Cambridge Pavers, Inc., Lyndhurst, NJ 07071, USA

Cambridge Pavers, Inc. builds new plant with state-of-the-art equipment

2Cambridge Pavers Inc. was founded in 1994 with a mission to produce hardscape products & outdoor living components and to sell exclusively through a distributor network. Cambridge presently distributes their concrete products in over 21 states. Over the years Cambridge Pavers has become synonymous with ArmorTec®, their face mixing technology. Cambridge Pavers just completed the construction and installation of their newest plant and chose Pathfinder/ Tiger for production equipment, Standley Batch Systems for material handling, and four Teka mixers adding to the nine that are operating in other facilities. Coloring dosing equipment was supplied by Venator as it is in all of their production facilities.

Cambridge Pavers commenced with the construction of a 10k square foot building on 5 acres and have evolved to two separate campuses with an excess of 60 acres, located approximately 11 miles out of New York City, housing in excess of 150,000 square feet of manufacturing buildings, 25,000 square feet of warehouse space and 10,000 square feet in office space. Outside storage allows for in excess of 7 million square feet of finished concrete paving stones and 2 million face square feet of retaining walls, in addition to their outdoor living components including fireplaces, firepits, pizza ovens, kitchens, pergolas, and pavilions to name a few. Cambridge Pavers presently produce on six production lines, incorporating four splitters, five banding/consolidating stations, one distresser, and four barrel tumblers. Their manufacturing facilities, administration staff, outside/ inside sales, and operations/ logistics team members number 205.

Choosing their manufacturing equipment vendors is based on the initial advantages of some equipment versus others, but more importantly the long-term support that is expected from the partnerships they form.

Teka batching and mixing equipment

For its batching and mixing equipment, Cambridge Pavers and Teka worked together to establish what the current and

Cambridge Pavers chose four Teka mixers adding to the nine that are operating in our other facilities

The THT series incorporates the patented mixing turbine arm

THT mixers have Variable Frequency Drives (VFD's) as standard equipment

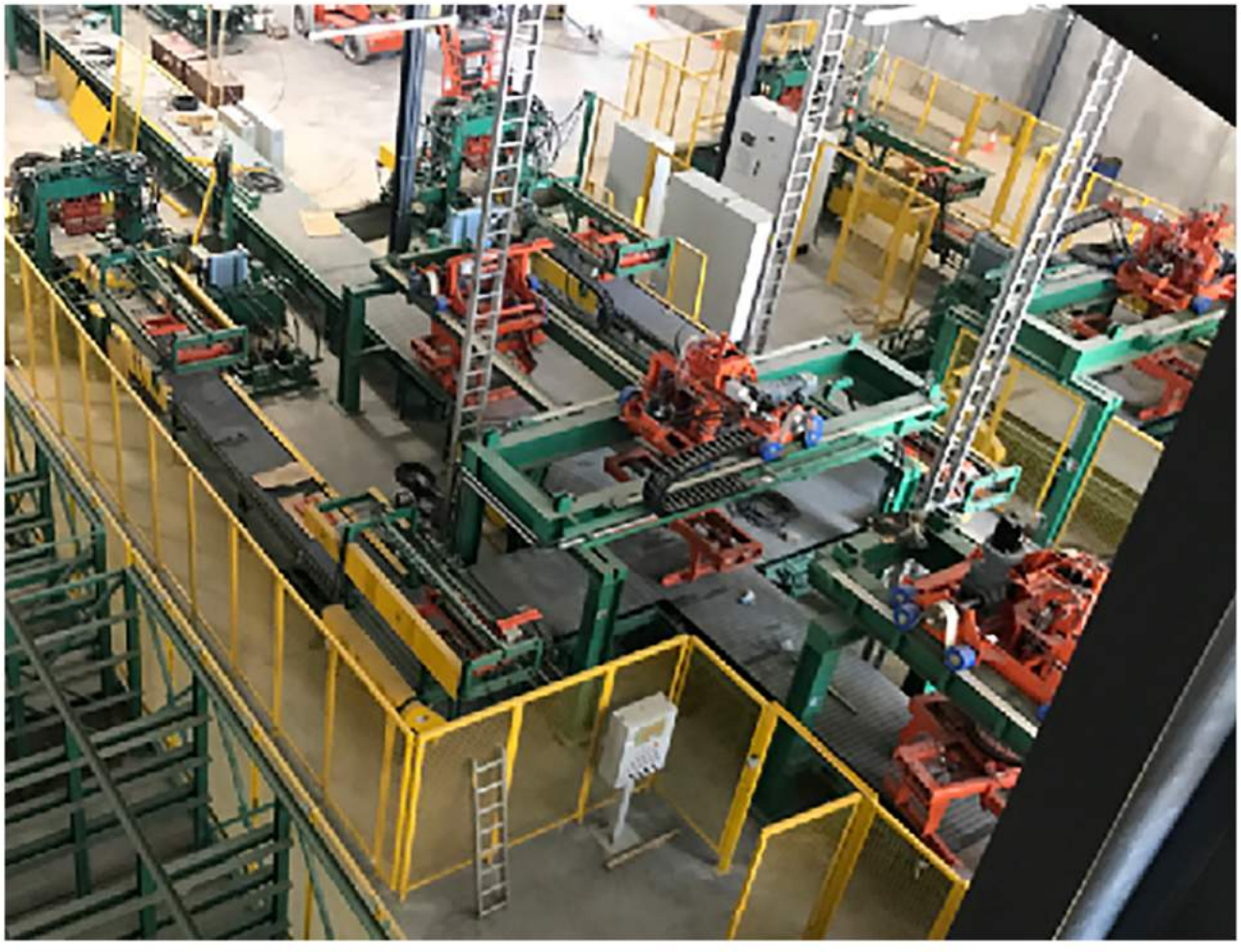
future mixing requirements would be, in order to choose mixer models and sizes best suited to accomplish those tasks. Producing high-end concrete pavers and retaining wall units on high-speed production machinery means that the mixers need to deliver excellent mixing results, and do so in the shortest possible cycle times.

Cambridge Pavers decided on two Teka THT 3000 K-3-VII with Skip Hoists, and two Teka THT 500 C-1-II mixers for face-mix production.

The THT series incorporates the patented mixing turbine arm to generate a 'swing and throw effect" of the batch material. The rotation and shape of the arms causes materials to accelerate across its face, maximizing the distribution of the raw materials throughout the mixer pan.
This intense and aggressive mixing action shortens the mixing cycle time and enables producers to run partial batches as low as 10% of the maximum capacity. In addition, THT mixers have Variable Frequency Drives (VFD's) as standard equipment. This provides the added benefit of allowing producers to vary the speed of the mixer to match specific mix designs.

THT 3000 high-performance turbine mixer

The THT 3000 high-performance turbine mixer with innovative mixing technology has a patented mixing turbine and two counter-rotating mixing stars that guarantee very intensive mixing of the mix while at the same time not destroying any grain and therefore not changing the grading curve.



The mixing stars and the similarly rotating clearing and scraping paddles continuously feed material to the patented mixing turbine. This leads to a very intensive and fast mixing of the material in a very short time and with a very high degree of homogenisation.

One of the main advantages and strengths of the Teka high-performance turbine mixer is the possibility to produce small and very small quantities for special products. In practice, small quantities of less than 10% of the maximum mixer capacity can be mixed.

Furthermore, the mixing turbine has a scraper with a self-cleaning effect.

The mixing turbine is coated with tungsten carbide in order to guarantee long service lives. Moreover, the intensive mixing leads to very good mixing in of the batch water and a virtually straight moisture measurement curve.

The Teka turbine mixer is delivered as standard with a frequency converter for the main drive. The speed of rotation of the mixing turbine and the two mixing stars can be varied with this frequency converter for the main drive and adjusted precisely to the mix to be mixed. The rotational speed of the mixing turbine and the mixing tools can also be adjusted to suit needs during the different phases of the mixing cycle (dry mixing time, water addition, wet mixing time and emptying time).

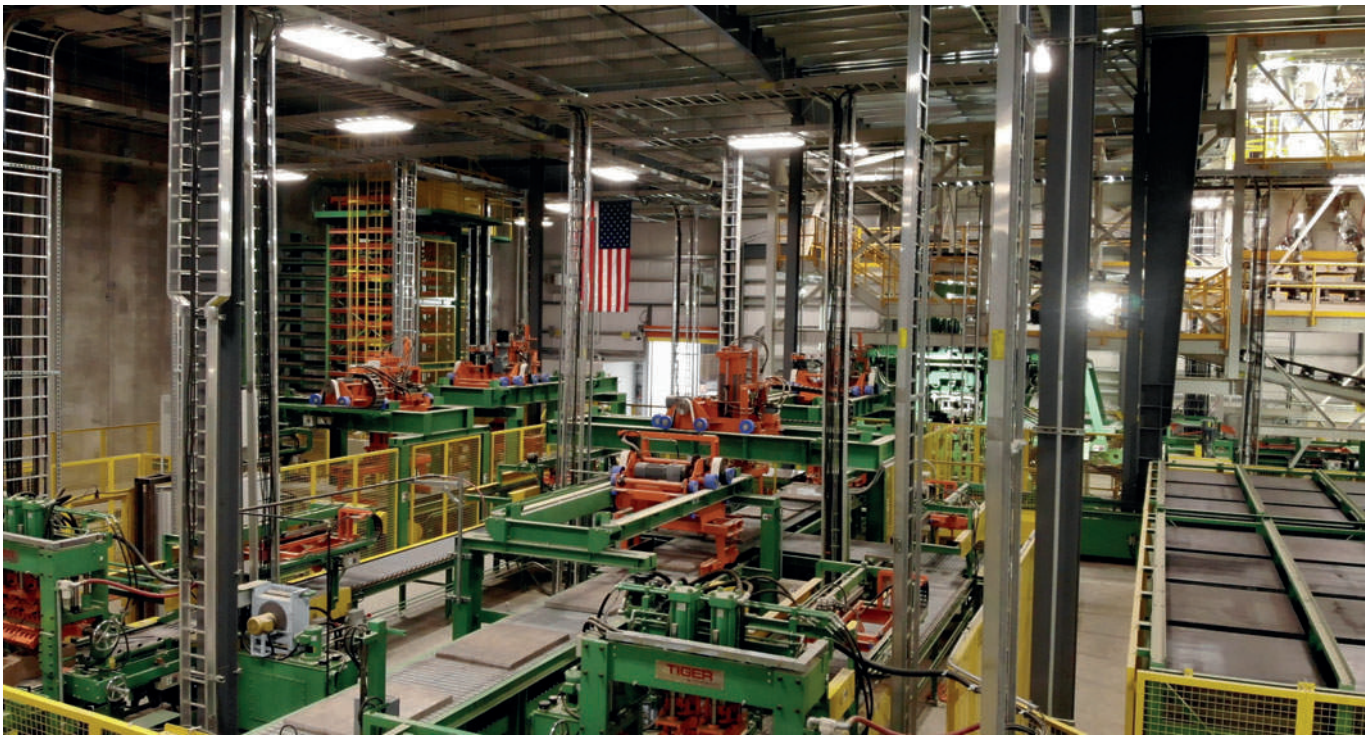
Teka THT 500 high-performance turbine mixer

The Teka THT 500 (type E-1-III) high-performance turbine mixer has a frequency-controlled 30 kW drive motor and produces a maximum concrete output of 0.33 m³ per mixture.

This THT 500 high-performance turbine mixer with innovative mixing technology has a patented mixing turbine that guarantees very intensive mixing of the mix while at the same time not destroying any grain and therefore not changing the grading curve. The similarly rotating clearing and scraping paddles continuously feed material to the patented mixing turbine. This leads to a very intensive and fast mixing of the material in a very short time and with a very high degree of homogenisation.

One of the main advantages is the possibility to produce even very small quantities for special products. Furthermore, the mixing turbine has a scraper with a self-cleaning effect. Both the mixing turbine and the clearing and scraping paddles in this mixer were coated with tungsten carbide to guarantee long service lives. The speed of rotation of the mixing turbine can be varied via a frequency converter for the main drive and thus adjusted optimally to the mix to be mixed.

Cement scales ensure precise dosing of cement for both mixers, while the water dosing unit and microwave sensors guarantee the right w/c value.



Overview plant

Tiger PS 1000 HD

Tiger PS 1000 HD

Cambridge chose to add their fourth Tiger machines and opted for the PS 1000 HD which builds on the PS 100 platform but has additional features such as an ultra-advanced HD monitor with dozens of additional controls and diagnostics screens which allows the operator to fine tune each new product being produced with precision, speed and accuracy. The PS 1000 HD adapts to several mold brands, eliminates mold carrier float, and with the automatic height control and weight scale that tracks density allows Cambridge to produce the high-quality products that they're known for. This is all achieved by providing live data to the operator that allows him to make educated decisions and adjust the machine in real-time to avoid costly downtime and product culls.

The laser height sensor has easy to understand graphics that allows for quick interpretation of data and limits can be easily adjusted allowing for multiple settings and controllability for horn or machine notifiers. The weight scale measures the pallet before and after production for accuracy and has features like automated alarms, conveyor stopping and even pallet dumps if the weights don't need specifications. The combination of the weight and height scale allow for a level of automated QC understood by the machine that allow a manager to set automatic machinery level responses to the data received. The PS 1000 HD is an extremely high-speed and smooth-running machine.

Tiger Dual Pallet Transport System with Curing Chamber and Curing Rack System

TIGER MODEL S

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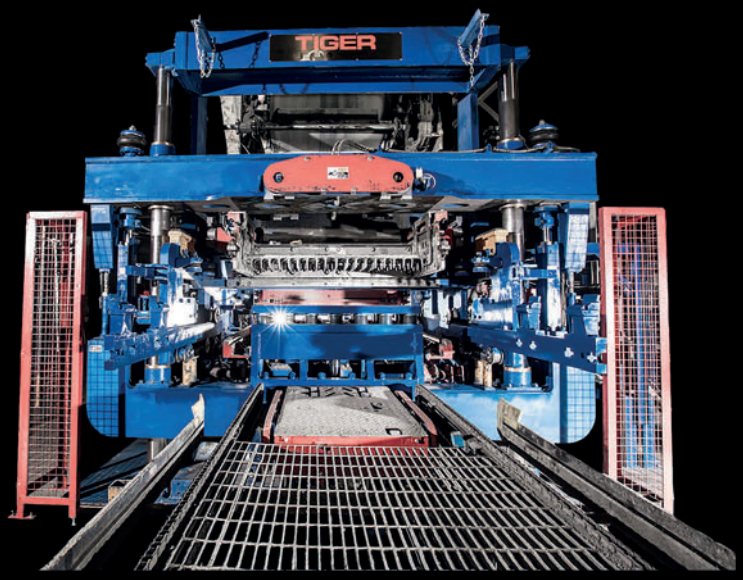
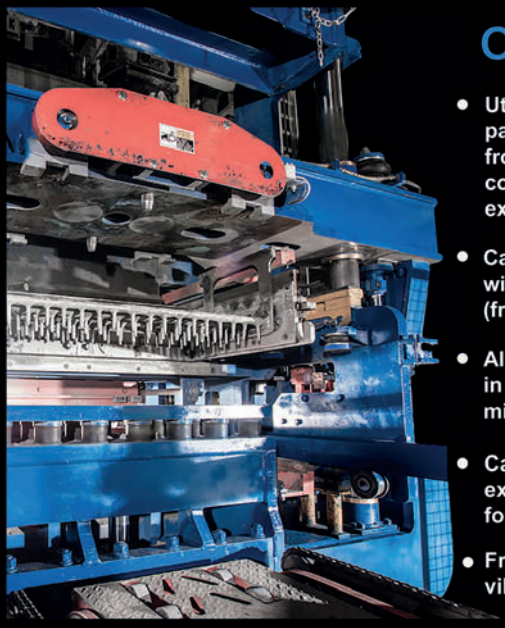
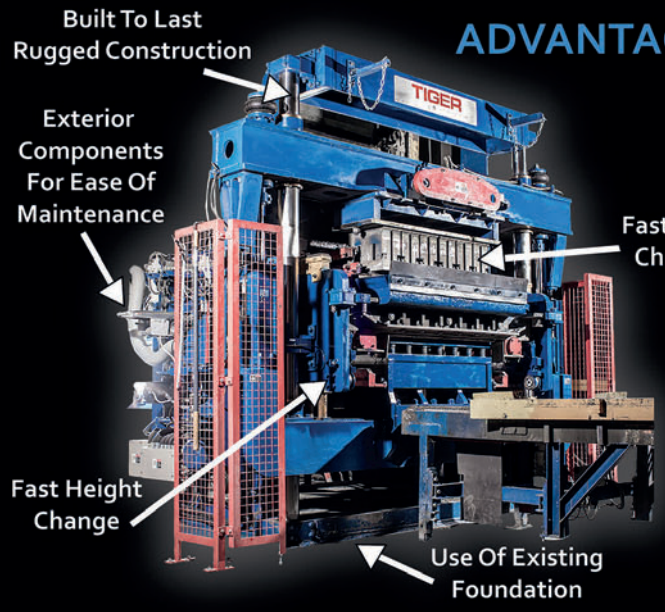


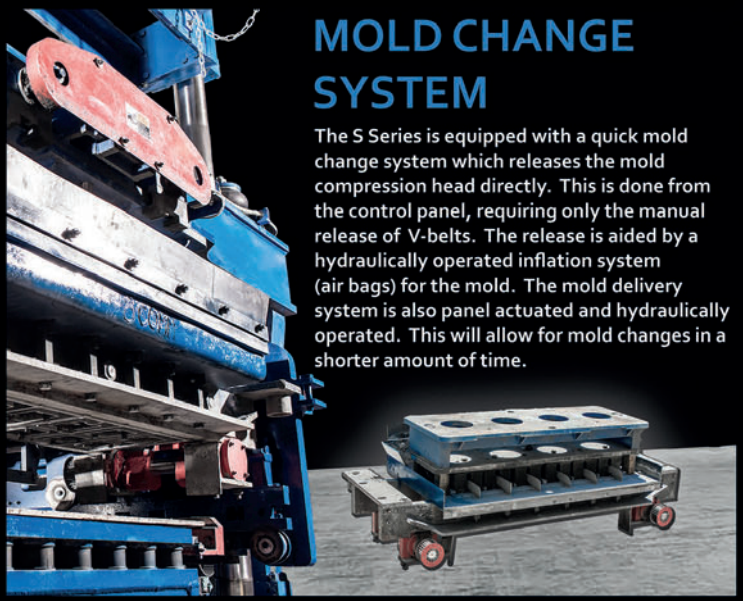


OVERVIEW

- Utilizes existing production pallets, return conveyors, frontal product delivery conveyors and most existing molds
- Capable of producing a wide range of products (from 2-3/8" up to 8-15/32")
- Allows for height changes in only an additional 2 minutes
- Can be placed on most existing machine foundations
- Frequency control on vibrators

ADVANTAGES





MOLD CHANGE SYSTEM

The S Series is equipped with a quick mold change system which releases the mold compression head directly. This is done from the control panel, requiring only the manual release of V-belts. The release is aided by a hydraulically operated inflation system (air bags) for the mold. The mold delivery system is also panel actuated and hydraulically operated. This will allow for mold changes in a shorter amount of time.

CONTROLS

- User-friendly
- Ease In Operation
- Highly Adjustable
- Mold Life Reporting
- Production Reporting

PATHFINDER

616-395-8447
Sales@PathfinderSystem.com

It was decided to install two types of Cubers available from Pathfinder/Tiger Machine, the CC-Cuber and the CP-Cuber.

The Tiger Dual Pallet Transport System (PTS) was selected for its functionality to accommodate a FIFO (first-in, first-out) finger car system with a divided kiln that allows for flexibility in curing, loading and offloading of products to and from the kiln and for a wide product range. The PTS works with a high capacity Pallet Accumulation System which allows for independent operation of the wet side and dry side and is able to keep up with the high capacity demands of Cambridge production. CureTec's custom solution for Cambridge includes a state-of-the-art curing chamber and fully galvanized steel curing rack system allowing for flexibility in the curing environment for a range of different products and provides uniformity within the kiln from front to back and consistent curing time for each product. CureTec's remote service to support customers paired with the high capacity PTS gives Cambridge one of the most flexible and competitive facilities in today's market.

It was decided to install two types of Cubers available from Pathfinder/Tiger Machine, the CC-Cuber and the CP-Cuber. These cubers have been built off a tried and true platform but have been updated to reflect modern controls and manufacturing processes, making the cubing process more efficient than ever. The cubing lines have a total of three in-line automatic splitters with two additional operating as semi-automatic for corner splits, as these splitters were needed to keep up with the production rate of some of the retaining wall products. The CC Cuber is all in-line, from kiln to wrapped and out the door. The product is always carried over pull plates to eliminate the risk of dropping product and allow for product line diversity. It also has the flexibility to add in-line processes before the Cuber or to add for specialty product lines down the center. The CC-Cuber can cross stack as well as interlock materials foradded stability of the finished cube.

CP-Cuber was selected for use at Cambridge for use on their unique specialty products lines and has features such as segmented tier clamps in which each segment has its own hydraulic cylinder and a partially elevated push plate and pull plate for cubing. These features allow for a forgiving platform even on tough to cube shapes and patterns.

FURTHER INFORMATION

CAMBRIDGE

Cambridge Pavers, Inc.
PO Box 157, Lyndhurst, NJ 07071, USA
T +1 201 933 5000
info@cambridgepavers.com
www.cambridgepavers.com

Teka

TEKA North America, Inc.
1009 Scenic Parkway, Unit F
Chesapeake, VA 23323
T 757-558-8846
F 757-558-8847
info@tekamixers.com
www.tekamixers.com

TIGER

Tiger International Inc.
P. O. Box. 2288, Portage, MI 49081-2288, USA
T +1 269 267 8512
F +1 269 312 8936
tiger@tigermachine.com
www.tigermachine.com

PATHFINDER

Pathfinder Systems
695 Ottawa Beach Road
Holland, Michigan 49424, USA
T +1 616 395 8447, F +1 616 395 5995
sales@pathfindersystem.com
www.pathfindersystem.com

CURETEC
Experts in Concrete Curing

CureTec Energietechnik GmbH & Co. KG
Lehmkuhlen 13, 49757 Vrees, Germany
T +49 4479 9390600
F +49 4479 9390620
info@curetec.biz
www.curetec.biz