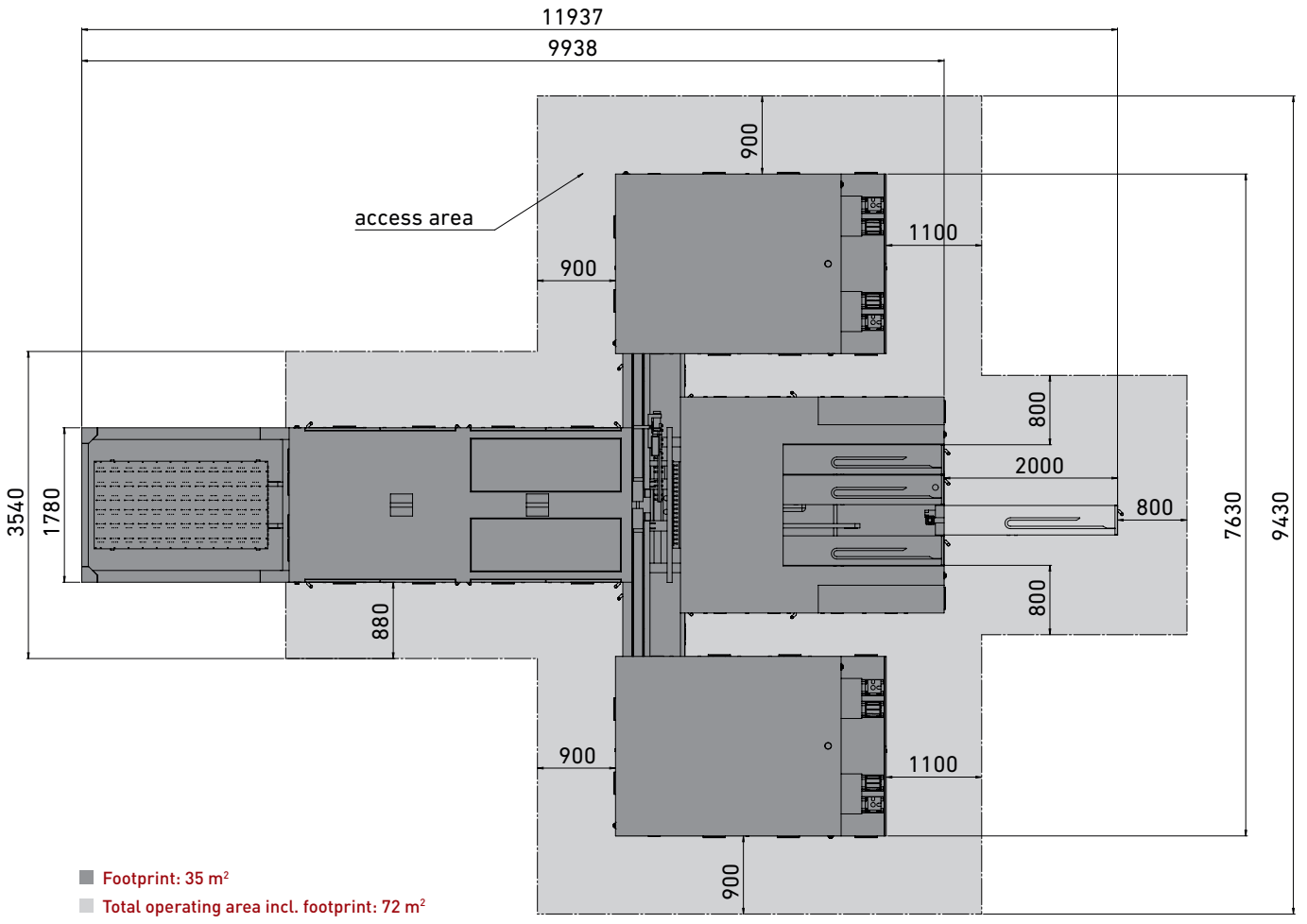
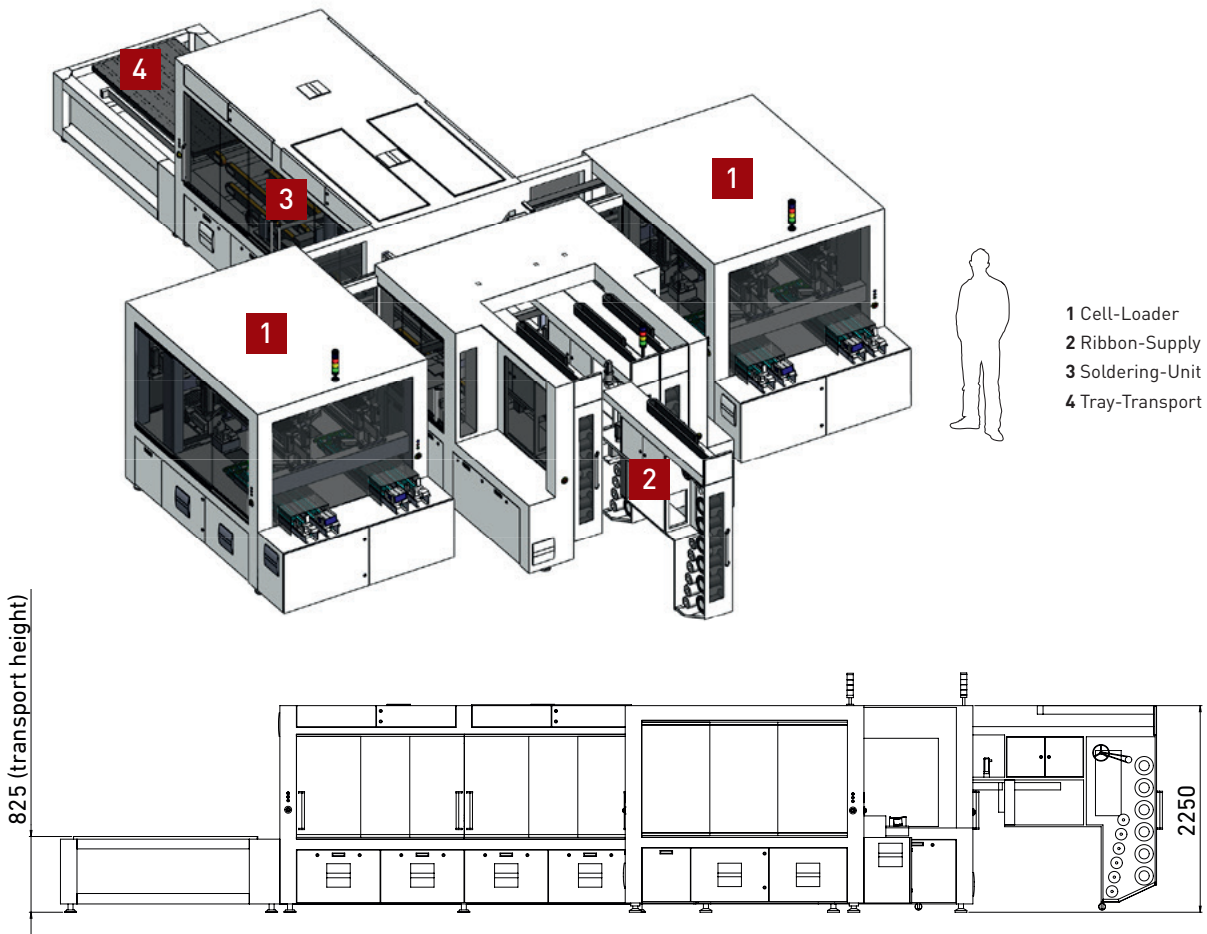


KUBUS MULTI-TRAY STRINGER | MTS 5500



## Definitions

### Uptime ≥ 98%

Part of active time during which the equipment is either fully operational, is ready to perform its intended function or scheduled maintenance and cleaning operations take place. Opposite of downtime.

### Yield ≥ 98.4%

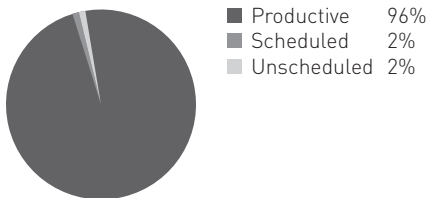
$$Y = (I)[\%G] + (I)[(1-\%G)][\%R]$$

I Planned number of product units started in the production process  
 %G Percentage of good units produced  
 %R Percentage of units that are successfully reworked

### Uptime ≥ 98%

$$A = E \text{ Uptime} / E \text{ Uptime} + E \text{ Downtime}$$

### Total time



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## Technical Details

### General Information

- Only 1 operator per shift needed, only to refill goods
- No downtime for refill goods
- Size ratio/Low footprint/Minimal space requirements
- Non-stop production, even during ribbon exchanges or maintenance work and servicing
- High redundancy for maximum productivity during maintenance
- Soldered cell matrix on a "Tray" for easy interconnections
- Non-Contact soldering process
- Every format available as half-cell kit
- All components are ideally accessible, without interrupting the production
- Extremely maintenance-friendly
- Highest material conversion yield
- Production of 3, 4 or 5 busbars; 6 busbar as an option; half-cells, PERC
- CE Conformity
- Designed & produced in Germany

### Cell Info

Cell technology, types	Mono & polycrystalline, all available types
Cell alignment	Optical alignment via camera
Cell inspection	Vision system: cracks, scratches, broken edges
Cell sizes	125 sq. [5"]–156 sq. [6"] & half cut
Cell spacing	2 mm–4 mm
Cell positioning accuracy	± 0.2 mm/0.2°
Cell thickness	160–250 µm
Cell buffer	5,600 cells (14 x 200 cells x 2 cell handlings)

### Ribbon Info

Ribbon sizes	Width ≥ 0.6 mm
Ribbon thickness	0.1–0.28 mm
Ribbon positioning accuracy	± 0.1 mm; given delta between busbar & ribbon 0.2 mm
Lead-free ribbons (Pb)	Yes
Number of interconnection ribbons	2–5; 6 as an option
Busbar spacing	30–78 mm; 26 mm as an option

### Machine Info

Throughput	5,500 cells/h for a 12 cell-string with cell fluxing
Time per cell	0.65 sec
Availability	≥ 98.00%; including 2% scheduled maintenance
Yield	≥ 98.40%
Cycle time per module	47 sec
Soldering technology	IR light
Flux application	Adjustable, metered micro spray/both sides as standard
Changeover time from 2–6 busbar	Approx. 5–6 man-hours
Breakage rate	0.0–0.3% (according to cell quality)
String size	Max. 2,000 mm, accuracy in length ± 1 mm
Required operators	1 (runs continuously as one-man operation)
Air consumption	6 Bar/700l/m
Electrical supply	400V/125A/78 KW
HMI	Fixed colortouch panel and portable tablet

Kindly note: All shown figures have been verified and certified by M10 Industries AG with common in market available materials. However the characteristics are strongly related to incoming materials and may vary.