S4V-W3600 SERIES

High Speed and Flexible Solar Wafer Sorter

TTVISION™
Tomorrow's Technology Today

TTVISION' S4V Series Solar Wafer Sorter, is a complete standalone solution to inspect and sort solar wafers into user-assigned binning category. Stacked wafers are loaded on conveyor and subsequently inspected concurrently both by multiple front and rear on-the-fly with high resolution line-scan and area-scan camera. Inspected wafers are then sorted into stack box or TTV bin according to the assigned category.

S4V Series is an integration result of TTVISION' LDS, FRV, MCV, 3DV, LRT and ULS Modules through our modular concept design. It is designed for future expansion of options and modules to maximize flexibility.

INSPECTION AREA

- Geometry analysis
- Surface defects analysis
- Texture homogeneity analysis
- Edge analysis
- Bow and warp analysis
- Lifetime and resistivity analysis
- Thickness and TTV analysis

OPTIONS

- Dock-on slave module for bin and capacity expansion
- PROFIBUS or SECS/GEM interface

PATENT PENDING

Features

High speed solution with low breakage rate

Thin solar wafer handling capability

Gentle air-assisted cell separation from stacked cell

High loading capacity belted wafer magazine and elevated cassette

Line scan and area on-the-fly inspection

Concurrent front and rear inspection

Unique lighting design enables superior image uniformity

Scalable sorted wafer capacity

Scalable number of sort bins

Sort to stack or TTV Bin

Touch screen panel for displaying of bin assignment and its status (programmable remotely through master controller)

Machine GUI with SEMI E95-1101 Compliant

Mono-Crystalline and Poly-Crystalline wafer

125×125 mm and 156×156 mm wafer format

Bernoulli pick up and air-assisted stack wafer separation	Concurrent multiple line and area scan image acquisition	Parallel processing and high resolution inspection algorithm
High **Flexibility** in product configuration	Vertical sorting bin for greater **Space Saving**	**Modular Concept**

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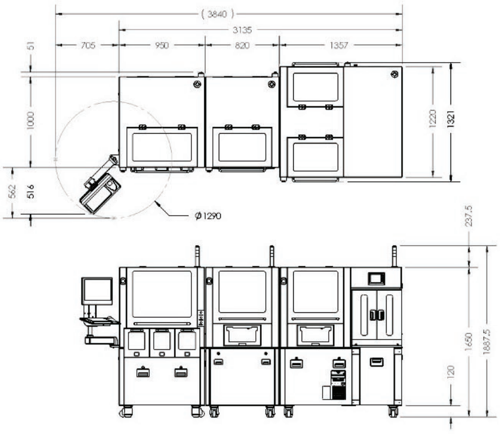
SYSTEM SPECIFICATION



Machine Performance »»

Throughput	Up to 3,600 wafers/hour
Breakage Rate	< 0.1%
Loading Capacity	2,400 (coin stack)
Tower	4 scalable/expandable through dock-on slave module up to max. 20
Bin Tower	4 bins tower for TTV Bin (Large) 8 bins tower for TTV Bin (Small)
Wafer Capacity	TTV Bin (Large) 300 TTV Bin (Small) 135 * Based on 180 µm wafer thickness

Inspection Criteria »»

- Wafer Geometry (Width, Diagonal Length, Corner Distance, Chamfer Distance and Angle, Rectangularity, Broken Wafer)
- Stain / Contamination, Scratches, Finger Print, Crack, Saw Mark, Texture, Homogeneity and Density
- V-shaped Intrusion and Chipping
- Penetrating and Non-Penetrating Cracks, Pinhole and Inclusion
- Bow, Warp, Flatness, TTV and Thickness
- Lifetime and Resistivity

Imaging Technology »»

Camera	Color line scan of 4K pixel resolution, area scan of 16MB pixel resolution
Accuracy	0.042mm/pixel @ FOV of 170mm
Lens	Ultra low distortion lens

Material Handling »»

Wafer Type	Mono & Poly
Wafer Size	125mm & 156mm
Wafer Warpage	< 5 mm
Wafer Thickness	> 150 µm

Dimension & Setup »»

Power	110/230 VAC, Single Phase 50/60Hz
Dimension	3840mm x 1321mm x 1888mm

TTVISION TECHNOLOGIES SDN BHD (546854-K)

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