日揚總公司 台南廠
地址：709 台南市安南區工明南二路 106號
電話：+886-6-2460296
傳真：+886-6-2478022
網址：http://www.high-light.com.tw
信箱：ec@high-light.com.tw

Headquarters
No. 106 Gung-Min South Road II,
An-NanDistrict, Tainan City, Taiwan 709
TEL: +886-6-2460296
FAX: +886-6-2478022
WWW: http://www.high-light.com.tw
Mail: ec@high-light.com.tw

台南二廠
地址：709 台南市安南區工明南一路101號
電話：+886-6- 5116111
傳真：+886-6- 2564001   +886-6- 5105168

Tainan Factory II
No. 101 Gung-Min South Road I, An-Nan District , Tainan City, Taiwan 709
TEL: +886-6- 5116111
FAX: +886-6- 2564001   +886-6- 5105168

新竹技術服務中心
地址：303 新竹縣湖口鄉鳳山村中華路13號
電話：+886-3-5973325
傳真：+886-3-5973083

HSIN-CHU Technology Service Center
No. 13, Zhonghua Road, Fengshan Village ,Hukou TownShip, Hsinchu County, Taiwan 303
TEL: +886-3-5973325
FAX: +886-3-5973083

通揚科技 零組件再生事業處台南服務中心
地址：709 台南市安南區工明南一路 123號
電話：+886-6-5110618
傳真：+886-6-5110632

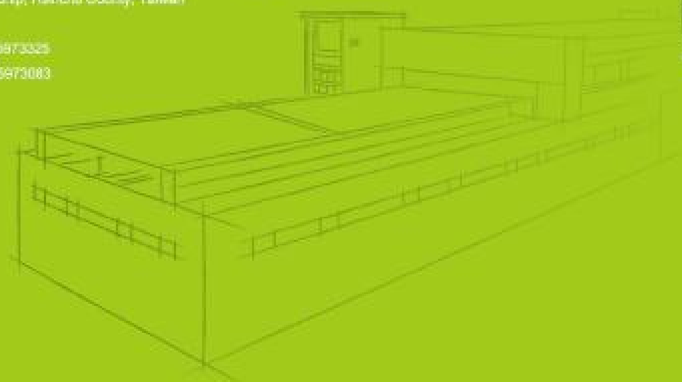
Parts Clean Tainan Service Center
NO. 123, Gun-Min South Road I , An-Nan District, Tainan City, Taiwan 709
TEL: +886-6-5110618
FAX: +886-6-5110632

通揚科技 零組件再生事業處新竹服務中心
地址：303 新竹縣湖口鄉鳳凰村光復南路55號
電話：+886-3-5973337
傳真：+886-3-5973073

Parts Clean Hsin-Chu Service Center
No. 55, Guangfu South Road, Fenghuang Village, Hukou Township, Hsinchu County, Taiwan 303
TEL: +886-3-5973337
FAX: +886-3-5973073

日揚電子科技(上海)有限公司
200444 上海市寶山城市工業園區城銀路51號
電話：+86-21-36162036
傳真：+86-21-36162038

SHANGHAI HIGHLIGHT TECH CO., LTD.
No.51, Cheng Yin Rd., Baoshan City Industrial Zone, Shanghai 200444, China
TEL: +86-21-36162036
FAX: +86-21-36162038



WWW.HIGH-LIGHT.COM.TW

Htc

日揚科技 真空鍍膜

VACUUM COATING

Thin Film Solar Cell Sputtering PVD System 4

Thin Film Solar Cell Sputtering PVD System

The system provides complete solution for thin film solar cell production and different manufacturing module.

With Htc's vacuum deposition systems, uniform thin-film coatings are deposited on the rolling substrate as it passes through the vacuum chamber. The thin films and other coatings(Front Contact, Window Layer, Absorber, Back Contact) are deposited by physical vapor deposition (PV, PVD, PE-PVD), or sputtering (by either DC, RF, AC or pulsed DC power and evaporation).

Our technologies are designed to optimize the solar cell manufacturing process with excellent uniform coatings, able to be produced in less time, with minimum waste of materials along the way, helping today's solar cell producers to maximize profits while playing an important role in preserving our global environment.

Features

The fully-automated thin film coating systems offer the customer a safe and reliable production capacity of up to 20 MW per line, and the following features:

- Single-sided wet chemical coating
- Reproducible process results
- Integrated spot-free, even drying (dry-in/dry-out)
- Complies with European and U.S. safety standards
- Modular and flexible configuration to meet different production requirements
- Far-infrared heating modules for fast and effective heating of substrates
- Rotational target achieves high target utilization
- No substrate holding carrier design to reduce heat capacity
- Modular system (simple expandability for increased throughput)
- Integrated automatic dosing and mixing unit
- Wastewater and exhaust air management system

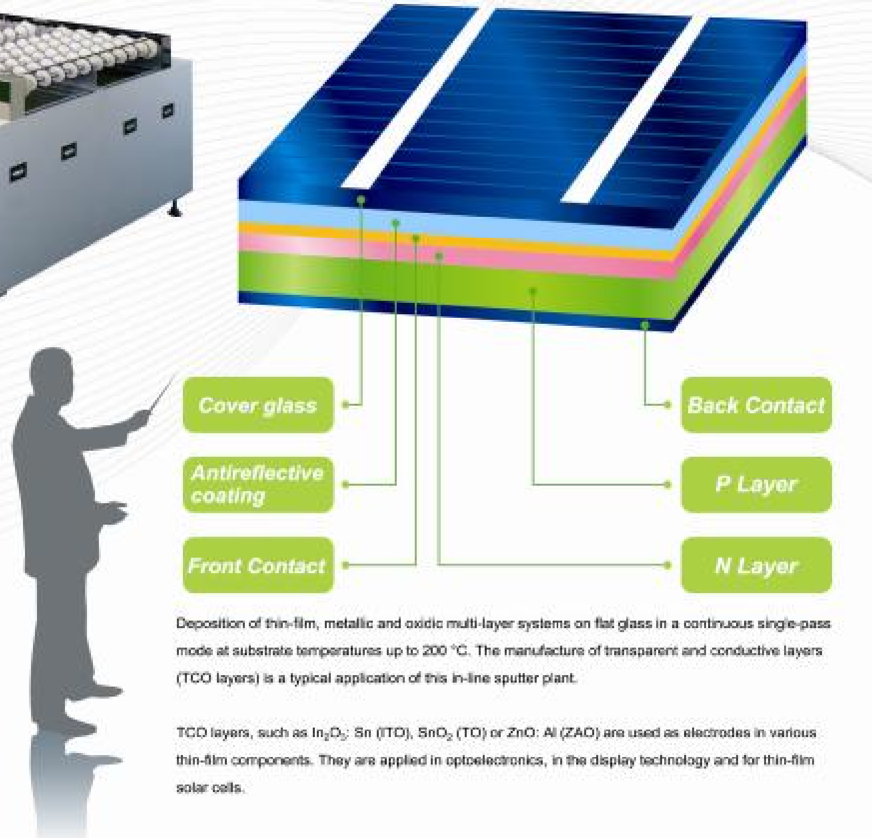
Benefits

- Low process temperatures
- Max. reduction in chemicals consumption
- MF Rotary Sputtering of Cylindrical Target
- Fast Deposition and short Tact time
- Easier maintenance and operation
- Optimized Magnetron design for a high target utilization, low deposit formation at the sputter source
- Easy-to-maintain design of the Magnetron surrounding allows for a fast and efficient servicing of the plant
- Vacuum components and plant control that were tested under industry conditions stand for trouble-free
- Long-term operation
- High system availability
- Max. reduction of DI water consumption
- Future expandable for higher throughput

Thin Film Solar Cell Sputtering PVD System 4

Applications

Photovoltaic cells rely on substances known as semiconductors. Semiconductors are insulators in their pure form, but are able to conduct electricity when heated or combined with other materials. A semiconductor mixed, or "doped," with phosphorous develops an excess of free electrons. This is known as an n-type semiconductor. A semiconductor doped with other materials, such as boron, develops an excess of "holes," spaces that accept electrons. This is known as a p-type semiconductor.



A PV cell joins n-type and p-type materials, with a layer in between known as a junction.
Even in the absence of light, a small number of electrons move across the junction from the n-type to the p-type semiconductor, producing a small voltage. In the presence of light, photons dislodge a large number of electrons, which flow across the junction to create a current. This current can be used to power electrical devices, from light bulbs to cell phone chargers.

There are three main types of thin-film solar cells, depending on the type of semiconductor used: amorphous silicon (a-Si), cadmium telluride (CdTe) and copper indium gallium deselenide (CIGS).

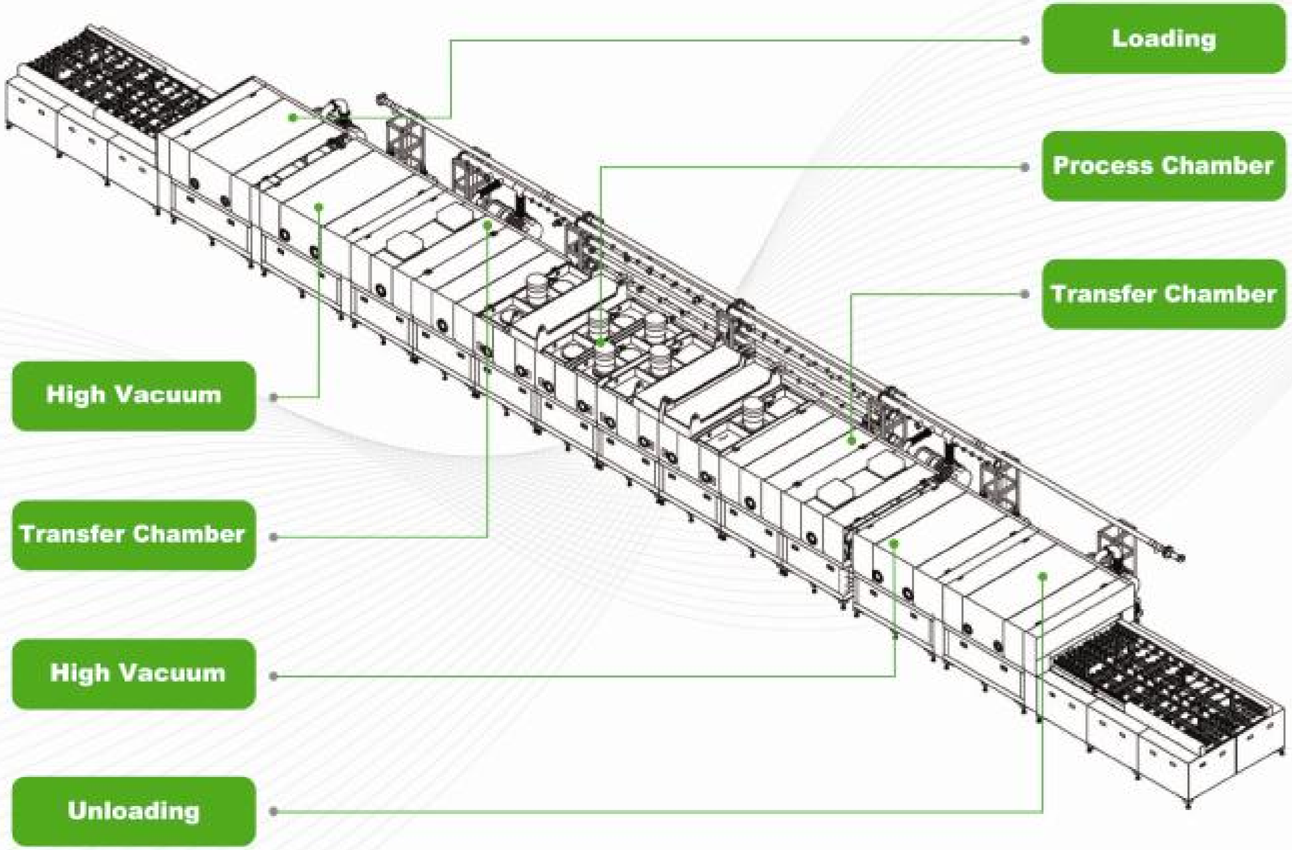
Without the expensive and often sparse silicon, the cells are cheaper in terms of materials costs. The non-silicon materials can also be printed on flexible or light substances, which can create new applications for solar. But thin films, aren't yet as efficient as silicon-based solar, and can remain pricey due to their high production costs.

Deposition of thin-film, metallic and oxidic multi-layer systems on flat glass in a continuous single-pass mode at substrate temperatures up to 200 °C. The manufacture of transparent and conductive layers (TCO layers) is a typical application of this in-line sputter plant.

TCO layers, such as In_2O_3: Sn (ITO), SnO_2 (TO) or ZnO: Al (ZAO) are used as electrodes in various thin-film components. They are applied in optoelectronics, in the display technology and for thin-film solar cells.

Thin Film Solar Cell Sputtering PVD System 4

Technical Data



Substrate size	[mm^2]	1400x1100x3.2
Substrate weight max.	kg	12
Carrier orientation		Horizontal
Cycle Time	[sec]	60 – 90
Vacuum Pumps		Rotary Pumps-Turbo Pumps
Temp. Pretreatment	[°C]	20...200
Ultimate pressure	[mbar]	$< 5x10^{-6}$
Magnetrons		Planar / Rotatable
Modes		DC, pulsed DC, MF, RF
Generator power per cathode	[kW]	20
Layers		Metals, Alloys, Multi Layers,Compounds
Electrical Control		PLC or PC base
No. Process Chambers		5...8
Chamber Material		Stainless Sheet
Approx. Dimensions	[mm]	20000x1900x2500

Welcome to Visit Our Website

http://www.high-light.com.tw