



Dematic Automated Guided Vehicles



We **Optimise** your Supply Chain

DEMAC

Delivered with Excellence

Less cost and more efficiency with AGVs



AGV - The Automated Transport & Storage Solution

Cost-effective & versatile

Dematic automated guided vehicles are unmanned industrial trucks and they are the engine-room of our fully automated transport and storage systems. Dematic AGVs are used in all sorts of industries, to transport and store all kinds of products and materials.

Equally at home in the factory, the warehouse, in distribution or in shipping areas, they are the safe and secure way to increase process efficiency and improve business profitability; all without human intervention.

Dematic AGVs automatically lift, rotate and shift your goods, fetch and carry loads to and from racking, store and retrieve in block-stacks or deep-stack lanes, transport product over long distances, deliver and collect at conveyors or process machines, etc.

Standard or tailored

Our Dematic AGV systems are built from the most reliable, off-the-shelf components. And our vehicles are available both as standard products or configured from standard building blocks and tailored to precisely meet your needs.

Flexible and integrated

Compared to other automated transport technologies, a Dematic AGV system is not tied to the floor and that allows better use of the available working space. In addition, extensions or even relocations of the entire system can be easily achieved.

Dematic AGV systems integrate with higher-level ERP and MES software and can be easily combined with other material handling systems like conveyors, stacker cranes and palletizing or packing machines.

Increased safety and ergonomics

Thanks to their accuracy and automatic nature, Dematic AGV systems directly lead to a safer working environment, with no collisions and zero damage to loads. We strictly comply with and exceed the demands of international safety standards.

Dematic AGV systems provide an alternative to manually transporting hazardous or delicate products and to transport in less operator-friendly environments, such as cold stores, warehouses for chemical products, etc.

What our customers say

“Thanks to our new Dematic AGVs we can process three times the volume we managed in the past. That’s way beyond our expectations. And what’s more the vehicles are working error-free. This is extremely important to us, as quality is a top priority for Unilin.”

Stefaan Raedt, Warehouse Manager Quick-Step, Unilin Flooring

The advantages of Automated Guided Vehicles

Benefits & Ideal Conditions

A wide range of benefits

- Reduced operating costs and higher efficiency
- Reduced manpower
- No product damage
- Increased safety
- Improved product traceability
- Easy and fast installation
- Better use of space
- Low maintenance

Ideal conditions

- Repetitive transports
- Multi-shift and 24/7 operations
- Short to mid-distance travel
- High-frequency throughput
- Material flows with a large number of buffer locations
- Complex production flows
- Transport to and from automated warehouses, WIP (Work-in-process) and production

What sets Dematic apart

- System development based on standard designs, tailored to the job
- Dedicated project approach and life cycle services from start to finish
- Unique combination of in-house technology and off-the-shelf components
- Committed to R&D (mechanical, electronics, controls, software)
- Excellence in retrofit, upgrade and extension jobs



Automated Guided Vehicles for different applications

Examples

Application Examples

- Transport from receiving to production / warehouse
- Transport between production areas / work-in-process buffers
- Transport between production areas and warehouse areas
- Stacking and storing applications in warehouses
(very narrow aisle, wide aisle & drive in racking, deep stacking, block storage, etc.)
- Roll handling
- End-of-line automation (packing machines, palletizers, stretch wrappers, etc.)
- Transport in consolidation and dispatch areas



Typical Dematic AGV Markets

Food & Beverage

Dematic AGV systems comply with FDA regulations, food quality standards and product traceability. They handle any intermediate stage from raw materials receiving, transport to and from AS/RS, supply to processing lines, handling of finished products and trailer loading. Examples of AGV applications in food & beverage include:

- Food transport in less operator-friendly environments (cold storage, freezers, drying kilns)
- Transport of fish tubs in salty and oily areas
- Storage of cheese racks and transport to ripening rooms controlled via recipe management software

Tobacco

Dematic AGV systems for the tobacco industry link the various stages of tobacco production processes in primary and secondary zones. Examples of AGV applications in tobacco include:

- Transport of tobacco bins from filling machines in primary
- Storage in bin warehouse
- Transport from warehouse and bin tipping into feeders
- Transport of empty bins
- Transport of finished cigarettes to warehouse or shipping

Distribution, Transport & Logistics

Dematic AGV systems support the supply chain and JIT delivery in warehouses, distribution and logistics centres; in from receiving to store and out for consolidation and shipping. With conventional storage space and continuous operation carrying such high price tags, a Dematic AGV system can help to cut costs by unmanned working in very narrow aisles and at heights up to 12m.



Typical Dematic AGV Markets

Pharmaceuticals & Life Sciences

Dematic AGV systems work well in clean environments, based on validated concepts. Typical automated transport applications include:

- Transport of raw materials from receiving to automated warehouse and storage areas
- Transport of products from warehouse to production and WIP buffer (Work-in-Process)
- Product delivery from storage to picking zones
- Supply of pharmaceutical packing materials to packing lines
- Transport of finished products from production to warehouse
- Delivery of meals, linen, waste, medication in hospitals

Paper & Print

Dematic AGVs support the complete supply chain in paper, printing and packaging processes:

- Horizontal roll storage or vertical deep-stack storage on floor
- Transport to unwrappers, sheet cutters, presses
- Intermediate storage of prepped rolls
- Waste paper handling
- Transport of finished products (newspapers, books, catalogs, tissue paper etc.) in shipping areas or mailroom

Production & Assembly

Dematic AGV systems reliably move products from one production cell to the other in manufacturing and production processes. Some typical applications include:

- Delivery of raw materials
- Transport of semi-finished products to work-in-process buffer storage or the intermediate warehouse
- Supply of other materials like packaging or removal of empty pallets, waste and refused goods
- Move finished goods from the end of the production line to the finished goods warehouse or shipping area



Dematic Automated Guided Vehicle Types

Dematic AGV

Dematic AGVs are automated guided vehicle used for automatic transport of products in a wide range of applications. Within the extensive line up of Dematic AGVs, these vehicles cover a wide range of material handling and intralogistics needs in production logistics, distribution centers and warehouses.



Dematic forklift AGV

The Dematic forklift AGVs are equipped with lifting forks. The forklift vehicles are able to automatically pick up and deliver pallets, containers, rolls, carts and many other conveyable loads. The following types are available within the Forklift series:

Narrow forklift AGV

Lifting forks sit over the support legs allowing the AGV to make tighter turns and to transport loads in areas where space is limited.

Straddle forklift AGV

Support legs are outside the load to provide better support for heavier and taller loads like racks, pallets and rolls. The straddles also allow closed format pallets to be handled and provide improved stability for higher lifts.

Counterbalance forklift AGV

AGV equipped with extra counterweight to handle narrow and closed loads in confined areas.



Dematic Deck AGV

Deck AGVs are equipped with one or more horizontal transfer devices to transport unit loads like pallets, rolls, bins, racks, carts and containers at high throughput rates. Transfer device options include roller, chain or belt conveyors, lift platforms, shuttle systems or push-pull systems.



Dematic Automated Guided Vehicle Types

Dematic AGV HYBRID / Dual use

Dematic AGV Hybrid / Dual use is Dematic's high-end AGV series for standard KION warehouse trucks. Dematic AGV HYBRID / Dual use vehicles are built on standard STILL, Linde or Baoli truck bases with all automation technology and software added to them to operate them automatically. Run them as fully automated warehouse trucks in a high performing AGV system or drive them manually as your needs demand.

Dematic AGV HYBRID / Dual use is available for the following truck types:

- VNA very narrow aisle trucks
- Reach trucks
- High-lift pallet trucks
- Towing trucks

Dematic AGV CUSTOM

Dematic AGV CUSTOM is Dematic's extensive range of fully customized automated guided vehicles. No two companies have identical needs. There will always be some amount of customizing needed in order to create an automated guided vehicle system that truly fits your specifications and application.

Dematic recognizes this and teams up with you and other partners to determine the exact vehicle type that will meet production needs. This sets Dematic far apart from the other AGV suppliers as the leading automated guided vehicle supplier in the world.



What our customers say

"The integration of this hybrid AGV solution has been a giant technological leap forward, as our key performance indicator for weighing has increased with 25%. This is the first step. We now have a far more better global view on possible improvements of all material flows in our plant."

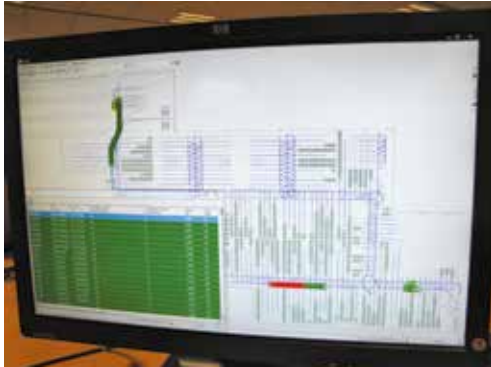
Jean Corneglio, AGV Project Manager, L'Oréal Vichy

Dematic AGV Software & Battery Systems

Software

Software for carefree transport & traffic control

Dematic's transport software manages all AGVs in the system and issues transport orders to the vehicles. A transport order contains the optimized route between the order's source and destination location and is given to the AGV that can get there the fastest, taking into account the priorities of the orders. The software keeps track of every AGV in the system to safely manage traffic on the shop floor. Thanks to the route optimization algorithms, the most economical route for all transport orders can be calculated.



Software for accurate vehicle control and navigation

Driving with repeatable accuracy in narrow aisles, positioning loads with extreme precision or managing complex load handling operations, the on-board navigation software has it all under control. The software allows each vehicle in the system to follow a specific path by means of navigation sensors. The software calculates the correct position for the vehicle and ensures that it is able to get to its destination, both quickly and accurately.

Dematic navigation software has an open platform that can incorporate any of the existing navigation technologies and that is ready for the future ones to come:

- Laser
- Camera
- Magnet
- Natural target navigation
- Wire

Battery charging systems

Dematic AGVs feature a wide range of battery charging systems to support 24/7 operation of the system. Special battery charging schedules can be programmed by the operator to optimize the charging process according to local needs. The following battery exchange and charging systems are available depending on your needs:

- Manual battery exchange stations
- Automatic battery exchange stations
- Automatic opportunity recharging stations (on-line recharging whenever possible)



Extensive Project Experience

Simulation & Service

Dematic has over 40 years experience installing AGV systems for a wide variety of applications in a wide range of industries. We know the specific needs of many industries and use that knowledge to build better solutions. Dematic has sold over 4,000 automated guided vehicles.

Dematic goes beyond just constructing AGVs. We specialize in repeatable concept solutions for specific applications and dedicated handling activities, based on standard components. This leads to shorter implementation times and lower change-over costs. To achieve this, we work closely with customers, suppliers and partners from the project development stage, through realization and on to life-cycle support; all to provide the best-fit concept for the customer's needs.

Simulate to optimize

Simulation in the pre-design stage makes sure you get a system that meets your needs with regard to capacities and transport movements. This helps to accurately determine which navigation technologies, type of vehicles and number of vehicles are needed to make a detailed system design.

Project execution & extensive testing

Once the concept has been defined, a team of project engineers builds the system, as designed, including vehicle manufacturing, controls development, layout engineering and system programming. After that, the system is fully tested for 100 hours in our Dematic AGV Factory to reduce the installation time on site.

Customer Service

Dematic delivers 24/7 service, curative and planned interventions, spare part programs, software support and more to maximize the system availability of your Dematic AGVs. Our retrofit engineers know how to extend the life cycle of your old system by replacing mechanical components with brand-new equivalents, upgrading third-party AGV controls or by installing new AGV software on existing systems.



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* Germany: Costs for a national call per minute:
9 ct, from mobile phones: 42 ct. Calling costs
from other countries depend on the respective
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