Thin Wafer Handling Products

- Wafer Cassettes
- 300mm FOUP Inserts
- Wafer Presenters and Flippers
- Wafer Transfers and Movers
- Wafer Aligners
- Mechanical Handling
- Vacuum Handling
- Breeze™ Handling
Thin Wafer Cassettes

- Plastic Cassettes
- Metal Cassettes
- Ultra-Thin Handling Cassettes
Antistatic Injection Molded

Bi-Pitch 13-slot thin wafer all plastic cassettes
Available in 200mm and 150mm
Advanced COC Cyclic Olefin plastic resists sharp edge cutting abrasion
Antistatic
Extended shelf allows thin wafers to sit flat
Designed for wafer 180μ-350μ
Available with and without a handle
PC Series – Custom PTFE Cassettes

Bi-Pitch, customized slot angle and/or extended-shelf Teflon® plastic cassettes
Available for all wafer sizes where industry standard PFA cassettes are problematic
Designed and manufactured to optimize cleaning and wet etching applications and reduce wafer breakage
Minimum quantity order is only 5 units per order
Stainless Steel Thin Wafer Cassettes

Custom bi-pitch thin wafer high temperature process cassettes
All welded electro-polished SST design to minimize expansion/contraction at high process temperatures
Extended shelf design handles thin warped wafers

SSC200-008
Bi-Pitch Metal Cassettes

Bi-Pitch, 12 or 13 slot versions of H-Square’s standard metal cassettes
Provides more space between thin wafers handling
Available thin wafer or bonded wafer adaptations for most standard H-Square designs
Wafer sizes 50mm – 450mm
Extended Shelf Metal Cassettes

Custom machined Bi-Pitch, 13 slot 300mm all-welded aluminum thin wafer bake cassette, 350° compatible Extended shelf to support thin wafers
Center Support Metal Cassettes

Custom machined aluminum thin wafer bake cassette with center wafer support, 350° compatible Extended shelf and center support for thin wafers
Ultra Thin Wafer Cassettes

Custom engineered thin wafer cassettes
Extended stainless steel wire shelf design customized for each handling requirement and automation group
Electro-polished SST, PEEK or Teflon coatings available

MCF8-005
Thin Wafer 300mm FOUP Inserts

- Thin Wafer Inserts
- Entegris A300
- Shin- Etsu EX300
Entegris A300 Thin Wafer Insert

Customized bi-pitch thin wafer kit
Replaces existing shelf-slots with all welded electro-polished SST design insert
Antistatic and light weight
Extended shelf and center support design handles thin warped wafers
Allows for easy cleaning without removal from the FOUP
Teflon® and PEEK coatings available

MISC1700-006
Shin-Etsu EX300 Thin Wafer Insert

Customized bi-pitch thin wafer kit
Inserts into existing FOUP without modification – extending slot design
All welded electro-polished SST design insert with Teflon® coating
Antistatic and light weight
Allows for easy cleaning without removal from the FOUP
Teflon and PEEK coatings available
Thin Wafer Presenters & Flippers

Wafer Escalators

Wafer Presenters

Wafer Flipper
Wafer Escalators – Thin Wafer

Automatic aligner / escalator for reading wafer laser scribes
Customized for handling thin wafers 220µ - 350µ
Antistatic construction
EZ Guide aligner +/- 1° accuracy
Available with LED light bank for improving operator laser scribe reading
Thin Wafer Presenter with Rotation

Automatic wafer presenter with rotation for macro inspection, wafer sampling or wafer inverting (flipping $180^\circ$) of wafers in a cassette
Customized PEEK lift blade for handling non-warped thin wafers
250µ - 450µ range
Antistatic construction
Space-saving drop in table design
100mm, 150mm and 200mm models
300mm Wafer Flipper/Presenter

Table-top 300mm automatic wafer flipper for thin or standard wafers
Non-contact Bernoulli end effector gently handles and inverts wafers within a FOUP without wafer contact
Secondary program allows for macro bright-light inspection of wafer from side viewing window
Antistatic construction
Pull-out touch screen display interface with simple program run cycles

AWF12
Thin Wafer Transfers & Mover

- Low Contact Bulk Transfer
- Horizontal Transfer
- Wafer Mover
300mm Low Contact Wafer Transfer

Table-top 300mm automatic bulk wafer transfer system down to 125µ thickness. Kynar® PVDF coated rods gently lift thin or standard wafers and transfer from the FOUP to a FOSB, or a metal cassette. Integrated mapping and wafer/cassette presence sensors ensure safe transfer. Antistatic construction. Simple one button 30-second run cycle. Custom thin wafer programming in either 25 slot or 13 slot (bi-pitch) transfer applications.

LCT1AS12
Low Contact Wafer Transfer

Small table-top 100mm, 150mm or 200mm automatic bulk wafer transfer system

Kynar® PVDF coated rods gently transfer lifts thin, fragile or standard wafers for transfers into an alternative cassette without abrasion or cassette “cutting” from thin wafers.

Cassette and wafer presence sensors ensure safe transfer

Antistatic construction

Simple one button 20-second run cycle

Custom thin wafer programming in either 25 slot or 13 slot (bi-pitch) transfer applications

Cassette flipping (180° cassette inversion) units available.
Horizontal Thin Wafer Transfer

Modified version of the standard WT series transfer with custom thin wafer transfer arm
Designed for transfer of wafers from 250µ - 725µ
Custom transfer arm helps to reduce cassette side wall cutting common with alternative thin wafer slide transfers
Special stage modifications help to align wafer cassettes to better handle thin wafers
Antistatic construction
Economical solution
**Wafer Mover™ Single Wafer Transfer**

- Economical AWM – Automatic Wafer Mover provides for safe, worry free, single wafer handling between two industry standard cassettes.
- The unique mapping gravity vacuum-less end-effector detects and safely moves a wafer.
- Integrated wafer presence sensors, wafer protrusion sensors, cassette in place sensors, cross-slot detection, double stack detection, emergency EMO, light tower and mapping logic software insure wafer safety.
- Thin wafer compatible.
Thin Wafer Aligners

Automatic 16 position Aligner

Manual Aligner
Thin Wafer Aligner

Three Roller Design
Automatic Thin Wafer Aligner

For alignment of wafers < 350µ
Unique three roller design lifts wafers up off of the cassette wall. Greatly reducing abrasion and edge chipping.
Slotted secondary ESD safe PVDF rollers are consumables.
New thin wafer H-Square main drive roller can withstand the cutting of thin wafers even better than existing PRA8 results.
Antistatic construction.

ANFEZQ8AC-013
Manual Thin Wafer Aligner

Manual
Wafer is lifted off of cassette wall during loading of cassette on to tool. Aligner roller guides keep wafer edges safe
Minimizes or eliminates cassette wall abrasion during alignment
Mechanical Wafer Picks

- Thin Wafer 3 Point Pick
- Thin Wafer MCP Pick
- Taiko Edge Handling
3 Point Mechanical Wafer Pick

ODP series mechanical wafer pick for single wafer process handling or wafer rescue
Thin wafer compatible
Wafer is supported with three gripper design
Gripper tension is adjustable to minimize or eliminates stress on the wafer edge
PEEK, Teflon or polypropylene gripper materials available

ODP-6-009
ODP-3-004
Edge Grip Mechanical Wafer Pick

MCP series mechanical wafer edge pick for handling single wafers for process or wafer rescue
Thin wafer compatible versions available with backside support
Wafer edge exclusion contact, material and spring tension is adjusted for a specific wafer attributes
PEEK, Teflon or polypropylene gripper materials available
Front-side contact is Kalrez™
Taiko Mechanical Wafer Pick

MCP mechanical wafer edge pick for handling Taiko wafers within the 3mm-4mm edge exclusion area
Antistatic PEEK grippers
Front-side contact is Kalrez™
Vacuum Handling

- Thin Wafer Vacuum Tips
- Hoop Thin Wafer Vacuum Wand
- Portable Freedom Wands
- Taiko Vacuum Wands
H-Square offers a complete line of vacuum wand tips for handling thin wafers

Thin wafer pocket tips designed to replace H-Square standard thickness tips

ESD safe PEEK material construction or high temperature Vespel materials
Thin Wafer Vacuum Wands

MISC1400 series thin wafer “hoop” vacuum wands
Available designs for 100mm, 150mm, 200mm and 300mm thin wafers
ESD safe
Allows for safe handling of wafers as thin as 65µ
PFA Teflon® sealed aluminum construction
Designed for applications including wafer back grind and wafer pack-out shipping
300mm Thin Wafer Vacuum Wands

Backside support fork style vacuum wand end effector
Allows for safe handling of wafers as thin as 100µ
PFA Teflon® sealed aluminum construction
Designed for applications where ultra thin 300mm wafers need to be handled from stage to stage

NO3T3-002
Freedom Wand™ series portable vacuum wand handling tools for use in a Class 1 cleanroom environment
Available designs compatible for all size wafer handling 100mm, 150mm, 200mm and 300mm thin wafers
Antistatic construction
Compatible with most H-Square thin wafer vacuum handling tips.
Taiko Thin Wafer Vacuum Wands

Vacuum handling tool for Taiko wafers
Contact from the peripheral edge of the 200mm wafer – contacting 2.5mm-3mm from edge

MISC1400-009
Breeze™ Handling System

- Horizontal Offset
- Horizontal
- Perpendicular
- Panel Handling
Breeze™ Wafer Handling

- 50mm, 75mm, 100mm, 150mm, 200mm and 300mm sizes available.
- Uses a nitrogen or CDA facilities supply line to operate the pressure differential end-effector.
- System provides for contactless wafer handling from either the front or back of the wafer.
- Ideal for handling thin wafers below 200µ in thickness.
- ESD-protection insured by static dissipative and conductive plastics.
- Can be custom designed for horizontal, vertical or horizontal offset handling applications.
Breeze™ Thin Wafer Handling

Horizontal offset handle version for loading to/from a wafer pack-out shipping container

For non-contact handling of wafers from 50µ - 1200µ

Antistatic
Breeze™ Thin Wafer Handling

Horizontal handle version for handling thin wafers to/from wafer cassettes and in some designs, shipping containers
For non-contact handling of wafers from 50µ-1200µ
Antistatic construction
CDA or Nitrogen house supply required
Breeze™ Thin Wafer Handling

Perpendicular handle version for handling wafers to/from a platen or stage
For non-contact handling of wafers from 50µ-1200µ
Antistatic construction
Breeze™ Thin Panel Handling

Perpendicular handle version for handling FPD – flat panel displays to/from a platen or stage
For non-contact handling of panels from 0.3mm-1.3mm
Antistatic construction
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Summary

H-Square & SPS have over 38 years of wafer handling experience between us.

Our wafer handling products are used in almost every front-end wafer fab worldwide, and increasing in back-end fabs needing thin wafer solutions.

Worldwide sales & service support to help engineer the correct wafer handling product and support the customer for the long term.

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