STATEMENT

AGVs to robots: Fresh supplies on the way!
Production and intralogistics are merging in the real and virtual worlds

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“The challenges facing production planning in the factory of the future are escalating because manufacturing customized products and small batch sizes requires greater flexibility. Plug & go, easy connectivity and increased transparency are today’s buzzwords. But in the future, too, it will all be about boosting productivity in manufacturing – and in this regard, the interconnectedness of intralogistics still has a wealth of potential. For this reason, more and more production managers are adopting the holistic approach of connected assembly and logistics.

Currently, employees still semi-automatically or manually provide the necessary materials for automatic assembly. Fluctuations are handled via a number of supermarkets close to production sites. This ties up capital and takes up precious space in the factory. Intralogistics frequently occupies more space in the hall than the actual assembly line. Our goal is to significantly reduce inventories by using an automatic, needs-based supply system.

At LogiMAT, Bosch Rexroth will showcase the ActiveShuttle, the next generation of smart autonomous transport systems (automated guided vehicle or AGV). Relying solely on their own intelligence and connectivity to IT systems, they handle needs-based replenishment without human assistance. AGVs navigate freely and do not require any markings on the floor or similar aids. They reliably recognize humans and obstacles and avoid collisions autonomously.

Autonomous driving is just one prerequisite for raising efficiency in intralogistics. The key to increased transparency is seamless integration into existing IT landscapes and inventory management systems. The transport system independently executes needs requests from the inventory management system and coordinates itself automatically. When a number of AGVs are used simultaneously, they wirelessly communicate with one
another, obtain information on obstacles and avoid traffic jams that form at bottlenecks.

The trend toward connected assembly and logistics links these autonomous transport systems with scalable, expandable smart assembly stations, assistant systems and collaborative robots. For instance, automation can be done step by step as production is increased. Individual stations can be connected through assistant systems and automatically integrated into the assembly line to boost production. But assembly lines only become truly flexible with the help of programming-free systems, which is why our solutions use a modular system kit that can be configured easily, put into operation quickly, and adapted to meet new requirements. Thanks to their easy handling, they help employees master variance and aid continuous improvement.

In the future, manufacturing specialists will plan such solutions with user friendly tools within cloud-based engineering. A decisive role will be played by the digital twins of all components, modules and functions. With their help, companies will be able to virtually plan their assembly and logistics processes more than before, adapt them to new requirements and introduce them into real production in a digitally optimized state.”