

Thermal Evaporator System (Solar cell)

(Model : Solar – Elevator)



Application > Perovskite solar cell, DSSC, OPV, OTFT Process

- Ca, Mg, Au, Al, Ag, LiF, Cr & MoO₃, TiO₂, Etc metal & Metal Oxide Process
- AlQ₃, C60, TPD, Pentacene, Etc Organic & Inorganic Process
- Perovskite Process (MAI (CH₃NH₃I), PbCl_x, PbI_x, etc)

Specification >

Substrate Size	Piece ~ Optional (Circular or Rectangular type)
Source Power Supply	A.C or D.C Power Supply
Thermal Source	Single ~ 4 ea (Optional) Metal & Organic Single layer or Multi layer or Co-evaporation
Thickness monitor	Rate monitoring or Rate control type
Loadlock chamber	Optional (With Integration Glove box)
Ultimate Pressure	< 3 x 10 ⁻⁷ Torr
Pumping Speed	< 5 x 10 ⁻⁶ Torr (Within 15 minute, after sample loading)
Film Uniformity	< ±5% (WIW, WTW, RTR)
System Operating Type	Semi-Auto or Fully auto Control (Using PLC Base Touch screen or P.C Monitor)

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Specification

Chamber >

Cylindrical (Similar to Bell-Jar) Type Chamber

Pneumatic up/ down type

Material : SUS 304

Single Chamber Type

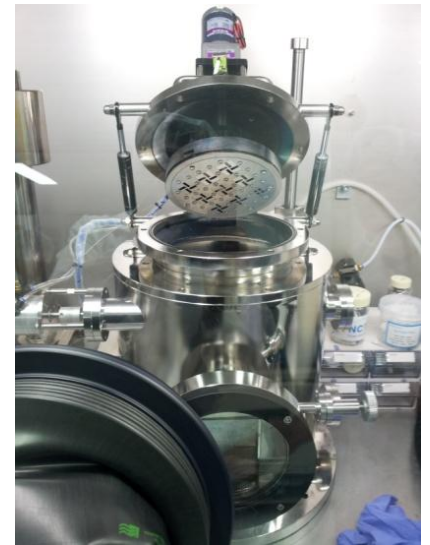
Chamber internal shield cover
(Easy exchange type)



Normal



Boat replace & source refill



Sample loading

Vacuum pump



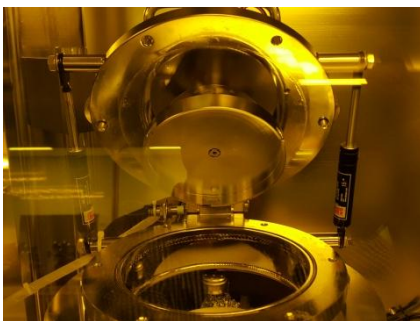
Turbo pump (260 L/Sec(N2), Optional)

Corrosive resistance Turbo pump **(For Perovskite)**

Rotary pump (Optional : Dry scroll pump)
400 L/Min (Optional)

ISO 100 Gate Valve (Optional)

Substrate



Sample Size : 100mm x 100mm 1 sheet

Shadow Mask (Customer define)

Rotation speed : 0 ~ 30 R.P.M

Heating temperature : 250°C (Optional)

Cooling temperature : 0°C (Optional)

Substrate pneumatic shutter

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Thermal Source

Power Supply : A.C or D.C Power

For Metal or Organic process

Thermal Source : 1 ~ 3 ea (Optional : Up to 4 ea)

Thermal Boat (Optional)

For Al → PBN Boat (No broken, no reaction to Al)

For Organic → Crucible Heater & Crucible

Between Boat Isolation Shield Cover

Individual pneumatic source shutter



Thickness Monitor

Thickness deposition Monitor (Only rate display type)
(Optional : Deposition rate controller (Rate control type))

Rate Resolution (monitoring : 0.1Å/Sec)

Thickness sensor installation kit : 1 set

Co-deposition available (Optional)

(Metal + Metal, Metal + Organic, Organic + Organic)



System Control

Manual type by control panel

Semi-auto type by touch screen

Auto type by P.C (By LCD Monitor)



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Required Services

Main Power : 220V, 2 or 3 Phase, 30A

PCW (Water) : 2~3kgf/Cm₂, ½" Swaglok fitting

Compressed Air : 5.5~6 Kgf/Cm₂, ¼" Swaglok fitting

N2 Gas (Vent) : 1~2 Kgf/Cm₂, ¼" Swaglok fitting

Exhaust : Ø40 Flexible Hose

Remark

Chamber Ultimate Pressure : **Below than 3 x 10⁻⁷Torr**

Pumping speed : Below than 5 x 10⁻⁶ Torr

(Within 15 Minute, after sample loading)

Film deposition Uniformity : Below than ±5%
(Within 100mm x 100mm By α-step)

Provides operating & maintenance manual

Training

Warranty : 1 Year (Exclude consumables parts)

Feature & Advantage

Low cost type

Compact type (Small foot-print)

- Glove box inside & outside)
- Control panel is glove box assembled type

Convenient to use

- Easy chamber inside shield replace
- Easy boat replace, source refill
- Easy sample loading/ unloading
- Chamber pneumatic up/ down type

Continuously to use Al deposition without boat replace (PBN Boat, Optional)

Safety

Electrical, vacuum, pumping, utility

Chamber lift, pump, Valve, Emergency, Water, Air, etc Safety interlock

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System Layout



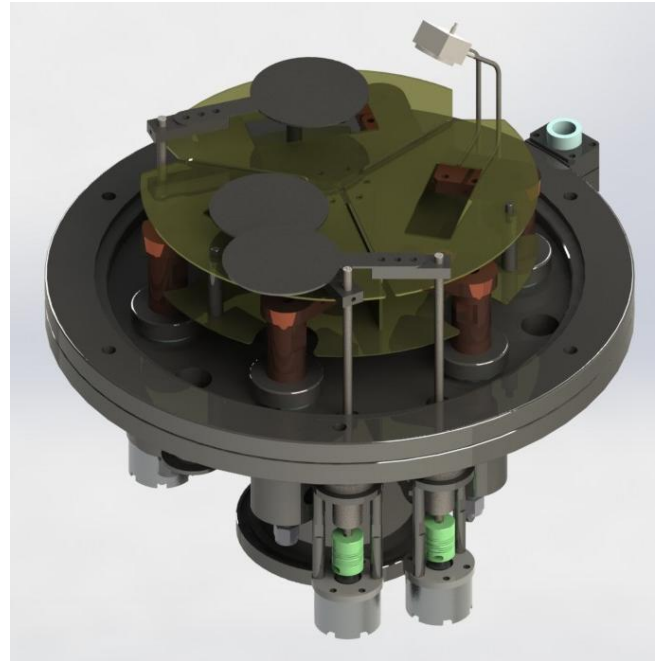
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Chamber Detail



Chamber Assembly



Thermal source & Shutter



Substrate Heater