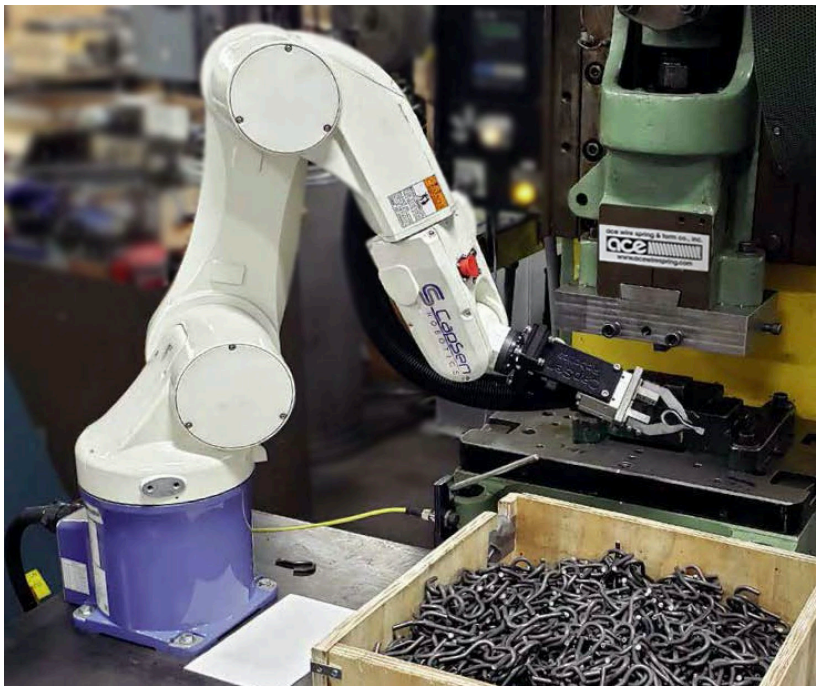
Ace Wire Spring & Form Uses Robotics to Cut Through Competition

By Hank Walshak – TEQ Magazine



As competition surges, so does the need for more manufacturing robotic advancements. Ace Wire Spring & Form, a company located in McKees Rocks has made sure to stay up to date by doing just that. The company produces a wide variety of springs within industries such as aerospace, agricultural, gas/steam turbines, hardware, medical, oil-filled drilling/mining, power generation, and transportation.

Robotic Precision Plus Employee Satisfaction = Success

The robot at Ace Wire Spring & Form untangles hooks for project needs. This procedure breakthrough has freed up employees from having to reach into a bin and pick a single wire hook 400,000 times a year. Ace Wire Spring & Form wanted a robot to free up its workers for important tasks involving spring manufacturing. This robot is the world's first, entangled part, bin-packing robot.

According to engineer, Bob Powner, “The Ace Wire Spring & Form robot works effectively because it’s equipped with 3D-vision algorithms that use in-depth colors. These algorithms give the robot a three-dimensional understanding of the world and provide the ability to locate objects in a pile, comprehend where these objects are, and determine how and where to pick them up to transfer them.”

The robot includes a combination of geometry based and machine-learning algorithms that are highly optimized using GPU programming. As a result of this, a CapSen™ unit can locate objects in 0.3 seconds -- 5 times faster than the closest competitor. “A key factor," emphasizes Powner, “is providing the robot with the necessary

spatial intelligence to manage the process to a complete solution, which includes 3D vision software, and full-motion planning and control."

"At Ace Wire Spring & Form, every quotation request received from customers is sent to the company engineering and design staff, to create the spring and tolerances that meet critical needs set by customers." Powner notes that many companies in the spring-manufacturing business simply settle on stock that comes close to the specifications listed in the quote. "Our Design and Engineering Department works for customers who need solutions, not just springs. They understand that specific tolerances are critical to the performance and uncontrolled variances are not acceptable," says Powner.

Solutions Not Just Product Replacements

Spring design for manufacturing remains the key to a sustained product. The staff of design engineers at Ace Wire Spring & Form assists individuals at all stages of product manufacturing, from initial part design such as, prototyping and production, to post-production. Ace Wire Spring & Form management and employees believe in manufacturing the right solution for customer manufacturers who want a high-tolerance, custom spring.

Automating this key part of the process has paid dividends for the company's employees. "It's so nice to be able to do what we were trained to do on the floor, instead of putting hooks into the press half of the day," says Powner.

Advanced manufacturing remains a top priority at Ace Wire Spring & Form, and the company stays up to date on modern manufacturing techniques. Ace Wire Spring & Form is investing in the company's future by purchasing state of the art machinery for its employees to work with. Ace Wire Spring & Form offers a distinct advantage over other companies when it comes to manufacturing springs and wire forms. Unlike standard spring companies that rely on extensive inventories of standard tolerance springs, Ace Wire Spring & Form specializes in manufacturing springs and wire forms to the specific needs and applications of its clients.

Ace Wire Spring & Form Company (www.acewirespring.com/) has manufactured custom precision springs for diverse applications since 1939. This ISO Certified/ITAR registered company develops and manufactures a wide variety of compression springs, extension springs, torsion springs, and wire forms. John Higgins serves as the company's Marketing Manager. He can be reached at 412-458-4830 or by email at jhiggins@acewirespring.com for more information.