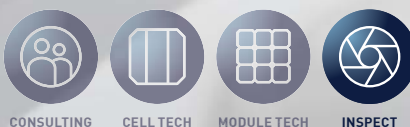


GP WIS / WAFER INSPECTION SYSTEM

STAND-ALONE WAFER INSPECTION SYSTEM



SITUATION

Solar cell production industry is demanding high-throughput and increasing efficiency. To ensure a high quality level of the end product, each wafer has to be tested to fulfill the requirements for the production. Not only should poor wafers be sorted out, but good wafers should be classified in different classes, and the following processes can then be specially adapted to the requirements of each single wafer.

The GP WIS is a versatile tool that covers all necessary measurement applications, ranging from geometry and thickness/resistivity measurements to saw mark detection and mechanical strength testing, provides sorting algorithms and recipes suited for all applications, and offers statistical data evaluation.

DESCRIPTION

The GP WIS is a comprehensive stand-alone Wafer Inspection System with built-in wafer tracking and a central control unit for central recipe management, data collection and evaluation. The integration of the measurement systems allows for highest precision of the measurement and easy maintenance.

The GP WIS is combined modular from standard modules: a magazine sorter for sorting in stacking magazines, a box sorter for sorting in plastic boxes, and testing units with space for up to three measurement tools. The magazine sorter can also be used as an unstacker or wafer buffer when connected directly to a loader/unloader. Special magazine sorting modules for loading directly into automation carriers instead of stacking magazines

are available upon request. The standard configuration consists of an unstacker, one measurement module equipped with geometry and thickness/resistivity measurement, a box sorter, and a magazine sorter.

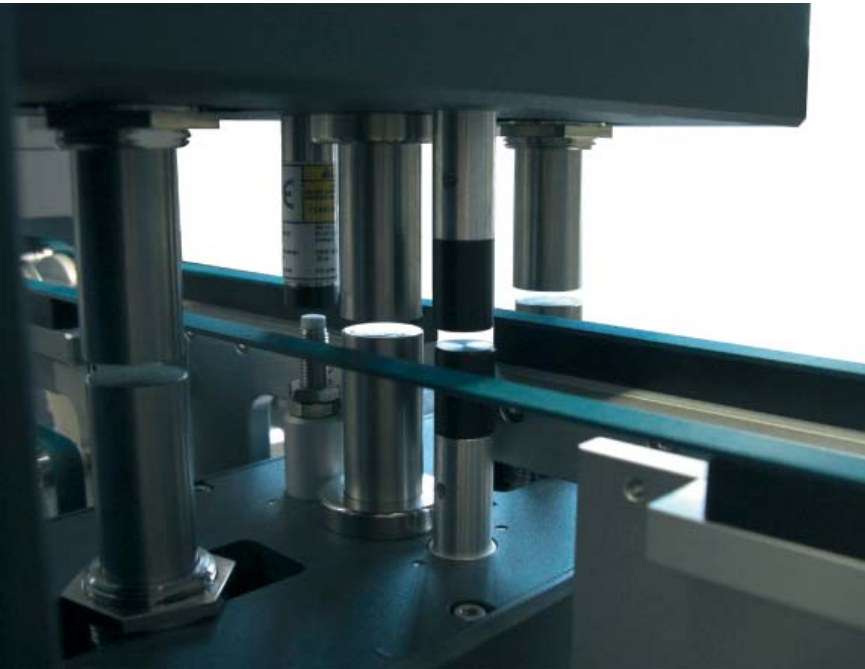
The GP WIS application is focused on wafer testing and sorting. Therefore, each measurement tool has its specially designed place inside the measurement module, which ensures best integration, highest speed, best measurements, and easy access for maintenance. Where possible the measurement tools are integrated in a way to measure "on-the-fly" to derive as many data as possible while keeping the throughput of the machine as high as 3000 wafers/hr and more. The measurement tools available for integration cover the whole range of tools needed for photovoltaic wafer testing:

- › 2D vision system for geometry, contour and contamination (surface quality) checking (included in the standard system)
- › Thickness/resistivity/pn tester, also capable of calculating total thickness variation (TTV), bow/warp (included in the standard system)
- › Optical microcrack detection (non-penetrating cracks inside wafers with μm dimensions)
- › Optical saw mark detection
- › Carrier lifetime measurement
- › Mechanical stability testing

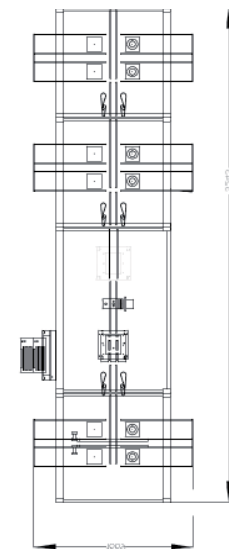


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INSPECT



Thickness and resistivity measurement with GP WIS



Footprint of the standard WIS configuration

TOPIC	DESCRIPTION
Standard System (unit configuration)	System consists of <ul style="list-style-type: none"> › Unstacker (4 stacks) for unstacking from magazines › Testing unit including <ul style="list-style-type: none"> · Optical geometry, contour and surface control · Contactless thickness and resistivity measurement › 4-Bin box sorter › 4-Bin magazine sorter › Centralized control system (WIS-MES)
Wafer Size	125x125 mm ² , 156x156 mm ²
Wafer Format	Square / pseudosquare
Wafer Thickness	150 µm – 400 µm
Wafer Bow	< 500 µm
Throughput (gross)	3.000 wafers/hour
Cycling time	1.2 sec
Dimensions and Weight	5250 mm x 1670 mm, Height 2785 mm, Weight ~ 5.5 t
Power Supply	400 V, 32 A (internal UPS included)
Pressurized Air	Max. 2800 l/min @ 6bar (internal air filter system included)
Optional Measurement systems	<ul style="list-style-type: none"> › Optical microcrack detection › Lifetime measurement (needs second test unit) › Optical Saw Mark detection (needs second test unit) › Mechanical stability test (needs second test unit)
Second Testing unit	1770 mm x 1670 mm, Height 2785 mm, Weight ~ 2.0 t
Additional sorter/unstacker modules	A total of 3 unstackers and 4 sorters (box or magazine) can be connected
Additional Magazine sorter (also used as unstacker)	1160 mm x 1670 mm, Height 2361 mm, Weight ~ 1.25 t
Additional Box sorter	1160 mm x 1670 mm, Height 2361 mm, Weight ~ 1.0 t

Note: some of the mentioned features are optional. Technical details subject to change without prior notice. Only technical specifications in quotations and duty books are binding.

GP Solar GmbH Phone + 49.7531.282 484-0
 Turmstrasse 22 Fax + 49.7531.282 484-10
 78467 Konstanz info@gpsolar.de
 Germany www.gpsolar.de