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GS Team

Welcome to our first Glass Service Newsletter

By Josef Chmelar
President of Glass Service Group



Dear customers, welcome to our first Glass Service (GS) Newsletter. We hope that our company can be of service to you again this year. We will continue to help you to maximize your production efficiency and minimize your costs with our advanced tools as you are used to.

And so, we begin with a new initiative: The GS Newsletter. Our organization is becoming larger, and so too is our customer base, so we are adopting a new method to keep our customers informed about the most important and latest developments in the diverse areas in which we are active.

Glass Service continued to grow in 2006 and now employs over 80 people in eight (8) offices around the world. Our past and forecasted sales show strong growth figures, with 2007 proving to belong to the Expert Systems Department. Therefore, this department receives more attention in this issue.

Furthermore, this issue will highlight some of the success stories that we have realized in 2006 and present to you some of our valuable customers. We

hope to surprise you with new and interesting information.

Glass Service will attend many exhibitions and conferences this year and we hope to see you at one of them. Prague in May is the venue for Glassman this year, and our own 9th Mathematical Modeling Seminar will be held in June, again in Velke Karlovice. For travellers from outside Europe it is important to know that the ICG in Strasbourg is scheduled the week following our Mathematical Seminar.

We hope that you are already aware that for Glass Service the customer interest is always in 1st place! I am looking forward to seeing you at one of these occasions.

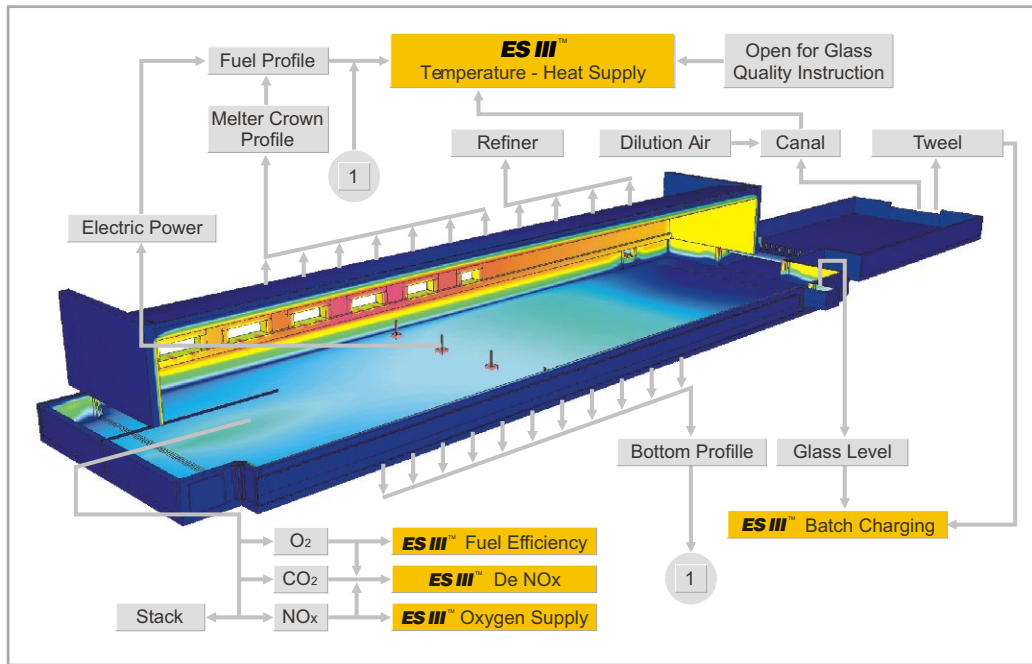
Josef Chmelar

Guardian Spain installs two more **Expert Systems ES III™** this year

By Glenn Neff



Guardian Industries began making windshields for the automotive industry in 1932, and is now one of the world's largest



manufacturers of float glass and fabricated glass products. Guardian also manufactures and supplies the automotive industry with a variety of exterior products. They are a leading manufacturer of fiberglass insulation and a significant player in the building materials distribution business. Somewhere between here and there, Guardian became the world's largest producer of mirrors.

Headquartered in the United States in Auburn Hills, Michigan, the privately held Guardian Industries group of companies has over 19,000 employees worldwide.

Glass Services' primary contact with Guardian Industries is **Ajit Vashi**, Director of Float Process Engineering. Ajit Vashi will be completing 30 years of service with Guardian Industries this year.

Glass Service and Guardian Industries have been working closely for the past seven years. A relationship that began with glass bubble analysis, quickly developed into a win/win relationship for both companies, utilizing a variety of glass melting services that GS offers. The most recent cooperation was in the field of advanced furnace control.

Glass Service has continued to develop its **Expert System III™ (ES III™)** technology over the past ten

years and has produced a well accepted market leader. The **ES III™** utilizes the most modern model based predictive control, often mixed with some fuzzy control, rule-based control and neural networks. One of our very good customers, Guardian Llodio in Spain, installed its first **ES III™** in 2005. The customer tested the functionality over 2006 and has decided to install two more systems, one on their pattern furnace (also located in Llodio) and one on their other float furnace in Tudela.

The installation of **ES III™** system at Llodio was led by Aitor Bernardo, Llodio's Hot End Manager. When asked to give comments on the **ES III™** application, Bernardo states: "We are very pleased with the professional approach from the Glass Service engineers and feel they are almost part of our own team. The **ES III™** installation allows us to save energy and also improve our performance, but moreover we like the new level of control it gives us over our furnace."

Guardian Industries is evaluating the installation of additional expert systems at other locations around the globe.



Soon this year – the 9th International Mathematical Seminar in Czech Republic

By Jana Schachlova

Plans are well underway for our 9th Mathematical Seminar.

The first seminar 16 years ago was an international meeting place for all people involved in the optimization of the glass melting process, combined with some kind of mathematics. We have heard in the past that there are those who are “scared” by the word “mathematics,” but actually the seminar presents a very practical approach, demonstrating how advanced tools can give operators a better understanding of their equipment and optimize production.



The 1st International Seminar was attended by approximately 30 people from Czech Republic and the Netherlands alone. Last year's 8th Seminar was attended by 130 specialists from all parts of the world (i.e. USA, Brasil, Japan, Korea and many other countries).

The Seminar has focused always on the optimization of melting and conditioning. This year we are starting a new tradition, and have added a one-day workshop on the topic of Modeling the Forming Process.

Glass Service

– market leader
with advanced model based
predictive process
control



By Erik Muijsenberg

Glass Service has installed ten more **Expert System ES III™ (ES III™)** in glass plants worldwide in 2006. This brings the total number of installed advanced model based control solutions now to almost fifty. Due to successful **ES III™** implementations so far we are going to start the installation of fifteen more systems in the year 2007. This clearly makes Glass Service the leading market provider of cutting edge advanced model based predictive control solutions.

“Our **Expert System ES III™** is a very powerful and flexible advanced process control system entirely oriented to glass industry. These properties enable us not only to implement a system that will do its job precisely like other advanced control systems, but enable us to operate all customer-specific events related to the glass furnace and belongings. Each **ES III™** system implementation is made-to-measure application then”, says Franta Matustik, leading project manager from the Expert System team.

And he continues: “Our next advantage is the glass melting process knowledge. I fully agree with the status defined by one of our most significant customers - we are not a control company in the glass field, but glass company in control field. The **ES III™** system, as itself, is designed in accordance with this status as well. It sounds good to customers that they

want to use the **ES III™** system by themselves. After the training, they can install the system and use all features on their own."

"The most difficult is to describe the **ES III™** system in one sentence. It is not even possible. I only can say that well-designed and correctly used the **ES III™** system brings to our customers the glass melting process stabilization with effective energy use, increased production efficiency (decreased glass defects, reduced breakage, shorter job changes, less operator interventions etc.). And most important - all of it is available 24 hours per day!"

Glass Service and STG starting joint venture

By Josef Chmelar



Glass Service and STG have formed a new alliance with the aim to further improve services to our glass customers.

STG, based in Cottbus Germany, began as a successful business in the early 1990's and became a recognized supplier of flue gas oxygen sensors, Siemens-based control systems, DeNOx line of gas and oil burners, and batch line imaging software. STG supplied its services and products to major glass companies worldwide.

Glass Service, based in Vsetin Czech Republic, has extensive knowledge of furnace modeling, GS GFM, furnace operation, advanced control - **ES III™**, and glass quality troubleshooting.

Both companies decided to combine their control and sensor technology to supply complete solutions for

improved glass quality, fuel efficiency, and stricter environmental control. An extensive R&D program is being executed in order to further improve solutions for efficient heat supply into the melting process, develop more advanced furnace sensors, and adopt this knowledge within advanced control strategy.

For more information please contact:
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Coming events

We will be attending the following glass exhibitions this year:

- May 9 - 10 **Glassman Europe 2007**
Prague, Czech Republic
- May 16 - 19 **China Glass 2007**
Shanghai, China
- June 13 - 16 **The World of Glass**
Moscow, Russia
- Sep 4 - 5 **Glassman Middle East**
Cairo, Egypt
- Oct 15 - 17 **Glass Problems Conference**
Columbus, Ohio, USA
- Nov 15 - 17 **Glasstec Asia 2007**
Bangkok, Thailand



GS booth at China Glass 2006

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