

Global TGV Laser Micro-hole Equipment Market Growth 2026-2032

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Abstracts

The global TGV Laser Micro-hole Equipment market size is predicted to grow from US\$ 35.56 million in 2025 to US\$ 58.76 million in 2032; it is expected to grow at a CAGR of 7.6% from 2026 to 2032.

A TGV Laser Micro-hole Equipment is a specialized type of laser processing equipment used to create through-glass vias (TGVs), which are small, precise holes that pass through the thickness of a glass substrate. This technology is crucial for applications in industries such as microelectronics, semiconductors, sensors, and optoelectronics, where glass substrates need to be interconnected with electrical or optical paths.

The primary function of a TGV Laser Drilling Machine is to use lasers for drilling or ablation to create vias in glass substrates without causing damage to the surrounding material. The technology offers high precision and control, allowing for the drilling of holes with specific diameters, depths, and shapes.

TGV hole-forming technology needs to take into account the requirements of cost, speed and quality. The challenge is that it needs to meet a series of requirements such as high speed, high precision, narrow pitch, smooth sidewalls, good verticality and low cost. For many years, many research works in the industry and academia have been committed to the development of low-cost, fast and scalable hole-forming technology. Generally speaking, TGV can be made by sandblasting, photosensitive glass, focused discharge, plasma etching, electrochemical method, laser induced etching and other technologies. So far, laser induced etching has obvious advantages and has been applied. It is expected to stand out in hole-forming technology, making laser etching equipment one of the core equipment of hole-forming process. This process first uses laser technology to preset small holes on the glass wafer, and then puts the glass wafer

into a HF solution containing 8% to 15% mass concentration, and the temperature of this solution is maintained at 20°C to 40°C. Then, the container is placed in an ultrasonic device and the device is turned on, and the device emits 40KHz ultrasonic waves. During the etching time of 60 to 120 minutes, the small holes on the glass wafer are etched with HF solution until the required diameter is reached. After the etching is completed, the glass wafer is removed and cleaned with deionized water. Finally, the aperture and permeability of the glass through hole are tested to ensure the process quality.

In terms of product types, wafer-level packaging occupies an important position, and it is expected that the share will reach 52.14% in 2031. At the same time, in terms of application, the share of semiconductors in 2024 is about 60.56%, and the CAGR in the next few years is about 5.13%. In addition to traditional semiconductors and electronics, equipment will be expanded to self-driving cars, 5G communications, biomedicine and transparent displays. It is expected that display panel applications will gradually occupy a larger market in the future.

High-precision TGV (Through Glass Via, glass through hole) laser equipment is a key equipment in the fields of semiconductors, display panels, MEMS (micro-electromechanical systems) and advanced packaging. With the continuous breakthroughs in technology and the growth of market demand, TGV equipment will play an increasingly important role in the field of high-end manufacturing. In terms of international market share and ranking, the main manufacturers are LPKF, 4JET, EKSPLA, TRUMPF, Philoptics, etc. The top five manufacturers in 2024 account for about 87.21% of the international market.

In terms of domestic market share and ranking, the main manufacturers in the Chinese market are LPKF, 4JET, EKSPLA, TRUMPF, Philoptics, etc. The top five manufacturers in 2024 account for about 88.01% of the domestic market. It is expected that industry competition will become more intense in the next few years, especially in the Chinese market. Domestic companies are expected to achieve overtaking in this field and become important players in the global market. China will become the fastest growing market, benefiting from policy support (such as the "14th Five-Year Plan") and technological breakthroughs of local companies (such as Deer Laser's deep hole processing equipment). It is expected that the proportion of China's market size in the world will increase significantly in 2031. North America and Europe focus on high-end application upgrades, such as high-performance computing chip packaging.

LP Information, Inc. (LPI) ' newest research report, the TGV Laser Micro-hole

Equipment Industry Forecast? looks at past sales and reviews total world TGV Laser Micro-hole Equipment sales in 2025, providing a comprehensive analysis by region and market sector of projected TGV Laser Micro-hole Equipment sales for 2026 through 2032. With TGV Laser Micro-hole Equipment sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world TGV Laser Micro-hole Equipment industry.

This Insight Report provides a comprehensive analysis of the global TGV Laser Micro-hole Equipment landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on TGV Laser Micro-hole Equipment portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global TGV Laser Micro-hole Equipment market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for TGV Laser Micro-hole Equipment and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global TGV Laser Micro-hole Equipment.

This report presents a comprehensive overview, market shares, and growth opportunities of TGV Laser Micro-hole Equipment market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

Wafer Level Packaging

Panel-Level Packaging

Segmentation by Application:

Semiconductor

Display

Other

This report also splits the market by region:

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

LPKF

Delphi Laser

GH Laser

HSET

INTE Laser

E&R Engineering

Philoptics

DR Laser

LasTop Tech

4JET

Huagong Laser

RENA

Lyric

Key Questions Addressed in this Report

What is the 10-year outlook for the global TGV Laser Micro-hole Equipment market?

What factors are driving TGV Laser Micro-hole Equipment market growth, globally and by region?

Which technologies are poised for the fastest growth by market and region?

How do TGV Laser Micro-hole Equipment market opportunities vary by end market size?

How does TGV Laser Micro-hole Equipment break out by Type, by Application?

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