Industrial contractor, SW Industrial, Inc., was confident it could manually weld the small-bore heavy-walled piping on a hydrogen furnace. However, it realized that the job was more complex than expected. The furnace tubes at the bottom of the hydrogen furnace were spaced at one-foot centers making it impossible for manual welders’ helmets to pass. Furthermore, the material specified for the 1-1/4” pig-tails was Incoloy 800 because of the severe operating temperature of the furnace.

SWI identified automatic orbital welding as a solution to this welding problem. They leased a Model 227 microprocessor-based power supply and a Model 81 full-function pipe weld head from Arc Machines, Inc. and sent 3 people to the AMI factory for training. By the 3rd day of training, each welder was developing weld schedules and welding x-ray quality welds on his own. Welding parameters for Incoloy 800 were established during training and stored in the memory of the power supply.

To facilitate the tight construction schedule in effect on this site would have required six manual welders to do the job of the single orbital welding operator who performed the welds on this job. The average was about 20 complete welds per shift including fit-up and tacking and actually peaked at 44 joints welded in one 10-hour shift. No defects were found in any of the 160 pigtail welds. The quality and appearance of the welds were beyond the client’s expectations.

For further information, call AMI at 1-818-896-9556 or e-mail sales@arcmachines.com

To read the full story, visit www.arcmachines.com
**M227 Power Supply**

**Input Power**  
100 - 240 VAC  
single-phase  
50/60 Hz

**Weld Current**  
3 - 100 A DC @ 100/120 VAC input  
3 - 225 A DC @ 200/240 VAC input  
100% Duty Cycle

**Memory Capacity**  
100 weld schedules maximum,  
100 levels per schedule maximum,  
100 different passes per level

**I/O Device**  
M-227EMM

**Water Cooler**  
Optional

**Dimensions**  
15” x 23” x 20”  
(381 mm x 584 mm x 508 mm)

**Weight**  
88 lbs.  
(40 kg)

**M81 Weld Head**

**AVC Stroke**  
1.00” (25.4 mm)

**Radial Clearance Range**  
1.750” (44.45 mm) (Minimum)  
depends on pipe diameter

**Torch Oscillation**  
+/- 0.31” (7.87 mm)

**Axial Clearance**  
6.325” (160.65 mm) (Minimum)

**Wire Feed Speed**  
1 - 100 IPM

**Carriage Travel**  
0 - 10 IPM

- Water-cooled body  
- Compatible with AMI Model 415 or Model 227 Power Supplies