Labor Pains

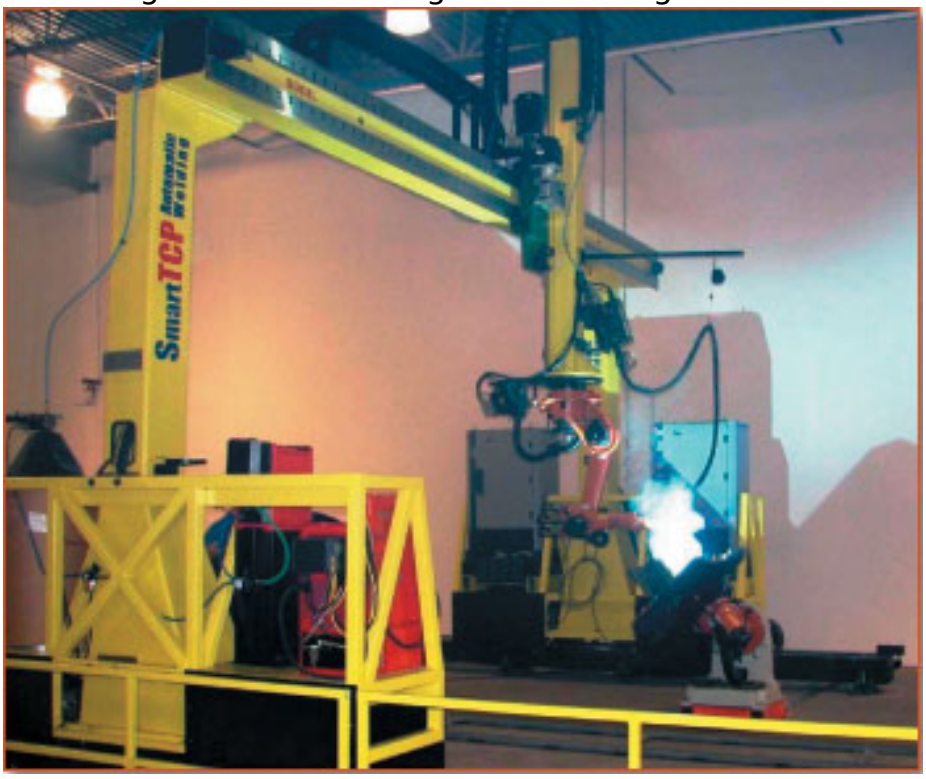
Anna Wells

According to the U.S. Department of Labor, the number of welders employed in the U.S. declined an astounding 10 percent from 2000 to 2005—from 594,000 in 2000 to 576,000 in 2005.

It may not be the most publicized issue facing American manufacturing, but it's one that every plant manager is well aware of—the shortage of welding professionals in industry is becoming a more major concern, even in an economy rife with layoffs. Still, it's not for lack of effort from industry leaders, namely AWS (American Welding Society), a not-for-profit organization designed to promote the science, technology, and application of welding and related joining disciplines. AWS has become a leader in promoting the educational pathway necessary to increase public interest in this career path.

Despite the organization's efforts, and those of other leading institutions and developers, welding as a profession is still in an interesting state of negative growth. According to the U.S. Department of Labor, the number of welders employed in the U.S. declined an astounding 10 percent from 2000 to 2005—from 594,000 in 2000 to 576,000 in 2005. To compound this rapid decline, says the National Association of Manufacturers, manufacturers will need as many as 14 million new skilled workers by 2020, in part to replace the aging baby boomers that make up nearly half of manufacturing jobs today.

AWS hosts a paper on its website outlining a pragmatic "vision" for the future of welding. Says the document: "Given the present-day image of welding, which does not yet reflect the recent progress made by the industry in machine processes and automation, it is not surprising that the percentage of workers who can weld and who work in the manufacturing industries is on the decline. However, as in every field, there is a crucial need for talented people, and manufacturers want to attract people to welding who will help improve their products and their productivity. Industry has set a goal of investing in educational opportunities for people interested in welding, metallurgy, and closely related disciplines. Early investments in training at all levels will generate a large return to industry."



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Automation Solutions

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"The shortage of good welders is happening just about everywhere in this country," says Efi Lebel, founder and CEO of Smart TCP, a turnkey provider of robotic welding solutions. "Automation, of course, is a great way to overcome this shortage, but the problem is that—in many cases—automation is not available for small batch production." This seems to be an issue that will likely become more and more prevalent, as manufacturers move to more customized, built-to-order production that necessitates more frequent changeovers.

SmartTCP's approach to remedy these issues comes by way of a unique robotic

welding solution. The company's gantry system integrates software and hardware components to automate both the robot programming and the weld production, making it possible for job-shops and manufacturers to quickly and easily optimize the fabrication of parts in low volume production.

The design of this solution, says Lebel, addresses two key hurdles in applying automated welding to low volume production: "First you need a very flexible machine which can handle many types of parts—a very complex, multi-axis machine," he explains. "The other element is programming. In order to program such a complex machine, you need to spend a lot of time. This doesn't make any economic sense if you have a few of them to do." The answer, explains Lebel, lies in providing a flexible system with easy-to-use software, in order to make automated welding in small batch production simpler and more time efficient.

Understanding Labor, Cost

One of the other challenges in the widespread adoption of welding automation relates to labor concerns—an issue Sherry Bloomfield sees as somewhat muddled by reigning perceptions that automation will cut jobs as a rule. Bloomfield is the account manager for systems automation for Güdel, a gantry robot manufacturer and specialist in complex, diverse, and custom-built machinery for factory and press automation, and robotics. "We've done cost analysis for (potential customers) where it would improve productivity," says Bloomfield. "Maybe they can utilize someone who is a little more technically experienced in other areas, instead of just handling product. You're killing two birds with one stone if you can use one person over here to do two jobs, and put a robot over here to save money."

Saving money and saving jobs seem to go hand in hand. Bloomfield sees a growing trend towards maintenance coming down the line, including renewed efforts in helping users run equipment longer. "We're offering refurbished equipment and going in and doing some aftermarket analysis on their existing welding cells to see where we can help them with retooling or changeover—without them having to buy a whole new system."

For future opportunities to review new technologies in welding, FABTECH International & AWS Welding Show introducing METALFORM has announced its upcoming trade show dates: November 15 to 18, 2009 in Chicago and November 2 to 4, 2010 in Atlanta.

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