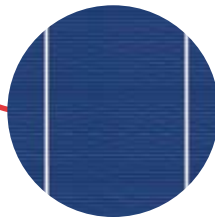


SOLAR SOLUTIONS



SOLAR SOLUTIONS



OPTTE
EXPERTS IN FACTORY AUTOMATION

Solar solutions

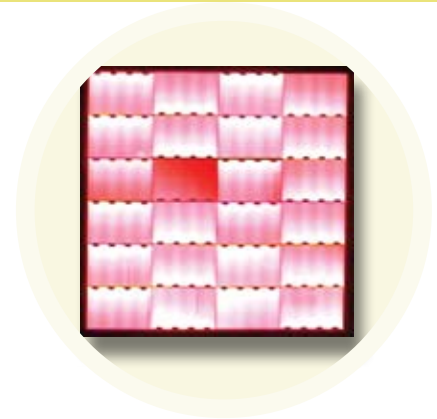
IPTE provides standard solutions for the manufacture of Crystalline Silicon solar wafers/cells/modules and full turnkey solutions for photovoltaic concentrator production with single lane throughputs capable of up to 3600 parts per hour.

Focusing on economical footprint and entry level cost, all the systems embrace the latest lean- and modular design concepts.



Concentrator PV Process

Concentrator PV Quality



- Wafer diode placement and soldering
- Void free vacuum soldering
- Dispense of void free translucent top layer
- Weather resistant perimeter seal
- Inline repair of shorts and bad connections
- Placement of low resistant connections

- Connection quality of wafer diodes
- Detection of voids and cell irregularities by means of electroluminescence
- High pot tests for detection of shorts and bad connections
- Measurement of overall module efficiency for grading
- 100% traceability of products



PV Wafer and Cell

Loading and Unloading



- Carrier or stack line loading/unloading solution
- Optimized footprint, ultra small design
- High throughput single lane
- Expandable stack/carrier changer for greater autonomy
- No throughput interruption with stack/carrier exchange
- IPTE or customised stacks or carriers

Marking



- In-line laser marking solution
- Small footprint
- High throughput single lane
- Optical wafer/cell positioning
- Ultra small DMC down to 1 x 1 mm
- Verification of DMC

Inspection



- In-line inspection solution
- Small footprint
- High throughput single lane
- Optical cell inspections such as Microcracks, SiN coating, print inspection, color uniformity
- Wafer inspections such as lifetime, emitter sheet resistance and resistivity/thickness

Test and Sort



- In- or offline test and sort solution
- Front or back cell contacting
- Sun simulator: Flash lamp, Measurement of I/V curves, Irradiance and temperature
- Easy classification for automatic sorting up to 24 classes, module Wp prediction
- Manual or automatic bin changer for highest autonomy



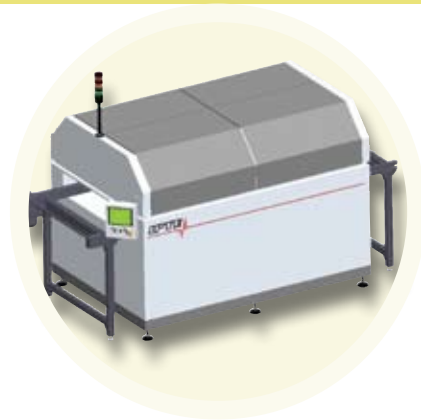
PV Modules

Handling



- Line loading
- Line unloading
- Flip units
- Turn units
- Buffers
- Conveying equipment
- All suited for transporting Photovoltaic products

Inspection



- In-line inspection solution
- Limited floor space
- Manual or automatic connection with solar module
- 2 Axes motion control system with 8 mega pixels EL camera
- Integrated electrical test

Test and Sort



- Horizontal (tunnel) or vertical (tower) set up
- High throughput time: single lane: 60mph up to 180mph
- Manual or auto connection with solar module
- Sun simulator (Flash lamp according IEC904)
- Irradiance and temperature corrections to IEC891
- Automatic good or bad sorting



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