty wafers are no problem
- Universally works with cassettes and wafer stacking pods
 - Sensors for wafer, separator, and foam detection
 - Creates minimum stress to fragile wafers
 - Front side protection is not required
- Less than one minute wafer diameter size changes
 - Easy to use operator interface terminal (OIT)



Tru-Si's flexible integration scheme allows customers to handle ultra thin wafers in and out of Tru-Si's etching equipment in addition to tools for other process steps in the ultra thin wafer processing flow such as grinding, detaping and film frame mounting.

Tru-Si's NoTouch™ robot end effectors and hand held wands, along with wafer stacking pods available from multiple vendors make flexible integration of advanced wafer thinning operations possible.

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