

## Tabber and Stringer GTS18



Easily configurable Tabber and Stringer with state-of-the-art technology. Capacity of 60MW/year.

### Function

The main function of the Tabber and Stringer is to make cell strings, interconnection electrically the PV cells with ribbon by mean of contactless IR tech. Quality of both, cells and strings are checked during the process.

### Description

Mondragon Assembly's Tabber and Stringer is ergonomic, simple, and has a high production capacity.

Thanks to our knowledge and experience in technological processes and solar equipment, our team offers modular designs with advanced functions, low cost and high performance.

The Tabber and Stringer has four main remarkable elements: Cell quality control using artificial vision, advanced control of the IR soldering process, servo-drives and up to 5 bus bar ribbon power systems.

### Advantages

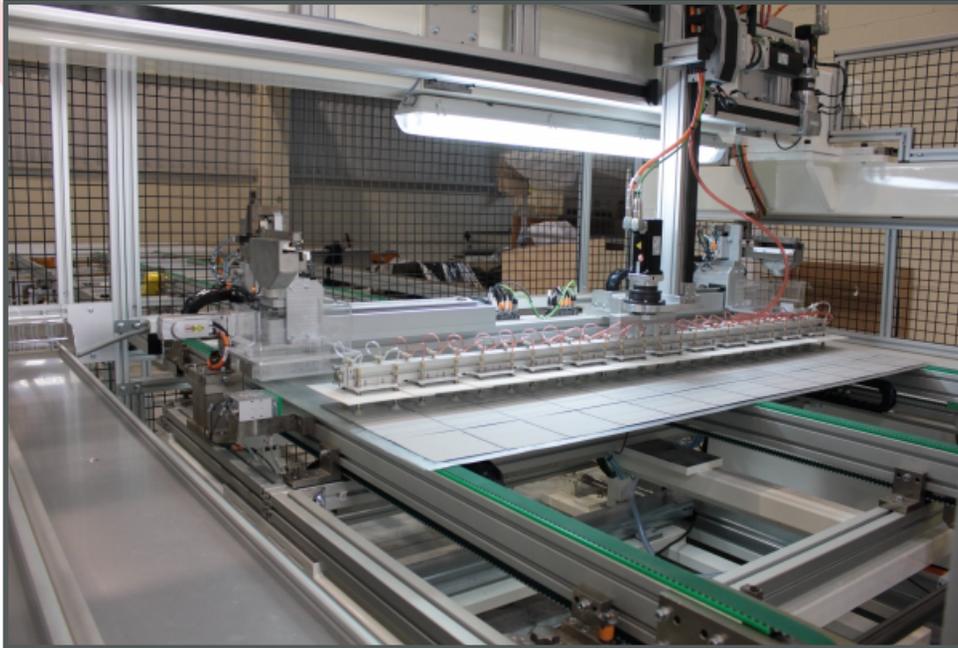
- Vision control systems to check the quality of the cells so that defective ones can be detected and rejected
- Control of cell temperature to ensure good soldering
- Time control for correct self-diagnostics
- Unlimited number of process formulas, where the same model or module can assume different process parameters, depending on the materials used
- Flexibility for processing different cell models or sizes with a very short change time. We work with cut cells. Up to  $1/2$  of 6" cells

### Main features

- Contactless IR soldering so that no stress is generated in the cell.
- Flux dispensing onto the bus bar without contact with the cell.
- Anti-camber systems to improve the ribbon's alignment.
- Artificial vision

Cell parameters	
Cell dimension range	156 x 156 and cut cells $\frac{1}{2}$
Cell thickness range	160 - 300 $\mu$ m
Cell geometry	All
Tabs	
Number of tabs per cell	2 - 3 - 4 - 5
Tabs spacing (2 tabs)	Tab spacing: 2BB: 78 or 75; 3BB: 52; 4BB: 39; 5BB: 31,2mm
Tab soldering process	Continuous
Strings	
Number of cells (125 x 125mm) per string	15
Number of cells (156 x 156mm) per string	12
Max. string length	1960mm
Distance between cells with string	2,5 - 160mm (longer on request)
Max. number of paralist strings in assembly unit	8
Max. module size (L x W)	2000 x 1100mm
Min. module size (L x W)	1400 x 600mm
Tabbing & Stringing	
Cell aligning	Vision System
Tabbing & stringing process	One step
Flux application method	Automatic, contactless
Soldering process	IR
Cell Transport System	
Tabbing & stringing	Conveyor
Loading&Unloading	
Max. number of cells per cassette (buffer)	200 cells (5 cassettes per buffer)
Cell loading	Robot Epson
String unloading	Layup on glass
Performance features	
Max./nominal throughput	1850/1800 cells/h
Average cell breakage ratio	<0,2 % (with certified cells)
Air&Power supply	
Compressed air pressure & flow	5 bar 1200 NI/min
Installed power	70 kW (3Ph, 380 - 420 V, 50 - 60 Hz)
Power consumption during heating	Variable
Power consumption	26 kWh
Dimensions	
Weight	4200kg
L x W x H	5,9 x 2 x 2,1m
System Control & Software	
Hardware	Omron PLC with touch panel
Software allowing remote diagnosis	Yes
Acquired data compatible with Access Excel	Yes

## Tabber and Stringer Layup



The layup manipulates and inspects the strings coming from the Tabber and Stringer using artificial vision and accurately positions them over the glass + EVA.

Mondragon Assembly's different layups adapt to the capacity of each Tabber and Stringer, from the compact machine with layup integrated into the customizable, to the GTS 18 with 6 axle robot, providing an extremely broad variety of options for our clients.

Layup Cartesian Robot	
Max. panel length	2000mm
Min. panel length	1400mm
Max. panel width	1100mm
Min. panel width	600mm
Máx. panel/h	40 (60 cells)
Camera pixel count	5 Mpx (only with string check camera option)
Reworked strings	2 positions
Máx. no - OK positions	3, programmable
Ends cut range	8 - 30 (only with cutting station option)

Layup Anthropomorphic Robot	
Max. panel length	2000mm
Min. panel length	1400mm
Max. panel width	1100mm
Min. panel width	600mm
Máx. panel/h	60 (60 cells)
Camera pixel count	5 Mpx (only with string check camera option)
Reworked strings	2 positions
Máx. no - OK positions	3, programmable
Ends cut range	8 - 30 (only with cutting station option)