Haugesund Mekaniske Versted (HMV), one of Norway’s leading construction yards for the oil and gas related industry in the North Sea oil field, used advanced orbital GTAW technology for the construction of risers for the Draugen platform, owned by Shell Oil, and the Statfjord platform, owned by Statoil.

The risers are the piping that extend from the well head on the seabed up to the platform hull. They consist of a 3 in. pipe running parallel to a 7” pipe, and are used in maintenance of the oil wells. The total height of the risers for the Draugen platform were 285 m and 146 m for Statfjord. Structural steels, the API 5L X70 (modified) for the piping and the AISI 4130 specified for the couplings were selected on the basis of the strength required. However, these materials required very precise control of the welding standard cycle to maintain favorable mechanical qualities after welding.

The welding procedure qualification took two months of trials before all the specification requirements were met, which was facilitated by orbital welding. Weld quality was high with a failure rate of only 1.5% on the AISI 4130. The maximum allowable shrinkage was 0.5 mm in a 15 m line, which was easily accomplished. A total of 574 welds were completed including 287 on the 3” pipe and 284 on the 7” pipe.

A key factor in the success of HMV’s riser construction project was the purchase of 3 Model 215 microprocessor controlled piping welding systems, two Model 15 weld heads with a C torch that provide for wire feed, and a Model 81 weld head for the smaller 3” pipe, from Arc Machines, Inc. They were used in production welding around the clock, three shifts per day, operated by nine or ten welding technicians.

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](http://www.arcmachines.com)
**M15 Weld Head**

**AVC Stroke**
- 1.75" (44.45 mm)

**Torch Oscillation Stroke**
- 2" (50.8 mm)

**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

- Single or dual wire feeder options are available
- Several torch types are available

**M81 Weld Head**

**AVC Stroke**
- 1.00" (25.4 mm)

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

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

**Axial Clearance**
- 6.325" (160.65 mm) (Minimum)

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

**Wire Feed Speed**
- 5 to 200 IPM

**Carriage Travel**
- 0 to 100 IPM