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Dear reader,

A family business that has existed for over 140 years has a lot to tell. On the following pages we will try to show you what drives SORG - a look into the soul of our company.

I hope a quick trip through my family history provides the proper entry before we go into more detail with our relationship to technology, products and services.

Hopefully, you will enjoy reading this and that there are some interesting pieces that remain memorable.

Afterwards, if you are interested in further details concerning our product range, I want to invite you to download „Glass conditioning“ and „Glass melting technology“ from our website: www.sorg.de.

Best regards,

Alexander Sorg
Managing Partner
Beteiligungen Sorg GmbH & Co. KG
SORG® has grown from a small family company to an internationally known group with over 400 employees in its 140 plus years’ existence.

With our extensive range of products and services, we are not only the leading specialists for glass melting and conditioning systems, but with our associated companies, we serve the entire hot end of a glass factory. From raw material delivery up through conditioned glass ready to be formed into a multitude of products.

Passion for glass and innovation insure the constant development of our products and processes. The nearly 100 patents granted to SORG speak for themselves.

SORG takes on the challenges of our customers daily with solutions that minimize risk in their investments and continue to pay off into the future.
THE SORG® PHILOSOPHY  
WHAT DRIVES US. OUR PROMISE TO YOU

Nikolaus SORG GmbH & Co. KG is a family owned business in the fifth generation. Employees as well as customers can sense the stability of the company as well as the passion that drives us.

Commitment and courage lead us to explore technical innovations causing research and development to be an integral piece of our work. We believe in the value of continuous innovation not for innovation’s sake but to deliver our customers better solutions. That allows us to offer unmatched products and services.

Sustainability is a priority for us. We are deliberately lowering the bar for NOx and greenhouse gas emissions. SORG has succeeded to continuously develop our furnaces to meet constantly tighter emissions regulations. And our products were always known for low energy consumption.

Innovation requires the right mindset. SORG stands for furthering education and promotion opportunities as well as employee loyalty over five generations. Despite traditions, the company remains young at heart.
The history of SORG is a family history rich in tradition and cohesion. In the 19th century the Thueringen forest was home to a number of glass companies. It was here that the master mason Nikolaus Sorg started operations in 1872. His son Ludwig was integrated into the company at an early age and took over as his father passed away in 1919. The company grew and flourished despite global financial crisis. The three successors Oskar, Emil and Wilhelm learned the trade and joined the company. During the first half of the 20th century, SORG remained true to its roots until the formation of East Germany caused SORG to relocate to Lohr am Main in the west.

SORG quickly rebuilt and was serving its loyal customers in the west. What followed was an economic miracle where the glass industry flourished and SORG put out the first feelers to customers outside of Germany with success. The fourth generation put a strong focus on engineering as well as research and development. The resulting innovations served as the basis for SORG’s global recognition.

The main office is still in Lohr. But the company that Nikolaus Sorg founded is now active internationally as the largest independent glass furnace designer. SORG is still a 100% family owned and managed company. And that in the fifth generation!
SORG® founded in the Thueringen Forest through Nikolaus Sorg. Serves the glass industry within a 50km radius. Furnaces being repaired annually.

1919

First generational change at SORG. Ludwig takes over after the death of Nikolaus Sorg.

1949

Relocation of the company to Lohr am Main following World War II. The Sorg family flees East Germany and starts from scratch in the west.

1950

SORG serves the glass industry within a few hundred kilometers of Lohr.

1960

The fourth generation of the SORG family takes the company international.

1972

First patent issued for spout heating. Another 88 follow.

1981

Deep Refiner patent issued. A revolutionary development for the glass industry. Now widely in use at all major container glass producers.

1998

Alexander Sorg joins the company and is later named 5th generation managing partner.

2011

All three components of BATCH3 implemented for the first time making batch preheating reliable, clean and dependable.
In 1987, EME Maschinenfabrik Clasen GmbH joined the SORG® Group. EME is specialized in the storage, conveying, mixing, and dosing of raw materials for the glass industry. Also included is cullet preparation which is now the most important raw material for many sectors of the glass industry. Increased cullet usage is an important aspect of making glass more sustainable.

EME designs and builds systems and equipment for all areas of batch and cullet preparation.

Batch preparation starts with raw material delivery to the factory through the batch charger and ends with hot cullet return systems. Recent projects include giant batch plants for float, textile fibers and container glass.

The modernization and upgrading of existing batch houses is another EME specialization. If necessary while the factory continues to produce.

Hollow, flat and special glass producers worldwide rely on the dependability and efficiency of EME machinery.
SKS is a group of companies offering assembly, maintenance, audits and repairs of refractories in the glass industry. As part of the SORG® Group, SKS is specialized in furnace construction.

SKS scores with extensive experience with refractory installations in all important sectors of the glass industry. Our specialists can supervise local labor for assembly or deliver turn-key installations depending on your needs. Organization and management of large complex construction sites has been a core competence of the SKS Group for years delivering optimum results.

Difficult hot works on operating furnaces is another core competency of the SKS Group. Experienced specialists are available for hot repairs, drilling, replacement of electrode holders, overcoating and ceramic welding. Emergency services are available and we maintain a stock of refractory materials for these situations.

Rounding out the services, SKS delivers steel bracing and ceramic welding. Ceramic welding can be hot face welding inside the furnace or cold face from the outside. Both without production interruptions.
SORG® TECHNOLOGY
THE PATH TO PERFECT GLASS

SORG® is the leading expert on glass melting and conditioning. These disciplines start with batch preparation and end with perfectly conditioned glass.

Nikolaus Sorg GmbH & Co. KG handles the following areas:

- Energy recovery systems
- Cullet and batch preheating
- Charging equipment
- Furnaces
- Distributors and working ends
- Forehearth

SORG customers can depend on our innovative technology and appreciate our development activities for the future. Over the years SORG has developed a number of technologies that are now state of the art in the industry.
Examples include:

- The SDR® Deep Refiner
- Large endport regenerative furnaces >150m²
- VSM® All electric furnaces
- The refining bank for high quality
- LoNOx® Melter
- STW working ends
- STF forehearths
- 340S forehearths

SORG technology has been used as well to vitrify highly radioactive wastes. This and much more is the product of a continuous research and development policy. Our expertise in mathematical modeling allows us to develop new solutions as well as continuously improve existing systems. SORG® has extensive experience in the design and equipment for almost all furnace types currently used for continuously melted glass.

Accordingly, our glass conditioning systems are in use for a wide range of applications. Examples include press, blown, container and pharmaceutical glass. Speaking of glass types, SORG furnaces and conditioning systems are used for all of the common glass types.

See our homepage for references in:

- Solar
- Float
- Container
- Continuous fiber
- Insulating fiber
- Tableware

**MODELING**

**OPTIMAL DESIGN, OPTIMAL OPERATION**

The quality and reliability of our furnaces are our highest priority. To improve our designs, SORG is constantly expanding our mathematical modeling capabilities so that our furnaces, working ends and forehearths achieve the best possible performance. Thanks to simulations that reflect the smallest details with clearly defined boundary conditions, we are able to test complex reactions and get meaningful results for your project. SORG conducts over 150 modeling studies per year. We have 18 modeling licenses. Our blade servers are running models 24 hours per day, 365 days a year.
For the entire spectrum of consumer glasses, SORG® offers a unique combination of advanced technology, innovative and reliable components and professional services for all types of furnaces, working ends and forehearths.

**Furnace types include:**

- Endpoint regenerative
- Cross fired regenerative
- Conventional oxy-fuel
- Recuperative furnaces
- OxyEcon® Melter
- LoNOx® Melter
- VSM® All electric melter
- EMDR mixed melter. Electric furnace with some fossil fuel

Our designs range from 2.5t/24h for an all-electric furnace up to 750 t/24h for cross fired regenerative furnaces.

**Our glass conditioning systems include:**

- STW working ends
- 340S gas fired forehearths
- STF gas fired forehearths
- STF electric forehearths with electrodes or heating elements
- Special electrodes for technical glasses

The smallest SORG glass conditioning system was designed for 2t /24h while the largest forehearth produces more than 200 t/24h.
Among others, SORG® can support you with equipment for the following glass types:

- Bottles
- Cosmetic glass
- Tableware
- High tension insulators
- Lighting
- Tubing
- Patterned glass

- Glass blocks
- Continuous fibers
- Insulating fibers
- Automotive
- Solar
- Architectural

**COMPONENTS**

**QUALITY CRAFTSMANSHIP, RELIABLE OPERATION**

The dependable operation of all components has a significant influence on the smooth operation of the entire production line. SORG offers a wide array of components for the furnace, working end and forehearth tanks that include charging, combustion, cooling, boosting, bubbling, cameras, glass level and control systems. When choosing equipment, we use our vast experience and pay attention to the customer’s specific needs.

While SORG equipment is usually supplied in connection with a complete project, we can also supply individual components.
We want to thank again the SORG team support on site. They did a great job and we are looking forward to the next one.

Concerning site service from a customer who bought multiple furnaces from SORG.

A furnace is being created and constructed through the co-operation of Libbey, Praxair and SORG to create a high efficiency glass melter. “Designing the furnace and installing Praxair’s OPTIMELT system requires a collaboration of the best teams and will result in a state-of-the-art furnace system.”

Customer quote from glassWorldwide issue 64.

I have been involved with this factory for over four years now. Almost all of that time was consumed with issues relating to the failed electric melter, and the design and installation of its replacement. My highest praise for Sorg is that I rarely focus on that area of the factory anymore. It’s like breathing in and out all day: I don’t have to think about it; it just happens!

Statement from a customer who replaced a furnace from a competitor.

… wants to thank SORG for these technical meetings. We couldn’t have this conversation with your competitor fours hours away from here.

Customer statement following two days of in depth technical discussions.

SORG wants to especially thank Nafis Glass for supplying numerous photos for this brochure.
SORG Batch Preheater
Since years, the importance of service in the glass industry has been growing. This is partially due to the increase in complexity of systems but mainly due to a reduction of technical personnel in glass plants. And who can better meet these increased service needs better than the furnace designer and supplier of the equipment.

Our service specialists are available for installation, commissioning and training. Other than that they are available during the entire lifetime of the equipment to check and maintain critical components or to optimize operation. Furthermore, when our customers allow it, we can login to our control systems remotely to offer a first diagnosis and give advice.

Thanks to excellent service that you can call upon any time, you can depend on long and efficient campaigns with our equipment; significantly lowering your Total Cost of Ownership.

SERVICES
GREAT SERVICES GLOBALLY
TRAVELING TO SORG
MANY WAYS, ONE GOAL

SORG is conveniently located one hour from the Frankfurt Airport. In addition to being the home of SORG, Lohr has a beautiful downtown pedestrian shopping area with hotels and restaurants. Lohr also makes claim to being the inspiration for the Snow White legend.

ARRIVING BY AIR
Our offices are located 90km east of the Frankfurt Airport or a comfortable one-hour drive. At the airport take the autobahn A3 towards Würzburg. After approximately 65km take the Weibersbrunn exit (number 63) and follow the signs towards Lohr. Once in Lohr, you will drive through two traffic signals. Approximately one kilometer after the second signal, take a left at the McDonalds. SORG is located at the end of the street. Signs will direct you to visitor parking.

As an alternative, trains travel from the airport to Lohr hourly. Most trains require changing once. Our offices are a 5-minute walk from the Lohr train station. You take a footwalk in the direction that the train was traveling on the right side of the tracks.

ARRIVING VIA CAR
Lohr is convenient to three major autobahns: A3, A7 or A81

WITH THE TRAIN
From Lohr, there are hourly connections coming from Frankfurt and Würzburg (for connections from Nürnberg and München). When exiting the train in Lohr, there is a footpath parallel to track one. Walk 5 minutes the opposite direction of the shopping centers.