

Laser Diode Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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Abstracts

Market Overview:

The global laser diode market size reached US\$ 10.4 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 20.6 Billion by 2028, exhibiting a growth rate (CAGR) of 12.6% during 2023-2028.

A laser diode, also known as a diode laser, refers to a semiconductor device which generates coherent radiation in the visible or infrared (IR) spectrum when current passes through it. It is similar to a light-emitting diode, wherein a laser beam is created at the diode's junction. As the light consists of a single frequency, it can be focused on a very small point by using a simple lens system. Laser diodes are small in size, light in weight and have low power requirements which make them highly efficient in nature and ideal for portable electronic equipment. Due to this, they are used in various devices such as barcode readers, autonomous vehicles, laser printers, fiber optic communications and security systems.

Global Laser Diode Industry Drivers:

Over the past few years, the demand for laser diodes in the healthcare sector has witnessed a growth. A laser diode can assist physicians to focus the beam with better precision on targeted areas, preventing any kind of damage to the surrounding area. As a result, the employment of semiconductor laser diodes is continuously expanding in the spine, cardiovascular and cataract surgeries. Besides this, laser diodes also find vast applications in hair removal, body contouring, LASIK surgery, skin resurfacing, tattoo removal, and wrinkle and pigmentation reduction.

In the industrial sector, laser diodes are employed in material processing owing to their advantages like compact size, low maintenance, short wavelength and high-electrical

efficiency. Material processing applications involve metal welding, metal hardening, laser brazing, cladding, and cutting of metals. As material processing forms an integral part of the manufacturing process in the automotive, aerospace, heavy engineering and consumer electronics industries, the demand for laser diodes is gaining momentum.

Researchers and developers are continuously introducing innovations in the laser diode industry so as to provide more convenience and higher accuracy at a lower price point. For instance, Coherent, one of the major players in the market, has improved the usage of laser diodes by integrating a water chiller directly into the laser head.

In the automotive industry, laser diodes are now being used in the manufacturing of automotive headlamps as they offer the driver improved visibility, resulting in increased road traffic safety. Apart from this, they also provide the longest range in comparison with any other current headlight technology. In the upcoming years, the sales of laser diodes are expected to rise significantly in this industry on account of mounting demand for luxury vehicles, driven by inflating income levels and improving living standards.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global laser diode market report, along with forecasts at the global and regional level from 2023-2028. Our report has categorized the market based on product type and application.

Breakup by Product Type:

Injection Laser Diode (ILD)

Optically Pumped Semiconductor Laser (OPSL)

On the basis of types, the market is bifurcated into injection laser diode (ILD) and optically pumped semiconductor laser (OPSL). Currently, injection laser diode represents the most popular product type, holding the majority of the market share.

Breakup by Application:

Optical Storage and Communication

Industrial Applications

Medical Applications

Military and Defence Applications

Instrumentation and Sensor Applications

Others

Based on applications, the global laser diode market is segregated as optical storage and communication, industrial applications, medical applications, military and defense applications, instrumentation and sensor applications and others. At present, industrial applications account for the majority of the market share, representing the biggest application area.

Regional Insights:

North America

Europe

Asia Pacific

Latin America

Middle East and Africa

On a geographical front, Asia Pacific enjoys the leading position in the global laser diode market. Constant demand emerging for material processing in automotive, heavy industries and general manufacturing is contributing to the growth of the market in the region. Other major markets include North America, Europe, Latin America, and Middle East and Africa.

Competitive Landscape:

The market is fragmented in nature with the presence of numerous small and large manufacturers who compete against one another in terms of prices, quality, and innovation. Some of the leading players operating in the market are:

Coherent

IPG Photonics

OSRAM Licht AG

TRUMPF GmbH + Co. KG

Jenoptik AG

This report provides a deep insight into the global laser diode market covering all its essential aspects. This ranges from macro overview of the market to micro details of the industry performance, recent trends, key market drivers and challenges, SWOT analysis, Porter's five forces analysis, value chain analysis, etc. This report is a must-read for entrepreneurs, investors, researchers, consultants, business strategists, and all those who have any kind of stake or are planning to foray into the laser diode industry in any manner.

Key Questions Answered in This Report

1. How big is the global laser diode market?
2. What is the expected growth rate of the global laser diode market during 2023-2028?
3. What are the key factors driving the global laser diode market?
4. What has been the impact of COVID-19 on the global laser diode market?
5. What is the breakup of the global laser diode market based on the product type?
6. What is the breakup of the global laser diode market based on the application?
7. What are the key regions in the global laser diode market?
8. Who are the key players/companies in the global laser diode market?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL LASER DIODE MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Breakup by Product Type
- 5.5 Market Breakup by Application
- 5.6 Market Breakup by Region
- 5.7 Market Forecast
- 5.8 SWOT Analysis
 - 5.8.1 Overview
 - 5.8.2 Strengths
 - 5.8.3 Weaknesses
 - 5.8.4 Opportunities
 - 5.8.5 Threats
- 5.9 Value Chain Analysis

- 5.9.1 Overview
- 5.9.2 Research and Development
- 5.9.3 Raw Material Procurement
- 5.9.4 Manufacturing
- 5.9.5 Marketing
- 5.9.6 Distribution
- 5.9.7 End-Use
- 5.10 Porters Five Forces Analysis
 - 5.10.1 Overview
 - 5.10.2 Bargaining Power of Buyers
 - 5.10.3 Bargaining Power of Suppliers
 - 5.10.4 Degree of Competition
 - 5.10.5 Threat of New Entrants
 - 5.10.6 Threat of Substitutes

6 MARKET BREAKUP BY PRODUCT TYPE

- 6.1 Injection Laser Diode (ILD)
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
- 6.2 Optically Pumped Semiconductor Laser (OPSL)
 - 6.2.1 Market Trends
 - 6.2.2 Market Forecast

7 MARKET BREAKUP BY APPLICATION

- 7.1 Optical Storage and Communication
 - 7.1.1 Market Trends
 - 7.1.2 Market Forecast
- 7.2 Industrial Applications
 - 7.2.1 Market Trends
 - 7.2.2 Market Forecast
- 7.3 Medical Applications
 - 7.3.1 Market Trends
 - 7.3.2 Market Forecast
- 7.4 Military and Defence Applications
 - 7.4.1 Market Trends
 - 7.4.2 Market Forecast
- 7.5 Instrumentation and Sensor Applications

- 7.5.1 Market Trends
- 7.5.2 Market Forecast
- 7.6 Others
 - 7.6.1 Market Trends
 - 7.6.2 Market Forecast

8 MARKET BREAKUP BY REGION

- 8.1 North America
 - 8.1.1 Market Trends
 - 8.1.2 Market Forecast
- 8.2 Europe
 - 8.2.1 Market Trends
 - 8.2.2 Market Forecast
- 8.3 Asia Pacific
 - 8.3.1 Market Trends
 - 8.3.2 Market Forecast
- 8.4 Latin America
 - 8.4.1 Market Trends
 - 8.4.2 Market Forecast
- 8.5 Middle East and Africa
 - 8.5.1 Market Trends
 - 8.5.2 Market Forecast

9 LASER DIODE MANUFACTURING PROCESS

- 9.1 Product Overview
- 9.2 Raw Material Requirements
- 9.3 Manufacturing Process
- 9.4 Key Success and Risk Factors

10 COMPETITIVE LANDSCAPE

- 10.1 Market Structure
- 10.2 Key Players
- 10.3 Profiles of Key Players
 - 10.3.1 Coherent
 - 10.3.1.1 Company Overview
 - 10.3.1.2 Description

- 10.3.1.3 Product Portfolio
- 10.3.1.4 Financials
- 10.3.1.5 SWOT Analysis
- 10.3.2 IPG Photonics
 - 10.3.2.1 Company Overview
 - 10.3.2.2 Description
 - 10.3.2.3 Product Portfolio
 - 10.3.2.4 Financials
 - 10.3.2.5 SWOT Analysis
- 10.3.3 OSRAM Licht AG
 - 10.3.3.1 Company Overview
 - 10.3.3.2 Description
 - 10.3.3.3 Product Portfolio
 - 10.3.3.4 Financials
 - 10.3.3.5 SWOT Analysis
- 10.3.4 TRUMPF GmbH + Co. KG
 - 10.3.4.1 Company Overview
 - 10.3.4.2 Description
 - 10.3.4.3 Product Portfolio
 - 10.3.4.4 Financials
 - 10.3.4.5 SWOT Analysis
- 10.3.5 Jenoptik AG
 - 10.3.5.1 Company Overview
 - 10.3.5.2 Description
 - 10.3.5.3 Product Portfolio
 - 10.3.5.4 Financials
 - 10.3.5.5 SWOT Analysis

List Of Tables

LIST OF TABLES

Table 1: Global: Laser Diode Market: Key Industry Highlights, 2022 and 2028

Table 2: Global: Laser Diode Market Forecast: Breakup by Product Type (in Million US\$), 2023-2028

Table 3: Global: Laser Diode Market Forecast: Breakup by Application (in Million US\$), 2023-2028

Table 4: Global: Laser Diode Market Forecast: Breakup by Region (in Million US\$), 2023-2028

Table 5: Laser Diode Manufacturing: Raw Material Requirements

Table 6: Global: Laser Diode Market: Competitive Structure

Table 7: Global: Laser Diode Market: Key Players

List Of Figures

LIST OF FIGURES

- Figure 1: Global: Laser Diode Market: Major Drivers and Challenges
- Figure 2: Global: Laser Diode Market: Sales Value (in Billion US\$), 2017-2022
- Figure 3: Global: Laser Diode Market: Breakup by Product Type (in %), 2022
- Figure 4: Global: Laser Diode Market: Breakup by Application (in %), 2022
- Figure 5: Global: Laser Diode Market: Breakup by Region (in %), 2022
- Figure 6: Global: Laser Diode Market Forecast: Sales Value (in Billion US\$), 2023-2028
- Figure 7: Global: Laser Diode Industry: SWOT Analysis
- Figure 8: Global: Laser Diode Industry: Value Chain Analysis
- Figure 9: Global: Laser Diode Industry: Porter's Five Forces Analysis
- Figure 10: Global: Injection Laser Diode (ILD) Market: Sales Value (in Million US\$), 2017 & 2022
- Figure 11: Global: Injection Laser Diode (ILD) Market Forecast: Sales Value (in Million US\$), 2023-2028
- Figure 12: Global: Optically Pumped Semiconductor Laser (OPSL) Market: Sales Value (in Million US\$), 2017 & 2022
- Figure 13: Global: Optically Pumped Semiconductor Laser (OPSL) Market Forecast: Sales Value (in Million US\$), 2023-2028
- Figure 14: Global: Laser Diode Market (Applications in Optical Storage and Communication): Sales Value (in Million US\$), 2017 & 2022
- Figure 15: Global: Laser Diode Market Forecast (Applications in Optical Storage and Communication): Sales Value (in Million US\$), 2023-2028
- Figure 16: Global: Laser Diode Market (Industrial Applications): Sales Value (in Million US\$), 2017 & 2022
- Figure 17: Global: Laser Diode Market Forecast (Industrial Applications): Sales Value (in Million US\$), 2023-2028
- Figure 18: Global: Laser Diode Market (Medical Applications): Sales Value (in Million US\$), 2017 & 2022
- Figure 19: Global: Laser Diode Market Forecast (Medical Applications): Sales Value (in Million US\$), 2023-2028
- Figure 20: Global: Laser Diode Market (Military and Defence Applications): Sales Value (in Million US\$), 2017 & 2022
- Figure 21: Global: Laser Diode Market Forecast (Military and Defence Applications): Sales Value (in Million US\$), 2023-2028
- Figure 22: Global: Laser Diode Market (Instrumentation and Sensor Applications): Sales Value (in Million US\$), 2017 & 2022

Figure 23: Global: Laser Diode Market Forecast (Instrumentation and Sensor Applications): Sales Value (in Million US\$), 2023-2028

Figure 24: Global: Laser Diode Market (Other Applications): Sales Value (in Million US\$), 2017 & 2022

Figure 25: Global: Laser Diode Market Forecast (Other Applications): Sales Value (in Million US\$), 2023-2028

Figure 26: North America: Laser Diode Market: Sales Value (in Million US\$), 2017 & 2022

Figure 27: North America: Laser Diode Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 28: Europe: Laser Diode Market: Sales Value (in Million US\$), 2017 & 2022

Figure 29: Europe: Laser Diode Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 30: Asia Pacific: Laser Diode Market: Sales Value (in Million US\$), 2017 & 2022

Figure 31: Asia Pacific: Laser Diode Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 32: Latin America: Laser Diode Market: Sales Value (in Million US\$), 2017 & 2022

Figure 33: Latin America: Laser Diode Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 34: Middle East and Africa: Laser Diode Market: Sales Value (in Million US\$), 2017 & 2022

Figure 35: Middle East and Africa: Laser Diode Market Forecast: Sales Value (in Million US\$), 2023-2028

Figure 36: Laser Diode Manufacturing: Detailed Process Flow

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