



# State of the Art Manufacturing

*By John Higgins, Marketing Manager, India Springs Inc.*

Advanced Manufacturing is a priority at India Springs Inc. staying up to date on modern manufacturing techniques. India Springs Inc. is investing in the company's future by purchasing state of the art machinery for its employees to work with. One of the machines purchased and installed has caused some excitement within the company, it is a robot.

Late last year India Springs Inc. purchased and installed a robotic arm for use on the shop floor. The robot is currently programmed for a project need involving an intricate, multistep production process which includes forming wire into metal hooks, passing them as bulk material into bins, and pressing the ends of them. These hooks are ultimately used in a swivel hook extension spring.

A key part of the production process involves moving a single hook out of a cluttered pile — a classic bin picking task that was previously performed manually at India Springs Inc.. But unlike simpler bin picking applications, it quickly became clear that grasping a hook from a pile can be exceedingly complicated; the hooks are dumped into the bin and often get tangled. The robot reaches into a bin of metal hooks, picks up one hook, is able to sense if the hooks are tangled, untangles them if needed, and then places the hook into a press for the end to be swedged. Once done, the hook is then placed in the box of completed hooks.

With the use of the robotic arm, India Springs Inc. has created a high-speed, low-cost advantage, with consistent quality and savings that can be passed on to the customer. Also, work-force efficiency is improved, there is less downtime, and safer working conditions for the employees exist. The employees can now concentrate on less mundane tasks by working on projects that they are trained for. This leads to a higher output, better performance, and creation of quality products.

Grasping one hook at a time manually is a time-consuming, monotonous task that used to take skilled workers at India Springs Inc. away from their core tasks for hours at a time. Now moving a single hook out of a cluttered pile and into the press by hand is a thing of the past at the company's factory.

## Why Choose India Springs Inc.

India Springs Inc. and Form Company offers manufacturers 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, India Springs Inc. specializes in manufacturing springs and wire forms to the specific needs and applications of our clients. We custom engineer and design springs to tighter tolerances and control production quality to ensure

the tolerance is maintained for each spring.

Tolerance is the key to our unique advantage, and it is essential to understand what specific tolerance is required to meet your application. Standard tolerance springs are accurate to a wider margin of specifications than custom springs. These springs are acceptable for non-critical applications but are not made to meet the demands of critical applications. Higher tolerances require the specifications and techniques used to manufacture the spring are more rigid and therefore are designed to meet the needs of critical applications. A tighter tolerance also demands that the production of the spring is monitored to produce accurate repeatability and that each spring meets the higher tolerance. Standard springs are not held to this level of accuracy and may vary in dimension or strength and thus may not be appropriate for the application.