

Case Study – 'Autobrazer'

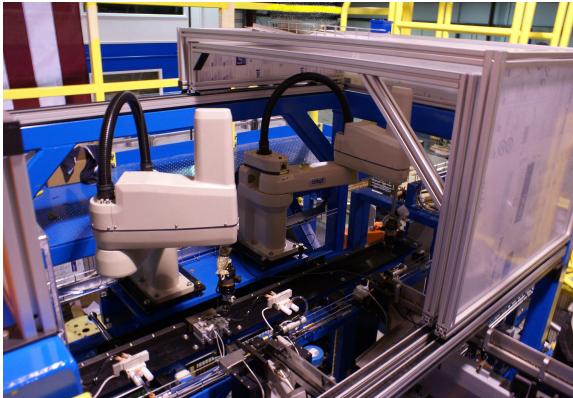
The customer is a leading manufacturer of HVAC equipment. The machine integrates part identity verification, auto population of U bends onto the coil slab and verification of their placement, the automated brazing of the U bends in a controlled manner and the presentation of the finished slab for manual or automatic pick up.

System Requirements

- To be able to handle and process a wide range of slab sizes including three widths
- To control and verify all slab movements through the stations
- To be an all-in-one machine tying together previous disparate processes
- To be fully automated
- To place U bends at up to 72 parts per minute



Overview of the Autobrazer machine



'Autopopulate' Section for U Bends



Lift station

Description of the Solution

- ✚ TEC designed and built the Autobrazer with infeed, U bend placement, brazing,
- ✚ cool down and exit stations; each station uses a ball screw-driven lift to move the slab
- ✚ through the machine at the appropriate height
- ✚ The machine uses both bar code and HMI input of slab data
- ✚ The infeed and exit stations incorporate a 15-degree tilt mechanism
- ✚ All conveyor activities are controlled by variable frequency drives, edge sensors
- ✚ and the central machine PLC; remote access is used for long-term first-line support
- ✚ U bends are fed via bowl feeders to SCARA robots for placement
- ✚ The brazing section is nitrogen purged; TEC supplied the fumes evacuation system
- ✚ The machine is ready for robotic load and unload of the slabs
- ✚ Operates with 0, 1 or 2 robots

Customer Benefits

- Consistent throughput realized
- Human touches reduced to two
- No reduction in operator judgments or control of the process
- Automated placement of the U bends for consistent brazing
- Automated brazing of U bends for consistent and higher quality product

TEC Automation, Inc.

**30 Hickory Springs Industrial Drive
Canton, GA 30115**

**Phone 770-720-3333
www.tec-automation.com**