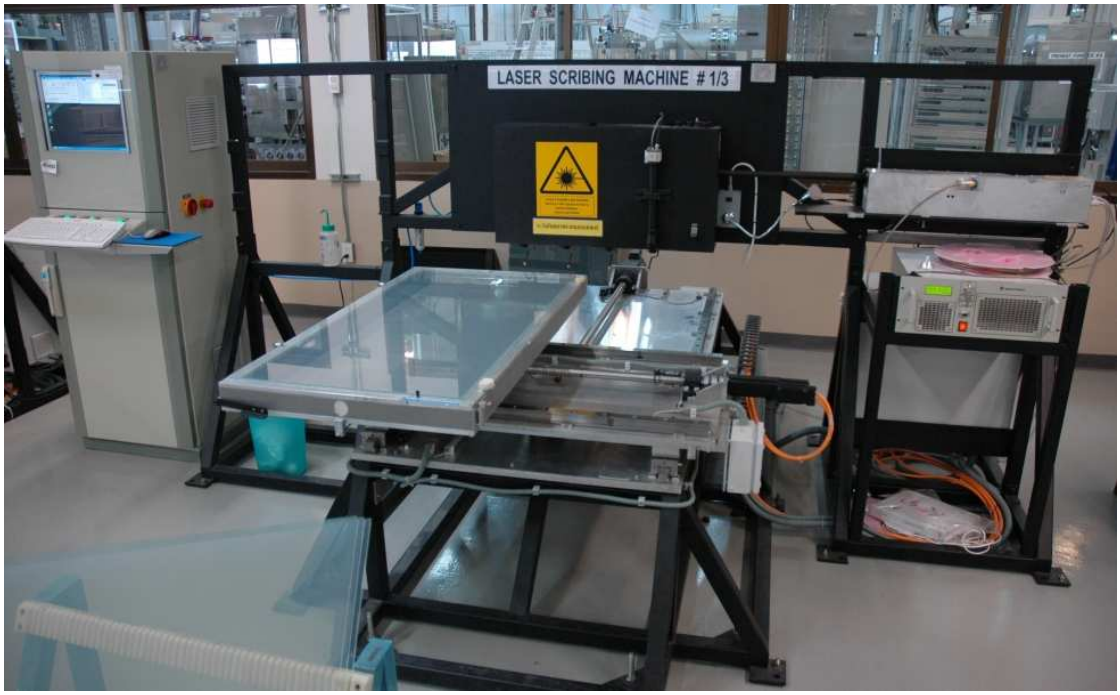
ASLS-12 – Laser Scribing System

The Laser Scribing System (ASLS) is a high-precision laser cutting tool used in photovoltaic module manufacturing lines. Its purpose is to cut the deposited layers of the panels thus dividing them into individual solar cells. Infrared and visible Nd:YAG lasers cut the metal and metal-oxide layers, while the workpiece moves under the stationary beams. A compressed air system blows off any particles from the surface of the glass and from the air above it.



The Laser Scribing System (ASLS-11)

A completely automated machine – the operator places the panel on the table, and the purpose designed software does the rest. Each production line has 3 such machines – to cut each of the module's layers. A 1064 nm infrared laser cuts the foremost, transparent tin-oxide refractive layer, while 532 nm green lasers cut the middle and the rearmost layers, the amorphous silicon active layer and the refractive/reflective zinc-oxide / aluminum layer. The only difference between the IR and the visible-range scribers is the laser head.

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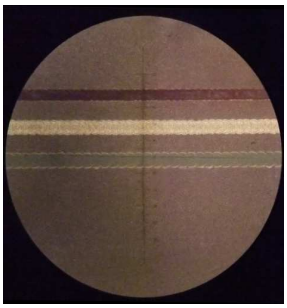

Specifications	
Power:	4.33 kW
L × W × H:	2640 × 2540 × 1700 mm
Mass:	750 kg
Workpiece:	1245 × 635 mm (thickness: 3.0 ~ 3.3 mm)
Cycle time:	1 min
Laser type:	Nd:YAG (Spectra-Physics)
Table actuation:	Electric motors through dampening transmission
Precision along long axis:	20 µm
Precision along short axis:	5 µm

Features
High accuracy
AC synchronous motor with intelligent drive (ECODRIVE 03)
Continuous operation
Fully automated scribing
Reprogrammable paths
Observation camera with illumination
Common system and software for IR and visible lasers
4 beam cutting for short cycle time
European CE-compatible