

Optical Sorter - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Optical Sorter Market size is estimated at USD 3.42 billion in 2025, and is expected to reach USD 5.49 billion by 2030, at a CAGR of 9.93% during the forecast period (2025-2030).

Optical sorting is the process of automating the sorting of solid products by using cameras and sensors individually or in conjunction with each other. Optical sorters can recognize an object's color, size, shape, structural properties, and chemical composition, subject to the type of sensors used and the effectiveness of the image processing system deployed. The optical sorter is an automated process that enables the user to sort solid products using cameras or, lasers, or both working in conjunction with sensors and software-driven image processing systems.

Key Highlights

- Optical sorting systems are deployed to identify and remove defective objects from production lines based on accepted/defined criteria and to remove foreign material from the production line. They are also used to make products of different grades or types of materials. The deployment of optical sorting systems improves product quality, maximizes throughput, and increases yields while simultaneously reducing labor costs.
- Automation enables businesses to enhance performance by minimizing errors and increasing productivity. Several industries are increasingly adopting automation to accelerate processes and maintain product quality. This strategy reduces manual labor, improves hygiene, and speeds up operations. The rising automation in key industries such as food, recycling, and mining, primary markets for optical sorters, indicates positive market growth.
- Enhancements in food processing have improved both the taste and shelf life of products. Processed foods, which include items that undergo varying degrees of processing, range from moderately to highly processed. Continuous innovations in processing technology and the growing demand for processed foods are projected to fuel the development of the food and beverage

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processing equipment market.

- The high initial investment required for optical sorters is a significant barrier to the market's growth. These systems are often more expensive than other traditional solutions, which can deter potential buyers, especially small and medium-sized enterprises. The difficulty in maintaining these systems further adds to the overall cost, affecting their sales and market penetration.
- IMF had predicted advanced economies would see an especially harsh growth slowdown, from 2.7% in 2022 to 1.3% in 2023. The North American region, which is among the leading markets in adopting advanced solutions, is also facing economic instability, with multiple financial institutions collapsing. Many economic experts believe that a combination of steep rises in interest rates, high inflation, and slowdowns in Europe and China will further impact the growth prospects across geographies in 2024.

Optical Sorter Market Trends

Food Industry to Hold Significant Market Share

- The recycling segment includes the study of various technologies, such as X-ray transmission, camera solutions, laser, and NIR sensors, used in the recycling industry for efficient sorting processes worldwide. The recycling segment covered as a part of the study includes metal and scrap recycling, municipal waste recycling, electronic waste recycling, different types of plastic waste recycling, and textile waste recycling.
- Optical waste sorting is a contemporary and environmentally conscious recycling technique that leverages advanced camera systems, sensors, and machine learning algorithms. These technologies swiftly and precisely identify and categorize various waste materials for optimal disposal or recycling. The process is user-friendly, employing color-coded bags tailored to different recyclable materials. Users simply deposit these bags into a common waste bin or inlet. Subsequently, at the sorting plant, the bags are segregated by color and directed to their respective containers.
- Optical sorters have revolutionized the recycling industry by enhancing waste management processes' efficiency, accuracy, and overall effectiveness. They employ advanced camera systems, sensors, and machine learning algorithms to efficiently and accurately identify and sort various waste materials. These systems can detect the unique spectral signatures of different materials, allowing for precise identification and separation. This technology is particularly useful for sorting post-consumer waste, including plastics, glass, paper, and metal.
- An optical sorting system can be used with the automated waste collection system or can be added to traditional methods of waste collection to modernize them. For instance, Envac has, in collaboration with the Grow Smarter project at Valla Torg, Stockholm, achieved a significant 65% reduction in household general waste. This achievement followed the company's overhaul of traditional recycling methods.
- The newly implemented system tracks weight per fraction, monitors user sorting efficiency, and assesses the disposal methods of recyclables. By leveraging this data, Envac has optimized the system, surpassing conventional standards. Technological advancements allow precise configuration of the system's capacity and collection intervals, enhancing recycling rates and establishing the system as both sustainable and intelligent.
- Governments and international organizations worldwide are taking significant measures to reduce plastic waste, which is creating a significant demand for the implementation of optical sorters. For instance, in 2023, the UN Environment Program (UNEP) unveiled a roadmap, proposing measures to reduce global plastic pollution by 80% by 2040. This target is achievable and contingent on nations and corporations embracing substantial policy and market changes and leveraging technologies already at their disposal.
- The OECD forecasts a tripling of global plastic waste generation by 2060, surpassing a staggering one billion metric tons. This surge is primarily attributed to burgeoning populations and economic expansion.
- Companies are developing innovative solutions to remain competitive in the technologically advanced market and cater to customers' varying needs. For instance, in July 2024, Cimbria, a Denmark-based company, released new optical sorters that

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provide advanced sorting of plastics with precise material separation to enable the purification of up to 99.99% of the sorted plastic.

Asia Pacific to Register Major Growth

- Optical sorters are significantly witnessing increasing demand in the Asia-Pacific due to a growing emphasis on food safety and waste management. This trend is particularly evident in countries like China, India, and Japan, where the demand for efficient sorting solutions is on the rise.
- The integration of advanced technologies such as AI, machine learning, and hyperspectral imaging has significantly enhanced optical sorters' capabilities. These innovations allow for more precise sorting of various materials, including food products, plastics, and metals, which is crucial for industries looking to improve efficiency and reduce waste.
- With rising consumer awareness regarding food safety, the food processing industry in Asia-Pacific is increasingly adopting optical sorting technologies. These systems ensure that only high-quality products reach consumers by effectively removing defective items and contaminants during processing. This is particularly important in countries with large agricultural sectors, where maintaining quality is essential for both domestic consumption and export.
- South Korea's food and beverage market offers tremendous potential for international players and brands. As the 10th largest economy with a high per-capita GDP, South Korea presents a lucrative opportunity for the market. The country has over 48,000 convenience stores (CVS) across the country with major players, including GS25 (GS Holdings Corp.), CU (BFG Retail), and 7-Eleven (including Ministop, Lotte Group). Thus, the growing food & beverage industry in the country is expected to add lucrative growth opportunities for the market studied.
- Moreover, India's food ecosystem offers immense investment opportunities by stimulating growth in the food retail sector, promoting economic policies, and attractive fiscal incentives. The Government of India has taken all necessary measures to encourage investments in the Indian food processing industry through the Ministry of Food Processing Industries (MoFPI). For example, Pradhan Mantri Kisan Sampada Yojana (PMKSY) aims to develop a modern food processing infrastructure.
- Moreover, the food and beverage industry in Japan is also prospering owing to factors such as a higher share of the urban population and changing food consumption habits, among others. For instance, according to Agriculture and Agri-Food Canada, In 2023, online retail sales of soft drinks in Japan reached approximately USD 2.6 billion, establishing it as the leading segment within the food-focused e-commerce market. The total retail sales of food and beverage e-commerce in Japan amounted to around USD 11.7 billion during the same year.

Optical Sorter Industry Overview

The Optical Sorter Market is highly fragmented, with the presence of global players and small and medium-sized enterprises. Some of the major players in the market include TOMRA Systems ASA, Eagle Vizion Inc., Key Technology Inc. (A Duravant LLC), Hefei Meyer Optoelectronic Technology Inc., and Machinex Industries Inc. Market players are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

- July 2024 - TOMRA's GAINnext sorting device was specifically designed for UBCs. This new packaging sorter leverages deep learning technology, a branch of AI and machine learning, to distinguish various containers on a conveyor belt. Currently, GAINnext is being rolled out in North America. Tomra boasts that this technology provides a high-throughput solution for aluminum recovery from UBCs, ensuring 98% or above purity without manual sorting.
- January 2024 - Key Technology, part of Duravant's Food Sorting and Handling Solutions division, introduced optical sorters designed for processed protein products. These products range from frozen chicken nuggets and tenders to fish sticks and

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plant-based meat alternatives. The optical sorters, notably the COMPASS and VERYX models, are designed to eliminate defects and foreign materials (FM) swiftly. By doing so, they enhance product quality, boost yields, and cut labor requirements.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

Table of Contents:

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definition
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

- 4.1 Market Overview
- 4.2 Industry Attractiveness - Porter's Five Forces Analysis
 - 4.2.1 Bargaining Power of Suppliers
 - 4.2.2 Bargaining Power of Buyers
 - 4.2.3 Threat of New Entrants
 - 4.2.4 Threat of Substitute Products and Services
 - 4.2.5 Intensity of Competitive Rivalry
- 4.3 Industry Value Chain Analysis
- 4.4 Impact of COVID-19 Aftereffects and Other Macroeconomic Trends on the Market

5 MARKET DYNAMICS

- 5.1 Market Drivers
 - 5.1.1 Growing Focus on Automation for Increasing Productivity in Various Industries
 - 5.1.2 Growing Emphasis on Food Safety and Rising Demand for Processed Foods
- 5.2 Market Restraints
 - 5.2.1 High Initial and Maintenance Cost of the Equipment

6 MARKET SEGMENTATION

- 6.1 By Technology
 - 6.1.1 X-ray Transmission
 - 6.1.2 Camera Solutions
 - 6.1.3 NIR-Sensors
 - 6.1.4 Other Technologies (Hyperspectral, Laser, etc.)
- 6.2 By End-user Industries
 - 6.2.1 Food Processing
 - 6.2.2 Recycling
 - 6.2.3 Mining
 - 6.2.4 Other End-user Industries

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6.3 By Geography***

6.3.1 North America

6.3.2 Europe

6.3.3 Asia

6.3.4 Australia and New Zealand

6.3.5 Latin America

6.3.6 Middle East and Africa

7 COMPETITIVE LANDSCAPE

7.1 Company Profiles*

7.1.1 TOMRA Systems ASA

7.1.2 Eagle Vizion Inc.

7.1.3 Key Technology Inc. (A Duravant LLC)

7.1.4 Hefei Meyer Optoelectronic Technology Inc.

7.1.5 Machinex Industries Inc.

7.1.6 Raytec Vision SPA

7.1.7 Cimbria Inc. (AGCO Corporation)

7.1.8 Satake Corporation

7.1.9 Sesotec GmbH

7.1.10 Buhler Group

8 MARKET OUTLOOK

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