

THERMO

FORMING

SOLUTIONS



INTRODUCTION

Dou Yee Enterprises is the premier total industrial solutions provider in the Asia Pacific region, serving with distinction the semiconductor, data storage, electronics and biomedical industry since 1982.

We have more than 45 international branch offices strategically located around the world that allows us to provide the fastest and most accessible products and services to our customers. Our manufacturing plants are located in Singapore, Malaysia (Seremban), China (Suzhou), France and Poland.

Thermoformed products are one of **Dou Yee's** manufactured products for more than 25 years, providing solutions to many the industrial applications.

The common thermo-forming are vacuum forming and pressure forming. Thermoforming is a manufacturing process where plastic sheets are heated, then contoured into profile against a single-sided mold, and finally trimmed to produce the final products. Thermo-formed products are great solutions for shipping packages, in-house process trays, inserts and cushions.



The benefits of thermo-forming are:



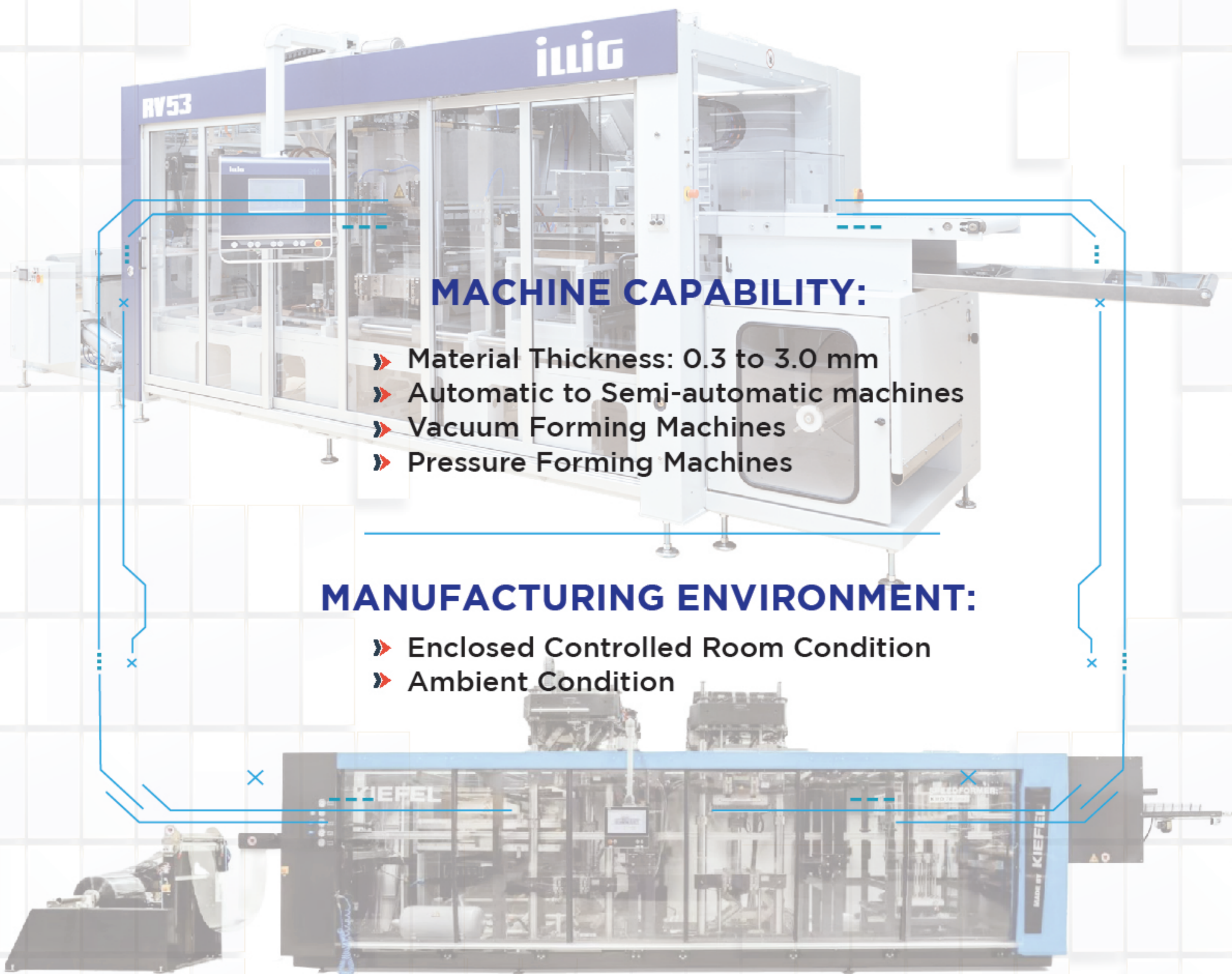
Efficient



Cost-Effective



Short Lead Time



MACHINE CAPABILITY:

- › Material Thickness: 0.3 to 3.0 mm
- › Automatic to Semi-automatic machines
- › Vacuum Forming Machines
- › Pressure Forming Machines

MANUFACTURING ENVIRONMENT:

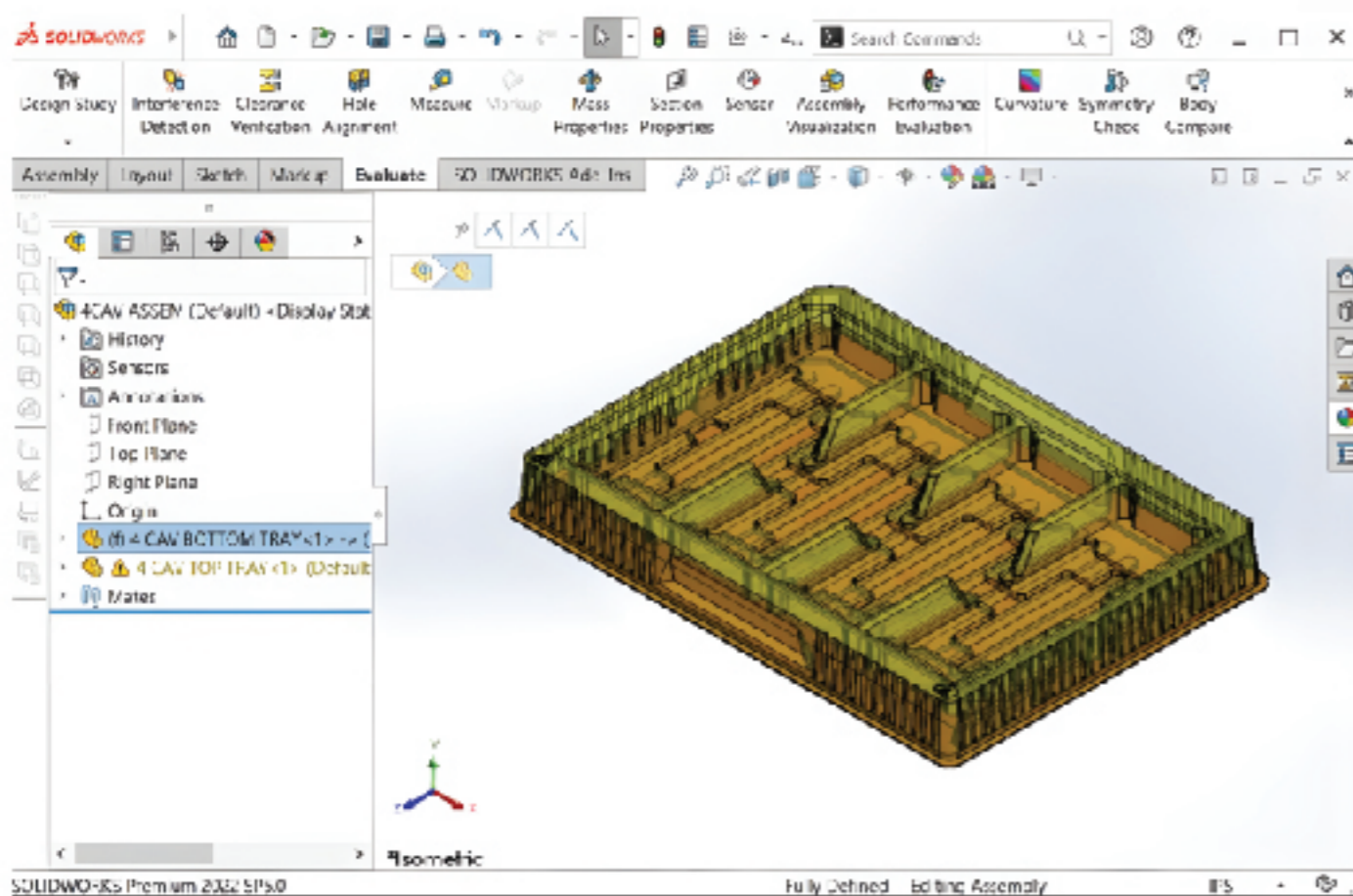
- › Enclosed Controlled Room Condition
- › Ambient Condition

CAPABILITY, DESIGN & TECHNICAL SUPPORT QUALITY

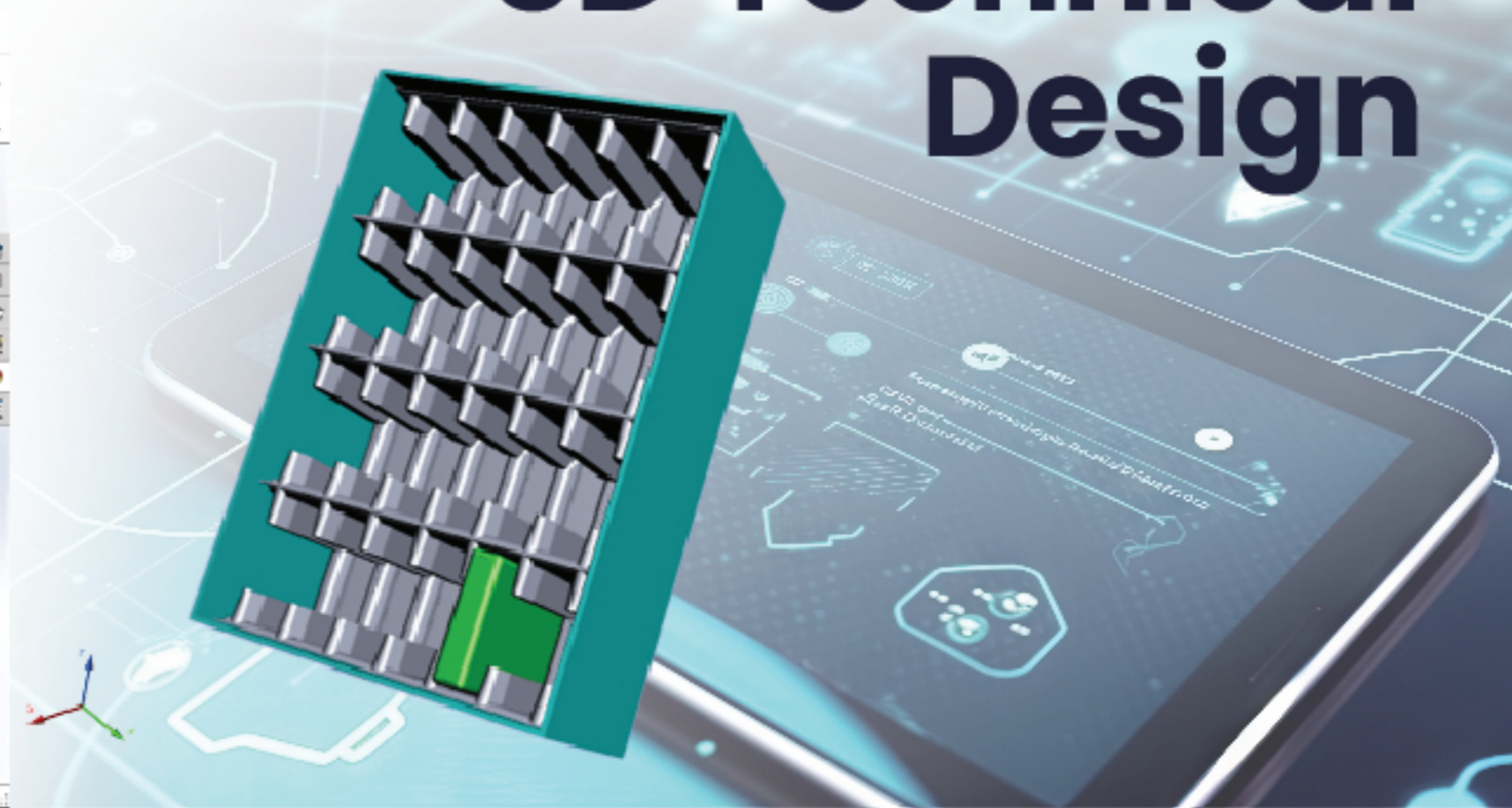
DESIGN AND TECHNICAL SUPPORT CAPABILITY:

Dou Yee offers customization of designs to meet users' experience and requirements.

- Mock-up 3D printing or thermo-formed samples can be provided to ensure designs are feasible and verified before mass production.

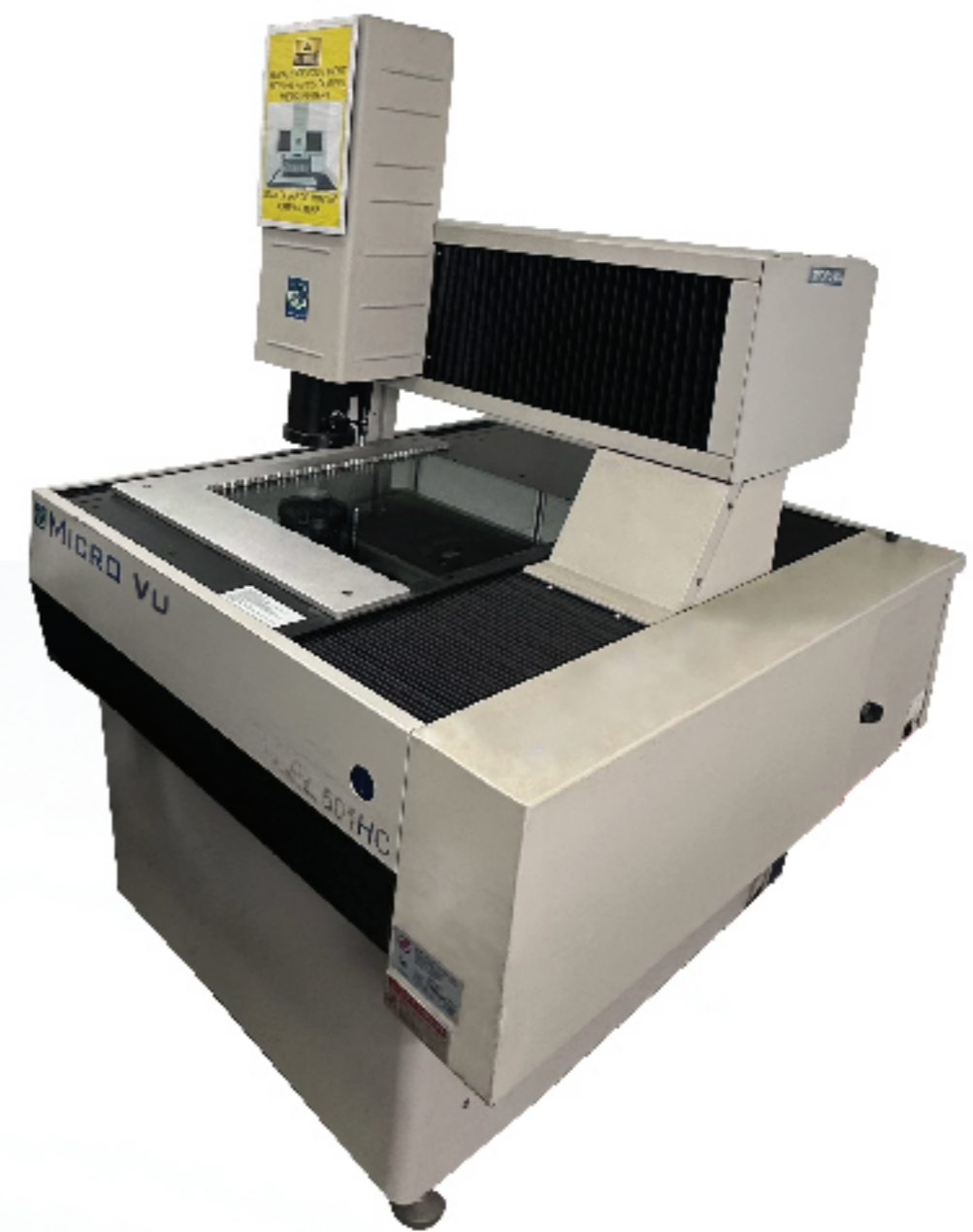


3D Technical Design



Precision Measurement Equipment

- Availability of precision measurement equipment that uses visual mechanism or touch probe mechanism to measure fine dimensions to ensure products are within dimensions for complicated designs.



ESD Quality Assurance

- ESD testing is feasible with trained staffs and equipped with a range of ESD measurement tools, equipment and conditioning chamber. Dou Yee is able to perform ESD test at up to 12% relative humidity condition.

RAW MATERIALS

Amorphous Polyethylene Terephthalate – APET

- **Availability** : Normal, Antistatic ($<10^{11} \Omega$), Static Dissipative (10^4 to $10^9 \Omega$)
- **Color** : Clear, Black * color customizable as per request
- **Thickness** : 0.3 – 1.5 mm
- **Application** : Good Clarity for retail packaging, shipping packaging and insert
- **Antistatic grade** : Prevention of dust accumulation.
- **Static Dissipative grade** : Comes with good clarity, surface resistance is humidity independent and providing stable ESD protection



High Impact Polystyrene – HIPS

- **Availability** : Normal, Conductive ($<10^6 \Omega$), Static Dissipative (10^4 to $10^9 \Omega$)
- **Color** : Black, White, Natural * color customizable as per request
- **Thickness** : 0.3 – 3.0 mm
- **Application** : Commonly used for retail packaging, shipping packaging and insert
- **Conductive grade** : Price competitive material with excellent shielding properties.
- **Static Dissipative grade** : Color can be customized, surface resistance is humidity independent and providing stable ESD protection



Polypropylene – PP

- **Availability** : Normal, Conductive ($<10^6 \Omega$), Antistatic ($<10^{11} \Omega$)
- **Color** : Natural, Black * color customizable as per request
- **Thickness** : 0.3 – 2.0 mm
- **Application** : Good chemical resistance and withstand temperature for shipping tray and insert
- **Conductive grade** : Price competitive material with excellent shielding properties.
- **Antistatic grade** : Prevention of dust accumulation



Acrylonitrile Butadiene Styrene – ABS

- Availability : Conductive (<math><10^6 \Omega</math>)
- Color : Black
- Thickness : 0.3 – 3.0 mm
- Application : Good withstand temperature and strength for in-house and re-usable trays.
- **Conductive grade** : Price competitive material with excellent shielding properties.



Polyethylene Terephthalate Glycol – PETG

- Availability : Normal, Antistatic ($10^7 - 10^{10} \Omega$)
- Color : Natural, Clear
- Thickness : 0.3 – 2.0 mm
- Application : Suitable for packing sensitive devices, medical devices and cleanroom compatible
- **Antistatic grade** : Prevention of dust accumulation
- **PETG 6763** : Suitable for medical products. Meet ISO 10993 and/or USP Class VI biocompatibility. Little or minimum particle generation during processing. Safe for ethylene oxide or gamma radiation sterilization.

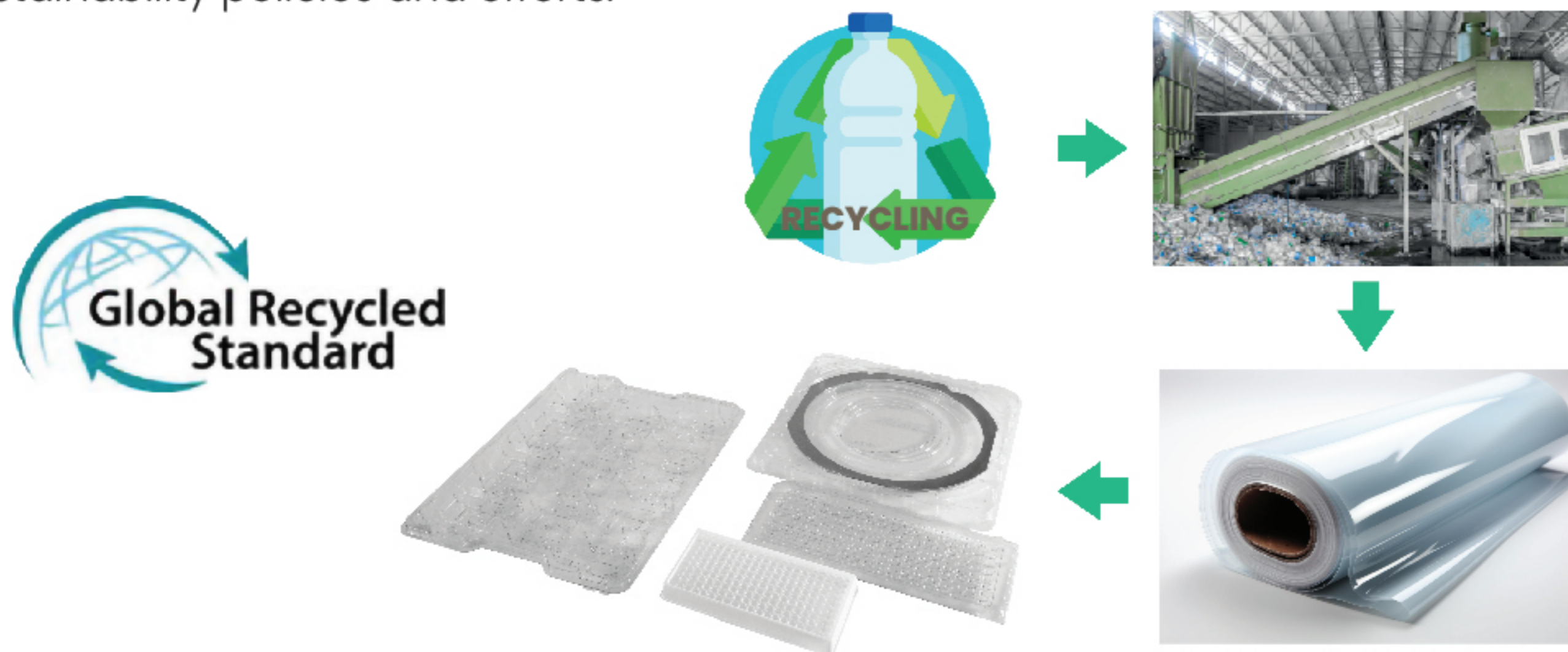


SUSTAINABILITY PACKAGING MATERIALS

Global environmental concerns and carbon footprint reduction are the focus on sustainability plans worldwide. Green sustainable raw materials are also developed to tackle the challenges on environmental concerns.

POST CONSUMER RECYCLED (PCR) APET (GRS GRADE)

The Global Recycled Standard (GRS) is standard for tracking and verifying the content of recycled materials in a plastic product. The standard applies to the full supply chain and addresses traceability, environmental principles, chemical content. 20% to 70% of recycled material can be added depending on the recyclability rate of the environmental sustainability policies and efforts.



BIODEGRADABLE POLYPROPYLENE – PP

Plastics made with an additive which allegedly allows the rapid biodegradation of the tray within certain timeframe. Under certain conditions, these material will breakdown over time in years and therefore, resolving landfill disposal.



BIOMASS POLYPROPYLENE – PP

Plastics that is derived from biomass (plant-based renewable feedstock such as corn, sugarcane, or cellulose etc.). These are compostable plastic that can reduce carbon footprint. However, there are limitation for the complicated product design.



More than 45 offices across
North America, Europe and Asia Pacific

– Manufacturing Plants –
Singapore . Malaysia . China . France . Poland



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