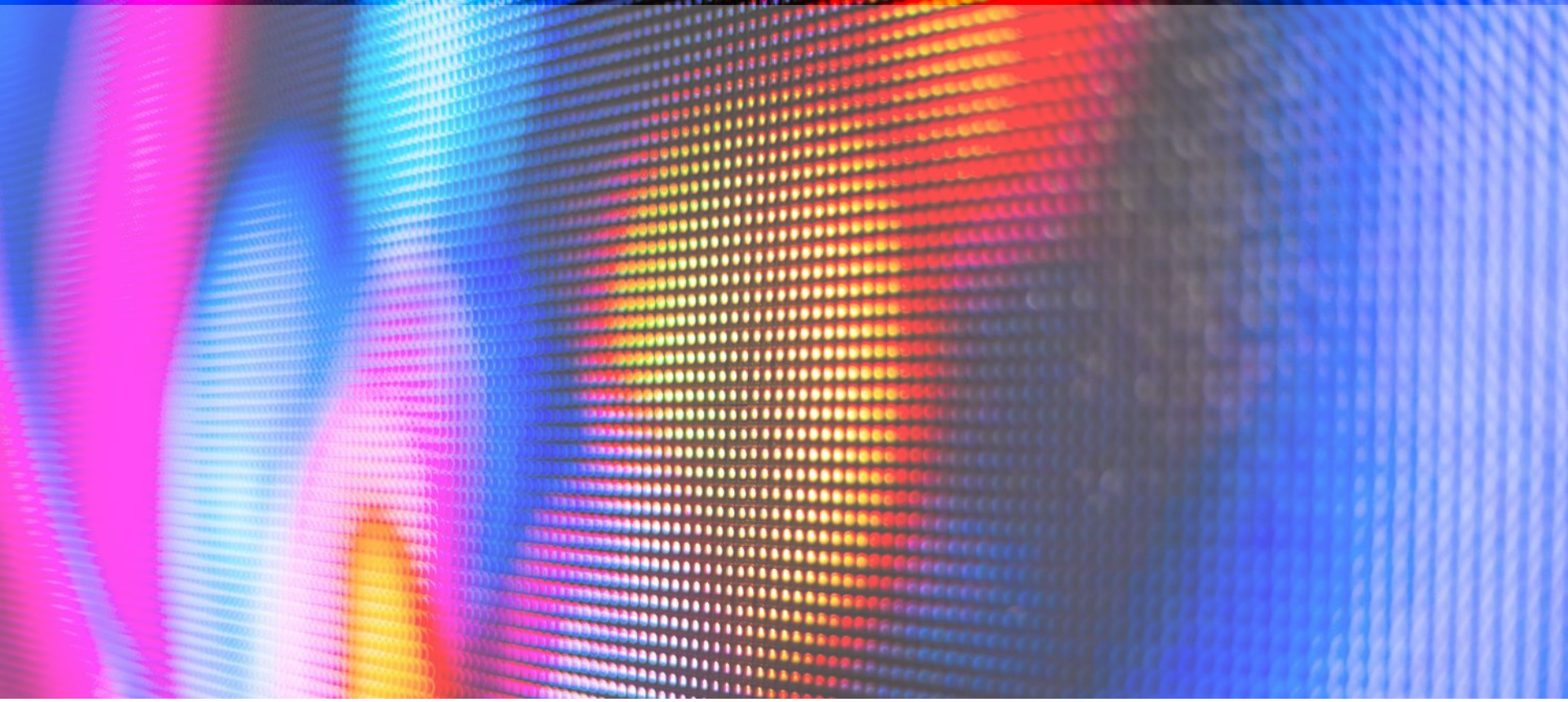

SUNTABA VACCUM PALLETS

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Sunny Process Co., Ltd.

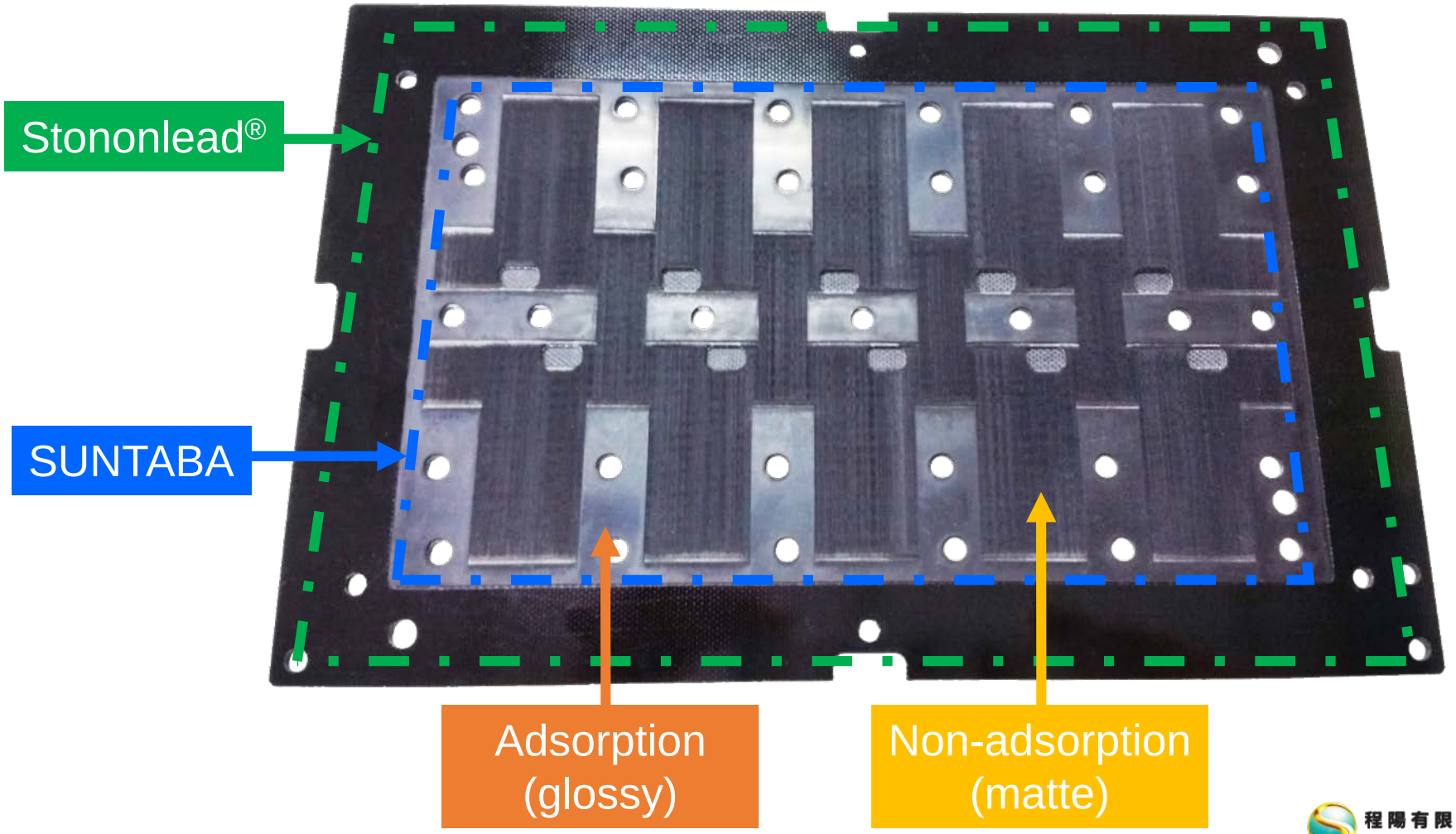
Just set it! The best solution for thin PCB and FPC production!

Due to the thin profile of mobile devices, circuit boards (PCB, substrate, FPC) are getting thinner and thinner.

- How can we prevent deformation when producing ultra-thin PCB boards?
- How do we fix the board into position and remove the PCB board when it is so thin?
- How do we automate the production of thin boards?

Based on the above issues, we developed the Suntaba vaccum pallets, which uses the vacuum suction principle to replace the traditional taping methods. Solve the above problems easily and move towards automatic production.

SUNTABA VACCUM PALLETS



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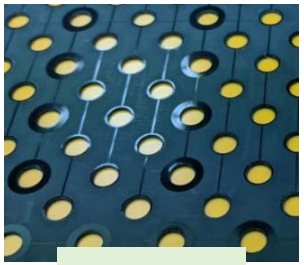
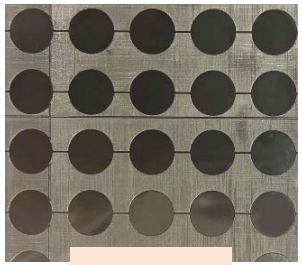
SUNTABA DESIGN

- Original：The adsorption strength large.
- Round hole design：Can adjust the strength of each ejector hole on the Suntaba.
- Polka dot design：Can reduce the adsorption force in the target area.
- Striped design：Can reduce the adsorption force in the target area.
- Irregular design：For complex and irregular substrates, special shapes can be custom designed.
- Snake-scale design：Can regulate the thermal expansion of the packaging process when exposed to heat


Original


Round hole


Polka dot


Striped


Irregular


Snake-scale

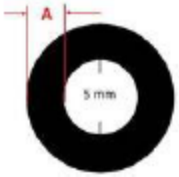
SUNTABA

	ESD（T2）	BLACK（T0）
RoHS、PFOS	Conformance	
Heat Resistance	250℃、10~20 s	
Thickness	0.5 +0.05/-0 mm	0.5 ± 0.1 mm
Size	410 x 360 mm	340 x 290 mm
Surface Resistance	10^4~10^7 Ω	10^{12} Ω
Initial force (steel ball number)	7	8
Thermal conductivity	0.6 w/mk	
Chemical Resistance	Very Good	
Lifetime	Over 2,000times (the duration of service life varies depending on the application method and environment)	
Alcohol wipe	Not affect (Return over 50 times)	

Ejecting force

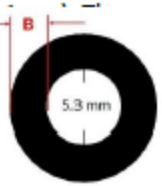
The force required for SUNTABA to eject the PET film (thickness 0.07mm).
The area in black is the adsorption area.

SUNTABA T0				
A	1.5 mm	2 mm	3 mm	4 mm
Average (g)	35	50	65	95
SUNTABA T2				
A	1.5mm	2mm	3mm	4mm
Average (g)	25	35	50	60



The force required by SUNTABA T2 to eject the glass (thickness 1
area in black is the adsorption area.

SUNTABA T2		
B	4.7 mm	3 mm
Average (g)	715	635



Structure layer

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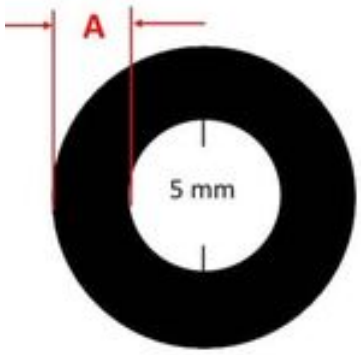
SUNTABA EJECTING FORCE TESTS 1

Tests the force required by SUNTABA to eject the PET film(thickness 0.07mm).

SUNTABA T0				
A (adsorption)	1.5 mm	2.0 mm	3.0 mm	4.0 mm
Max(g)	47	59	79	105
Min(g)	27	40	56	70
Average(g)	**35**	**50**	**65**	**95**
SUNTABA T2				
A (adsorption)	1.5 mm	2.0 mm	3.0 mm	4.0 mm
Max(g)	26	42	58	66
Min(g)	23	30	42	52
Average(g)	**25**	**35**	**50**	**60**



[The black is the adsorption area.]

The ejection force of SUNTABA adsorption pet is about

T0： 4.3 - 5.0 kg/cm² 、 T2： 3.0 - 3.5 kg/cm²

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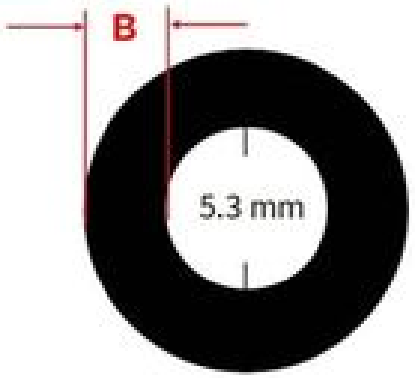
SUNTABA EJECTING FORCE TESTS 2

Tests the force required by SUNTABA T2 to eject the glass(thickness 1.1mm).

SUNTABA T2		
B (adsorption)	4.7 mm	3.0 mm
Max(g)	900	710
Min(g)	660	540
Average(g)	**715**	**635**



[The black is the adsorption area.]

The ejection force of SUNTABA T2 adsorption glass is about**1.27 - 1.42 kg/cm^2**

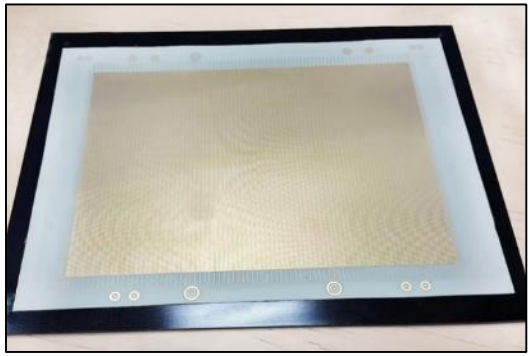
SUNTABA ACID AND ALKALI RESISTANCE TEST

DIP TIME：1 HR

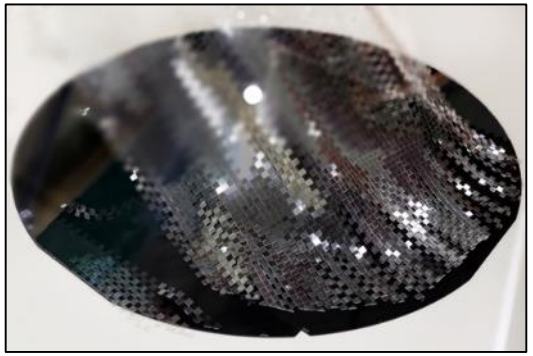
CHEMICAL	CONC.	TEMP	RESULT	CHEMICAL	CONC.	TEMP	RESULT
KOH	1 %	R.T	OK	FeCl3	-	R.T	OK
Na2CO3	1 %	R.T	OK	FeCl3	-	50℃	OK
NaOH	1 %	R.T	OK	CuCl2	-	R.T	OK
NaOH	5 %	R.T	OK	CuCl2	-	50℃	OK
NaOH	5 %	50℃	OK	HCl+H2O2	30%	R.T	OK
Ti etching	5%	R.T	OK				

SUNTABA VACCUM PALLETS APPLICATIONS

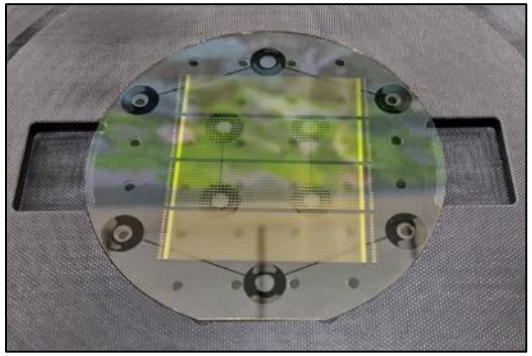
一、MINI LED



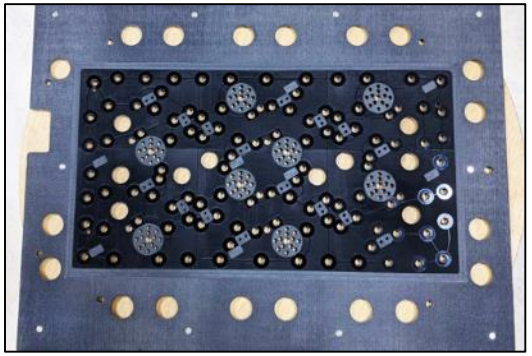
二、Semiconductor Packaging



三、Glass Substrate / wafer



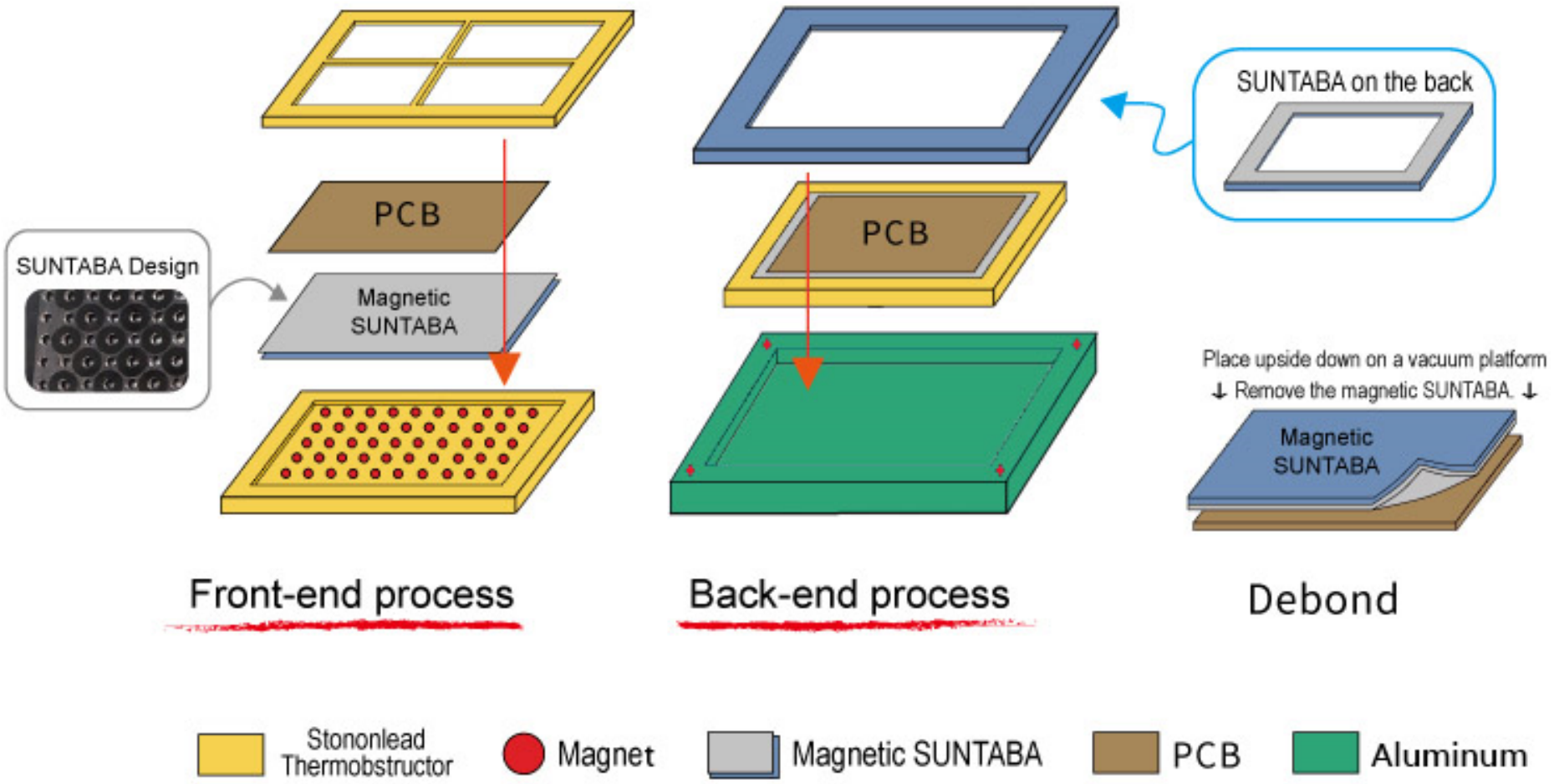
四、Thin PCB / FPC



Mini LED APPLICATIONS

1. Adsorb and fix thin FPC and PCB without applying and removing adhesive tapes.
2. Control adhesion force for precise and flat adhesion.
3. Technologies for fixing into position the underside of circuit boards to ensure no interfere with the printing thickness, reduces the printing variables, and facilitates the overall flatness of the substrate.
4. Additional frame design eliminates scraper vibration during printing.
5. High temperature resistance, reusable, and no tape use for increased environmental friendliness and cost efficiency.
6. Auto-adsorption can be used for fully automatic production line operations.

SUNTABA VACCUM MAGNETIC PALLETS MINI LED APPLICATION



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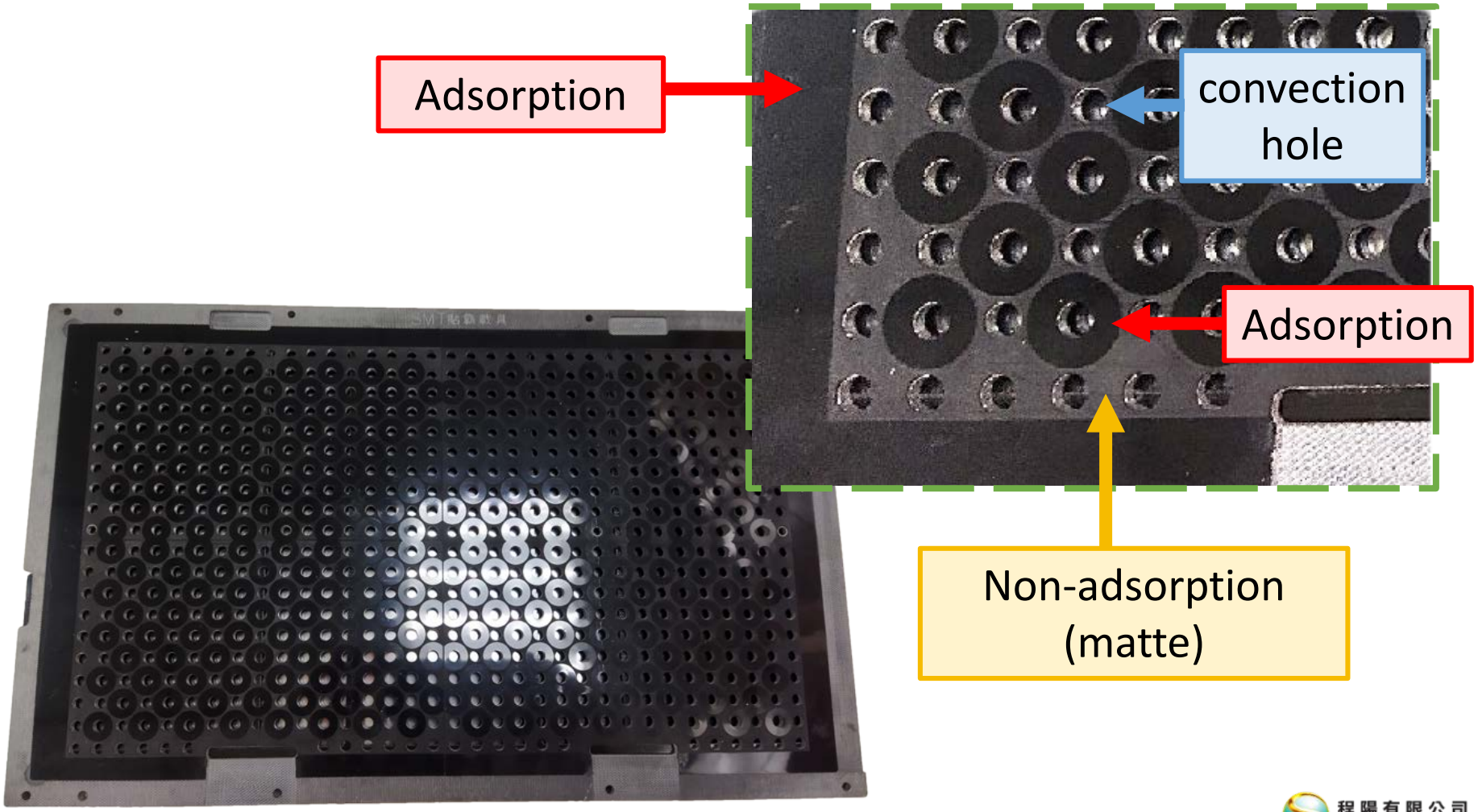
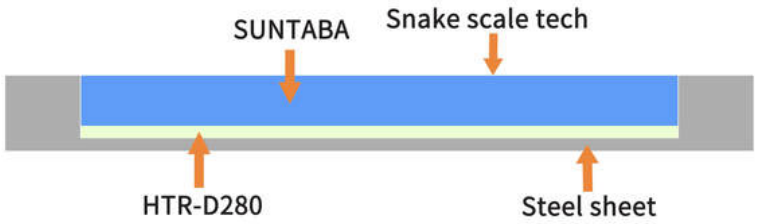
SUNTABA VACCUM MAGNETIC PALLETS

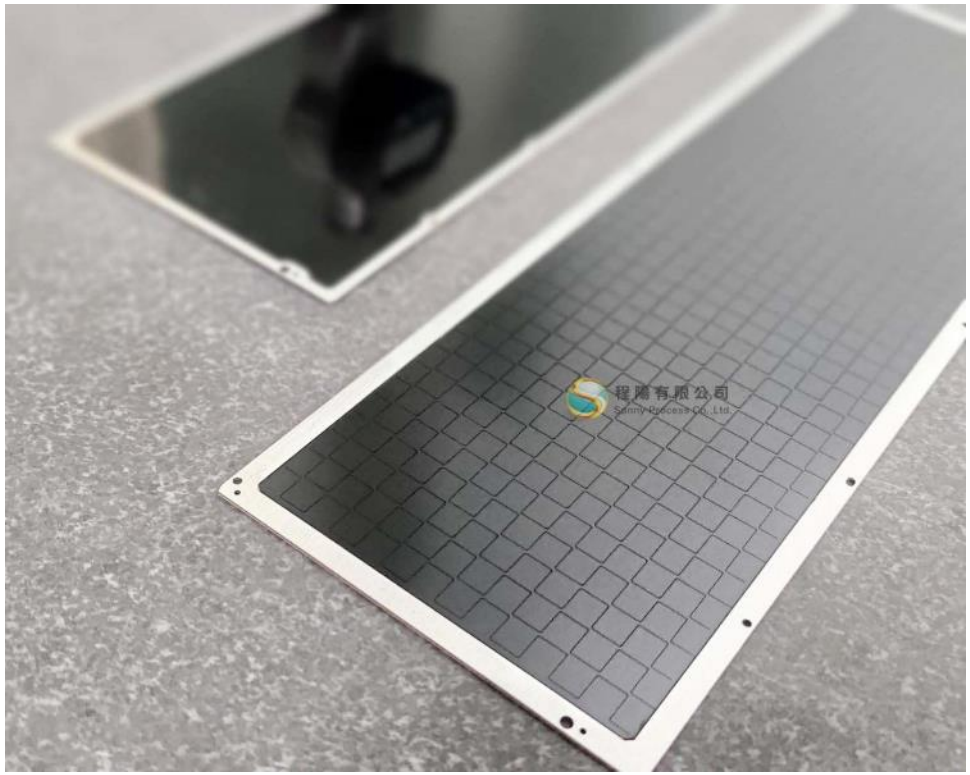


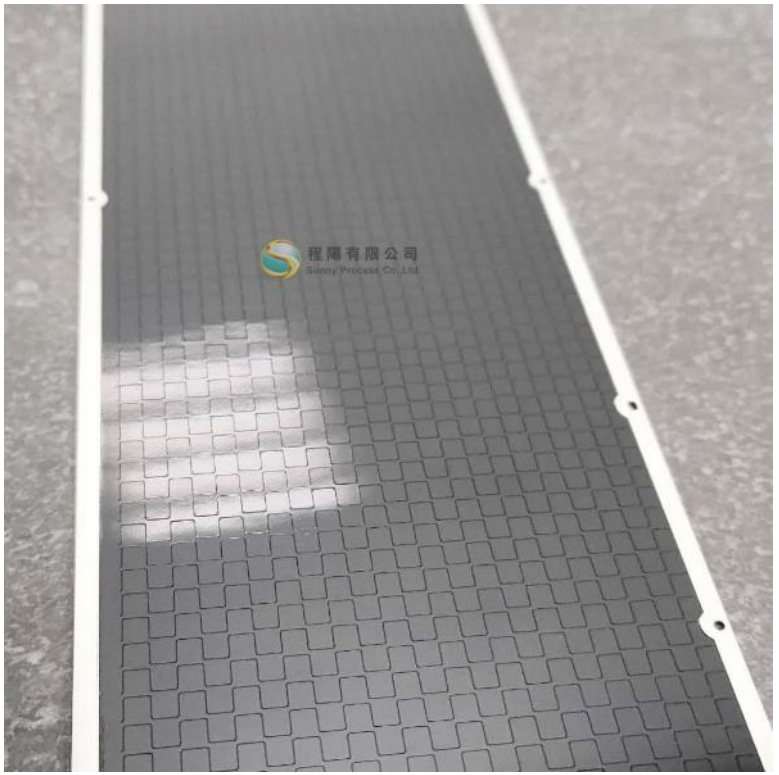
SEMICONDUCTOR PACKAGING APPLICATIONS

The combination of Snake Scale tech on the SUNTABA products eliminates air packing problems, maintains vacuum adsorption capability, and provides air pressure through the air holes, allowing for easy removal of thin substrates, no deformation, and full flattening for packaging process production.

1. Become thinner by 650um.
2. Flatter vacuum adsorption.
3. Heat resistant up to 260°C
4. Reusable and long-lasting.
5. Resistant to mold modding pressure.
6. Low dust and washable.



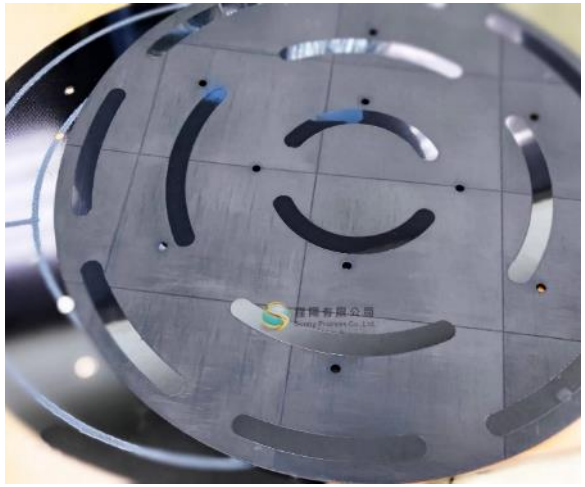


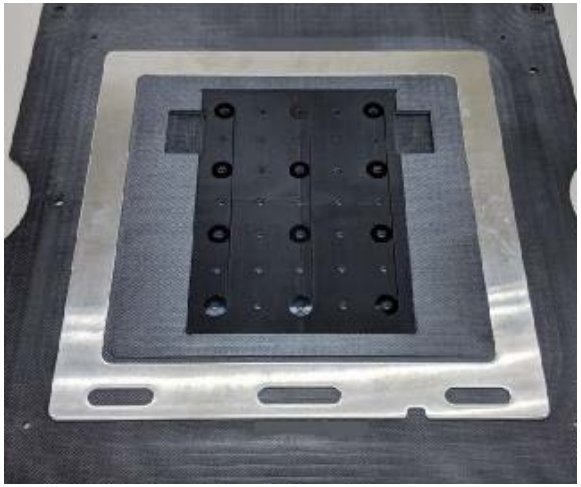


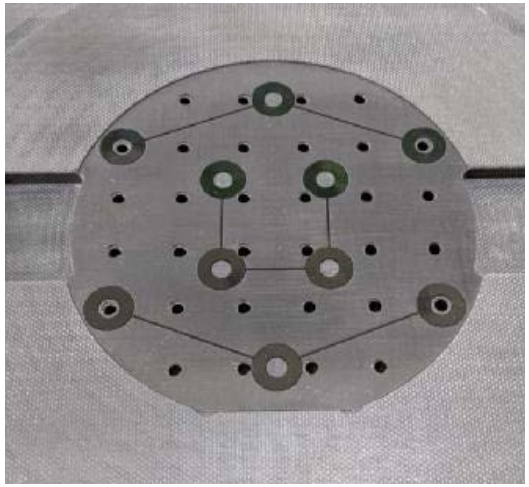
GLASS SUBSTRATE / WAFER APPLICATIONS

The use of carrier transport fixture with SUNTABA VACCUM PLATE enables glass substrate and wafer to be easily fixed, prevents breakage and deformation, and ensures safety when they are transferred and transported during the manufacturing processes.

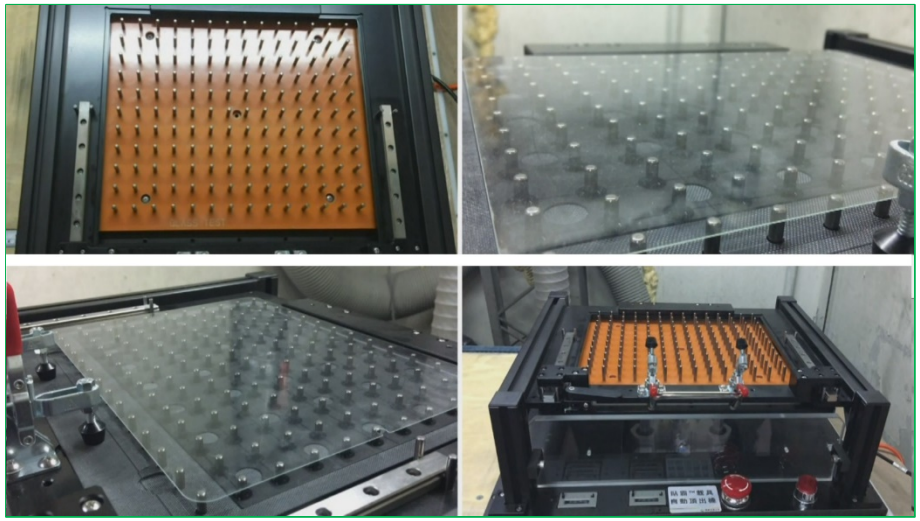
The substrate can be fully supported by the carrier fixture during diebond printing and high-temperature processes, and will not be broken when separated, which is conducive to the completion of automated processes.



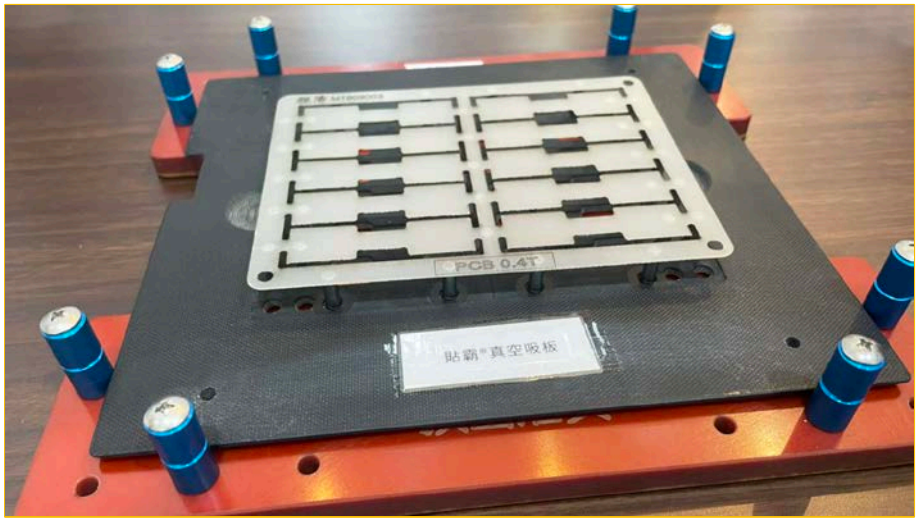




↓Automatic↓



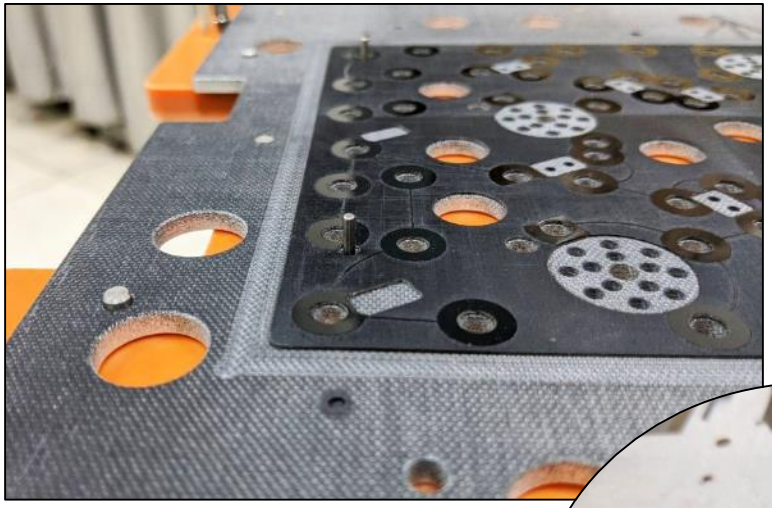
↓Manual↓

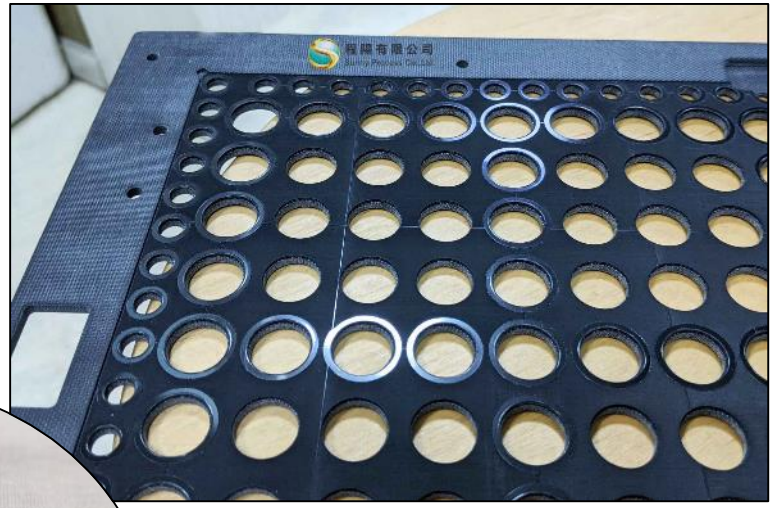


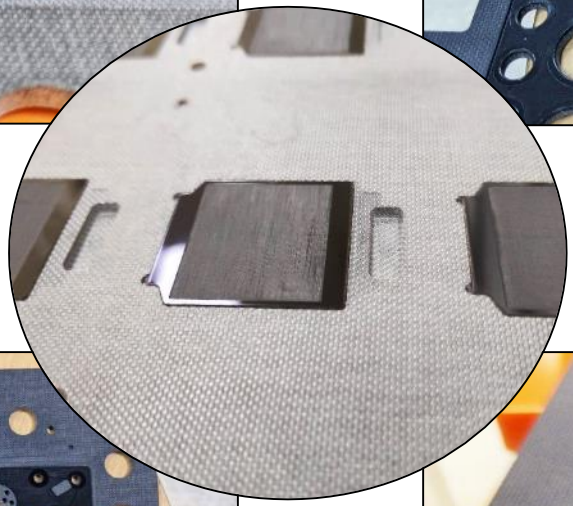
THIN PCB/FPC APPLICATIONS

Thin PCB generally refers to the SMT process, with less than 0.6mm thickness. Commonly used materials include FR4, FPC, PI, PET, such as RFID, SD CARD, FLASH, FPC, COF ... etc. As shown in the picture, SUNTABA VACCUM PLATE can resolve the production problems of these substrates.

1. Reduces deformation of the PCB and improves the yield of the assembly.
2. Reusable, reduces emissions and is environmentally friendly.
3. Enhances automation and reduces manpower needs.
4. Panelized production for enhanced efficiency.







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