

Penta, 40062 Bologna, Italy

Italian manufacturer of machinery improves production at EP Henry Corp.

The EP Henry Corp. is preparing to enter its second century of service with the leadership of the Henry family. Driven by a history of market innovations, dedicated integrity and with the respect of its peers the company has distinguished itself as a North American market leader.

Founded in 1903 by Edward P. Henry, EP Henry Corp., is one of few family-owned American companies to have surpassed the century milestone. From generation to generation the Henry family, owner of EP Henry Corp., is dedicated to the production and development of the highest quality architecture concrete products aimed at homeowners and commercial construction companies. In addition to being one the largest producers of Hardscaping concrete products in North America, the company produces the broad range of unique and innovative building products.

Penta, the manufacturer of machinery, was established almost 30 years ago by Selvino Simoni, in the heart of Italy's region known for automation. Its engineering skills offered innovative solutions to meet the unique needs of its customers. First serving their domestic market Penta quickly grew to service other European countries and now brings its solutions to the so-called New World. The family-run company enjoys the trust and esteem of some of the World's most prestigious producers in the concrete industry.

State-of-the-art technologies

These two companies, came to know each other through a mutual association with Harry VanDusen, of Concrete Plant Technologies, Inc. who represents Penta in the North American market. This affiliation over four decades led the company in New Jersey, to a technical collaboration where each company shared its knowledge. The result of this synergy yielded a solution to meet the production needs of EP Henry Corp. for the new product.

Penta uses state-of-the-art technologies to produce bespoke equipment for a wide range of unique products. Practice of assiduous collaboration and the ability to respond to each customer's specific needs, these are the pillars of the relationship between the two companies. As different as they may be, they each depend on one another in order to develop year after year. Facing each year with the same enthusiasm as the first, continually looking forward.

Unique product, unique production

Among the latest innovations that EP Henry has introduced to the market, is "Cast Stone Wall". The conception of this product combines the structural integrity of regular block walls with the natural aesthetic surface of natural stone. The product is the result of years of research, testing and hard work to develop this innovation for the market.

"Cast Stone Wall" is a high quality product that must be treated and handled with care to assure that its aesthetic characteristics are not compromised during production or in transit to the final user. The challenge for EP Henry was to be able to automate the production with a flexible, safe and high performance system. The research and consultation with the major producers of automatic equipment did not convince EP Henry to entrust those producers with this challenge, until EP Henry met Penta.

When the management of EP Henry first met, the Italian company Penta Automazioni Industriali SRL, a leading manufacturer of custom-made automatic solutions in the concrete industry, was opening its American company Penta US Inc., based in Manhattan, NY.



Demoulding area

Since the beginning Penta has distinguished itself in the market for its creative solutions and for its technological know-how. These are the major reasons that persuaded EP Henry in giving the job to Penta.

The challenge was certainly a complicated one but also exciting and challenging. EP HENRY found a partner that lived up to their expectations, and for PENTA, another successful high-performance solution conceived for the new and innovative product.

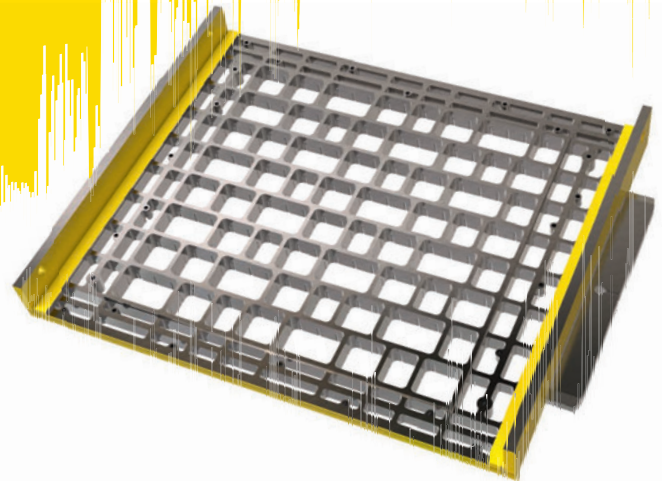
The production process to be automated consists mainly of three phases: (1) Demoulding of the products by extracting them from the urethane mould. (2) Calibrating the products on all four sides exposed. (3) Quality control and custom made stacking.

The blocks extracted from the mould must be flipped, upside down, to present the "Cast Stone" face up. To accomplish this, the demoulding device puts the blocks on a movable trolley that moves the products, with the blocks oriented vertically, to an area for further processing.



Calibrating line.

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"Cerberus" the programming gripper with three independent heads.

A custom designed gripper picks up the blocks from the movable trolley and turns them by 180° to feed three calibrating lines.

The solution was chosen to increase the production, to meet the demands of a rapidly growing market. The sizes, and faces of the blocks change, yet the configuration always presents three rows of products in each mould, Penta decided to design three identical calibrating lines, where each line comprises five processing stations: (1) a loading station, (2) an initial calibration station, (3) a rotation station, (4) a station for a second calibration and (5) unloading station.

A first movable trolley holds and transports the blocks toward the calibrating process station and, holding them tight, it moves underneath the calibrating machine where the first two sides of the blocks are trimmed. The blocks are next rotated to reorient them at an intermediate station. The blocks, now turned by 90°, are moved, by a second movable trolley, toward a second calibrating processing station for finishing the two remaining sides.

The blocks are then transferred to a quality control station and then to the stacking area.

EP Henry is focused on the high quality of this product and wanted to protect the "Cast Stone" surfaces from any possible damage during the transport; therefore their requirement was to arrange the blocks in the final pack so to have alternate cast stone faces in each row.

To meet the customer needs Penta came up with the solution to design a special gripper, one for each calibrating line. Every gripper is equipped with three independent rotating devices to turn the blocks by $\pm 90^\circ$ according to the sizes and packaging strategies. The blocks, are then placed onto a mutual line that feeds the stacking area just after the quality control station.



Cubing robot

The row of blocks is placed on a wooden shipping pallet by the stacking robot with independent gripping fingers that handles both the empty pallet and the blocks.

For extra protection of the cast stone faces, Penta developed a suction system able to place a cardboard divider on the face of the block's row: When the robot picks up the row the card sheets act as spacer and surface protection. The robot will continue to stack the blocks till the pack is fully built and can be removed by the forklift driver.

Besides handling the blocks Penta took care of the emptied urethane moulds too by cleaning them for reuse. A custom-designed movable scraper advances onto the surface of the mould to remove any concrete residue; then the mould is turned upside down to let the concrete debris fall down to be collected in a waste bin.



Strong and reliable partners: EP Henry and Penta

Step by Step

It was the tight collaboration of the two companies that made the design and the realization of this plant possible. The culmination represents the achievement goals set forth by both companies: EP Henry found a partner to satisfy its needs and to succeed where others had not dared, while increasing their production capacity and reducing labour costs. Penta has again found solutions to satisfy the needs of the production while gaining the trust of a new customer in North America.

Penta is also glad to be able to assist EP Henry and other customers thanks to newly established Penta US Inc. and to the new domestically located spare parts warehouse. Penta thus strengthens its presence and its activities in the United States with the ambition of assist more and more customers. ■

FURTHER INFORMATION

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