COMAU’S FIRST AGV: A FLEXIBLE SOLUTION FOR THE SMART FACTORY

The Turin-based giant chooses the motion control specialist as its AGV solution provider.

The result of this collaboration is “AGILE1500” Comau’s first ever AGV: scalable, fully on-line and customizable, able to adapt to multiple navigation systems. A solution in keeping with the status of Industry 4.0.

AGILE1500, an acronym for “Autonomous Guided Intelligent Lean Equipment,” is the first AGV vehicle manufactured by Comau thanks to KOLLMORGEN's know-how.

With the onset of the Fourth Industrial Revolution, the manufacturing system faces new production challenges: companies need to operate in an increasingly complex market that requires extremely flexible work processes, production in small batches and a reduced time-to-market.

In order to optimize plant productivity and provide better access to operators, an efficient organization of logistics applications is essential. With this in mind, Comau presented AGILE1500, the first automatic drive vehicle equipped with KOLLMORGEN NDC systems, which marks the launch by the Turin-based company, a member of the FCA Group and leaders in industrial automation, into the world of AGVs. Comau’s production lines will become even safer, more automated, flexible and more efficient, and will benefit, of course, from customers in the automotive market and beyond.

“Enabling Innovators to Make the World a Better Place” is the vision pursued by KOLLMORGEN, which fits in extremely well with Comau’s vision. For both companies, innovation is what drives the industry towards...
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excellence. It’s easy to understand how two businesses with the same objectives, going in the same direction can join together in a partnership.
"We have chosen KOLLMORGEN because it has proven to be the most suitable provider and is able to supply all navigation systems, combined with its expertise, know-how and its global operations," Tobias Daniel, Head of Robotics Sales and Marketing of Comau explains.

KOLLMORGEN is a world leader in the supply of AGV management systems, boasting of its in-depth knowledge, a complete range of hardware, software and navigation technologies, and a long history of successes with an installed fleet of more than 20,000 vehicles. It dates back to 1972 when the world’s first ever automotive production site to feature automated vehicles was founded in Sweden. These are the reasons behind Comau’s choice to work with the American company which has its Italian branch in Bovisio Masciago (MB) and R&D center with production site in Mölndal (Sweden).

"The beginning of this collaboration is very rewarding for us," says Fabio Massari, Senior Sales & Key Account Manager at KOLLMORGEN Italy, who witnessed the founding of the project. "Working together with the Comau team, a renowned company in the field of industrial automation, is a source of great satisfaction and it encourages us to become better and better. Establishing the co-operation has been a long and interesting journey, one which began at the SPS fair in Parma in May 2015. Sharing their needs from the outset has allowed us to put together and submit a proposal as the best global provider in the supply of software for AGV. We will continue to share new challenges by providing the added value that has characterized our business until now."

With over 40 years of high-level industrial automation experience and a strong presence in all major industrialized countries, Comau plays a leading role in automation solutions, products, processes, consulting and project management services: the company designs and manufactures modular, flexible and highly configurable products that can be tailored to the individual needs of the customer.

A small, compact and autonomous vehicle
The starting point: the ever-increasing demand on the Turin-based company, as a result of market demands, to create its own automated vehicle. The Robotics and Automation Products business unit offers the perfect environment for its development.

AGILE1500 stands out as a result of its compact design. It can carry weights of up to 1,500 kg fully autonomously, ensuring the best load capacity in its class in relation to its size. It can be safely moved at a maximum speed of 1.7 m/s and has a rotation feature at the tip, which helps to facilitate its movements in all areas.

AGILE1500 Features

- High performance vehicle
- Best load capacity in relation to its dimensions
- Modular design
- Multipurpose applications can be implemented
- Multiple navigation systems are possible

AGILE1500 Benefits

- Complete reconfigurability protects ROI and reduces TCO
- Fully compatible with other KOLLMORGEN-based AGV systems
- Intuitive programming interface
- Full connectivity and diagnostic Factory 4.0 ready

"AGILE1500 is Comau’s response to the needs of an ever-evolving market and a means of strategic importance for planning logistics in Industry 4.0," explains Tobias Daniel, Head of Robotics Sales and Marketing of Comau. “Thanks to its technical features, this new AGV can significantly facilitate industrial operations, responding to the demand for more and more just-in-time and just-in-sequence production that is characterizing the new manufacturing system.”
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- Human-robot collaborative (safe)
- Improved safety and ergonomics compared to traditional solutions
- Simplified maintenance

Greater efficiency & security in production
Moving goods in a warehouse or components of an assembly line inside a factory always involves risks, errors and security deficiencies that can reduce profitability and efficiency. Using automated guided vehicles can make a huge difference, lowering labor costs, boosting productivity and improving safety levels. KOLLMORGEN provides complete hardware and software solutions to automate AGV vehicles and vehicles for trailer transport and loading. Just think about manufacture in the automotive sector, the assembly of various components and the transportation of these components from one production line to the next. What happens if the route needs to be changed? You simply set the software according to your requirements and, without the help of an operator, you are able to reduce the risk of injuries that can occur when handling heavy materials. Other benefits include the long life of the vehicles, the controlled and reconfigurable movements, lower energy consumption, increased productivity and complete data integration for an automated smart factory.

The use of automatic drive vehicles, which is already widespread in certain sectors of industry, is now also starting to gain a foothold in the automotive sector: AGILE1500 successfully increases production efficiency and warehouse management, without the need for costly investments. There are various advantages, including a long life of vehicles, controlled and reconfigurable movements, reduced energy consumption, greater productivity, a reduced risk of injury, which are often associated with the movement of heavy materials, and complete data integration for an automatic factory 4.0.

AGILE1500 will act as a sort of “shuttle” to move semi-finished products around production sites, without needing to use classic conveyor belts, thereby benefiting from the freedom and flexibility to modify the routes as necessary: greater efficiency and safety in the workplace as well as reduced fuel consumptions. In order to be able to meet the most varied production requirements, AGILE1500 can operate in any factory layout. It operates through a multiple navigation system that allows it to move around using "natural" landmarks, such as walls and objects, as well as "pre-defined" points, such as magnetic spots and strips.

Natural and multiple navigation
The NDC KOLLMORGEN system manages the most well-established navigation technologies: natural, laser, spot, magnetic tape, inductive wire, and multi-navigation. The scalable and flexible solutions that are easily customized according to the various needs and user-friendly design, enable the client to focus on the end user application.

“We see an exciting future with Comau, in which we will be able to design solutions together to meet future challenges relating precisely to the production lines of the automotive sector and other material-handling applications. It’s a wonderful opportunity to combine experience of over 40 years in the respective sectors. Cutting-edge mobile robot and AGV solutions are now essential if we are to ensure efficient, flexible material movement and production, as is indispensable for Industry 4.0”, stresses Alberto Favalessa, Managing Director of KOLLMORGEN Italy and Switzerland, and...
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Tobias Byfeldt, Director of Global Sales of KOLLMORGEN NDC Solutions. The NDC8 system hardware consists of powerful and reliable components designed to be used in industrial environments where vibrations, dust, moisture and temperature variations are common. The navigation sensor allows you to drive AGVs with extreme precision. High quality data is sent to the vehicle controller for navigation. The sensor also has a self-diagnostic function and detects potential faults by transmitting information to the controller.

CVC 6000 (Compact Vehicle Controller)
- Compact: only 125 x 50 x 195 mm (width x height x depth).
- Easy to customize: open architecture and programmable
- All navigation technologies: laser, spot, natural, magnetic tape, inductive wire
- High performance 32-bit RISC processor
- Robust: withstands vibrations, temperature variations, humidity and dust. IP65 classification
- Energy efficient: maximum 5 W with no external USB
- Wide operating voltage: from 24 to 48 V with built-in under voltage, over voltage and reverse polarity protection
- Communication: WLAN, LAN, CAN, RS232/422/485
- Linux operating system
- Designed for environments with battery electric vehicles

A standard but extremely versatile product for a safe and "smart" factory
Modular and scalable, AGILE1500 can be customized with different accessories that can increase performance - e.g. lifters, conveyors, carts, tow hooks - adapting it to the technical and operational conditions of every particular industrial purpose. Each reconfiguration tool can also be designed to work with the end-user company or chosen from a range of standard products from Comau’s portfolio.
Thanks to the presence of advanced control functions and of an integrated laser scanner that can stop the AGV in case of an unforeseen obstacle en route, AGILE1500 increases safety on the production sites. Programmable through a System Manager that defines and traces the route, the new vehicle can perform all required operations by remote control and can even interface with all factory automations in a synergetic and secure manner. Finally, an advanced software for general system management allows transport orders and vehicle distribution to be optimized in the various plant areas and allows the activity of the entire AGV fleet to be monitored (up to 100 vehicles can be run by one System Manager).

Conclusion
"Thanks to this innovative technology, Comau can continue to support the logics of an increasingly customized and high-efficiency production, while optimizing the productivity and profitability of the entire customer production line," emphasizes Tobias Daniel echoed by Alberto Favlessa: "This collaboration agreement, signed by two global companies but which is closely linked to R&D and technical/application support units located in Turin and Milan, shows how Italy can be a center of technological excellence, capable of generating futuristic solutions that could be exported worldwide."
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ABOUT KOLLMORGEN
Since its founding in 1916, Kollmorgen’s innovative solutions have brought big ideas to life, kept the world safer, and improved peoples’ lives. Today, its world-class knowledge of motion systems and components, industry-leading quality, and deep expertise in linking and integrating standard and custom products continually delivers breakthrough solutions that are unmatched in performance, reliability, and ease-of-use. This gives machine builders around the world an irrefutable marketplace advantage and provides their customers with ultimate peace-of-mind. For further information please contact think@kollmorgen.com or visit our website www.kollmorgen.com/uk