

Vertical Lift Module Market Forecasts to 2032 – Global Analysis By Type (Non-refrigerated VLMs, Refrigerated VLMs, and Other Types), Storage Type, Load Capacity, Configuration, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Vertical Lift Module Market is accounted for \$1924.18 million in 2025 and is expected to reach \$4020.17 million by 2032 growing at a CAGR of 11.1% during the forecast period. A Vertical Lift Module (VLM) is an automated storage and retrieval system designed to maximize vertical space and improve inventory management. It consists of two columns of trays with a central inserter/extractor that automatically retrieves and delivers items to an access point. VLMs enhance efficiency, reduce floor space usage, and improve picking accuracy, making them ideal for warehouses, manufacturing facilities, and distribution centres focused on optimizing storage and workflow.

According to the Economic Survey 2023, India, the nation will grow at a rapid rate of 6 to 6.8% in FY 2024.

Market Dynamics:

Driver:

Rising demand for warehouse automation

Vertical Lift Modules (VLMs) help enhance warehouse efficiency by automating material handling and reducing human intervention. The growing adoption of e-commerce is further fuelling the need for automated storage systems to ensure faster order

fulfillment. Additionally, industries like automotive and healthcare are investing in VLMs to streamline inventory management and improve space utilization. Technological advancements, such as AI-driven inventory tracking and IoT integration, are making VLMs smarter and more effective. As automation gains traction, the demand for VLMs is expected to rise significantly across various sectors.

Restraint:

High initial investment and installation cost

Businesses need to invest in specialized infrastructure and software, which may be expensive, especially for small enterprises. Additionally, training employees to operate and maintain VLMs requires resources, further adding to operational costs. Some organizations may hesitate to deploy automated storage solutions due to budget constraints or uncertain return on investment. Integration with existing warehouse management systems can also be technically challenging, leading to implementation delays. While long-term benefits are promising, overcoming these financial hurdles remains a significant barrier to widespread adoption.

Opportunity:

Increased focus on workplace safety and ergonomics

VLMs help minimize repetitive lifting, bending, and stretching, reducing physical strain on workers. Automated storage and retrieval systems also enhance accuracy, preventing errors that could lead to workplace accidents. With strict regulatory standards and safety guidelines, businesses are investing in solutions like VLMs to create safer work environments. Additionally, ergonomic designs improve overall efficiency by allowing workers to retrieve items with minimal effort. As workplace safety continues to be a focus, the adoption of VLMs is expected to increase across industries.

Threat:

Training requirements for operators

While VLMs simplify warehouse operations, proper training is required to ensure optimal functionality and efficiency. Operators need to understand system protocols, troubleshooting techniques, and safety measures for smooth operations. Inadequate training may lead to errors, technical failures, or inefficient material retrieval, affecting

overall productivity. Additionally, keeping employees updated on software upgrades and advanced functionalities can be time-consuming. Without proper training, businesses may face operational disruptions, limiting the effectiveness of VLMs.

Covid-19 Impact

The pandemic led to significant shifts in warehouse automation trends, accelerating the adoption of VLMs as companies sought contactless operations. With supply chain disruptions, businesses prioritized efficient inventory management systems to reduce labor dependency. Social distancing requirements further encouraged automation, as companies needed to minimize human interactions in warehouses. While initial disruptions affected installation schedules, the post-pandemic landscape saw an increased demand for automated storage solutions.

The refrigerated VLMs segment is expected to be the largest during the forecast period

The refrigerated VLMs segment is expected to account for the largest market share during the forecast period, due to rising demand in industries requiring temperature-controlled storage. Sectors such as pharmaceuticals, food and beverage, and chemicals rely on refrigerated VLMs to maintain product integrity. Increased regulations on perishable goods storage have further driven investments in advanced temperature-controlled systems. Additionally, the growing pharmaceutical industry, particularly in vaccine distribution, requires precise storage solutions, fuelling demand.

The retail and E-commerce segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the retail and E-commerce segment is predicted to witness the highest growth rate, due to increased demand for rapid order fulfilment. Online shopping has surged, prompting companies to invest in automated storage solutions to speed up processing and delivery times. VLMs help retailers maximize storage space while maintaining real-time inventory visibility. The need for streamlined logistics and faster warehouse operations has pushed e-commerce firms toward adopting automated storage technologies.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share due to the booming manufacturing and e-commerce industries. Countries like

China, Japan, and India are heavily investing in warehouse automation to improve logistics and supply chain efficiency. Strong government initiatives supporting smart warehouses and digital transformation drive the adoption of VLMs. Additionally, the growing presence of multinational corporations expanding their operations in Asia Pacific has fuelled market growth.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, owing to the increasing focus on supply chain optimization. The U.S. and Canada are witnessing rapid advancements in warehouse automation, with businesses emphasizing improved efficiency and productivity. E-commerce giants like Amazon are investing heavily in VLMs to streamline operations and enhance fulfilment speed. Supportive government policies promoting digital transformation and smart manufacturing further boost market growth.

Key players in the market

Some of the key players profiled in the Vertical Lift Module Market include Kardex Group, Hanel Storage Systems, Modula Group, Ferretto SpA, AutoCrib, Inc., Weland Solutions AB, SSI Schaefer, Automha SpA, Lista AG, ICAM S.r.l., Mecalux, SA, Vidir Solutions, Inc., Conveyor Handling Company, Green Automated Solutions, Inc., and Stanley Black & Decker Storage Solutions.

Key Developments:

In April 2025, Kardex Remstar announced the launch of its new QuickShip program in the United States. The new program offers standard size Kardex Shuttle Vertical Lift Modules (VLMs) with lead times of just 4 to 6 weeks and zero price increase, despite unprecedented tariffs.

In April 2025, Kinghaven Farms launches Haven Greens. Kinghaven Farms is expanding in the agricultural field with the launch of Haven Greens, a new controlled environment agriculture (CEA) brand focused on year-round, greenhouse-grown fresh, pesticide-free leafy greens.

Types Covered:

Non-refrigerated VLMs

Refrigerated VLMs

Other Types

Storage Types Covered:

Single-Level Delivery VLMs

Dual-Level Delivery VLMs

Load Capacities Covered:

Light-duty (up to 250 kg)

Medium-duty (250–500 kg)

Heavy-duty (over 500 kg)

Configurations Covered:

Internal Bay (Single & Dual)

External Bay (Single & Dual)

Applications Covered:

Storage and Retrieval Systems

Inventory Management

Order Picking

Kitting and Buffering

Other Applications

End Users Covered:

Automotive

Logistics and Warehousing

Healthcare and Pharmaceuticals

Industrial Manufacturing

Retail and E-commerce

Aerospace and Defense

Food and Beverage

Other End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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