



ASSI-13 – Amorphous Silicon Deposition System

The Amorphous Silicon Deposition System (ASSI) deposits amorphous silicon during the production of photovoltaic modules. It uses plasma enhanced chemical vapour deposition (PE CVD) together with radio frequency discharges to generate a homogeneous silicon layer on the surface of the photovoltaic panel. Being computer controlled it can adopt to various recipes in order to provide its users the ability to constantly improve the quality of their PV products.



The Amorphous Silicon Deposition System (ASSI-12)

The computer system controls and monitors the entire process. The operator can follow the deposition on a user-friendly GUI. All gases are controlled by mass flow controllers. The system is supplied with gas sensors for the case of gas leakage. The workpieces are contained in a purpose-designed plasma box – the Box Carrier. This ensures high productivity, the protection of the PV panels, and an ease of use between other stations of the production line. A production line's pair of ASSI can deposit the a-Si layer of around two hundred thousand solar modules per year.

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Specifications

Power:	63 kW
L × W × H:	4330 × 3820 × 2460 mm
Mass:	3600 kg
Workpiece:	1245 × 635 mm (thickness: 3.0 ~ 3.3 mm)
Cycle time:	4 hours
Process gases:	SiH ₄ , PH ₃ , TMB, CH ₄ , H ₂ , Ar
Cleaning purge:	N ₂
Cooling:	water
Valve actuation:	pneumatic

Features

PC based safety interlock and process control system
12-channel 13.5 MHz RF power source with automatic matching line
24 × 1.2kW heating power
MFC controlled process gas inlet
Oil-free rotary pumps for process pumping
Fore vacuum pumping unit
Diffusion pump with cryogenic system for high vacuum pumping
End vacuum: better than 5×10 ⁻⁶ mbar
Leakage: better than 2×10 ⁻⁹ mbar l /sec
Standard components from Edwards, Variant, Pfeiffer
European CE-compatible