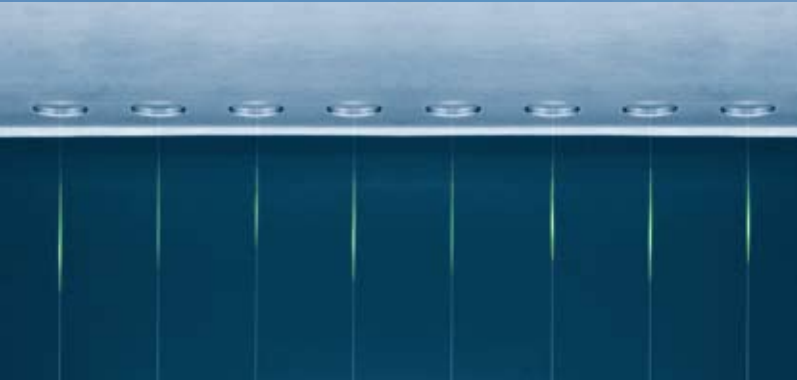


SOLAR

SelectDop LCP

R | E | N | A | ●



 SYNOVA

 Fraunhofer
ISE

Laser chemical doping for high efficiency metallisation

Selective Emitter forming is an important step to push industrial solar cell production to a high efficiency level. An automated Laser Chemical doping system SelectDop LCP is now available which uses an array of fine and precise liquid jets to guide laser beams for local phosphorus diffusion (20 Ohm/sq) and a damage free SiN ablation. This process is followed by a self aligned plating process from RENA with Ni as contact forming material or can be followed by standard screen printing.

Selective Emitter and metal stack plating on Si - next generation front side metallisation.

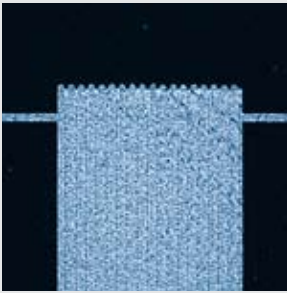
Areas of application

- Local diffusion without thermal defects
- Structuring combined with standard metallisation techniques
- Structuring combined with self aligning electrolytic NiAg plating, NiCuAg plating in preparation
- Single process for selective emitter or local BSF forming
- SelectDop LCP followed by InCellPlate are the two steps of the RENA Selective Emitter

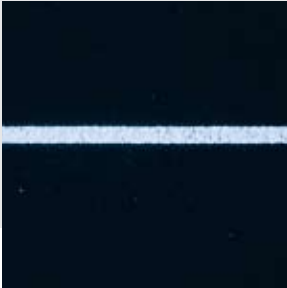
Features and benefits

- High volume production tool for laser chemical processing
- Liquid jet guided laser beams for local diffusion processes
- SiN ablation without thermal damage
- Production of high efficiency solar cells
- Patented
- Up to 1% efficiency increase (depending on emitter sheet resistance)



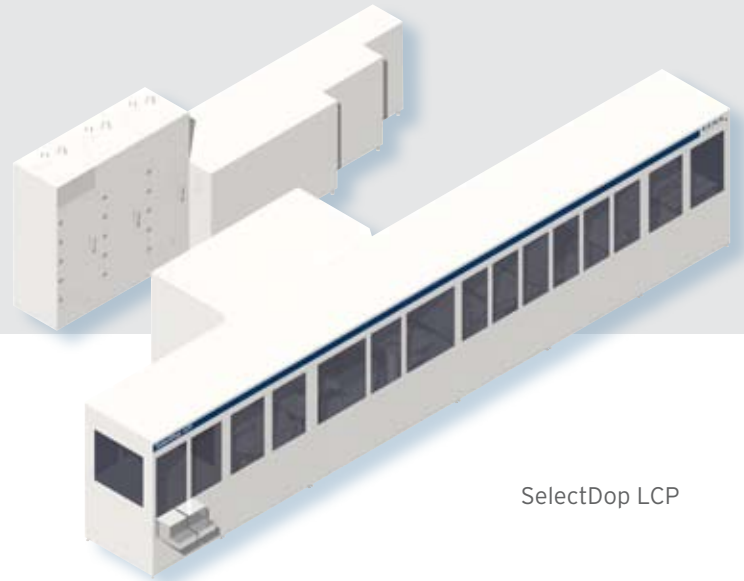


Finger and busbar forming



Finger width below 35 μm

RENA



SelectDop LCP

Technical Data SelectDop LCP

Process	Local SiN ablation and n++-type diffusion	
Dimensions	approx. 10000 x 4500 x 2350 (length x width x height)	
Throughput	1200 wafers/h	
Wafer thickness	> 160 μm	
Media consumption	• DI water	0.5 - 0.8 m ³ /h
	• H ₃ PO ₄ Industrial grade	4.8 - 9.6 l/h
	• Electricity	25 - 35 kW