

Editorial

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With the continuous coronavirus pandemic, the need for efficient, well-performing mobile robots is in even greater of a demand now. The pandemic has placed a large emphasis in dealing with onsite logistics for many businesses throughout the world. Warehouse movement can be seen as an area of improved efficiency and safety, while the looming threat of COVID-19 continues. Unlike humans, mobile robots can work around the clock, 24 hours a day. A facility that houses a fleet of automated mobile robots can be better prepared for social distancing and other safety measures that might be needed for workers. Mobile robots can fill the void of a skilled labor shortage and the frequency and tediousness of the job by handling the performance of simple transport, delivery, and routing chores so your employees can perform higher-value jobs.

OMRON is the world's leading provider of mobile robots for industrial applications, and was the first company to launch a commercial mobile robot into the marketplace, in 2013. OMRON has the largest installed base of mobile robots in manufacturing and they can be deployed in thousands of applications across multiple industries and are utilized to increase throughput, eliminate errors, and improve material traceability. The newest addition to OMRON's mobile robot portfolio is the HD-1500, which was launched on July 22, 2020. It is the latest Automated Mobile Robot (AMR) featured in OMRON's mobile robot lineup. OMRON's other AMRs include the LD-60 (60kg payload), LD-90 (90kg payload), and LD-250 (250kg payload) mobile robot models which set the industry standard.

Mobile Robots Get Stronger and Safer

OMRON's newest and strongest mobile robot to date, the HD-1500, boasts a payload capacity of 1,500kg. The higher payload capacity allows customers to automate new tasks that were not previously possible, such as the transport of pallet-size loads, engine blocks, and other heavy goods and equipment. The HD-1500 can also automate tasks that are traditionally completed with forklifts, thus reducing the risk of injury. Eventually eliminating the need for forklifts, and doing more with less equipment.

According to ABI Research, half of the 1 million global forklift shipments could be automated by 2030. "The automation of material handling will see huge segments of the global forklift, tow truck and indoor vehicle market consumed by robotics vendors and original equipment manufacturers that bring indoor autonomy." Furthermore, it's

predicted that shipments of automated forklifts will increase to 455,000 in 2030, up from 4,000 in 2020.¹



Figure 1: OMRON HD-1500 mobile robot

OMRON's newest mobile robot, the HD-1500, offers a solution to automate complex and dangerous tasks. Organizations can begin to phase out forklifts and safely transport large pallets containing finished goods, voluminous materials in the food and commodities industry, and automotive frames. Workers can now focus their attention on more vital tasks; allowing customers to load more, making fewer trips with heavier batches, and increasing ROI. With the HD-1500, OMRON mobile fleets can be more diverse and still be controlled through the same system allowing customers to do more with less equipment. The HD-1500 fits seamlessly into the larger OMRON mobile fleet, working together with other robots to optimize traffic management, battery management, and routing of vehicles. Customers can add the HD-1500 to their fleets without worrying about safety, compatibility, or performance.

The HD-1500 utilizes many safety features such as: 360° LiDAR technology safety coverage, emergency stop buttons, visual and audio warnings and obstacle avoidance. OMRON's mobile robots can automatically calculate the best route for material transportation while navigating safely around people and obstacles without the use of magnetic floor tapes nor other guides.

OMRON's latest technological achievement with the HD-1500 is at the forefront of solving businesses manufacturing needs. Highlighting the need for increased workplace safety and productivity, the HD-1500 and additional AMR models can help solve

¹ Robotics Industry Set for Seismic Change as Growth Shifts from Fixed Automation to Mobile Systems in Enterprise, ABI Research, 2019.

dangerous and repetitive tasks associated with today's industrial manufacturing requirements.

Mobile Fleet Management

One of OMRON's key differentiators is the mobile robot fleet management system, which allows customers to easily automate fleets of up to 100 robots. Released in October 2019, the control center for OMRON mobile solutions is the OMRON Fleet Operations Workspace (FLOW) Core solution, which provides intelligent fleet management to monitor mobile robot locations, traffic flow, job assignments, and battery charging.

FLOW Core assures cutting edge fleet deployments by enhancing navigation, programming, and integration capabilities into one package. In addition to displaying robot location, status, and job queues, FLOW also prioritizes important jobs, selects the fastest routes based on human and robot traffic, and identifies blocked paths and creates alternative routes. The system also integrates with customer manufacturing execution system (MES) and enterprise resource planning (ERP) systems, decreasing the programming required to automate full production lines.

Built for Flexible Manufacturing

OMRON's mobile robotics solutions are designed to meet the needs of modern manufacturers by providing as much flexibility as possible. OMRON produces Autonomous Mobile Robots (AMRs), which can safely navigate factories without the use of floor magnets or wall-mounted beacons. AMRs are far more flexible than Automated Guided Vehicles (AGVs), which require a predefined path to follow, either a network of magnetic lines on the floor or beacons on the walls. When production processes change, OMRON's AMRs can easily adapt, without requiring the additional costs of installing new equipment.

The Future is Mobile

With the current coronavirus pandemic, the world is experiencing a major turning point with how society conducts business due to new global health concerns. Until recently, it has been extremely difficult to automate human tasks that are sophisticated and complex. Employees throughout the world must maintain social distancing in manufacturing sites, limit business trips, and work remotely. As a result, the demand of more advanced automation and mobile robots has been increasing, along with a growing demand for remote operations.

This means optimizing automated material handling through fleet performance, where OMRON integrated AMR mobile fleets can be controlled by the same system, giving customers more freedom and choice in how they can adapt their mobile systems to changes in demand or changes in facility layouts.

By customizing robotic solution and optimizing complex automation systems, customers can decrease time and money spent on programming and configuration, and ultimately increase their return on investment in their manufacturing processes. The factory of the future keeps evolving and OMRON is here to provide state-of-the-art technologies as a symbol of a relationship between the integration of mankind and machines.

As machines become a more integral part of society, humans will enjoy machine support in a number of new and different ways that extend the potential of human capabilities. As with mobile robotics, mobile robots will emerge in every domain that can expand human capabilities and possibilities.