SCOTTS INTERNATIONAL

Automated Storage And Retrieval System (ASRS) - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-07-01 | 197 pages | Mordor Intelligence

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Report description:

Automated Storage And Retrieval System (ASRS) Market Analysis

The automated storage and retrieval system market size was valued at USD 10.51billion in 2025 and is forecast to reach USD 15.77 billion by 2030, reflecting a robust 8.46% CAGR that underscores how intelligent automation has shifted from optional upgrade to strategic necessity for warehouse operators. Growing e-commerce volumes, chronic labor shortages, and escalating real-estate costs have combined to create a tipping point at which automated storage and retrieval system market deployments deliver measurable gains in throughput, accuracy, and space utilization. Companies facing 5%-7% annual wage inflation in logistics roles have treated capital-intensive automation projects as a hedge against rising operating expenses, while energy-efficient cube and shuttle solutions align with corporate sustainability mandates. Technology convergence is reshaping solution design; modern platforms integrate robotics, AI routing algorithms, and predictive maintenance analytics that cut unplanned downtime by up to 30%. Early adopters report cycle-time reductions of 40% for high-mix order profiles, positioning automated storage and retrieval system market investments as a foundation for omnichannel fulfillment strategies.

Global Automated Storage And Retrieval System (ASRS) Market Trends and Insights

E-commerce fulfillment pressure

By mid-2025, Amazon's deployment of 1 million robots served as visible proof that manual picking cannot sustain order profiles approaching 300 lines per hour. Peer retailers responded by fast-tracking cube and shuttle projects that shrink order cycle times from hours to minutes, driving accelerated bookings for the automated storage and retrieval system market. Higher return rates in apparel and electronics sharpened the focus on accuracy; AI-enhanced grippers now achieve item recognition accuracy above 99%, cutting costly reships. Fulfillment operators also discovered that robotics lowered energy cost per order by 8% by limiting forklift movements and lighting requirements.

Rising labor costs and safety mandates

Forklift incidents accounted for most fatal warehouse accidents in 2024, costing USD 84 million in weekly injury claims across the United States. New OSHA guidelines issued in 2025 shifted employer liability, prompting accelerated conversion to goods-to-person cells that remove humans from high-traffic aisles. Automotive maintenance depots suffering a projected 20% technician shortfall by 2028 adopted mini-load systems to reassign scarce labor from retrieval to diagnostic roles. Collectively, these dynamics add more than two percentage points to automated storage and retrieval system market growth over the mid-term.

High initial CAPEX and extended payback periods

Turnkey projects ranging from USD 70,000 to USD 3 million deterred many small distributors despite demonstrable cost-out potential. TCO models reveal software, commissioning, and training often add another 40% to sticker price, stretching payback beyond CFO comfort zones during periods of macro uncertainty. Subscription-based "pay-per-pick" models started to mitigate upfront expense, though current availability is limited to select high-volume use cases.

Other drivers and restraints analyzed in the detailed report include:

Shift toward micro-fulfillment centers / Deep-freeze warehouse automation / Cyber-security vulnerabilities threaten connected ASRS operations /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Fixed-aisle crane installations still delivered 38.2% of global revenue in 2024, anchored in automotive and bulk consumer-goods plants where predictable flows justify tall rack structures. These installations historically set the design template for the automated storage and retrieval system market, yet they lock users into specific aisle widths and throughput ceilings. Cube-based grids and robotic storage lines gained momentum by raising storage density 60% and slashing retrieval times to under 70 seconds, driving a 12.1% CAGR that will shift the revenue mix before decade-end. AutoStore and populous 3PLs such as DSV scaled cube deployments across nine countries, underscoring multipurpose adaptability. Shuttle-based systems occupy a middle ground; modular shuttle lanes allow firms to expand incrementally without major building retrofits. That flexibility appeals to fast-growing retailers who want automated storage and retrieval system market investments aligned with year-to-year demand swings.

Vertical lift modules (VLMs) and carousel solutions remain niche at under 10% revenue share, yet they add critical value where floor area is scarce and parts integrity is paramount. Medical-device assemblers, for example, use VLMs to protect micro-mechanical parts from contamination while achieving pick accuracies above 99.9%. Hybrid facilities increasingly mix cranes, shuttles, and cubes, an architecture that exemplifies how the automated storage and retrieval system market evolved toward tailored ecosystems rather than single-technology bets. Kardex's collaboration with Berkshire Grey incorporated AI vision pick cells into VLM lines, attaining 99.99% accuracy and reinforcing the cross-pollination trend shaping modern warehouse design.

Unit-load pallet systems captured 42.5% of 2024 revenue, powered by automotive subassemblies, beverage palletizing, and other bulk flows where each storage location houses homogenous items. Yet the SKU explosion in e-commerce drove tote-level retrieval rates that unit-load cranes cannot satisfy cost-effectively, opening demand for mini-load systems advancing at 11.3% CAGR. The automated storage and retrieval system market size for mini-load tote solutions is projected to expand even faster in omnichannel grocery, where online order lines per basket average 35. A single mini-load aisle can process up to 1,200 tote cycles per hour, enabling store replenishment and click-and-collect fulfillment from one footprint.

Pallet shuttle subsystems bridge high-throughput pallet storage with selective access demands, permitting configurable depth that balances density and speed. Mid-load applications, though smaller in headline numbers, handle awkward medium-sized components in electronics and aftermarket auto parts, functions often overlooked in project scoping yet critical to end-to-end flow. Operators increasingly blend load types inside unified software platforms so that WMS directs picks based on real-time cost per move, rather than rigid siloed zones, signaling a nuanced maturity within the automated storage and retrieval system market.

The ASRS Market Report Segments the Industry Into by Product Type (Fixed-Aisle Crane Systems, Shuttle-Based Systems, Vertical Lift Modules (VLM), and More), Load Type (Unit Load, Pallet Load Shuttle, Mini Load, Mid Load, and Tote / Carton and Others), Application (Storage and Buffering, Goods-To-Person Order Picking, Kitting and Sequencing, and More), End-User Industry (Manufacturing, and Non-Manufacturing), and Geography.

Geography Analysis

Europe retained the largest regional contribution at 33.8% of 2024 global revenue. High labor costs exceeding USD 28 per hour and stringent worker-safety legislation made automation financially compelling, while EU sustainability rules recognized high-density cube grids as a path to lower building energy footprint. Germany's High-Tech Strategy 2025 earmarked USD 369.2 million for robotics R&D, reinforcing commercial ecosystems that nurture solution providers. Scandinavian retailers compressed six conventional warehouses into a single automated facility and cut CO? per shipped order by 35%.

Asia-Pacific delivered the fastest growth at 11.9% CAGR. China's trillion-yuan robotics megaproject signaled state-level commitment to factory automation, while Japan proposed a 500-kilometer conveyor belt network linking Osaka and Tokyo, creating demand for high-throughput sortation nodes. Korean policy incentives added USD 128 million in grants for smart-factory deployments, and India became a production hub following Daifuku's 2025 plant opening that lowers lead times for regional customers. The automated storage and retrieval system market in Asia-Pacific therefore benefits from both domestic demand and localized manufacturing capacity.

North America remains innovation center, with hyperscale e-commerce proving grounds that set global benchmarks. Amazon introduced AI foundation models to re-route swarm robots, improving energy efficiency while increasing picks per hour, which directly influences design specifications adopted by peers. AutoStore's new headquarters in New Hampshire houses an academy that trains technicians, addressing the skill-gap restraint and underscoring the company's forecast to surpass 300 regional installations by late-2026. Latin America and Middle East and Africa are emerging corridors; Saudi pharmaceutical distributors piloted semi-automated fulfillment in 2024, and Brazilian 3PLs benefitted from tax breaks on capital goods, positioning both regions as growth white space over the next five years.

List of Companies Covered in this Report:

Daifuku Co., Ltd. / Schaefer Systems International GmbH (SSI SCHAEFER) / Dematic Corp. (KION Group AG) / Murata Machinery, Ltd. / Mecalux, S.A. / Honeywell Intelligrated, Inc. / KUKA AG / KNAPP AG / Kardex Holding AG / Toyota Industries Corporation / Viastore Systems GmbH / AutoStore Holdings Ltd. / Swisslog Holding AG / Vanderlande Industries B.V. / Bastian Solutions LLC / System Logistics S.p.A. / Hanel Storage Systems / Modula S.p.A. / TGW Logistics Group GmbH / BEUMER Group GmbH & Co. KG /

Stocklin Logistik AG / Godrej Korber Supply Chain Ltd. / Westfalia Technologies, Inc. / Shanghai Jingxing Logistics Equipment Engineering Co., Ltd. / Unitechnik Systems GmbH /

Additional Benefits:

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

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