Contact: Tina McKean
Marketing Manager
+1 (585) 889-0215
tmckean@ambrell.com

News Release

For immediate release Sept 14, 2009

"Isomandrel" Technology Permits High-Speed, Optimally-Controlled, Cure of Thermoset Filament Wound Pipe Sections with Induction Heat

A unique super-thermal conductive mandrel technology developed by **Acrolab Ltd**. of Windsor Ontario, Canada, permits curing of filament wound pipe and tube sections by heating the mandrel uniformly, while rotating using an Ambrell induction heating power supply. Induction heating provides clean, precise, even heat. This combination of technologies eliminates the need for cure ovens, saving time and energy.

Trademarked the "**Isomandrel",** the new mandrel design consists of a process internal to the mandrel which enhances its thermal conductivity and thermal reactivity. The process permits heat to be applied in a localized concentration that is then rapidly and homogeneously redistributed over the complete mandrel working surface.

Isomandrel technology when coupled with induction heating permits the mandrel and filament winding to continue rotating while being heated to an optimum controlled temperature to effect cure. This heating occurs while the assembly is still rotating in the winding machine or on a rotating fixture within the manufacturing cell.

Acrolab Ltd, working with **McClean Anderson Inc.** of Schofield Wisconsin and **Ameritherm, an Ambrell company** of Scottsville New York, as a technology team, constructed the curing cell at McClean Anderson's laboratory. The induction heated Isomandrel curing station was used to cure a number of 48" long pipe sections wound with glass and carbon fiber epoxy prepregs, provided by **TCR Composites** of Ogden Utah. They were wound on a 3 inch O.D. Isomandrel.

At the end of the winding cycle, the sections were successfully cured on the **Isomandrel** using an Ambrell induction heating power supply and coil assembly while the Isomandrel and winding were still mounted and rotating at a reduced 10 RPM on the Super Hornet Winder.

By providing high thermal energy uniformly over the entire mandrel surface outward through the filament winding, the cure is completed in much shorter time, with less energy while providing a significantly more uniform cure and resin rich I.D.

Ameritherm and **McClean Anderson** are currently developing a fully software/hardware integrated station to provide the controlled power and recipe requirements to integrate with Acrolab's Isomandrel technology.

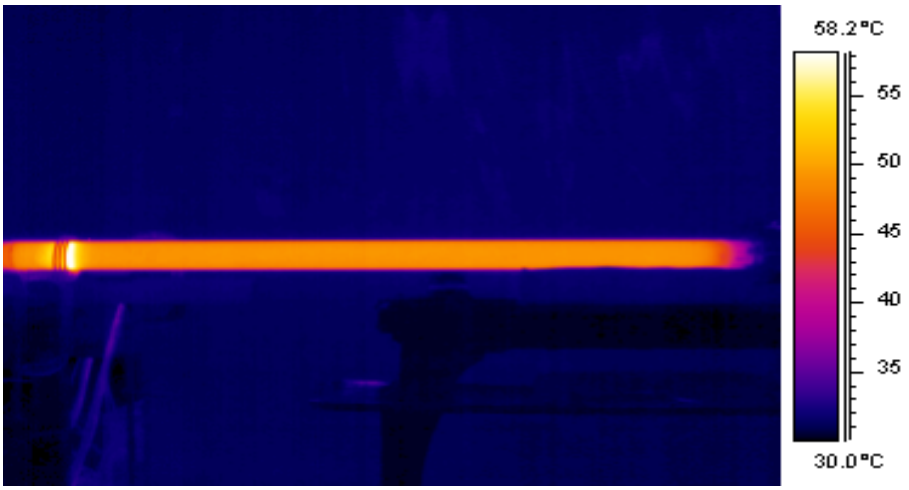
The combination of the **Isomandrel's** unique capability to provide high speed of response and near isothermal conditions on the complete working surface of the mandrel, coupled with the three term process temperature control and high speed of response induction heating capability of the Ameritherm power supply, results in optimum "ramp, soak and hold" process control at the most advantageous curing temperatures.

The equipment utilized in the project:

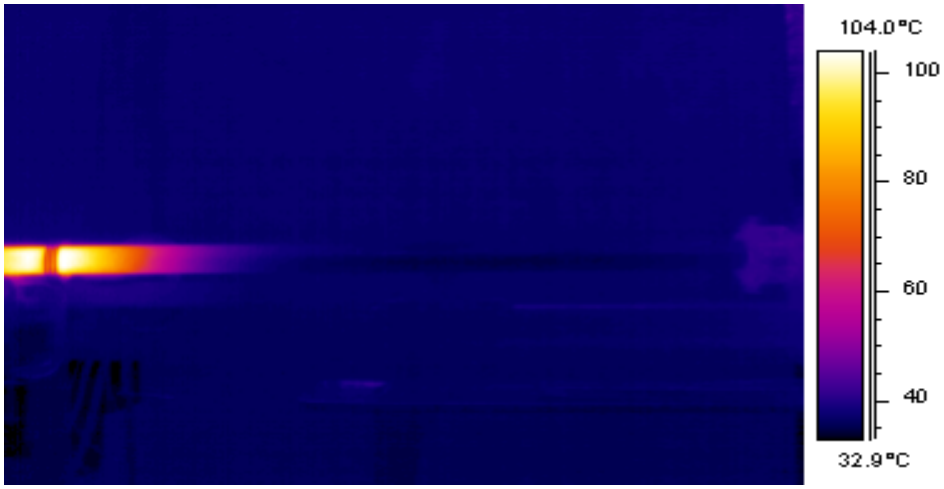
McClean Anderson Super Hornet Filament Winding Machine

Ambrell Induction Heating Power Supply

Infrared thermographic images of Isomandrel and traditional hollow mandrel testing:



An Isomandrel heated to steady state with a non-contact 2” wide induction coil, while rotating.



Traditional hollow mandrel heated to steady state with a non-contact 2” wide induction coil, while rotating