



# ROBOTS FIT PRESSROOMS LIKE GLOVES

*Advances in robotic press tending allow safe handling of larger parts, quick job changeout and surprisingly rapid return on investment.*

BY LOUIS A. KREN

“Robots don’t belong in the pressroom.” That was the general feeling in the mid-1980s throughout America’s stamping operations. These days, you’d be hard pressed to find a pressroom that wouldn’t, or hasn’t, benefited from robotic press tending.

That’s the word from Peter Stephan, program manager for stamping for Fanuc Robotics America, Inc., Rochester Hills, MI. Here, he identifies key factors

in robot evolution that now make robotic press tending a viable option for stamping operations, from large-volume automotive-panel suppliers to short-run contract shops.

## **No Limit on Part Size**

At one time, robots were thought to find best use in press lines as the means for transferring smaller-sized blanks. That’s no longer true. Robot suppliers now provide large robots with increased

payload capacity, says Stephan, noting, for example, that Fanuc Robotics has units available in the 200- to 400-kg. range. Such behemoths can handle the ever larger parts, such as body side panels, wanted by automakers, even with the trend toward thinner, flimsier base material.

“These robots have the inertia and moment (the tendency to cause rotation about a point or an axis) capable of handling such parts along with associated



tools, namely end-of-arm tooling," reports Stephan.

That tooling, he says, is the real key, now being robust enough to pick thin-gauged parts without bending, while maintaining a profile that stays clear of press columns and die work. In fact, with the largest presses available typically offering about 180-in.-wide beds, robots have shown that they can handle even the flimsiest sheet that such presses accept. Robot capabilities also provide for transfer of large flimsy body sides in double-not-attached formats, where stampers opt to use larger beds and higher tonnages to press more than one part at a time.

### Press, Robot Controls Work Together

Press-tending robots today boast controls with faster processors, and, once configured, operate seamlessly with the line control system. Typically, robot motion groups are controlled through one processor while input/output (I/O) falls under the auspices of another. With simultaneous processing, the robots communicate with the press—to guarantee the press won't cycle before the robot finishes picking or placing a part, for example—while also figuring where to move next.

In a typical robotic-press-line installation, says Stephan, metalformers may decide to upgrade from relays to PLCs, and tie these processors into a main processor that oversees the entire line. In simple terms, control architecture on an upgraded line includes robot controllers—connected via remote I/O or a device network—that communicate with a PLC. Press controllers, similarly connected, also route to the PLC. That PLC, says Stephan, usually makes all the decisions regarding when robots will enter the press to pull a part out, how the press will run around the pick-and-place operations and more, all customized for the particular part produced, the particular tooling used and specific press conditions.

### Rapid Changeover from Job to Job

With proper software and coding, robots can be controlled from a touchscreen, allowing operators to access a dropdown menu and select the setup needed for the next job. This also is communicated to the presses and any automated tool-setup equipment. In fact, says Stephan, the physical tooling changeover from job to job takes more time than robotic setup. That makes robotic press tending a viable option for

short-run operations, where changeouts may take place nearly every hour. Press tending robots even help out with die changes, as those equipped with automatic tool changers—connected to the robot faceplate—can unload a tool and pick up a prestaged tool for the next job. Though automatic tool changing may seem expensive at first, if operators can prestage tooling during a run, with robots configured to help with changeout, hit-to-hit time decreases over time, making the investment pay off.

Robotic press tending, first accepted among large stampers feeding material to produce automotive parts by the hundreds of thousands, has permeated smaller shops as stampers realize that accurate parts are produced faster with less labor, with changeover between jobs no cause of concern. Stephan notes that Fanuc Robotics, for example, has provided press-tending robot systems to a small-lot stamper that changes the line over from job to job every hour, and another that handles the task every 90 min. These small-lot shops find return on investment from quick-change capabilities while joining big-volume stampers who value repeatability and reliability. Those capabilities make robotic press tending an option worth studying for stampers of any size. MF



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ATI Industrial Automation is a leading provider of robotic tool changers for use in numerous applications, including press tending.

Pictured in the article is an ATI model QC-101 tool changer (the orange component joining the tool to the robotic arm).

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