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Harper Furnaces Go Green

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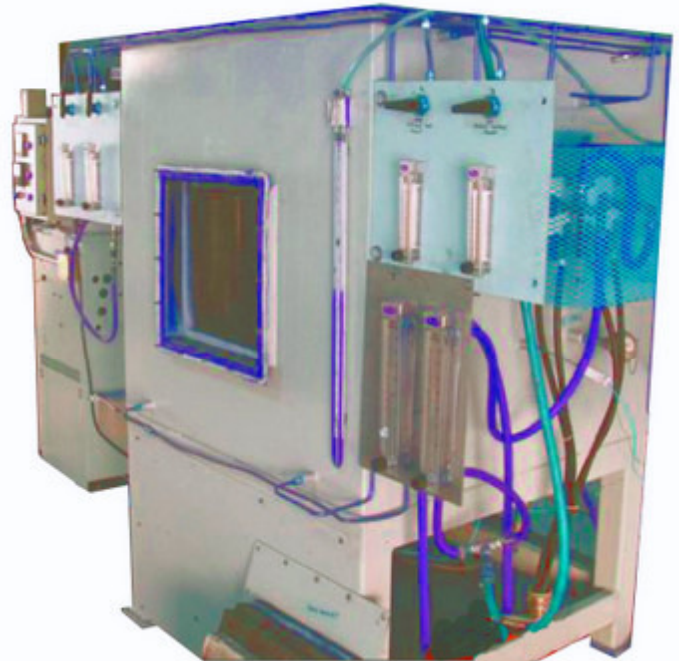
Carbon fiber HT and other graphite furnaces will become more energy efficient thanks to design improvements tested this spring in our Technology Center. Harper has managed to do this while at the same time reducing costs and complexity.

Traditionally, HT furnaces use a mix insulating materials as well as a water-cooled steel shell. The new design uses an improved insulation package to reduce heat loss. Significantly, the water cooling of the steel is also eliminated. Thus, while the insulation itself costs more, this is more than offset by eliminating water cooling platecoils and water instrumentation. From our customer's perspective, the furnaces will use less electricity and cooling water and require less maintenance.

With today's customers demanding highly reliable systems and with Harper's reputation for quality always on the line, the decision was made to build and operate a small test furnace before introducing this improvement to the market. The test furnace was installed in our technology center and operated at temperatures up to 1800°C (3272°F). At peak temperature, electricity use was just 30% of the available power.

Steel shell temperatures were around 200°F, well within the safe range for operating without water cooling. The new design will get its first implementation in a customer facility. A 38% reduction of consumed energy is predicted for this HT design over previous design basis. The test furnace will remain in our technology center as a new piece of equipment available to our customers.

Like so many things at Harper, the graphite test furnace would not have happened except for the efforts of a host of people "just doing their job". Bill D'Alessandro and Bill Stry implemented the design in Inventor. Joe Pace cut and installed the insulation. Lawrence Wareham worked on the electrical design. Jason Gwin, and John Lund installed the system and all the connected utilities, including saving money by reusing an old surplus power supply. Peter Witting guided the test program.



GRAPHITE TEST FURNACE IN OUR
TECHNOLOGY CENTER

Bill Stry