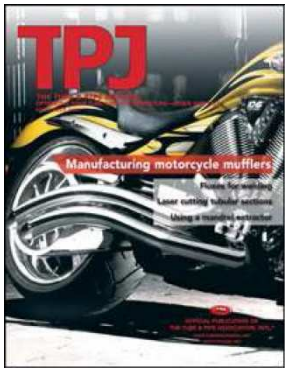

THE TUBE & PIPE JOURNAL

Topic: Applications

Fabricator combines technologies to bend, measure multidimensional tubing

Situation:
Stirling Energy Systems (Scottsdale, Ariz.), a manufacturer of systems for the solar power industry, approached Harco Metal Products (Tempe, Ariz.) about making a component that requires a series of short, small-diameter tubes installed in a unique pattern. Because the bent tubes must have a continuously changing radius, the fabricator would need a machine capable of making free-form, multidimensional bends. It also would need a measurement system that could accurately evaluate such bends.

Harco immediately was confronted with a large hurdle in meeting the needs of this customer: Most readily available equipment would not perform the required processes with the speed, accuracy, or consistency needed to meet the customer's tight tolerance demands.

Resolution:
Harco's sales and engineering team knew of a particular tube bending machine developed by Wafios Machinery Corp. that had the potential to bend the tubing as required. Harco contacted Wafios, which recommended its BMZ41 and BMZ42 machines, both of which are capable of bending small-diameter tubes to multidimensional shapes.

Harco then looked for a measurement system. It ran across the TubeInspect HD machine, developed by Aicon 3D Systems. A tabletop model developed for small components, it has a measuring envelope of 17.7 in. by 15.75 in. by 7.8 in. and handles tube diameters from 0.04 in. to 0.40 in. The machine uses eight digital cameras for optical measuring and can provide bend- geometry adjustment data to bending machines.

Harco's president and founder, Jay Hall, flew to Germany to meet with representatives from both companies. Within six days the Harco team proved that the two pieces of equipment could worktogether. This combination of technologies enables Harco to provide to Stirling complex components measured to an accuracy of ±0.0010 in.

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