DATA SHEET

SOLAR InCellPlate® Cu

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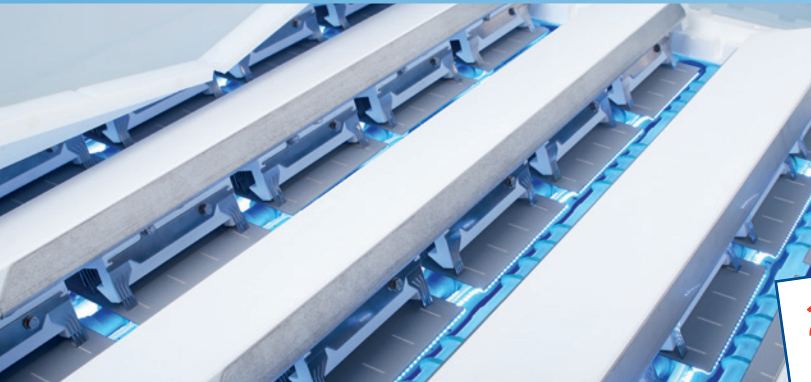


20 % Cost Down on your metallization

Next Generation Front Side Metallization

RENA InCellPlate® Cu is the state-of-the-art technology for your next generation front side metallization for c-Si solar cells. Screen printed silver is replaced by an electrochemically deposited metal stack of nickel, copper and a thin capping layer of silver. Clustered with a laser for local contact opening of the front side anti-reflection-coating and an annealing furnace for contact formation, this technology allows significant cost savings of up to 0.06 USD/cell in the solar cell fabrication process. This technology cluster features a zero waste water solution, yielding no metal contaminated waste water. The annealing can be combined with an LID regeneration process.

Areas of application

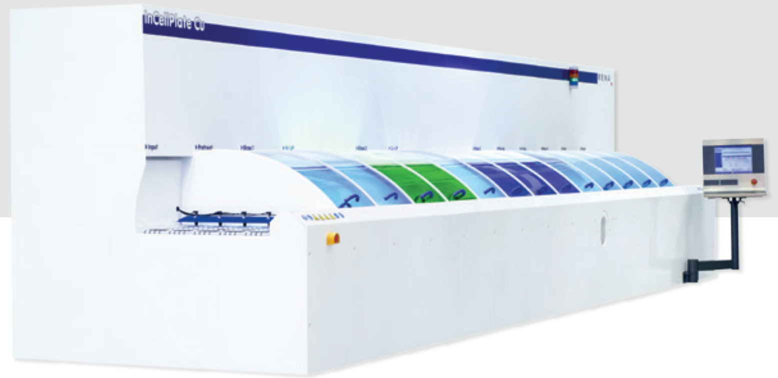
- Front side metallization of mono- and multi-crystalline silicon solar cells by a Ni, Cu stack covered by Ag capping layer
- Suitable for Al-BSF, PERC and PERT cells
- Easy integration with selective emitter technology

Features and benefits

- Inline deposition of Ni, Cu and Ag for c-Si solar cells
- Reduction of cell metallization cost by more than 20 %
- Module reliability confirmed by Tier 1 cell manufacturers
- Compatible with existing module integration (soldering)
- Efficiency increase of up to 0.3 % by reduced shadowing and contacting of lowly doped emitters
- Build on proven RENA NIAK platform
- Patented cost efficient and sustainable metallization
- Soft contact system and advanced current control
- Zero Waste Water solution available
- Automatic copper supply

Conductive layer deposition: fast and homogeneous copper deposition

Precision control of plating current



InCellPlate® Cu

Technical Data InCellPlate® Cu

Platform	NIAK 5 lanes	
Application	Bulk metal deposition for front-side H-grid with 4, 5, 6, and multi busbar and busbar less designs Ni as contact and barrier layer, Cu as conductor, thin Ag capping Contact Finger width < 25 µm	
Process	Loading Pre-Cleaning Metal stack deposition Zero Waste Water Technology RENA AirChannelDryer technology Unloading	
Dimensions	27,600 mm x 2,150 mm x 2,350 mm (length x width x height)	
Throughput	Up to 5,000 wafers/h gross *)	
Wafer thickness	> 150 µm	
Wafer size	156-157 mm, square and pseudo-square	
Media consumption	DI water	35 l/h
	Exhaust	4,000 m³/h
	Electricity	380-415 V, 50-60 Hz, 130 kW *)
	Automatic dosing of copper (II) oxide and plating additives, independent from facility supplies.	

*) Other tool configurations available upon request

RENA V20001

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RECYCLED Paper FSC® C106855