

DR Laser

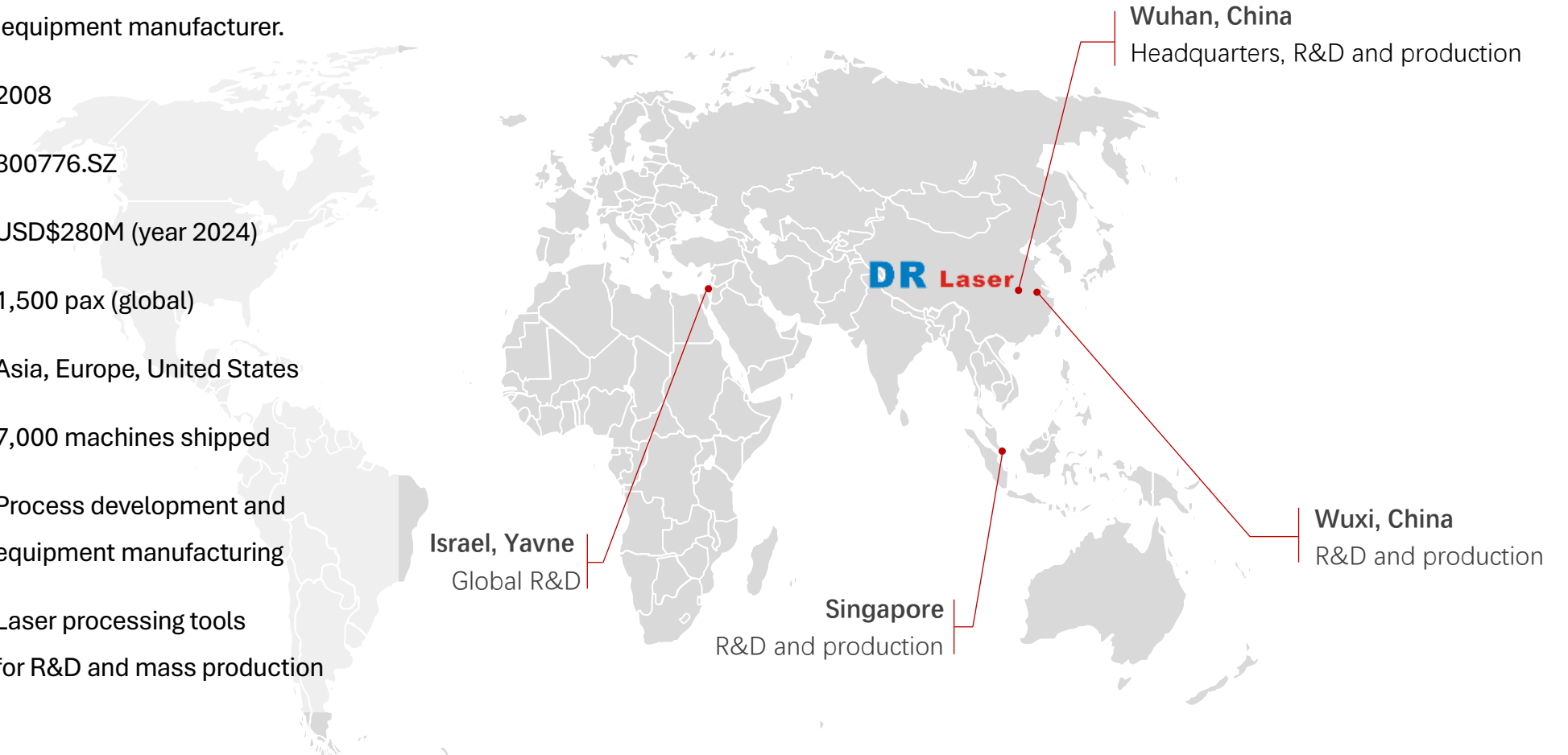
Company Profile, Products and Technology

Prepared by: Edmond Soh, Business Development Manager

Company Profile

DR Laser is a high-precision equipment manufacturer.

- **Year founded:** 2008
- **Stock code:** 300776.SZ
- **Annual revenue:** USD\$280M (year 2024)
- **No. of employees:** 1,500 pax (global)
- **Customers:** Asia, Europe, United States
- **Track record:** 7,000 machines shipped
- **Business:** Process development and equipment manufacturing
- **Product:** Laser processing tools for R&D and mass production



Company Profile

- **Company name:** Wuhan DR Laser Technology Corp., Ltd
- **Headquarter address:** No. 88, Jiulong Lake Street, East Lake High-tech Development Zone, Wuhan City, China
- **Certifications:** ISO 9001:2015
ISO 14001:2015
ISO 45001:2018
- **Patents:** 700+
- **Software copyrights:** 200+
- **R&D investment:** 10 – 15% of annual revenue
- **Manufacturing floorspace:** 120,000sqm



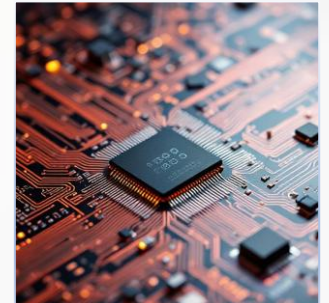
Business Segment

- **Equipment Manufacturing (OEM/ODM)**
 - R&D tools
 - Production standalone machine
 - Full-line equipment integration
- **Non-recurring Engineering (NRE) services**
 - Feasibility study
 - Process development (laser applications)
- **Contract Manufacturing (CM)**
 - Prototyping
 - Batch production

Photovoltaic



Semiconductor



Advanced Display



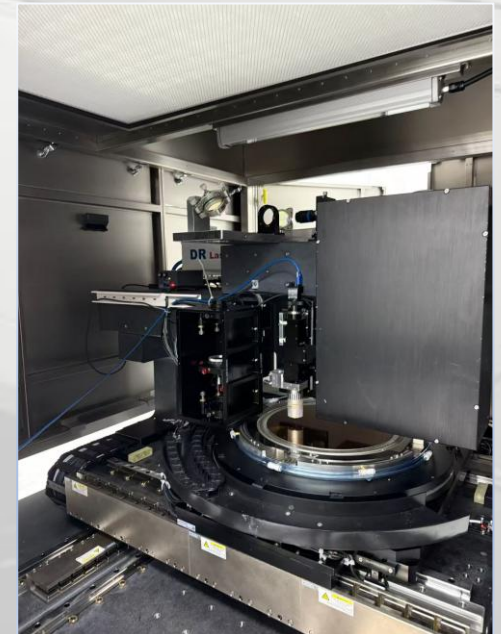
Core Competency

- **Laser Processing Technology**

- Ablation-based micromachining
 - Scribing, Grooving, Cutting, Drilling, etc.
- Surface treatment
 - Annealing, Passivation, Doping
- Material modification
 - Glass, Silicon, Silicon Carbide, etc.

- **Equipment Manufacturing**

- Software development
- Control systems
- Economy of scale



Products & Technology



Laser Ablation System



Laser Scribing System



Laser Enhanced Passivation System

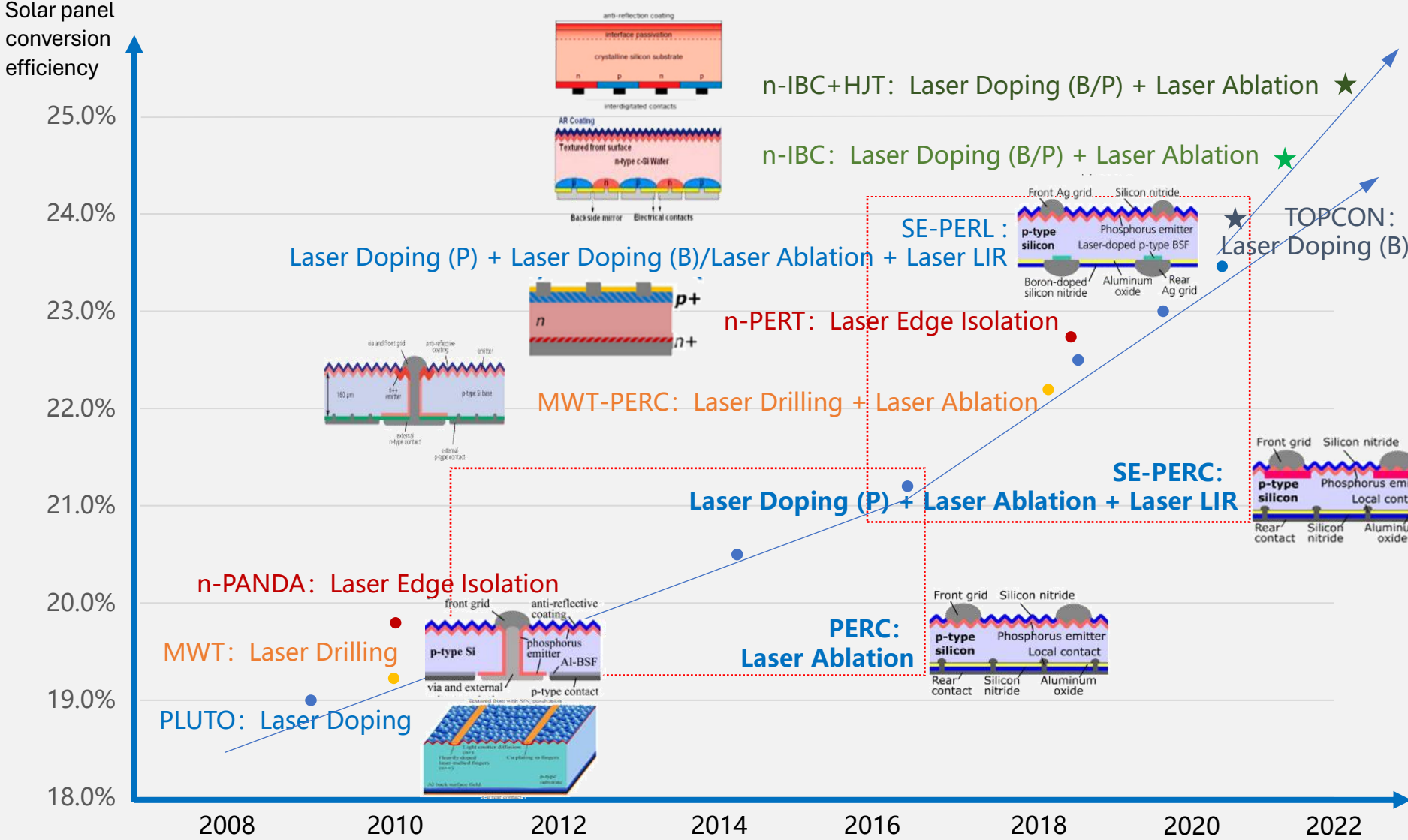


Laser Doping System



Laser Transfer Print Metallization Line

Achievement in Photovoltaic industry

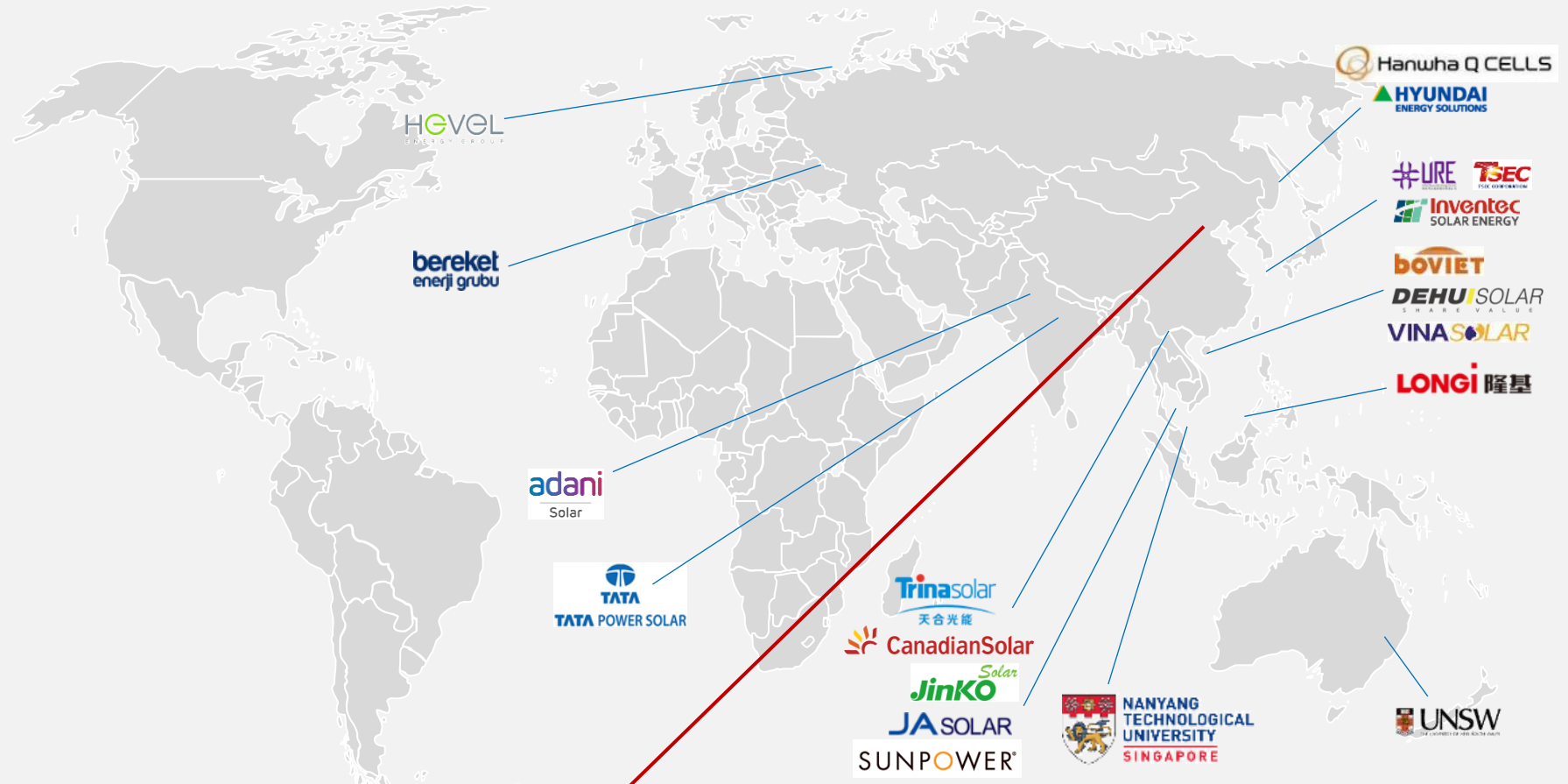


“By working with leading customers in the industry,

DR Laser developed equipment solutions which bolstered the advancement in every generation of solar technology.”

Customers in Photovoltaic industry

Global Support	
US & Europe	<ul style="list-style-type: none"> • United States • Germany • Turkey • India
North Asia	<ul style="list-style-type: none"> • China
East Asia	<ul style="list-style-type: none"> • Taiwan • Korea
Southeast Asia	<ul style="list-style-type: none"> • Malaysia • Thailand • Vietnam • Cambodia • Laos



“7,000 units sold across the world.”



Powering **Sustainability**: Clean Energy & Carbon Reduction

Annual installation capacity: around **450GW** in 2024.



1572.9GW

cumulative installation capacity



Germany+France+UK+Italy+Switzerland
total electricity consumption per year

Carbon Reduction



191 million tons
CO₂ Emission reduction

41.5 million
gasoline-powered vehicles' emissions per year

1.19 million hectares
forest's carbon absorption per year

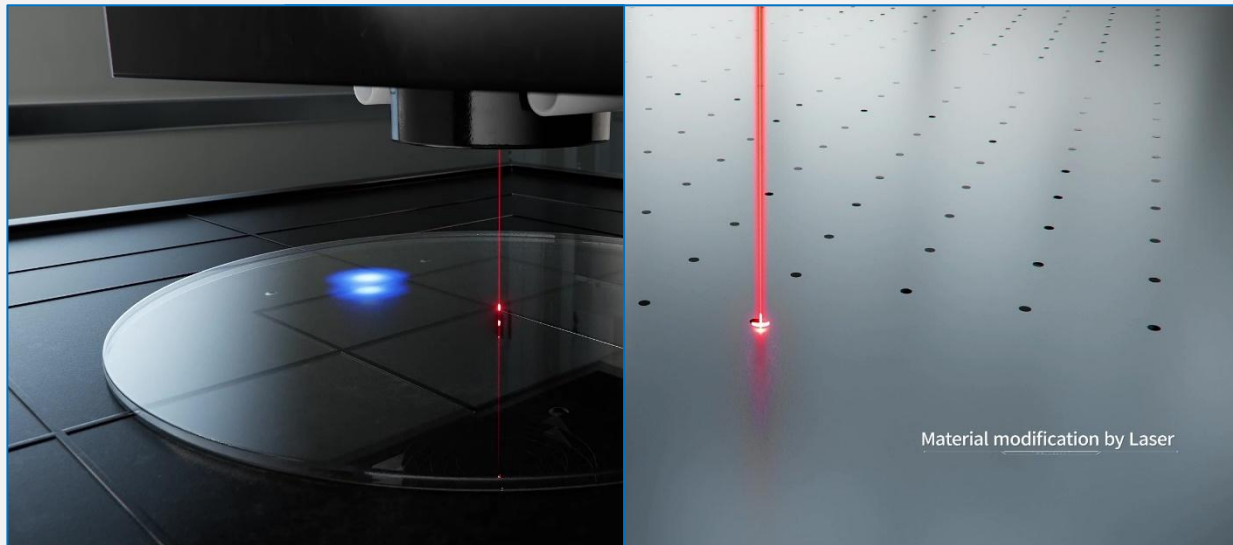
Achievement in Semiconductor & Display industry **DR Laser**

“Through joint-development with manufacturers specialised in advanced packaging and TGV;*

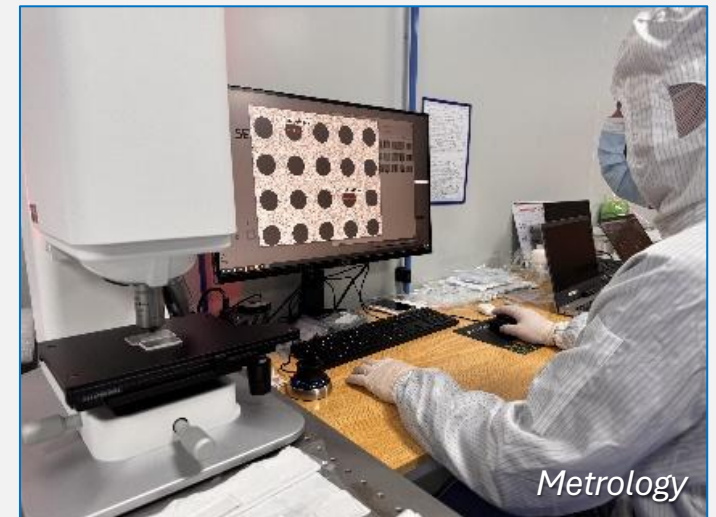
DR Laser was the first equipment maker to provide panel-level laser solution in China.”



Operator running pilot tests



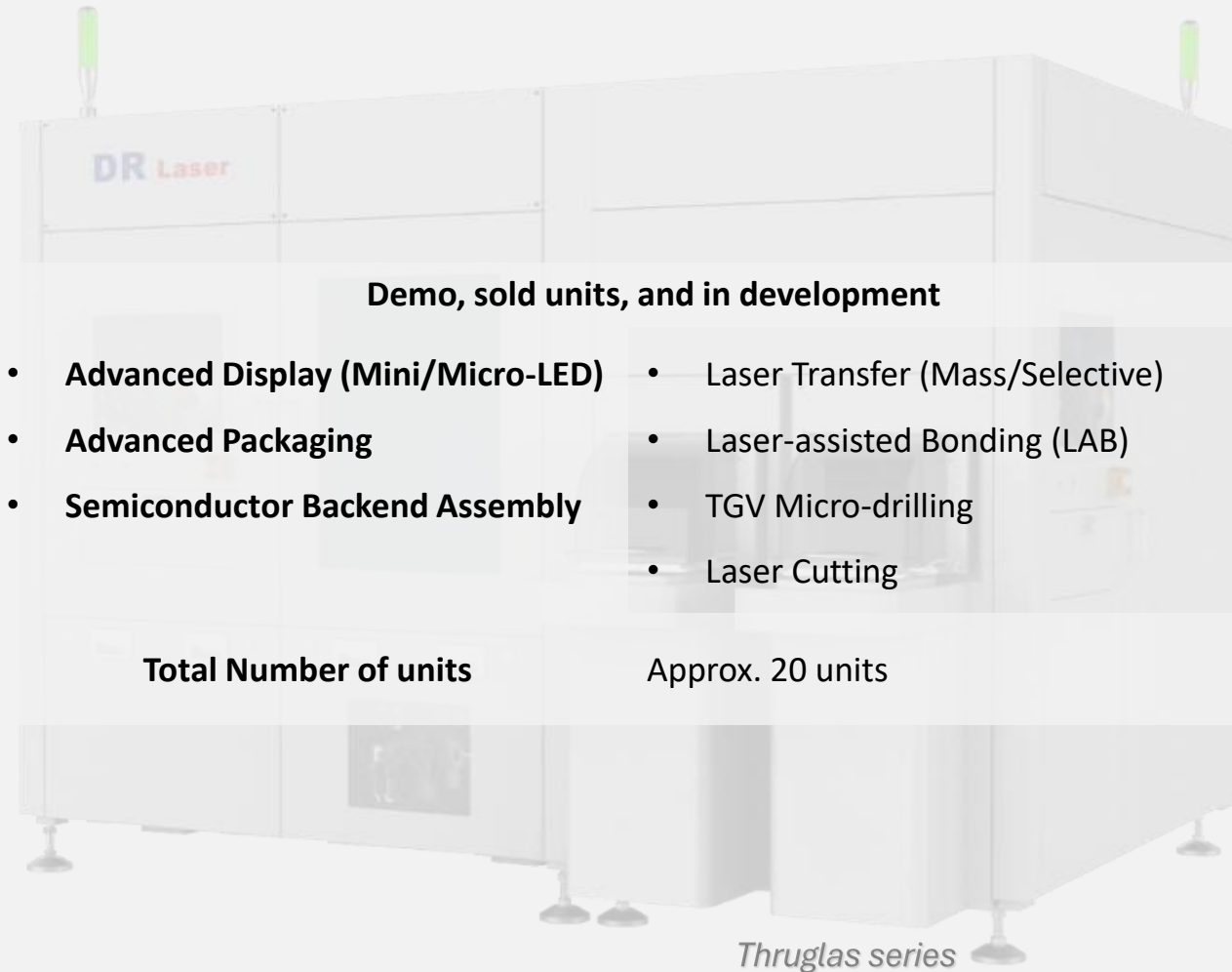
Material modification by Laser



Metrology

**Through-glass Via (TGV) is a technology essential for 2.5/3D advanced packaging to fuel next generation High Performance Computing (HPC) and A.I. applications.*

Achievement in Semiconductor & Display industry **DR Laser**



Demo, sold units, and in development

- **Advanced Display (Mini/Micro-LED)**
- **Advanced Packaging**
- **Semiconductor Backend Assembly**
- Laser Transfer (Mass/Selective)
- Laser-assisted Bonding (LAB)
- TGV Micro-drilling
- Laser Cutting

Total Number of units

Approx. 20 units

DR Laser Manufacturing Facilities in China



“More than 120,000sqm manufacturing floor space with production capacity of up to 2,000 tools per year.”

Wuhan DR Laser Technology Corp., Ltd

No. 88, Jiulong Lake Street,
East Lake High-tech Development Zone,
Wuhan City, China

DR Laser Manufacturing Facilities in Singapore



“A fully functional R&D center equipped with class 10k cleanroom ready for small-scale equipment manufacturing.”

DR Laser Singapore Pte Ltd

31 International Business Park Rd, #05-05,
Singapore 609921

Application Center in Singapore

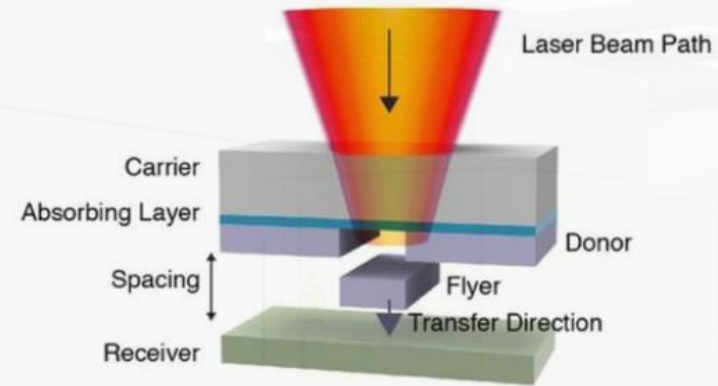
Class 10k cleanroom

- Photonics lab
- Metrology lab
- Prototype equipment

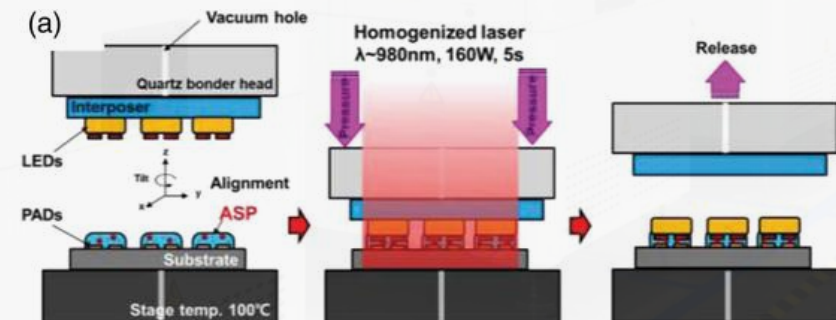
Test platforms available:

- Laser wavelength: IR, Green, UV, DUV
- Pulse width: ns, ps, fs
- Process technology:
 - Laser-Assisted-Bonding (LAB)
 - Laser-Induced Forward Transfer (LIFT)
 - Wafer Dicing, Scribing, Grooving, etc.

Laser-induced Forward Transfer (LIFT)



Source: Research Gate, Laser-Induced Transfer of Functional Materials, May 2023



Source: Research Gate, Laser-Based Micro/Nano-Processing Techniques for Microscale LEDs and Full-Color Displays, November 2022

Product Highlights



Bump PTP™

- Solder paste printing
- Dielectric, polymer printing



Kleave

- Wafer cutting
- Laser grooving



ThruGlas

- Glass micro machining
- TGV micro drilling

Product Info



Bump PTP™

Application

- HJT solar cells
- Micro bumping

Process

Micro Bump pattern



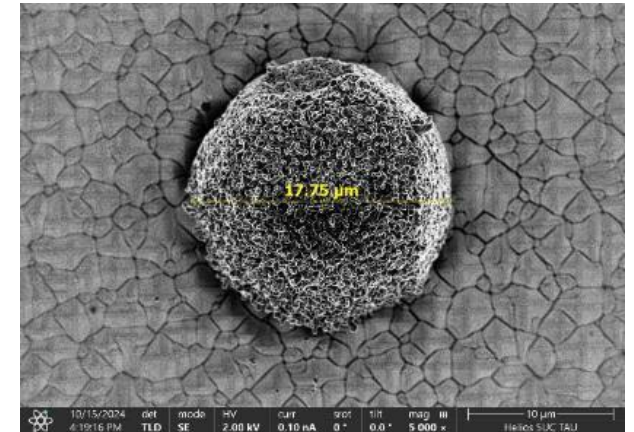
Filling Solder paste



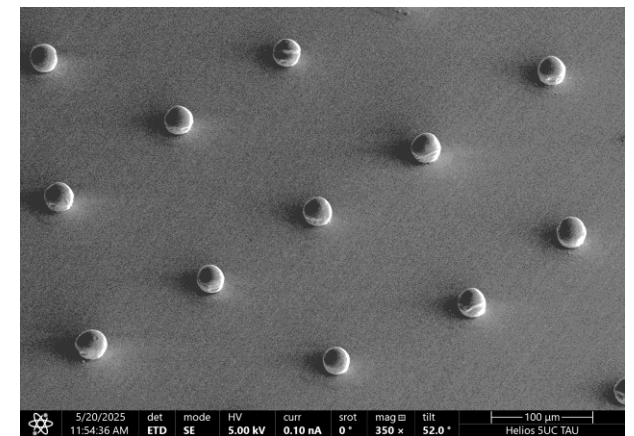
Laser Transfer



Examples



Nano Ag Paste 17um diameter bump



25um Solder (SAC305) bump after reflow

Product Info

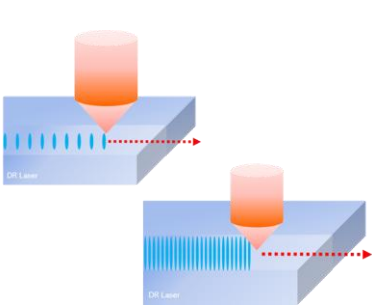


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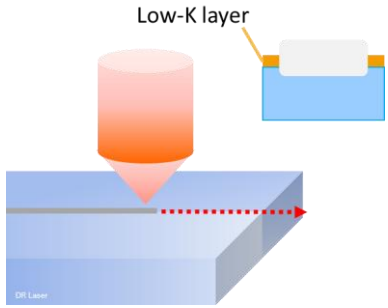
Application

- MEMS & Sensors
- RF Devices
- MiniLED, display panels

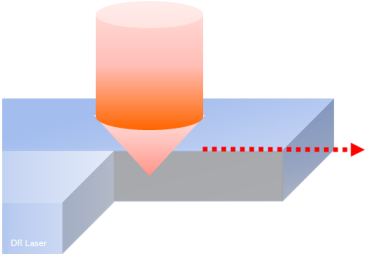
Process



Internal Dicing

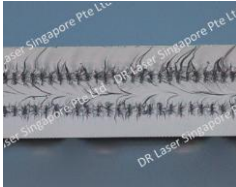
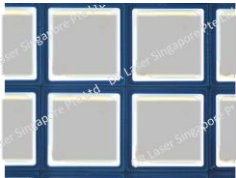


Surface scribe / Grooving

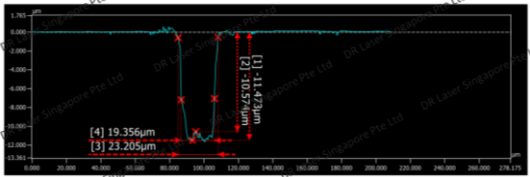
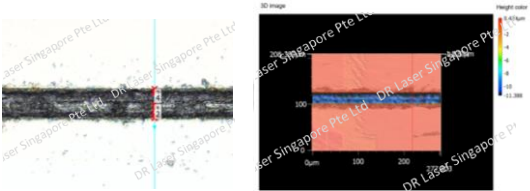


Dicing / Full Cut

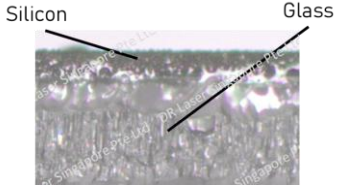
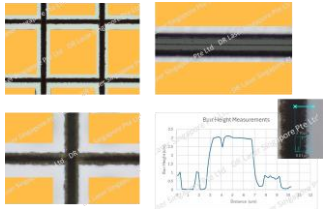
Examples



Sapphire



Silicon



Stacked layer

Product Info

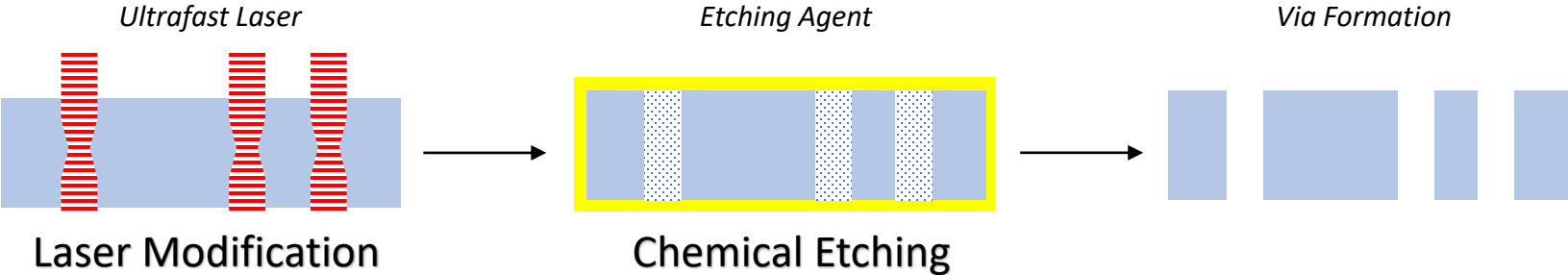


ThruGlas

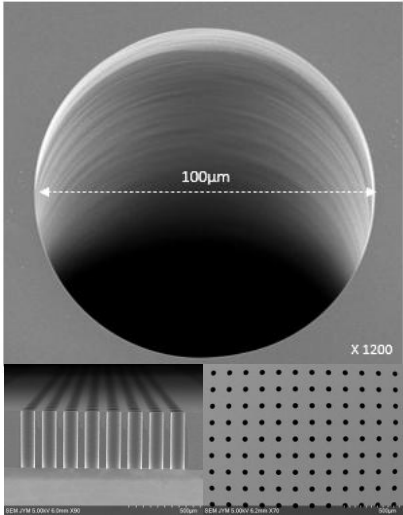
Application

- Glass interposers
- Glass core substrates
- Mini/Micro LED

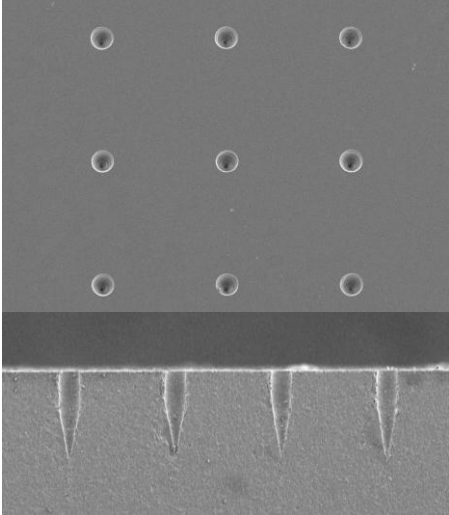
Process



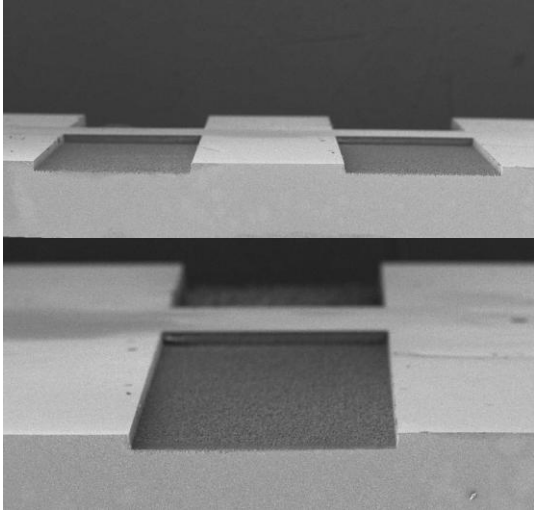
Examples



BF33 – Through hole



BF33 – Blind hole



BF33 – Blind trench

Thank you

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