

GLASSTECH WORLD

WHERE INNOVATION CONTINUES:

GLASSTECH FEATURES NEW SYSTEMS FOR AUTOMOTIVE AND ARCHITECTURAL INDUSTRY AT GLASSTEC 2004

"Anyone visiting the Glasstech stand at Glasstec 2004 will quickly understand why the company uses the phrase 'where innovation continues' to position itself within the realm of glass equipment manufacturers," said Glasstech President Mark Christman.

The company's complete line of bending and tempering and heat strengthening systems for the worldwide automotive and architectural glass processing industry will be highlighted at the booth, located at Hall 13, Stand E33, at Glasstec 2004, November 9-13, Düsseldorf, Germany.

"Glasstech currently offers more than ten automotive and architectural systems," said John S. Baxter, Senior Vice President, Marketing and Sales. "Each of them sets a standard in its respective industry and provides the user with unequalled productivity and reliability."

A prime example of Glasstech's innovative spirit is the development in recent years of gas fired, forced convection heaters, which are now available on all its systems.

"The development of the gas fired, forced convection heating system, along with major advances in Glasstech's traditional radiant electric heater, allows customers to choose the most economical and readily available power source for their area of the world," said Jay K. Molter, Director, Marketing and Sales.

Automotive systems expected to generate considerable interest include the DB™ 4 Advanced Bending and Tempering System for backlites, sidelites and quarterlites; the EPB-SL External Press Bending System for sidelites and sunroofs; the CRB family of systems for cylindrical bending of sidelites; and the SDB-L family of in-line systems for the production of windshields and other laminated glass parts.

"Glasstech has its finger on the pulse of the automotive glass industry and has created a series of systems that enable processors to produce the larger and more complicated, yet lighter weight, windshields, backlites and sidelites designed for today's and tomorrow's automobiles," said Hal J. Strait, Director of Automotive Sales, Europe.

The Glasstech DB 4, the standard of the industry for deep bend parts, and the more recent EPB-SL systems are attracting a great deal of attention in China and throughout the Pacific Rim, according to Norman Klatt, Vice President, Sales, Asia/Pacific. The company recently opened a representative office in Shanghai, confirming Glasstech's presence in China.

Glasstech architectural systems are among the world's most advanced. These systems include the FCH2™ Forced Convection Flat Glass Tempering System, the ERH2™ family of Electrical Radiant Heaters and Tempering Systems, the TRCB™ Tight Radius Cylindrical Bending and Tempering System and the ABTS™ Architectural Bending and Tempering System.

The company's systems have set the standard for the efficient tempering of new soft-coat Low-E architectural glass.

"The primary challenge in tempering Low-E coatings is their low emissivity and high reflectivity, making pure radiant heating ineffective," said Jim Schnabel, Vice President of Product Development. "Forced convection heating enables the Glasstech ERH2 and FCH2 systems to achieve throughput rates for high-performance coatings similar to those for uncoated glass."

Not only has Glasstech built its reputation by producing technologically advanced systems, it also is well known for its impressive service and customer support.

"Customers know they can rely on Glasstech for service no matter what the problem or where they are located," said Tom Noe, Director of Customer Service and Systems Engineering. "At the show, we'll be discussing our broad range of aftermarket services, including upgrading and retrofitting systems with the latest technology, troubleshooting and replacement parts, as well as contract service programs tailored to specific customer's needs."

Also representing Glasstech at Glasstec 2004 will be Yang Ping, Country Manager – China; Randy Croson, Manager of Architectural Sales, Asia/Pacific; and David Reeve, Manager of Architectural Sales, Europe.

"We urge all visitors to Glasstec 2004 involved in glass processing to visit Glasstech and discover why Glasstech is the world leader in the development of glass bending and tempering and flat glass tempering technology," Baxter said.

GLASSTECH SDB-L™ PRODUCES WINDSHIELDS FOR THE WORLD'S MOST POPULAR TRUCK, THE FORD F-150

The Glasstech SDB-L™ Advanced In-Line Forming System for laminated automotive safety glass is being used to produce the windshield for the best-selling vehicle in the world – the Ford F-150.

Visteon Corporation produces the windshields for the Motor Trend Award Winning 2004 Truck of the Year at its Nashville, Tennessee, glass plant, where it installed two Glasstech SDB-L systems in 1998.

The Glasstech SDB-L system uses state-of-the-art technology to provide forming capability for today's windshields and the complex windshield shapes of the future. The two SDB-L systems at Visteon have proven their capability for accuracy, productivity and reliability were critical in helping Visteon secure the contract for the Ford F-150.

"The Glasstech SDB-L systems are the perfect technology for production of today's windshields because of their ability to produce complex shapes with exacting tolerances and superior optical quality. In addition, the reliability and productivity of the SDB-L systems also make them competitive from a commercial point of view," said Hal Strait, Director of Automotive Sales, Europe.

The SDB-L produces very accurate windshield singles, with patented stress control, at rates up to 150 windshields per hour. The system is capable of producing glass parts having maximum depth of bend of 380mm (15") and minimum radius of 120mm (4.8").

The SDB-L is available with either of the Glasstech advanced heating systems, the highly efficient Electric Radiation Heater or the gas fired, Forced Convection Heater. Both heating methods are capable of heating solar control glass at the highest throughput rates in the industry. The self-aligning Quick Change tooling design feature also adds to overall system efficiency by reducing part changeover time to approximately 90 minutes.

WINDSHIELD



FORD F-150

DB™ 4 STILL SETTING THE AUTOMOTIVE GLASS BENDING STANDARD WORLDWIDE

Since its introduction nearly 20 years ago, the Glasstech DB™ 4 Advanced Bending and Tempering System has set the standard worldwide for the production of complex, press-bent parts of high optical quality for a wide variety of vehicles.

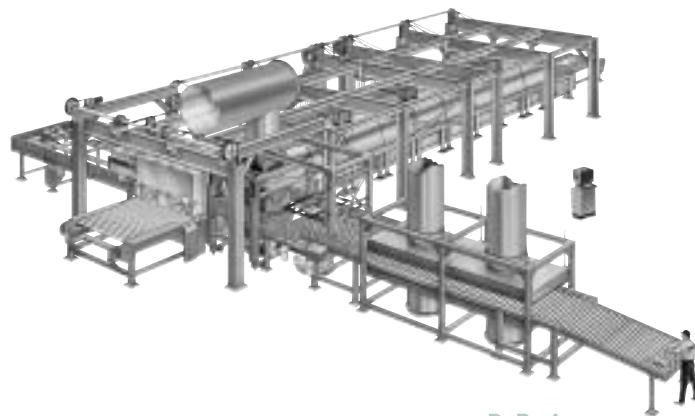
Glasstech continues to add new innovations to its flagship automotive system as glass processors continue to require more from their equipment – higher productivity, higher quality, higher efficiency.

Recent innovations added to the DB 4 have made this system even more efficient by reducing changeover times and cycle times.

The DB 4 Quick Change option provides changeover times of just 90 to 120 minutes from good glass to good glass, compared with the traditional six to eight hours of downtime, and offers product yield improvement. The DB 4 Fast Cycle option typically gives customers 20 percent more output.

The Quick Change and Fast Cycle options are available on new systems or as retrofit packages for existing DB 4 systems.

For more information on this worldwide automotive standard, contact a Glasstech representative today.



DB4

ADVANCED BENDING AND TEMPERING SYSTEM

FIRST GLASSTECH EPB-SL IN EUROPE UNDERLINES DEMAND FOR GLASSTECH SIDELITE SYSTEMS

As demand for new vehicles continues to remain strong around the world, system versatility is a high priority in the automotive glass industry.

Glasstech developed the EPB-SL External Press Bending System to provide glass processors with this versatility, while producing parts with very accurate peripheral and body shape and the highest optical quality.

The highly versatile EPB-SL system offers a number of critical attributes, including the ability to:

- Bend and temper or heat strengthen glass parts.
- Produce sidelites or sunroofs.
- Form cylindrical, compound and complex shaped parts, as well as symmetrical or asymmetrical parts.
- Expand capacity as a result of modular construction.
- Pre-form glass before delivering the part to the pressing station.
- Be equipped with either an electric radiant or gas fired, forced convection heater, depending on which power supply is more readily available in the plant location.
- Reduce part changeover time by offering a second station that can be preset for a new part and easily substituted for the first bending station.
- Accommodate a wide variety of part shapes through the use of adjustable quench blastheads that eliminate the need to change quenches with each new part.

Soliver Group, Europe's largest independent safety-glass manufacturer, based in Belgium, recently acknowledged the strength and value of the EPB-SL by becoming the first company on the continent to purchase and deploy the system.

The versatility of the EPB meets OEM demands in the shape and optical quality areas, as well as glass processor needs for a system with reduced operating costs, improved productivity and minimized tooling costs.

An advanced model EPB system utilizes the patented Glasstech FanRoll system to pre-form glass inside the furnace, reducing the final press motion and decreasing cycle time.

By reducing processing time at the external pressing station, glass can be processed at a lower temperature, improving optical quality. Parts produced by the EPB meet stringent automotive quality standards, including those of Audi, Volkswagen, Mercedes, Peugeot, Renault, Honda, Toyota and Nissan.

The EPB-SL can be configured as a high capacity system with cycle times of approximately 7 seconds per part, or as a moderate capacity system with cycle times of approximately 15 seconds per part. 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.

The Glasstech representatives are ready to demonstrate how the EPB-SL can make a meaningful contribution to productivity and quality.



Celebrating first glass from Soliver Group's Glasstech EPB-SL External Press Bending System for Automotive Glass are, from the left, Hal Strait, Glasstech's Director of Automotive Sales, Europe, and Rudy Vansteenkiste and Etienne Verhaege of Soliver.

GLASSTECH CRB FAMILY ADDS WIDER MODEL

To meet the needs of vehicle designers who are specifying large, cylindrical symmetrical and asymmetrical sidelites, Glasstech has expanded its popular family of Advanced Cylindrical Radius Benders to include a 1,500mm (59")-wide CRB1™ model.

This new, wider model is ideal for processing the asymmetrical glass sidelites used in buses and railroad passenger cars where the glass sweeps into the roofline. The CRB system can produce shapes with two radii, J-bends or V-bends.

The CRB1 and CRB2™ systems are designed to form flat glass into basic cylindrical shapes. The systems are simple and efficient to operate and highly productive. Glass processed on the systems meets exacting tolerances and has excellent optical qualities.

Both systems process glass from 3mm (.118") to 6mm (.25") in thickness.

CRB systems do not require part-dedicated tooling and can accomplish part shape changeovers in as little as 15 seconds.

The CRB1 is available in three widths: 915mm (36"), 1,220mm (48") and 1,500mm (59").



CRB
CYLINDRICAL RADIUS BENDER

The CRB1 has a combined bending and quenching section with upper and lower flexible beds, which allows the system to shape glass to a radius down to 890mm (35").

A high-efficiency quenching system, incorporated into the flexible bed, takes over when the bending process is complete. The 915mm and 1,220mm CRB1 models process parts up to 2m (6' - 6") in length, while the 1,500mm model processes up to 2.4m (7' - 10") long glass parts.

The CRB2 utilizes a separate bending and quenching system to double the system's speed. This model currently is available in a 915mm width and processes parts up to 1.2m (4' - 0") in length.

Recent CRB2 systems have been upgraded to meet the most stringent quality standards, including the Volkswagen/Audi TL-952 transmitted light test. Depending on glass thickness and load size, a CRB2 system can process as many as 700 loads per hour.

All CRB models also will temper flat glass to automotive fracture standards.

ARCHITECTURAL NEWS

GLASSTECH FCH2™ PROVIDES GAS FIRED CONVECTION TO PROCESS COATED ARCHITECTURAL GLASS

In the ten years since Glasstech introduced the FCH Forced Convection Heater, the natural gas fired heater has developed a record of proven success in processing commercially available clear or coated glass, including both hard- and soft-coated Low-E glass.

As the heart of the Glasstech FCH2™ Tempering System for architectural glass, the forced convection heater has made this system the leader for the efficient tempering of energy-saving Low-E flat glass. The FCH2 can heat clear glass at a typical rate of 30 seconds per millimeter of thickness and high-performance, soft-coat Low-E glass at a typical rate of 33 seconds per millimeter. This reduced heating time provides for higher quality with less distortion, dramatically improves productivity and reduces processing cost.

Even with increasing natural gas costs, the FCH2 still offers the lowest cost per unit area of glass produced because it offers shorter cycle times and greater heating efficiencies than standard electric radiant heaters.

Glasstech research has led to a patented burner configuration that eliminates conventional complex linkages and hardware, while providing finer control.

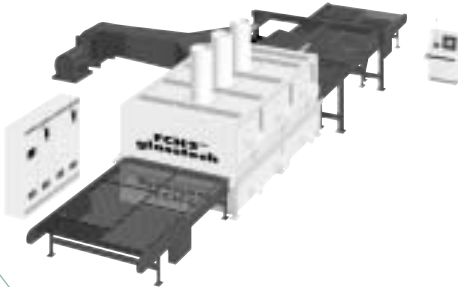
The FCH2 control system has a wide range of operational parameters that provides flexibility for processing commercially available coatings to the highest quality standards.

The system uses a high-efficiency quench which reduces energy consumption and improves the optical quality of the glass being processed. This quench is equipped with digital manometer displays and a pyrometer positioned below the glass line, thus providing accurate process monitoring, especially on Low-E coatings.

“The FCH2 has become particularly relevant in Europe due to its mandated requirement for energy-efficient glazings,” said David Reeve, Manager of Architectural Sales, Europe. “Notable installations are Sas Glas in the Netherlands, CET and Anglian Windows in England, and Bo Glas in Denmark. In addition, we have just agreed to a sale to Yildiz Cam in Turkey and several other sales are pending.”

The furnace is equipped with a positive line shaft drive to enhance glass tracking and minimize optical distortion. This positive drive also ensures processing repeatability and consistency.

For greater detail on how the FCH2 can solve your Low-E glass processing problems, contact a Glasstech representative today.



FCH2 TEMPERING SYSTEM FORCED CONVECTION HEATER



ARCHITECTURAL

AFTERMARKET NEWS

GLASSTECH DEDICATED AFTERMARKET SERVICE PROGRAM MAXIMIZES PRODUCTIVITY, MINIMIZES DOWNTIME

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 go without similar insurance for their Glasstech system – often the most important piece of equipment in their facility.

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.

“One of the most frequently heard comments from customers is that Glasstech systems are so well-made that they don't have any service problems,” said Tom Noe, 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 preventive 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 also is 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.”

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

“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 preventive 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.”

Glasstech has three sales and service offices strategically positioned around the world to ensure customers the highest level of attention. The offices are located at the corporate headquarters in Perrysburg, Ohio, U.S.A.; Glasstech Limited in Worcester, United Kingdom; and the recently opened representative office in Shanghai, China.

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



AFTERMARKET

EXTENDED SERVICE

TOOLING SUPPORT

GLASSTECH TOOLING SUPPORT REDUCES RISK OF DOWNTIME, ENSURES SYSTEM EFFICIENCY

Downtime, no matter what the cause, is the enemy of all continuous processing industries, including glass processing.

On complex glass bending and tempering systems, the precision of the tooling set determines how efficient and successful the system is.

The Glasstech Tooling Support Group knows the initial installation and setup on a customer's system is the critical time for a new tooling set. This is the time when everything must be perfect for the new installation to work as planned.

"On-site support during the initial installation period is the key to a customer's successful launch of a new tooling set," said Jeff Grzeszczak, Tooling Operations Manager at Glasstech. "A Glasstech tooling expert is able to ensure the new tool runs successfully in the system by setting up the furnace parameters for a particular tool and providing proper training and guidance. These steps provide significant savings to customers by ensuring the best efficiencies and throughput from the beginning."

Since the company's inception, Glasstech has produced 400 to 500 tooling sets. Each time a new tool is completed, a customer representative attends the tool's final "prove out" at Glasstech's research and development facility at the company headquarters in Perrysburg, Ohio.

At the end of the "prove out," the customer representative is asked to sign-off on the tool, indicating it has run satisfactorily on the test machine.

According to Grzeszczak, "The tool is shipped to the customer after sign-off, and many customers are now requesting a Glasstech tooling representative accompany the tool to oversee its installation and start up. After all, an efficient tool results in profit and customer satisfaction, while a problem tool leads to lower throughput, less yield and costly downtime."

The company has five highly trained tooling representatives who are available to travel to customer facilities on short notice.

While on-site, the Glasstech tooling representative will observe the tool's setup and commissioning on the customer's system and will make recommendations to provide optimum results.

In 2003, Glasstech tooling representatives made more than 25 on-site visits to assist customers with new tooling installations as well as offer support with existing tooling.

When a tooling problem arises at a customer's plant, Glasstech's experienced tooling representatives respond quickly. "Our goal is to get the tooling operating properly as quickly as possible so it is producing exceptional glass parts for our customer's customers," Grzeszczak said. "When the car manufacturers are happy with the glass, our customers are happy."

To request tooling support or to discuss the need for a new tool, contact a Glasstech representative.



TOOLING SUPPORT GROUP

ON-SITE SUPPORT

glasstech
Where innovation continues.

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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.

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