

Photovoltaik Processing to Perfection

Premium Technology from
MDI Group



MDI

The Cutting Edge in Patterning, Cutting & Drilling

High End Production Technology for Thin Film Solar Panels

Founded in 1935 and grown up with the Flat Panel Display industry, Mitsubishi Diamond Industrial Co., Ltd. has gained a lot of experience supplying production equipment for electronic applications based on glass.

With their 550 employees in total they have developed machines for the several production steps in the Thin Film Industry. All the machines are available for fully automation and integration in production lines but as well as stand alone systems e.g. for R&D and testing.

In their solar R&D laboratories at Osaka/Japan and Mainz/Germany developments are frequently going on – hand in hand with key customers to enable highest speed and performance for implementation in mass production environment by minimized production costs.

Mechanical Patterning System (for CIGS/CIS, CdTe)

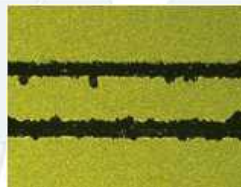


*MPV1200
(Panel Size up to 1200x600mm)*

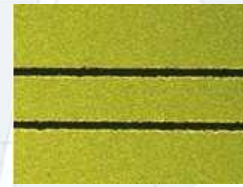
Features

- Narrow patterning without large peeling areas by MDI original tool
- Patterning with extreme low pressure by MDI original head

Various in-line systems for larger formats (1400x1100mm, 1600x1200mm) and smaller stand-alone systems for R&D also available



current process



new MDI process on CIGS P3

Laser Patterning System (for a-Si/Tandem, CIGS/CIS, CdTe)



Prototype

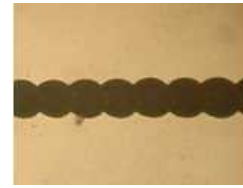
Features

- Multi-beam head by laser splitting system (3, 4, 6 or 8 heads)
- Smooth work scanning by linear axis system
- Efficient vacuum system for particles absorption and laser protection
- Simultaneous measure and check of patterning

Various in-line systems for larger formats (1200x600mm, 1400x1100mm, 1600x1200mm) and smaller stand-alone systems for R&D also available



a-Si P1 (TCO Layer)

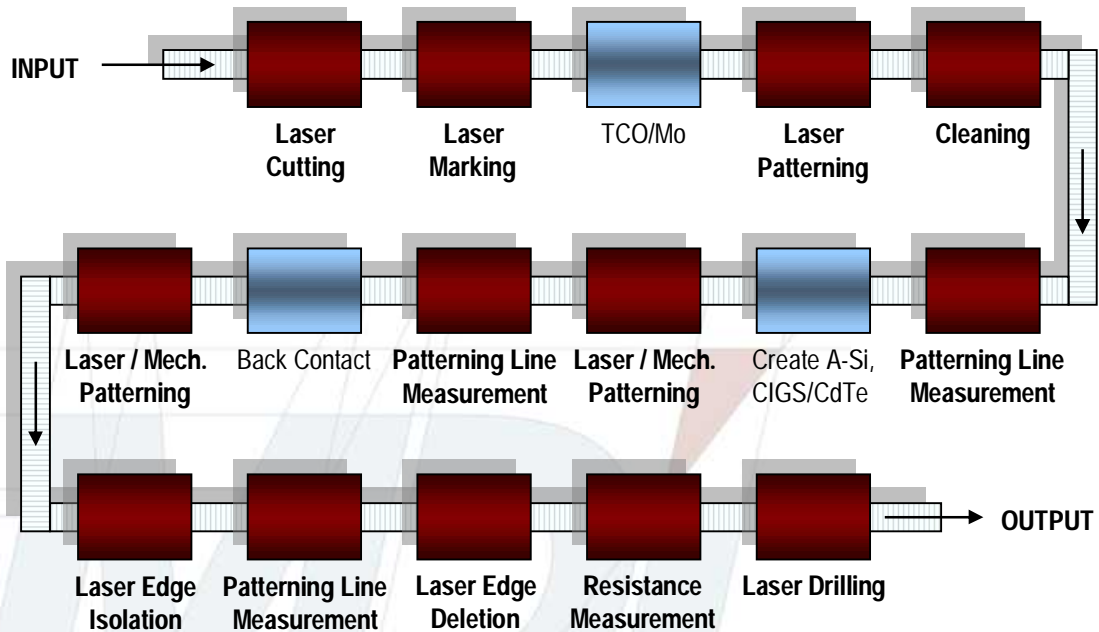


CIGS P1 (Mo Layer)

The Manufacturing Process of Thin Film Solar Panels

MDI Technology within Production Process of Thin Film Solar Panels

MDI offers equipment for all red marked production steps and the transportation system, which is suitable for processing Thin Film as well as new materials.



Process	Silicon Wafer	Thin Film		New Materials	
	Polycrystalline Monocrystalline	a-Si (Tandem)	CIGS/CIS CdTe	DSC	Organic
Laser Patterning					
Mechanical Patterning					
Laser Edge Isolation					
Laser Edge Deletion					
Resistance Measurement					
Patterning Line Measurement					
Laser Drilling					
Laser Marking					
Cutting (Laser / Mechanical)					
Cleaning					
Transportation System					
Roll-to-Roll Patterning					

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