



ASSP-12 – Al/ZnO Sputtering System

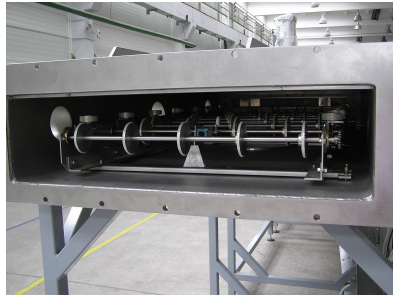
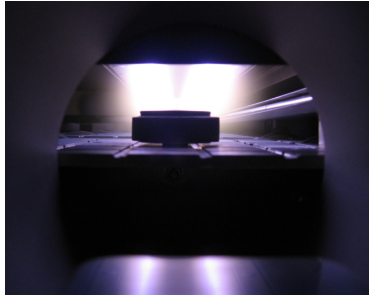
The Al/ZnO Sputtering System (ASSP) forms the rearmost conducting layers in photovoltaic modules. It uses physical vapour deposition (PVD) to sputter zinc-oxide and aluminum layers. The first one diffracts the sun light, while the latter one reflects it back to the amorphous silicon layer to increase the module's efficiency. An 11.5 m long and nearly 6 tonne machine that is a composition of 6 individual chambers – it can handle multiple panels at once.



The Al/ZnO Sputtering System (ASSP-12)

The Sputter is entirely computer controlled. The only manual operation is the sample load and unload in the case the automatic loader/unloader is not present. The system operator can follow the process on a single monitor with the help of a graphical user interface. The glowing plasma can be observed directly through shutter windows. A two-stage vacuum system provides uninterrupted PVD for both the zinc-oxide and the aluminum layers. The whole machine is designed to carefully secure the cleanliness of the PV panels, thus minimizing refuse, ensuring an even layer deposition, and maximizing productivity.

ASSP-12 – Al/ZnO Sputtering System



Specifications

| | |
|------------------|---|
| Power: | 75 kW |
| L × W × H: | 11500 × 2200 × 2000 mm |
| Mass: | 5860 kg |
| Workpiece: | 1245 × 635 mm (thickness: 3.0 ~ 3.3 mm) |
| Cycle time: | under 3 min (continuous sequential operation) |
| Process gases: | Ar, N ₂ , O ₂ |
| Cooling: | water, air |
| Valve actuation: | pneumatic |
| Load/unload: | manual or by panel lifter |

Features

| |
|--|
| PC based safety interlock and process control system |
| Linear magnetron sputter source with 10 kW DC supply for Al |
| Linear magnetron sputter sources with 2×5kW pulsed DC supplies for ZnO |
| MFC controlled process gas inlet |
| Fore vacuum and high vacuum system |
| End vacuum: better than 2×10 ⁻⁶ mbar |
| Leakage: better than 2×10 ⁻⁹ mbar l/sec |
| Standard components from Pfeiffer, HSR and VAT |
| European CE-compatible |