Agile1500

rel.1

Move ahead

The Culture of Automation

Designing advanced automation solutions means thinking about the industry in a new way, developing new scenarios, designing innovative products and creating ways to streamline production processes.
It requires more than technical competence; it requires a team of professionals whose vision is rooted in a culture of excellence. It also requires a combination of talent, passion and experience that unite to define new trends in automation.

Here at Comau our passion for our work reflects who we are.

Agile1500

This is the first model within the Comau automated guided vehicles platform; it is based upon Comau's open automation design approach.

Agile1500 rel.1 is now equipped with a long lasting lithium battery which makes automatic opportunity charging possible. The two laser scanners on the front and rear guarantee efficient and safe navigation.

This Comau AGV is capable of transporting up to 1.5 tons; it can be reconfigured with specific automatic and flexible equipment and is suitable for a wide range of industrial and logistical sectors.

Features

- High **performance** vehicle
- Best in class **payload to size ratio**
- **Multipurpose** applications can be implemented
- Multiple **navigation systems** are possible

Benefits

- Complete **reconfigurability** protects ROI and reduces TCO
- Full **compatibility** with other Kollmorgen-based AGV systems
- **Intuitive** programming interface
- Full connectivity and diagnostic: **Factory 4.0 ready**
- Human-robot **collaborative** (safe)
- Improved **safety** and ergonomics compared to traditional solutions
- **Simplified** maintenance

Welcome Industry 4.0

Industry 4.0 is an increasingly popular term identifying a platform that unifies information among participants in the entire value chain, from product inception to design, manufacturing, services and refurbishment. The end result is a system in which all processes are integrated and information is exchanged in real time.

AGVs form part of Comau's response to evolving market needs and are an important enablers within the Industry 4.0 paradigm. This fully **automated logistics technology** allows Comau to better support highly individualized and efficient production, while safeguarding profitability across the entire manufacturing line.

FUTURE CHALLENGES

- **Volatile** markets
- **Increasing customization** of production
- **Complexity** of product and **production processes**
- **Short life-cycle** of **products**

Industry 4.0

- AUTONOMOUS ROBOTS
- SIMULATION
- SYSTEM INTEGRATION
- INTERNET OF THINGS
- CYBER SECURITY
- CLOUD COMPUTING
- ADDITIVE MANUFACTURING
- AUGMENTED REALITY
- BIG DATA

FUTURE DEMAND

- **Growing demands** for **flexibility** and **reconfigurability**
- **Increasing customization** of production
- **Minimal use** of **resources**
- **Adaptive production systems**

Multipurpose vehicle

Agile1500 can adapt to accommodate diverse manufacturing needs, factory layouts and multipurpose application possibilities.

It is highly configurable and can be fitted with different performance accessories for each specific functionality provided by the System Integrator.
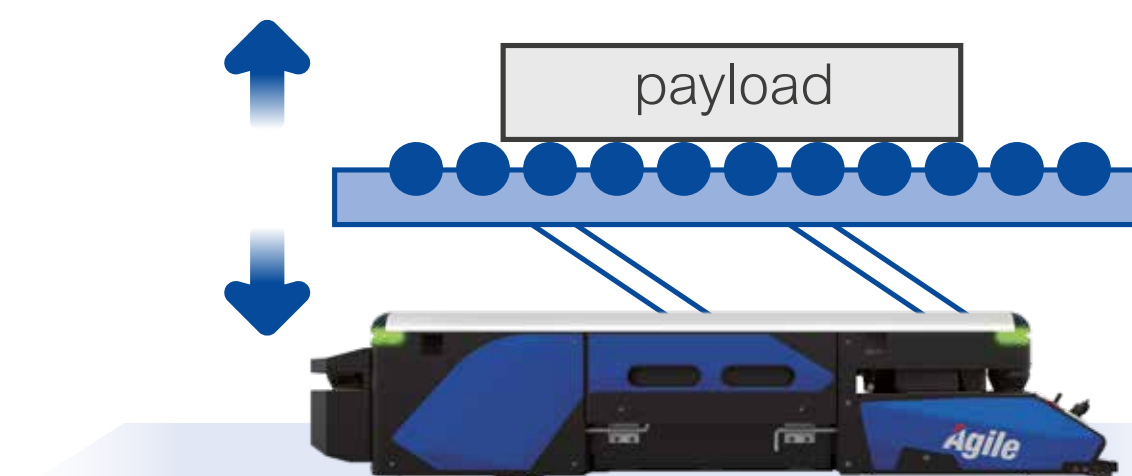
Tow

payload

Conveyor

payload

Lift

payload

Cart

payload
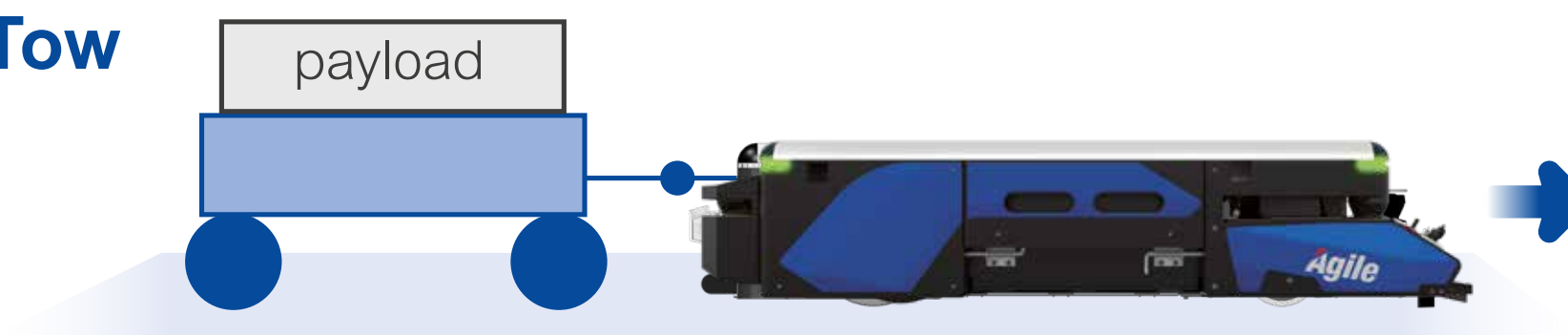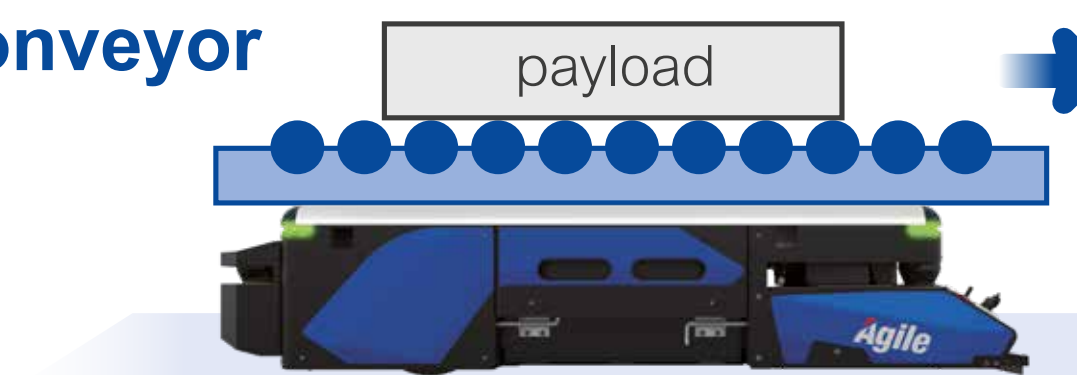
☐ = application functionality samples

Multi navigation technologies

Agile1500 can be equipped for multiple navigation modes, in order to fit to different environments with the most compliant technology.

Natural navigation

Natural navigation uses measurements from the laser range sensor to **recognize natural landmarks** such as walls and other surfaces.

This makes the production facility completely free of any reference installations including mirrors, reflectors, magnetic or colored elements.
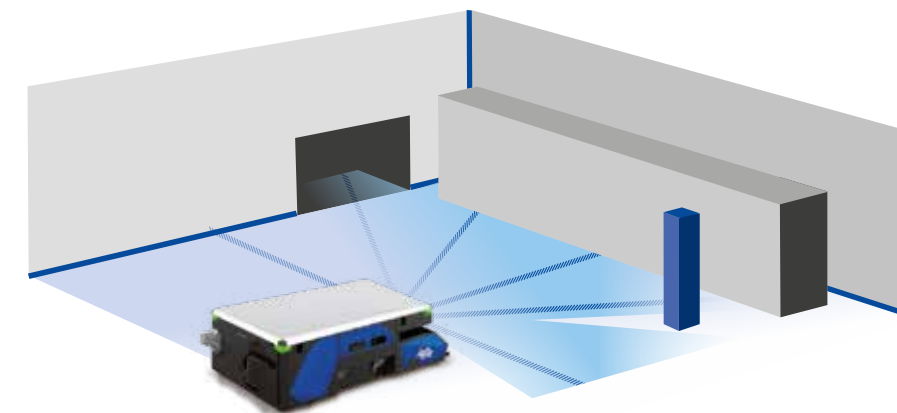

Laser Scanner

Reflector navigation

When environment is not static enough for natural navigation or there are few fixed natural landmarks, reflector navigation uses measurement from the laser range sensor to recognize reflective tapes sticked on walls and other surfaces.
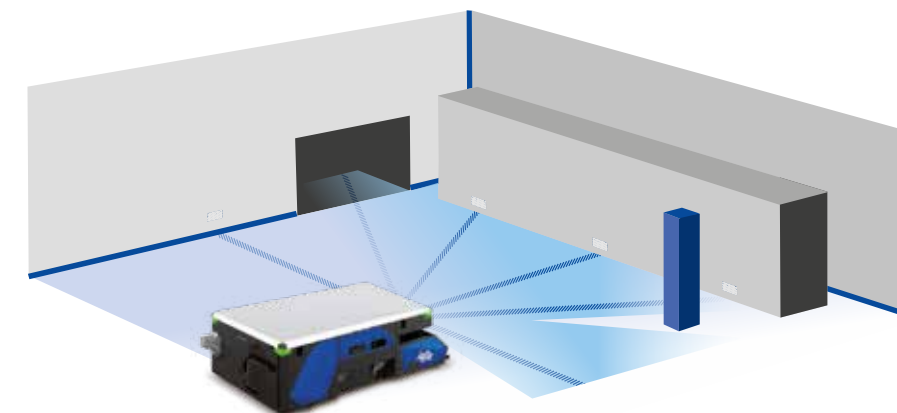
Laser Scanner and Reflective Tapes

Magnetic navigation (optional)

Agile1500 can work with magnetic spot navigation by detecting floor magnets, used where natural navigation can not work.
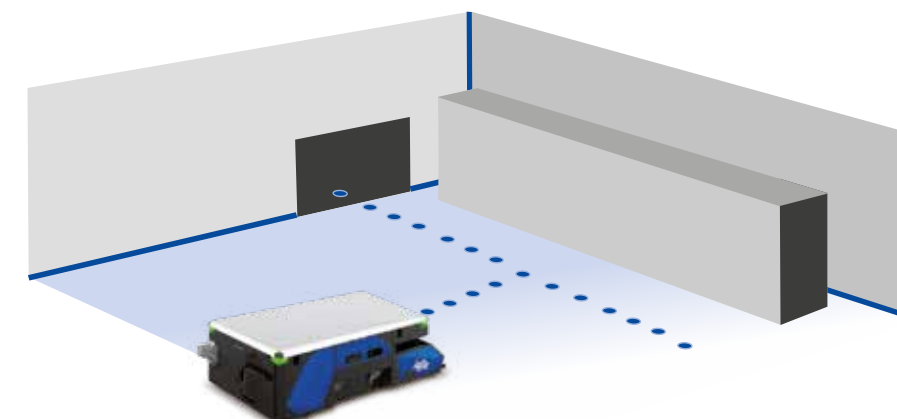

Magnetic Sensor and Spot Magnet

Technical specifications
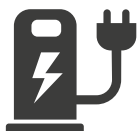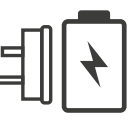
SIZE AND WEIGHT	
External dimensions (LxWxH)	1564 x 713 x 330 mm
Weight	280 kg
SPEED AND PERFORMANCE	
Maximum payload	1500 kg
Maximum speed (m/s)	1.7 m/s (natural navigation) - 1.2 m/s (magnetic) - 1.0 m/s (backward motion)
Maximun towing force	2100 N (*)
Maximun ramp grade	1%
Operating environment	Indoor
BATTERY AND POWER SYSTEM	
Battery type	Lithium
Battery characteristics	25.6 V - 138 Ah (**)
IMPLEMENTS INTERFACING AND COMMUNICATION	
Power supply	24 Vdc Power, 24 Vdc Auxiliary (+/-10%)
Communication	CANopen fieldbus

(*) friction 0.5 / 350 kg on vehicle plate
(**) 110 Ah available for user
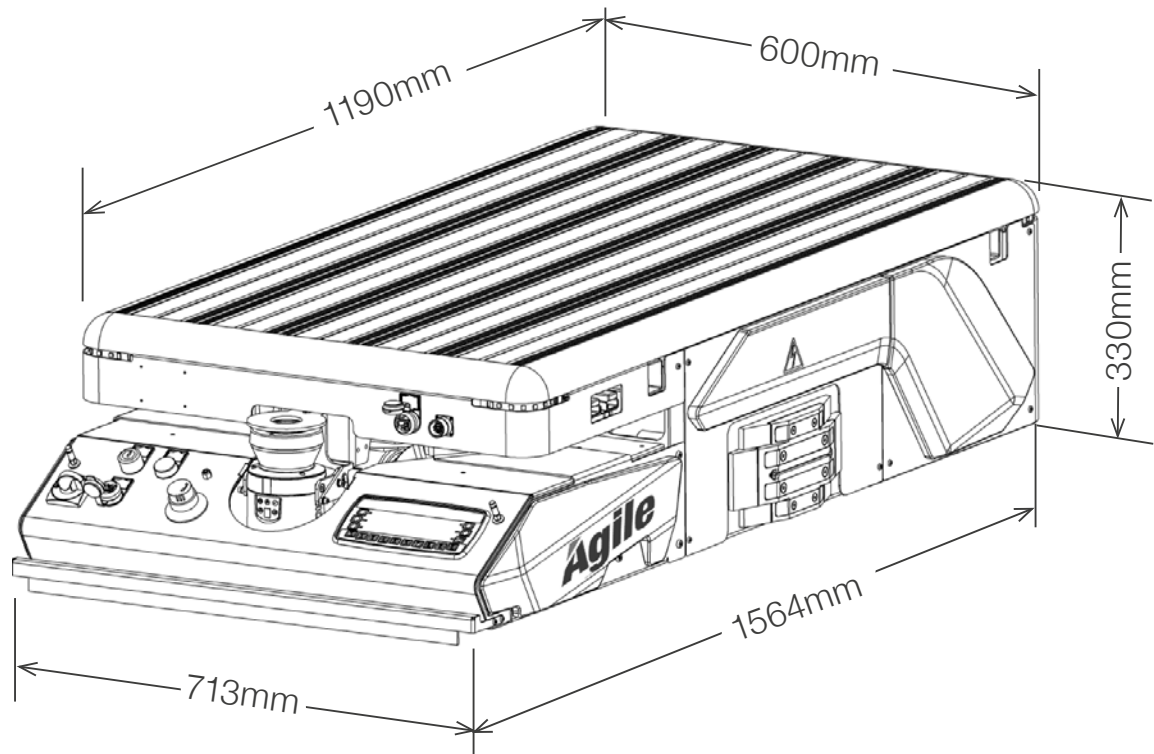
Options

- Multi navigation: the vehicle basic configuration includes the natural navigation and reflector navigation. The multi navigation and additional options can be included on demand.

- Lithium batteries: are the best choice in case of big fleet (>10 vehicles) and multiple shifts applications.
  - Recharging time: 4-5 times shorter than lead
  - Opportunity charging allowed
  - Lifecycle: up to 2000 cycles

- Manual charging-battery charger: the battery charger can be plugged either to the vehicle or to the additional battery pack.

- Automatic charging + docking station: is composed of a battery charger, a docking station and contact plates on the vehicle side. These make it possible for the vehicle to autonomously approach the docking station and go to charge when the battery level is low.

- Additional battery pack + battery adapter: the additional battery pack is a useful option in case the charging strategy will be the battery swap. The battery adapter is a connector to directly plug batteries and charger.

- Battery trolley: this makes it easier to drag the battery pack and to replace it in the vehicle - this option is highly recommended.

- Manual control device MCD8 HS: to make the vehicle move manually. It is similar to a robot teach pendant but one single device could be used for multiple vehicles. It also has the dead man functionality.

- Vehicle lifting bars: through the lifting bars it is possible to lift the vehicle from the floor to do maintenance.

- Sick programming cable for laser scanner: since the laser scanner on board is programmable, a programming cable may be needed.

Software

System Manager

It controls the whole AGV system, handles transport orders, allocates vehicles, and selects routes for the different transport assignments. Transport orders are generated through digital I/O or via operator interface (CWay), or are received from a host system (ERP, MES, WMS, etc).

CWay

CWay is the operating interface for the AGV system. It provides an easy way of ensuring that the system works as intended. Order parameters can be modified, and orders can be started or cancelled. CWay is available with multilanguage support and an AGV simulator interface.

Hardware

Vehicle Controller

It is the heart of the vehicle and supports reliable 24/7 operation. It can provide a flexible communication solution through CAN/CANopen, Ethernet, RS232/422/485, WLAN and IO. The software functions supervise everything from navigation of the vehicle to communication with the AGV system controller and interfacing sensors and actuators.

Safety

Laser Scanner

Two laser range sensors (1 front and 1 rear) are in charge of detecting any obstacles approaching the AGV. They can adjust the depth of their sight according to the vehicle speed. As a result, it can react properly by decelerating or arresting the AGV's motion before a collision can occur.

Safe PLC

The logic of all the safety features is managed by the Safe PLC, which is connected to the Laser Scanner, Safe Speed Module, safety relays and to the vehicle controller.

Safe Speed Module

This safety device is in charge of monitoring the speeds and the decelerations commanded by the vehicle controller in order to guarantee the safe behavior of the AGV.

Agile1500: product for your logistic experience

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