



Concrete Plant International
North America Edition

3 | 2021

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Custom Solution for Handling
and Automated Feeding of CMUs

PATHFINDER



REPRINT
CPI 3/2021



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Custom Solution for Handling and Automated Feeding of CMUs

As Pathfinder's long-time customer worked to evolve their business to meet consumer demands and sought solutions to give them a competitive edge in their market, Travis Hilldore of Pathfinder Systems worked to find creative solutions to meet their needs. As the grinding market became more saturated, they had to move into advancements to differentiate themselves from other concrete product manufacturers. Eleven years ago, Pathfinder sold a 12-head polishing machine that had the ability to create a reflective finish on the CMUs. As the demand for their new product increased, Pathfinder along with GMM, was able to provide the customer with equipment that increased efficiencies that could match the finish of the polish on the ends, chamfers, bull-nose, and other profiles. The success of the products along with the challenges in the labor market forced the customer to seek creative solutions for automated handling. Pathfinder was able to provide them with a custom solution for handling and automated feeding of CMUs into their processes.

The first step in modernizing their grinding line was to add the 12-head grinder to their operations. The challenge Pathfinder identified was to improve the finish of their CMU's without needing to fill or coat their finished product, resulting in a high-gloss reflective finish. The features of the LMS that

allowed Pathfinder to do that for the customer are detailed below. The Toro was a complement to the LMS to allow for high-speed finishing of chamfers, bull-nose, and other edge and end profiles while matching the finish of the LMS. As the market demand for product increased, the customer required increasing output of tall ends, so Pathfinder identified adding the Costa which has a matching finish to the LMS as the solution to capacity demands while maintaining high efficiencies. Polishing Machine Features:

LMS GS 2C+10

- 2 calibrating heads utilizing diamonds
- 10 polishing heads on a moving bridge
- Separate water controls for the first 8 heads and final 4 heads
- Enable recycled water on coarser grits
- Uses fresh or filtered water for finer grits
- Polishing heads are on a floating air system (allowing for customization of pressure on product)
- The first 2 calibrating heads are controlled by an encoder & worm gear (allowing for precise positioning of the heads over the belt)
- Belt is made out of a PVC aluminum composite (eliminating the possibility of marking on the product)



The Toro allows for high-speed finishing of chamfers, bull-nose, and other edge and end profiles while matching the finish of the LMS.



The Costa has a matching finish to the LMS as the solution to capacity demands while maintaining high efficiencies.

Developing the De-Cuber resulted in a machine that has 2 drop stations for pre-process cubes, an overhead vacuum on a gantry, as well as product elevators.

- Machine bed is hot dipped and galvanized
- Components that are exposed to water are stainless steel (increasing the longevity of the machine frame and components)

Toro (Offers many of the same features as the LMS)

- Features a robotic arm
- Allows for the cutting and polishing of various profiles on the edges and corners of CMUs

Costa

- Allows for the polishing of 4" up to 12" ends
- Eliminates the need to stand the product up and strap on to the LMS

The product line proved successful and continued to grow as the labor market became more challenging to find the labor to feed and off-load material into the grinding and polishing equipment. This led to the installation of a De-cuber, engineered and built by Tiger Machine, and became an essential piece of equipment for them to continue operating despite the growing labor challenges. It utilizes standard parts similar to existing cubers. For added convenience, parts, service, and remote connectivity (for troubleshooting) on this equipment became available. Sensors on the Tiger De-Cuber detect all forklift activity. In the presence of any movement, the cuber conveyor will pause until the forklift is cleared. There are guides on the cube conveyor in order for the incoming cubes to be positioned directly on the heads. The vacuum head has 180 degrees of rotation to orient the product properly

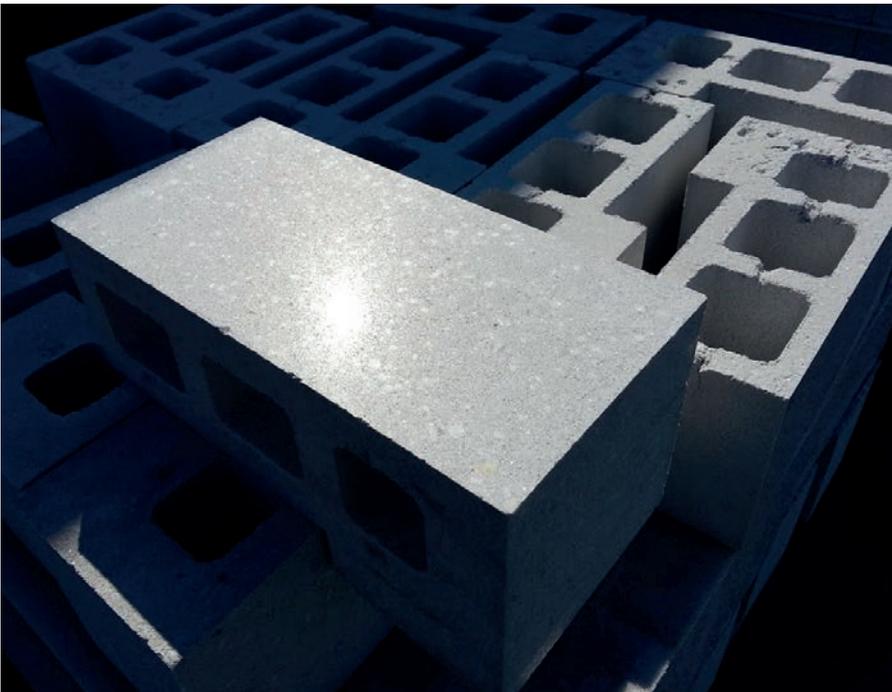


for the infeed of the grinder and polisher. It also allows for the customer to retain a standard cube layout. Utilizing vacuum heads, instead of a traditional clamp, reduces the possibility of the product chipping or breaking during transportation. Safety is always a priority for Pathfinder Systems and Tiger Machine, and the system is fully guarded including under areas that could cause potential drop hazards if the machine were to lose power or the safety gate would be opened. The Tiger De-Cuber has the capability of moving a wide range of product.

Developing the De-Cuber resulted in a machine that has 2 drop stations for pre-process cubes, an overhead vacuum on a gantry, as well as product elevators. The overall goals were to reduce labor, increase cycle times of the post-processing equipment and reduce the chances of chipping the corners and edges during handling. Another vital objective was for all the units to be picked and placed as quickly as possible. Some of the features that attributed to this end result included the product elevator that would permit the

vacuum to grab the next set of products at the same time that the polisher is being fed. The conveyors to these machines have customizable speeds in order to separate the CMUs for quality control and accumulate product for processing. Nylon coated rollers on the conveyors aid in the elimination of possible scuffing and/or damage to the product. The lines can now be fed simultaneously without sacrificing productivity. Another challenge that Pathfinder encountered was the capability to handle the current product lines along with any future lines. The vacuum gives the customer the flexibility to allow for new, emerging product lines that are in high demand.

It was very important for all Pathfinder customers to have the availability of spare parts for this new equipment. Pathfinder Systems made an investment in stocking parts and training their team to service this new, innovative machinery. This project gave the customer a new competitive edge in the concrete product manufacturing industry.



The LMS allows to finish CMU's without needing to fill or coat their finished product, resulting in a high-gloss reflective finish.

FURTHER INFORMATION

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