

**glasstech**   
Where innovation continues.

Issue #7  
November 2003

**world**



## GLASSTECH LOSES A FOUNDING FATHER



Harold A. McMaster, who co-founded Glasstech with Norman Nitschke and Frank Larimer in 1971, died August 25. He was 87.

McMaster was an inventor with more than 100 patents and an entrepreneur who started numerous successful businesses.

In 1948, he founded Permaglass Incorporated, after heading Libbey-Owens-Ford Glass Company's Optical Glass Laboratory during most of World War II. Permaglass was merged into Guardian Glass in 1969.

After founding Glasstech, McMaster remained at the helm until 1993. He grew the company from the development of a single flat glass tempering system to produce tempered safety glass for patio doors to one whose innovative glass bending and tempering technology made it possible for architects to specify buildings with expanses of curved glass and automotive designers to create backlites that combined compound and complex curves.

McMaster-led development teams created glass-processing systems that did things previously thought impossible. The systems were sold worldwide and became known as the standard by which others were measured for innovation, efficiency and ruggedness.

McMaster's commercial enterprises also included Glasstech Solar, Inc., and Solar Cells, Inc., in the field of solar energy development and McMaster Motor Company and McMaster Fuels Incorporated, which are developing a unique rotary engine powered by alternative fuels.

## Glasstech's Innovative ERH Product Line Sets New Standard for Electric Radiant Heating

The advent of low-emissivity (Low-E) glass has resulted in considerable climate-control advantages for buildings and homes. However, this family of coated glass presents definite challenges to glass processors.

The primary challenge, especially for radiant heating systems, is to overcome the reflection of heat by the Low-E coating and to do it at rates similar to those attainable on uncoated glass. Glasstech has answered this challenge by developing a line of convection-assisted, electric radiant heaters that process Low-E glass at rates not previously attainable on standard electric radiant heaters.

"With the rapid rise in use of Low-E glass on a global scale, it is absolutely essential to find new ways to provide efficient heating methods for our customers," said Jim Schnabel, Glasstech's Vice President of Product Development. "Glasstech's ERH product line is ideal for customers who want to process high-performance, Low-E glass at competitive rates and less expensively using electric radiant heating."

Glasstech's ERH2-C2™ utilizes special nozzle systems with built-in preheaters to deliver hot air to the glass surface. This system also has variable pressure and time controls resulting in improved heating rates and better control of flatness in the heating cycle.

A standard radiant heating system requires approximately 70 seconds per millimeter of thickness to heat high-performance glass. Glasstech's ERH2-C2 accomplishes the same task in 40 to 50 seconds/mm.

While the ERH2-C2 heats the top of the glass where the coating is located, Glasstech has also developed the ERH2-C3™, which utilizes upper and lower forced convection nozzles to heat both sides of the glass simultaneously.

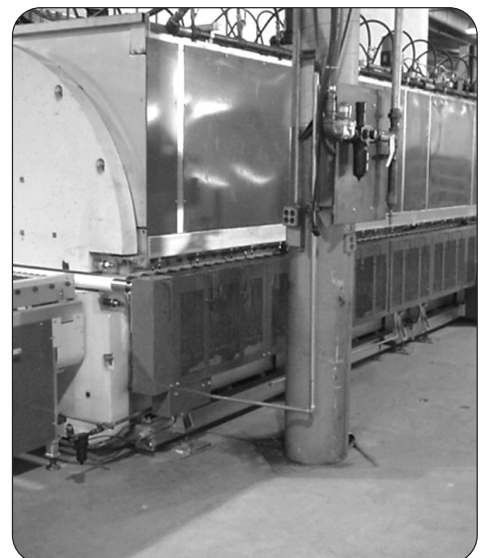
"More efficient heating means less time required to heat the glass. The less time the glass requires to heat, the more economic the system is to operate," Schnabel said. "This means lower costs and better glass surface quality, both of which are extremely important to our customers."

The ERH2-C3 will heat high-performance glass in 35 to 40 seconds/mm, compared to the standard ERH system's 70 seconds/mm heating time. Further, the ERH2-C3 will run uncoated glass at speeds comparable to Glasstech's gas-fired forced convection heater, the FCH2™, that is at around 30 seconds/mm.

The ERH2-C2 and C3 electric radiant heaters from Glasstech differ from other competitive convective heating systems in the following ways:

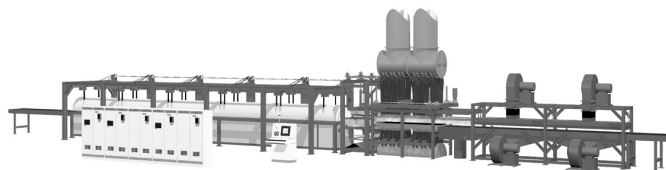
- Heat exchangers are used to preheat the convection air.
- Glasstech's patent-pending Profiled Convection heating system allows the varying of pressure and heat transfer throughout the heating cycle to match the needs of the glass being processed. Convection profiling leads to faster production time and throughput.
- Recipe/history record stored in the system's computer that recognizes glass needs and makes it easy to run glass with different coatings.

Both the ERH2-C2 and C3 can be purchased as new systems or can be retrofitted to existing Glasstech ERH systems.



# Glasstech Introduces Innovative Modular System for the Auto Industry

Always at the forefront of innovation, Glasstech recently introduced a new system for the automotive industry designed to eliminate the challenges associated with expanding production. Glasstech's External Press Bender (EPB-SL) for bending and tempering automotive sidelites was designed to meet demands for complex shapes and tighter tolerances with the highest optical quality, while improving productivity and minimizing tooling costs. More importantly, the EPB features a modular design, allowing a customer to start with a basic system and upgrade or expand it as manufacturing requirements dictate.



Low-cost, Quick Change tooling, including a universal quench, are hallmarks of the EPB. The universal quench's shape can be modified by using simple templates without removing the quench from the system. A numerically controlled glass aligner also helps improve product accuracy and reduce part changeover times.

"We designed the EPB to meet customer demands for a system that produces high-quality glass parts having accurate shape and excellent optics," said Jim Schnabel, Glasstech's Vice President of Product Development. "In addition, the EPB is easily expandable, offering a cost-effective solution to glass bending needs that can grow over time."

A versatile system, the EPB can be configured as a high capacity system with cycle rates of approximately 7 seconds per part, or as a moderate capacity system with cycle rates of approximately 15 seconds per part.

In its most advanced form, the EPB utilizes a patented FanRoll System that pre-forms glass inside the furnace, reducing the final press motion. This increases the system's capability and reduces cycle time. Also, by allowing the glass to be processed at a lower temperature, the optical quality is improved.

The EPB processes glass parts with cylindrical, compound, complex, symmetrical and non-symmetrical curvatures. The standard EPB processes parts ranging in length from 381mm to 1220mm and width from 406mm to 864mm. A small-parts option is available that allows processing of parts as small as 254mm by 228mm.

## Glasstech Dedicated Aftermarket Service Program Maximizes Productivity, Minimizes Downtime

It seems almost every office in America purchases an extended service plan for its copier to ensure the copier is always working and repaired quickly when it's not. However, many Glasstech customers are without similar insurance for their Glasstech system – arguably the most important piece of equipment in their facility.

Some of the benefits Glasstech's dedicated aftermarket service customers will receive: a program dedicated, or custom designed, for their needs and their specific equipment; a guarantee of up to three visits each year by a Glasstech representative; guaranteed turnaround time for significant maintenance issues requiring on-site assistance (24 hours or less in most cases); volume discounts on spare parts and retrofit packages; and the combined knowledge and experience of everyone at Glasstech.

To meet the ever-increasing demands of its customers to provide proactive service and support as well as rapid response to system problems, Glasstech is introducing its Dedicated Aftermarket Service Program. The aftermarket service program is ideal for almost all Glasstech customers, regardless of size or market focus.

While on-site, Glasstech representatives will help in a number of ways: equipment and process audits; system and line optimization recommendations; preventative maintenance or other needed repairs; and additional training.

"One of the most common comments we've heard from customers is that Glasstech systems are so well-made that they don't have any service problems," said Tom Noe, Glasstech's Director of Customer Service and Systems Engineering. "While it's true that Glasstech systems are built for the long run, the dedicated aftermarket service program is more than just quick fixes for existing problems. The program will provide preventative maintenance and system optimization, as well as equipment and process audits to make sure our customers have the correct equipment on hand that will save time if a problem ever occurs. Glasstech is also guaranteeing an extremely fast on-site response time for any major issues. These are just a few of the characteristics that make Glasstech's Dedicated Aftermarket Service Program invaluable to any Glasstech customer."

"With each visit, Glasstech representatives will help to promote best practices within a plant," Noe said. "All of these things – system and line optimization, training, output audits and preventative maintenance – will lead to better system productivity, increased throughput and improved glass quality output. These results will allow the dedicated aftermarket service plan to pay for itself in very little time."

Please call your Glasstech representative today to learn more about how you can benefit from the Glasstech Dedicated Aftermarket Services Plan.

**glasstech**  
Where innovation continues.

GLASSTECH LIMITED | P.O. Box 62  
Shrub Hill Rd., Worcester, WR4 9RQ England  
+44-1905-723663 | FAX: +44-1905-20400

www.glasstech.com E-mail: sales@glasstech.com



Glasstech is committed to continuously improve and provide its products and services so that they meet or exceed its own and its customers' quality, cost and schedule requirements.

© 2003 Glasstech, Inc.

GLASSTECH, INC. | 995 Fourth St.  
Ampoint Industrial Park, Perrysburg, OH 43551 U.S.A.  
+1-419-661-9500 | FAX: +1-419-661-9616