



Automated Guided Forklift (AGF)

Revolutionizing Warehousing with AGF: Smarter Automation for the Manufacturing Industry

The manufacturing industry is facing rising labor costs, driving a shift toward logistics automation to enhance efficiency and reduce operational expenses. Lenovo's **Automated Guided Forklift (AGF)** delivers a groundbreaking solution, redefining industrial vehicles with advanced technologies such as autonomous platforms, AI, and deep learning.

With **high-precision positioning** and **perception capabilities**, the AGF is perfectly suited for diverse warehouse scenarios, seamlessly managing tasks like loading, unloading, put-away, and order picking. Its implementation has increased cargo handling and warehouse efficiency by nearly **20%**, empowering businesses to lower operating costs through sustainable logistics automation.

Superior Intelligence

Powered by advanced AI and deep learning, the AGF perceives and interprets its environment in real time. This enables safe and efficient navigation throughout the warehouse, allowing it to **identify objects** and **obstacles** while executing tasks autonomously—eliminating the need for human intervention.

Optimized Automation

With autonomous navigation and precision control, the AGF automates the entire materials handling process, from truck loading to put-away. By leveraging this intelligent automation, businesses can **reduce reliance on manual labor, improve productivity, minimize errors, and cut costs** — transforming operations into a streamlined workflow.

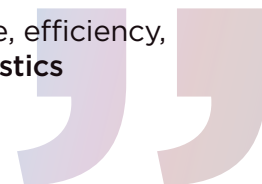
Seamless Integration

Designed for effortless integration, the AGF works seamlessly with existing warehouse infrastructure, layouts, and workflows. Its versatile capabilities enable it to handle various racking systems and scenarios right out of the box, complementing staff and systems. This allows businesses to progressively **automate processes** without requiring major infrastructure changes.

AI-Enhanced Ant Colony-Based Large-Scale Swarm Scheduling

AI enhances ant colony optimization and dynamic time-window algorithms, enabling long-term, incremental scheduling for **1,000-unit** multi-brand AGFs. By leveraging real-time data analysis, it optimizes paths, prevents conflicts, and ensures **efficient** and **stable** operations in high-throughput logistics scenarios.

Lenovo's AGF is the future of warehouse automation—combining intelligence, efficiency, and adaptability to empower businesses with **smarter, more sustainable logistics solutions**.

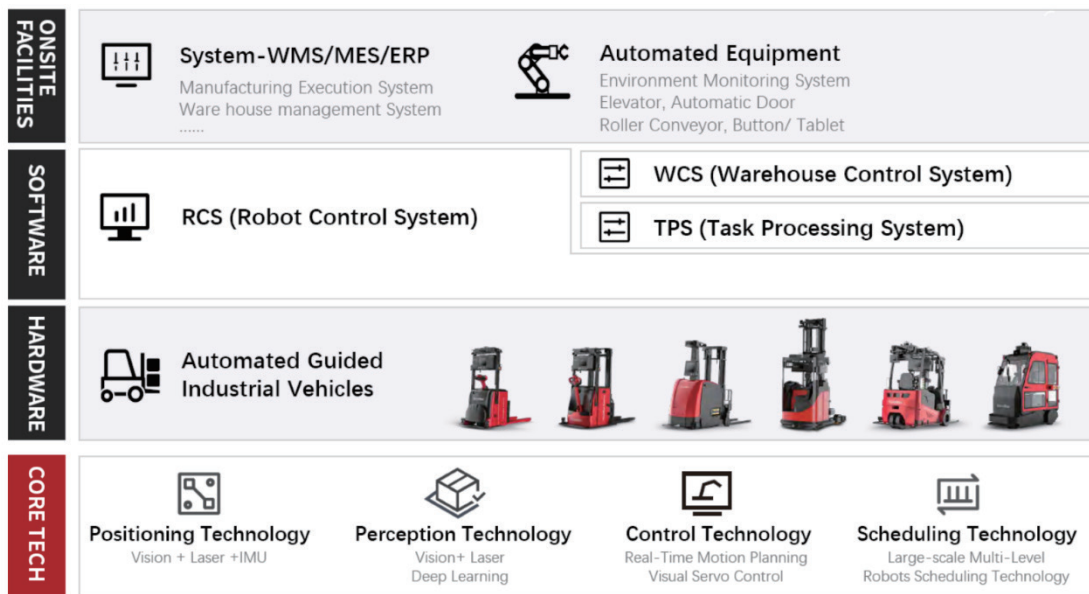


Lenovo Manufacturing Solutions

Smarter
technology
for all

Lenovo

Solution Structure



Main advantages



Safety

Strictly compiled with international safety design standards, use dual system control and 5 level safety protection; Risk warning in real time feedback



Efficiency

Improve the logistics efficiency by about 30% without changing the existing processes



Digital management

Visual operation, synchronize information flow and material flow; cloud computing and data management



Use Cases: Empowering Warehousing and Logistics with AGFs

Lenovo's AGF is transforming operations across diverse industries by delivering efficiency, precision, and reliability.



Warehousing and Logistics: Distribution centers rely on AGFs to transport pallets seamlessly between receiving docks, storage racks, and shipping areas, operating 24/7. This **reduces labor costs** and **increases throughput**, especially during peak seasons when demand surges.



Manufacturing Facilities: AGFs optimize production workflows by transporting raw materials from storage to production lines and moving finished goods to packaging areas. Automotive plants and electronics manufacturers use AGFs for **just-in-time delivery** to assembly stations, ensuring **smooth** and **timely operations**.



Food and Beverage Operations: In cold storage environments, AGFs excel by efficiently handling pallets in refrigerated warehouses — **minimizing human exposure to freezing temperatures** and **eliminating fatigue**, ensuring **consistent performance**.



Distribution Centers: AGFs manage high-volume inventory movement during peak periods such as holiday rushes, **addressing labor shortages** and **enhancing operational capacity** at critical times.



Pharmaceutical and Healthcare Warehouses: With their precision and reliability, AGFs handle **sensitive inventory with care**, **maintain chain of custody**, and **mitigate contamination risks** — supporting the strict requirements of the healthcare industry.

Features

- **Advanced AI for Real-Time Perception**

The AGF leverages cutting-edge AI and deep learning algorithms to accurately perceive and interpret its surrounding environment in real time. This enables seamless navigation within the warehouse, object and obstacle identification, and efficient task execution—all without human intervention.

- **Autonomous Navigation for Precision Control**

Equipped with an autonomous platform and precision motion control, the AGF self-navigates across the warehouse floor. It maps its environment, plots optimal routes, and avoids collisions for safer and more efficient travel between tasks, ensuring smooth operations.

- **Flexible Automation for Comprehensive Task Handling**

The AGF automates a wide range of warehouse processes, including truck loading and unloading, put-away, and order picking. Its versatile capabilities allow it to handle the entire materials handling process, customized to meet your operational needs.

- **Seamless Integration with Existing Infrastructure**

Designed for effortless integration, the AGF works seamlessly with your current warehouse infrastructure, layouts, and workflows. It supports various racking systems and scenarios right out of the box, enhancing collaboration with your staff and systems.

- **Real-Time Monitoring for Enhanced Oversight**

Through 5G communication, the AGF enables real-time fleet monitoring, providing updates on vehicle location, status, tasks, and other critical metrics. This ensures greater oversight while enabling dynamic optimization of operations.

- **Smart Optimization for Continuous Improvement**

By collecting and analyzing real-time data, the AGF continuously refines its tasks and routes, boosting efficiency over time. The system grows smarter with use, delivering improved performance and operational excellence as it adapts to your needs.



Lenovo's global strength

180

Markets

10M+

Order lines per year

1B+

Global customers

120M+

Shipments

30+

Global manufacturing sites

2000+

Suppliers

>\$160M

Digital transformation investment

18

R&D locations worldwide

69.5K

People



Global Supply Chain
Ranked 8th by Gartner



World Economic
Forum's Global
Lighthouse Network



TITAN Business Awards



BIG Awards for
Business - Product of
the Year

Smarter logistics. Smarter warehouse.

The AGF revolutionizes operations through cutting-edge AI and automation, seamlessly handling tasks to drive efficiency. This smart forklift is equipped to optimize your warehouse today and evolve with your needs tomorrow.

Maximize your warehouse efficiency today with the AGF's revolutionary AI and automation

Talk to your Lenovo Representative now for smarter logistics and a smarter warehouse.

Contact us today to discover how Lenovo Manufacturing Solutions can bring the future of manufacturing to you.

Learn more on:

<https://www.lenovo.com/us/en/solutions/industry/manufacturing/>

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