



# GEBHARDT KARIS®

Connecting Processes Flexibly



## GEBHARDT KARIS® AUTOMATED GUIDED VEHICLES: THE SMART SOLUTION FOR INTERNAL TRANSPORTATION

With GEBHARDT KARIS® automated guided vehicles (AGVs), we provide an innovative solution for achieving an efficient and flexible flow of goods in your business. Our automated guided vehicles are designed to meet a wide range of challenges.

Thanks to the various designs available under the GEBHARDT KARIS® brand, you can find the perfect solution for every requirement. Our KARIS® systems seamlessly adapt to your production environment, ensuring your processes operate more quickly and intelligently.

Using KARIS®, you can maximise efficiency while staying in tune with your operations. Increase productivity, minimise throughput times, and optimise your material flow with GEBHARDT KARIS®!

### SECURELY CONNECTED

Automating logistical processes continues to be a competitive factor for you and your intralogistics solutions. Automated guided vehicles (AGVs), combined with automated warehouse solutions and stationary conveyor technology, increase your efficiency and offer a simple and resource-efficient entry into the digital transformation.

The GEBHARDT KARIS® optimally complements your stationary conveyor systems' warehouse and production spaces, breaks up rigid logistics chains, and provides flexibility to your material flow, laying the foundation for modern and efficient processes in uncertain times of Industry 4.0, pandemics, and raw material shortages. The KARIS® creates a flexible and sustainable solution that adapts easily to changing environmental conditions.

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KARIS®



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KARIS® FLOW



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KARIS® LIGHT



## MODULAR THINKING – MODULAR CONSTRUCTION

The KARIS® has a modular structure that perfectly adapts to internal material flow requirements. It is used wherever different logistics tasks need to be connected flexibly and efficiently, from goods receipt to warehouse and production to goods issue. The system covers the entire range from simple point-to-point transports to complex and interlinked transports. Its three designs are suitable for the flexible transport of containers, cartons, and other load carriers.



### Type 1

- Transport of small load carriers, containers, trays and cartons
- Vehicle dimensions: 575 x 700 x 300 mm (W x L x M)
- Nominal load dimensions: 400 x 600 mm (W x L)
- Load capacity: max. 150 kg depending on the LHD
- Standard lifts: 100, 150, 250 mm
- Active and passive LHD for best interlinking of material flows



### Type 2

- Transport of small load carriers, containers, trays and cartons
- Vehicle dimensions: 700 x 1100 x 300 mm (W x L x M)
- Nominal load dimensions: 600 x 800 mm (W x L)
- Weight on request and depending on LHD
- Standard lifts: 150, 200, 250 mm
- Active and passive LHD for best interlinking of material flows

### Type 3

- Transport of pallets, mesh boxes, etc.
- Vehicle dimensions: 900 x 1,300 x 300 mm (W x L)
- Nominal load dimensions: 800 x 1,200 mm (W x L)
- Load capacity: max. 1,500 kg depending on the LHD
- Standard lifts: 150, 200, 250 mm
- Active and passive LHD for best interlinking of material flows



## ADVANTAGES FOR YOUR COMPETITIVE EDGE

- Easy commissioning with contour-based navigation and teach-in
- Flexible assembly planning
- 360° visual field
- Scalability
- Low floor space commitment
- High flexibility (change of product mix)
- Best interlinking of stationary and flexible components
- High availability
- Uninterrupted material flow



Reliable navigation by means of laser scanner with a visual field of

**360°**

Maximum speed up to

**1.8 m/s**

Type-dependent lifting and carrying of up to

**1,500 kg**

Positioning accuracy up to

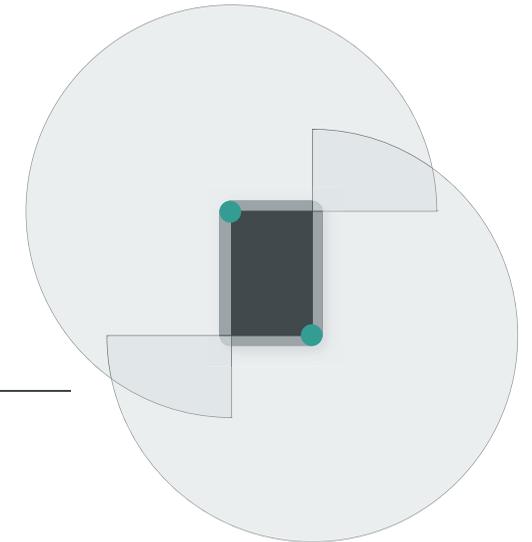
**10 mm**



## INTELLIGENCE IN MOTION

The KARIS® is equipped with highly integrated safety features: state-of-the-art sensor technology prevents collisions with people or obstacles and offers maximum safety. Machine movements are constantly being monitored.

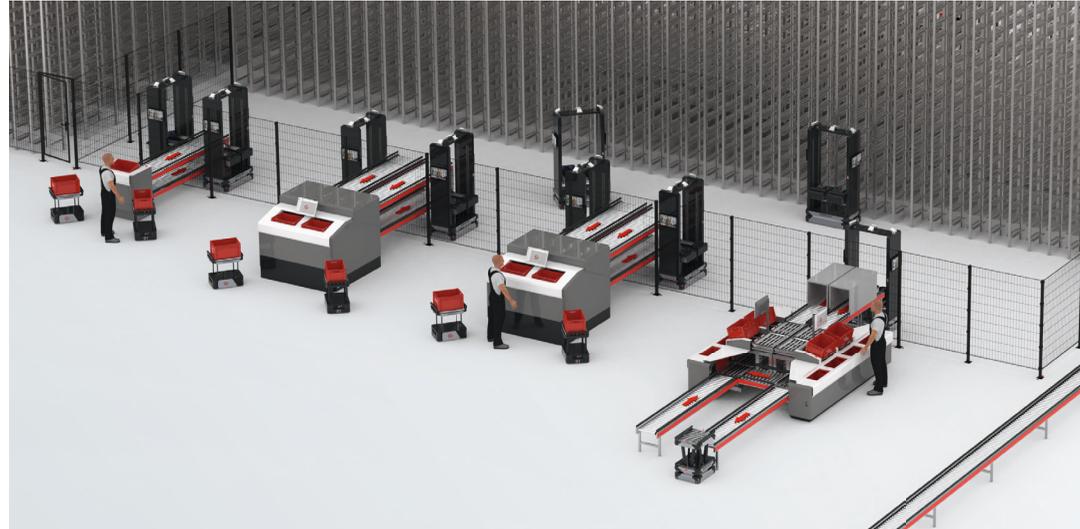
Two diagonally offset sensors provide a 360° all-round view



The vehicles stop independently and reliably in front of obstacles. The safety design allows adjustments to new load carriers and environmental conditions. The 360° protective field with laser scanners permanently scans the surroundings without blind spots. This feature enables operation in both directions at the same speed. The AGV communicates with the host computer via WLAN and reaches the specified positions with a +/- 10 mm accuracy through the integrated optical navigation.

## GEBHARDT KARIS® FLOW

The modular automated guided vehicle system GEBHARDT KARIS® Flow is suitable for automated material handling in production environments and warehouses. By combining a lifting mast with a double load handling attachment with a gripper function, GEBHARDT KARIS® Flow offers a range of outstanding features and benefits.



The system's transfer heights are flexibly adjustable, allowing it to adapt to different storage and production environments. This means the system can be used optimally, regardless of the local conditions. Thanks to the double load handling device, several containers can be transported simultaneously. This increases the efficiency of material transport and helps to reduce throughput times.

### INNOVATIVE GRIPPER FUNCTION AND AI-SUPPORTED CAMERA SYSTEM

GEBHARDT KARIS® Flow has a gripper function that allows load carriers to be picked directly from shelves without requiring active conveyor technology. This enables efficient and smooth material transportation. Optionally, KARIS® Flow can be equipped with an AI-supported camera system. The system allows for precise detection of individuals, pallets, fire extinguishers, and other objects, enhancing the safety and efficiency of material transportation.

In manual flow rack warehouses, AI-optimized image recognition aids inventory and demand management without requiring intelligent racking.

Vehicle speed

**1,5 m/s**

Lifting speed

**0,6 m/s**

Approach dimension  
at bottom (from floor)

**440 mm**

Conveyed goods,  
containers or cartons

**600x400 mm**

Top approach  
dimension

**2.000 mm**



### AISLE-FREE FLEXIBILITY FOR YOUR WAREHOUSE

GEBHARDT KARIS® Flow has a modular design and can be easily adapted to the individual requirements of different applications. Thanks to its scalability, it is possible to adapt and expand the system size as required. This enables a flexible and cost-efficient solution for various application areas. The system can be seamlessly integrated into existing storage and picking processes.

The KARIS® Flow AMRs are used in combination with storage systems like GEBHARDT InstaPick® or Upstream® to link storage solutions with workstations.

The lifting function of KARIS® Flow allows automated storage systems to access several rack levels from the outside, enabling efficient buffering or sequencing from a robotic put wall.

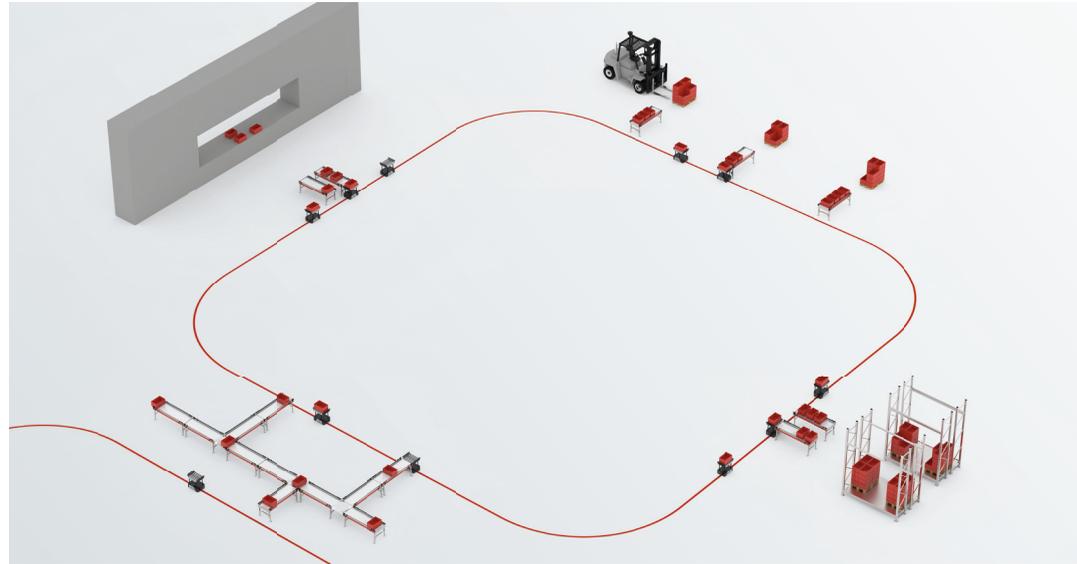
### IMPROVED PROCESS RELIABILITY THROUGH AUTOMATION

Automating material transport with the GEBHARDT KARIS® Flow increases process reliability by minimising human error and ensuring reliable and efficient execution of transport tasks. This leads to an overall increase in operational safety and productivity for the operating process.



## GEBHARDT KARIS® LIGHT SIMPLE AND COST-EFFECTIVE TRANSPORT OF GOODS

The modular automated guided vehicle (AGV) GEBHARDT KARIS® light is suitable for use where goods must be transported from station to station within a static loop. KARIS® light stops at one station, picks up goods and delivers them to another station. Afterwards, it is ready again within the loop for new transport tasks. The requirement profile for the stations is low, so existing conveyor modules or processing stations with varying degrees of automation can be integrated into the loop.



The GEBHARDT KARIS® light modular system is convincing with its cost-efficient start-up solutions and its simple integrability, which is why the payback period can be reduced to less than two years in most applications.

### FLEXIBLE AND USER-ORIENTED DUE TO PLUG & PLAY PRINCIPLE

The Plug & Play principle enables the user to put the system's basic functions into operation independently, allowing users to become more self-sufficient, flexible and saves costs. For more demanding applications, GEBHARDT will be happy to assist you with its extensive service portfolio. Thanks to its modular design, configurations can be made in four dimensions: Top module, height, energy charging system and software.



### PRECISE NAVIGATION FOR IMPROVED LOGISTICS PROCESSES

GEBHARDT KARIS® light is an innovative solution for track- and landmark-guided navigation in loop-based processes and is especially suitable for use in the field of static goods transport. KARIS® light follows the proven approach of the KARIS® portfolio in sum with its modular principle and simple commissioning. Thus, KARIS® light offers a further cross-industry, efficient and reliable solution for companies that want to optimise their internal logistics processes and thus rounds off the GEBHARDT solution portfolio. Using tracks and landmarks ensures precise positioning and navigation of the vehicle, resulting in stable driving behaviour.

### GEBHARDT KARIS® LIGHT – THE ADVANTAGES

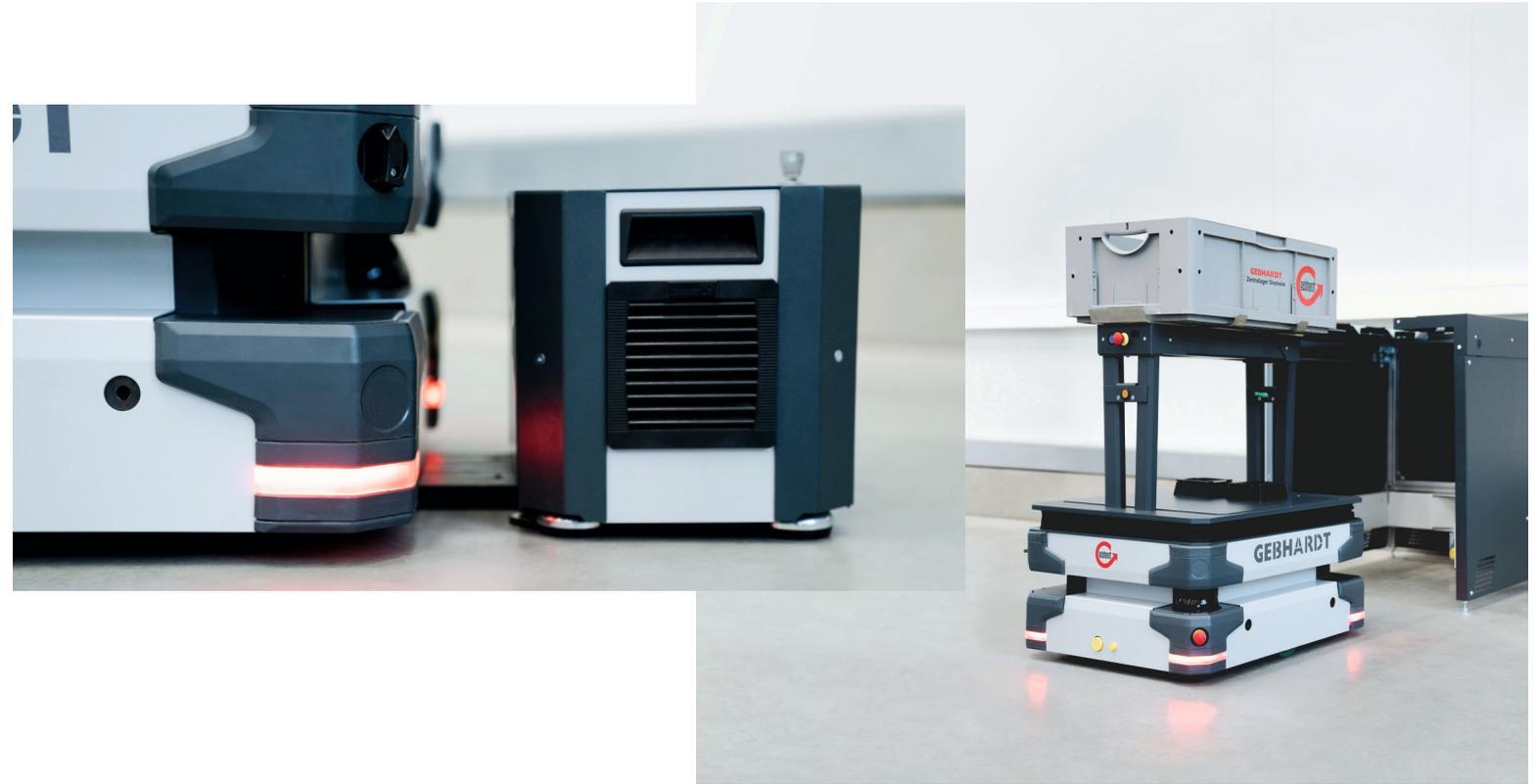
- Modular design according to the proven KARIS® system approach and modular principle
- Easily configurable
- Payback period less than 2 years (depending on project size and geometry)
- Stable driving behaviour due to track- and landmark-guided navigation
- Cost-efficiency and shortened commissioning times due to plug & play principle
- Integrated safety through LiDAR scanner



## DESIGNED FOR PRACTICAL USE

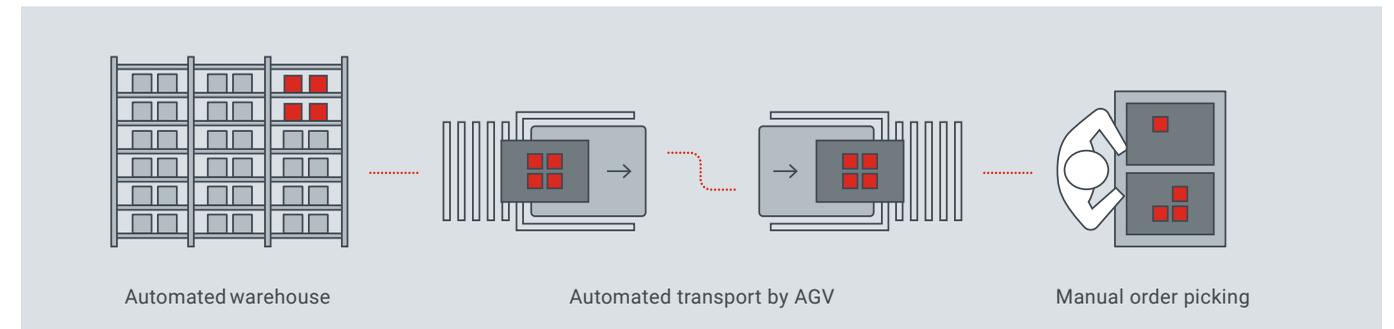
Different circumstances require different solutions, whether for production or logistics, area, or station supply. Thanks to its modularity, the KARIS® can be individually configured and flexibly used. The KARIS® functionality includes autonomous, demand-controlled task and order distribution as well as decentrally controlled, infrastructure-independent material supply within logistics or at the assembly line – even over long distances.

On its own or combined with other solutions, the KARIS® merges seamlessly into the company, production, and inventory management control systems. In addition, the diverse transport applications ensure a tighter, more efficient, and more reliable sequencing of the individual areas; for example, in warehouse-to-person or end-of-line solutions.



## EXAMPLE | WAREHOUSE-TO-PERSON

Automatic storage systems significantly increase the efficiency of storage tasks. It is not an isolated system; therefore, you must also consider supply and disposal, an activity which people often perform. Using the KARIS® automates these transports, and people can concentrate on value-adding activities. Production and logistics grow even closer together.





## NEW GENERATION MATERIAL FLOW

V-ZUG Kühltechnik AG has established a new refrigerator production site in Sulgen to elevate its material flow to Industry 4.0 standards. The project was supported by the GEBHARDT Intralogistics Group and included two intralogistics systems: a high-bay warehouse for production supply and a conveyor system featuring GEBHARDT KARIS® automated guided vehicles (AGVs) for quality control and packaging.

## OPTIMISED PROCESSES AND IMPROVED WORKING CONDITIONS

The high-bay warehouse features space for approximately 4,700 pallets and is equipped with a curved storage and retrieval machine that can access all aisles. The Automated Guided Vehicle (AGV) solution includes a quality inspection zone developed closely with V-ZUG. This system optimises processes, increases storage capacity, and enhances working conditions, particularly during quality inspections. These integrated systems effectively support the previous manual processes.



## BRIEF PORTRAIT V-ZUG

- V-ZUG Kühltechnik AG is a developer and manufacturer of refrigeration appliances
- Part of the successful V-ZUG Group
- Over 100 years on the market
- 2,000 employees

## GEBHARDT SOLUTIONS

- Four-aisle high-bay warehouse with storage and retrieval machines for production supply
- 4,700 pallet bays
- Conveyor technology
- Automated guided vehicle system (AGV) for quality control
- A total of five GEBHARDT KARIS® AGVs transport refrigerators to inspection stations and back to the conveyor system
- Vertical conveyor
- Ergonomic packaging workstations

## CUSTOMER GOAL

- Material flow in the age of Industry 4.0
- Process-optimised and future-proof overall system
- High storage capacity
- Cost savings

## RESULT

- Uninterrupted material flow 4.0
- High-performance storage system
- Standardised processes
- Best possible ergonomics
- High operational reliability



Learn more:  
[bit.ly/gebhardt-v-zug-en](https://bit.ly/gebhardt-v-zug-en)  
Or at [gebhardt.com](https://www.gebhardt.com)

# NEXT GENERATION INTRALOGISTICS

Already in its third generation, the name GEBHARDT is closely associated with innovative intralogistics solutions. The company has always developed, manufactured and installed individual products as well as complete turnkey solutions. The portfolio includes storage systems, conveyor systems, sorting and order picking systems as well as goods lifts, automated guided vehicles and software applications.

The complete range of solutions, intelligent software and life-cycle services enables the most reliable and efficient automation technology for retail & e-commerce, food & beverages, automotive, healthcare, contract logistics, fashion & consumer goods and industry.



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