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Application of Robotics in Material Handling Systems



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# Application of Robotics in Material Handling Systems

**Efficiency always remains at its best with fast and smooth-running equipment. The problem is, after many long years of hard work, equipment can get tired too. Eventually, every piece of equipment can start to degrade from prolonged use. Regular maintenance and proper handling will aid in keeping equipment lasting longer, however, technology is evolving in a phenomenal and rapidly-paced direction. When frequent repairs are required for tired equipment, it may be best to upgrade to a new model.**

Oldcastle Northfield manufactures concrete masonry and hardscape products in the Midwest at its Shakopee, MN location, focusing on high-quality services and products, including high-end pavers. Having cultivated a long-term relationship with Pathfinder, Scott Schopf, Site Manager of Northfield Shakopee, decided to inquire with Pathfinder/Tiger's expertise to diagnose a problem at the plant and come up with an innovative solution to improve pallet accumulation efficiency. It is possible that dated equipment in a production facility will at some point take longer to repair than to perform the work it was designed for. There are some concerns that are unavoidable if the equipment is close to the end of its working lifespan, requiring more maintenance, time, and money. A suitable change to an automated machine provides a strong opportunity to deliver a high-quality product.

Northfield Shakopee's original pallet accumulator had been working efficiently for a long time. As time went by, Schopf knew it was time for an upgrade based on a notable change in the machine's performance. He needed assistance in improving productivity, increasing pallet accumulation capacity, and reinforcing safety measures for today's demanding concrete industry, the answer was Pathfinder/Tiger's Robot Pallet Accumulator (PA).

Northfield Shakopee's standard crane-style accumulator was replaced with Pathfinder/Tiger's Robot PA. Their original pallet accumulator was designed for simpler products, and as those products have become more complex and demanding over time, so has the need for automated equipment. First, they made room for the new robot by removing the existing pallet accumulator and shortening the PA chain conveyor. With their new innovative robot working in full force, Northfield Shakopee was able to increase their pallet accumulation capacity from 900 to 1,800, simplifying the accumulation system. With an increased pallet capacity and secure safety limits and precautions improved, Northfield Shakopee's production from the wet side to their dry side has been able to proficiently balance production lines of materials again. With more complex product lines comes the need to have more separation and flexibility of the wet and dry lines. The



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increase from 900 to 1800 pallets gave Schopf more flexibility with production scheduling due to the PA mitigating cycle time discrepancies, or change over time between the wet and dry side.

Today, flexible and capable technology is becoming a priority in production facilities to keep up with the demand for high-end products. Two primary growth motivators for upgrading dated equipment are cost efficiency and consistent quality of work. There are continued advancements in today's production equipment to create a faster, more efficient, and smarter way to get things done. Industrial and automated robots can offer manufacturers consistency and high quality when performing their simple, repetitive job such as material handling. We know what the robot is going to do, there's no confusion about what will happen next, which is why pallet accumulation is a perfect job for a robot and Schopf can focus on other areas of the plant. Robots simplify things and pull mechanical issues out of production time, their behavior is predictable and their movements are precise. "Your plant has to be able to produce a lot more now and get products out as efficiently as possible." Said Schopf.

Concrete production facilities utilize steel pallets, and because all the pallets are almost always one size, shape, and weight, a robot pallet accumulator was right for the job. There are no concerns about different shapes, sizes, and weights to be moved by the robot. The robot PA is picking up and plac-

ing pallets from set locations, which will not change. It allows the robot to run a single program without having to worry about needing to make in-house adjustments.

Robots come with contemporary features and capabilities that make them a unique and flexible option for assisting with concrete production standards. Along with other new technology, industrial robots can provide precise and reliable processes to ensure manufacturing plants run smoothly. Schopf noted that "as the advancement of concrete products grows, so does the equipment", which is why Northfield Shakopee made the switch from a standard machine to their new robot. ■

FURTHER INFORMATION

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