Automated Orbital Welding with Arc Machines, Inc.

Orbital Welding Equipment Used in the Fabrication of Chemical Tanker Ships

Application:

- **Chemical tankers piping system**

Material:

- **Type 316L stainless steel**

Welding Equipment:

Power Supply:

- **Model 227**

Weld Heads:

- **Model 15**
- **Model 95**
- **Model 9 series**

Benefits:

√ **Consistent, high-quality weld-after-weld**

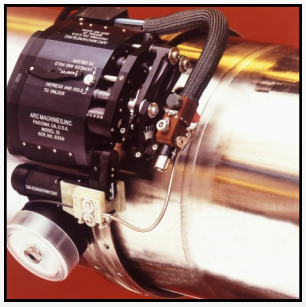
√ **Superior productivity - 60% savings vs. manual welding**

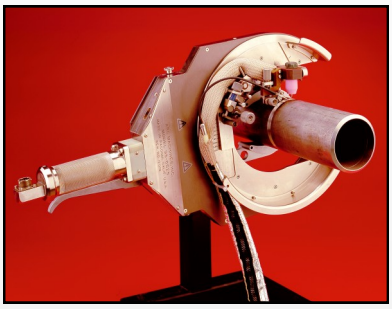
√ **125-130 welds/day using 2 weld heads**

√ **8,000 welds with only 0.025 % (2) failures**

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

Model 227


Model 15


Model 95

When Juliana Constructora Gijonesa, a shipbuilder in Spain was contracted to build 7 chemical tankers featuring tanks and pipes of stainless steel, they decided to upgrade their welding processes and procedures to increase efficiency. The welders used orbital GTAW for as much as 90% of the piping, which resulted in a documented steady increase in productivity. Using automated orbital welding required only 1 shift per day vs. 2 shifts with manual welding. Also, the change from pipe end-preparations for manual welding to orbital welding saved up to 60% of the welding time.

Juliana purchased three **Model 227** microprocessor-controlled power supplies with heads-up display and water cooling unit from Arc Machines, Inc. In addition to the power supplies, Juliana purchased 3 types of orbital weld heads, the **Model 15** with external wire feeder, which can oscillate the torch across the weld seam to produce a weave bead and has automatic voltage control (AVC) to maintain a constant arc gap; the **Model 95** that features a mechanical arc gap controller; and the **Model 9** series fusion weld heads to weld small diameter stainless steel sleeves.

Welders used the **Model 9AF-900** fusion weld heads to weld 10-18 mm diameter Type 316L stainless steel tube with a heavy sleeve. For the first ship, Juliana did 5,000 small sleeve welds orbitally out of a total of 8,000 welds. For the second ship, welders did 5,000 orbital welds in the workshop and 3,000 on board ship to weld tubes to valves. The welders finished 125-130 orbital sleeve welds per day using two heads. Of the 8,000 welds there were only 2 failures after the hydraulic test, a reject rate of only 0.025%.

Orbital welding allows the development and testing of weld procedures which, once done successfully, can be repeated from weld-to-weld indefinitely. A visual inspection required by law was performed on 5 percent of the ID of the production welds. When viewing the radiographs of the orbital welds, they were so consistent that the inspector had to be convinced that the X-rays were indeed from different welds.

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

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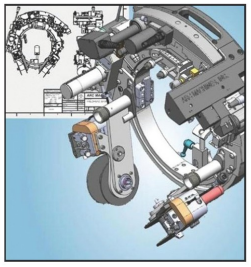
LEADERS & INNOVATORS
in Automated Orbital Welding

Cutting Edge Narrow-Groove Pipe Welding Technology

Advanced Fusion Welding and Process Control



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ARC MACHINES, INC. 35 Years 1976 - 2011

With over 3000 customer relationships in over 50 countries, Arc Machines, Inc. has set the standard for Automated Orbital Welding Equipment for over 30 years, combining Quality and Durability with Innovative Engineering and Design.
Around the world, leading manufacturers and contractors rely on AMI for their expertise in automated orbital welding and to develop customized solutions for new welding challenges.

www.arcmachines.com

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M227 Power Supply

QUICK SPECS

Input Power
100 - 240 VAC service
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)

SINGLE PHASE | 50/60 Hz | 225 AMPS @ 100% | CC

M15 Weld Head

AVC Stroke
1.75” (44,45 mm)

Torch Oscillation Stroke
2” (50,8 mm)

Wire Feed Speed
5 to 200 IPM

Radial Clearance Range
3.69” (93,73 mm) (Minimum)
depends on pipe diameter,
torch type and configuration

Axial Clearance Range
11.5” (292,1 mm) (Minimum)
depends on torch type and options

ARC | OSC | WIRE FEED | WATER COOLING

- Single or dual wire feeder options are available
- Several torch types are available
- Compatible with **AMI Model 415** or **Model 227** Power Supplies

M95 Series Weld Heads

OD Range
0.625” - 6.625”
(16 mm - 170 mm)

Wall Thickness
up to 0.3” or 0.44”
(7,62 mm or 11,17 mm)

Torch
0.05 - 10

Rotor RPM
Water cooled, 200 A
continuous Duty Cycle

Head Weight
5 lbs. - 16 lbs.
(2 kg - 7 kg)

- Compatible with **AMI M415**, **M227, M307 or M207** (fusion-only using optional adapter) Power Supplies.