TCM COMPOSITES
A Division of Kenway Corporation

Discover the Advantage of Temperature Controlled Molding

www.tcmcomposites.com

TCM™ Coursework

Development of the TCM™ process took more than 10 years, but an experienced composites technician can learn the use of the TCM™ molds in a two-day training course.

Two-day TCM™

1. The TCM™ Concept: an analysis of the impact of complete temperature control on composites molding processes, with lab demos.
2. Review of the four most common composites manufacturing processes, and the techniques/ equipment typically used for each process.
3. Safety Aspects of working with TCM™ units.
4. Lab 1: Ambient molding and Post-cure use: demo on prepared part, observation and analysis.
5. Lab 2: Prepreg and dry resin film infusion: application techniques, hands-on.
6. Lab 3: High temp VIP and LRTM infusion with epoxy/UPR resin systems.
7. Lab 4: Infusing thick laminates with CRP BlocBuilder Nano technology.
8. Demolding and evaluation of lab experiments.
9. Case studies and Q&A for attendee-specific applications and cost/benefit analysis.

2-Day Course: Temperature Controlled Molding (TCM™)

TCM™ Composites (a Division of Kenway Corporation) have created a state-of the art lab with a series of TCM™ training molds. This innovative lab, complete with materials, instrumentation and equipment, provides hands-on experience for composites professionals to learn, practice and train for the new Temperature Controlled Molding techniques.

What is Temperature Controlled Molding?

TCM™ controls the temperature at the mold surface within very precise margins, using both heating and cooling during the composites manufacturing process. This innovative technology generates gradual cross-linking progress at any stage of the process.

Techniques such as heated molds and curing ovens can achieve specific ramp rates and dwell temperatures with a variety of sensors and separately controlled zones. But TCM can change the process temperatures both up and down, a critical requirement to control exotherm reactions during cure.

This makes TCM™ far superior to the most sophisticated electrically heated molds. TCM™ can match all the heat input requirements of heated molds or forced-air ovens and, at the same time, TCM™ can generate both heating and cooling. The bottom line: TCM™ can provide results at a much faster rate than other systems, thus providing optimized curing profiles.

TCM™ allows the manufacture of complex laminates and/or thick stacks with complete exotherm control and minutely dialed in ramp/dwell/descend rates. TCM™ does not lead to over-cooked or under-cured areas in a variable thickness laminate.

TCM™ is also process-independent. A single TCM™ mold can be used for:

1. Controll°ing specific laminate temperature regardless of shop temperature for wet lay-ups, vacuum infusion or light RTM.
2. High temperature vacuum infusion
3. Prepreg and RFI laminates.
4. The new generation of nano-technology CRP resin formulations

NOTE: The program is, by the nature of the broad spectrum of TCM applications, a general overview course, and not all aspects of each technology can be addressed in a two day format.

The course format can be adapted to specific needs of attendee groups, for instance the lab 2-4 sessions can be tailored to be either more extensive for a specific type of TCM use, or some labs can be omitted if the attendees have no interest or application for a specific TCM technology.