

DESIGNED FOR
PERFORMANCE.
ENGINEERED FOR
ENDURANCE.

SORG

NIKOLAUS SORG GMBH

Dear reader,

Nikolaus SORG's history is interlaced with the history of glass. In this brochure, you'll learn how we have shaped the world of glass for over 150 years. You'll also understand how the Sorg family's passion for glass has helped us become the world leader in glass melting and conditioning technology. The following pages will explain the products, technologies and services that are making our industry more efficient and sustainable than ever.



ALEXANDER SORG
Managing Partner
Nikolaus SORG GmbH



MICHAEL SORG
Managing Partner
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Nikolaus SORG presents security, stability and ultimate performance for glassmakers in over 80 countries. We're a family business founded in 1872 that is still owned and managed by the Sorg family, now in its 5th generation. We produce highly sophisticated glass furnaces that deliver performance, endurance, efficiency and sustainability in equal measure.

150+
YEAR HISTORY

100+
PATENTS

80+
COUNTRIES

300+
FURNACES WORLDWIDE

WHO WE ARE

OUR PURPOSE

Our duty is to design the most advanced furnaces and technologies that combine the highest performance with the most extended life. We are equipped to support glass manufacturers worldwide, today, tomorrow and well into the future. Our relentless focus on research and development has achieved some of the most significant glass melting and conditioning breakthroughs.

We are well placed to overcome the new challenges our industry now faces. With SORG, excellence comes without compromise.

OUR VISION

To develop innovations that will provide carbon neutrality and ensure a prosperous future.

OUR PROMISE

To work honestly and transparently with customers to design and engineer a glass furnace that performs and endures better than any other furnace.

OUR VALUES

PERFORMANCE

SORG is fully committed to designing furnaces that have the best performance in every way. Our products are developed to produce high-quality glasses with minimum energy waste and emissions.

TRUST

At SORG we believe that developing modern equipment is just part of what has made us the world leader in glassmaking solutions. More important than that is our commitment to creating opportunities and investing in our team, allowing them to reach their full potential.

ENDURANCE

We provide lifecycle support to make sure furnaces and other pieces of equipment can withstand the most challenging environments and remain in operation for decades.

CARE

We are a family motivated by the will to be better and stronger at each moment. We care about the company's mission and the clients' expectations, and we care about our employees' dreams and ambitions. We are a family with a clear goal: to work together to be the best version of ourselves.

SUSTAINABLE MELTING

A pathway to 100% CO₂-free melting and conditioning

Sustainability is central to how SORG sees the future of glassmaking. Our vast experience as a world leader in glassmaking technology brings with it both the responsibility and the honour of pushing the industry forward. With melting accounting for a significant share of the energy and emissions associated with glass production, reducing its environmental impact is one of our most important priorities.

SORG has been advancing electric melting for decades, with more than 100 all-electric melters installed worldwide. However, traditional all-electric technology has limitations, and the CLEAN Melter® was developed to overcome these challenges and make high levels of electrification possible for a much broader range of applications.

Combining electric heating with fuel combustion, CLEAN Melter® can draw up to 80% of its power from electricity, significantly reducing reliance on fossil fuels while retaining the flexibility required for larger tonnages. Alongside this, our proven VSM® technology enables 100% electric melting for suitable applications.

And electrification does not stop at the furnace. The Viking® Forehearth, our 100% electric glass conditioning system, extends the approach through to forming.

By combining VSM® with the Viking® Forehearth, and using renewable electricity, SORG can deliver up to 100% CO₂ reduction across the melting and conditioning process. For larger capacities, CLEAN Melter® with Viking® Forehearth, provides a highly electrified alternative with significantly reduced emissions.

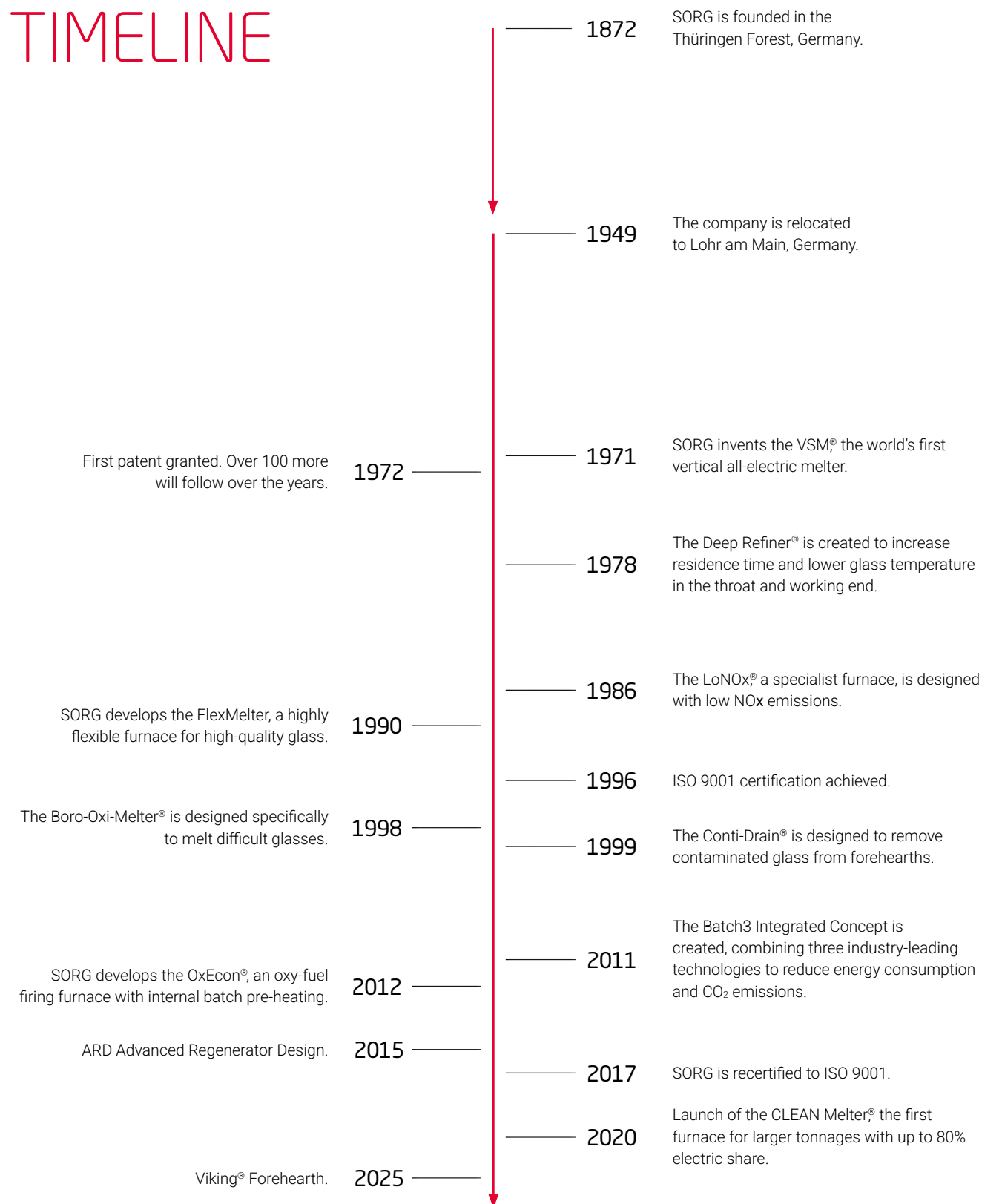


FROM MELTING TO CONDITIONING,
SORG IS PROVIDING A PRACTICAL PATHWAY
TOWARDS CO₂-FREE GLASS PRODUCTION.

FUTURE READY, PROVEN THROUGH HISTORY



TIMELINE



Every innovation we deliver is driven by customer needs, overcoming industry challenges or moving technology forward. A key for the future is SORG's wholly owned research and development department, dedicated to advancing glass melting and conditioning technologies. This tireless commitment to innovation has been at the heart of SORG since our inception, over 150 years ago.



MELTING

Backed by over 150 pioneering years, 100s of patents and support from the industry's brightest minds, every Nikolaus SORG furnace is designed to your exact specifications – with our trademark efficiency, performance and reliability built-in as standard.

CONDITIONING

Once out of the furnace, our complementary conditioning systems will help you maintain the highest quality and efficiency. From distributors and working ends to forehearth, gathering bays and auxiliary equipment, we'll design an integrated system that works seamlessly throughout the process to keep everything running at full capacity.

MATHEMATICAL MODELLING

SORG uses mathematical concepts to understand the melting process, analyse the effects of different components in glass production, and make precise predictions of the furnace's design impacts on product quality, energy consumption and efficiency. Mathematical modelling is today the most advanced tool to prove and improve the existing design and develop new technologies.

MODERN DESIGN TOOLS

Using systems including 3D laser scanning and 3D design enables a seamless process and a product of the highest quality for our customers.

DIGITALISATION

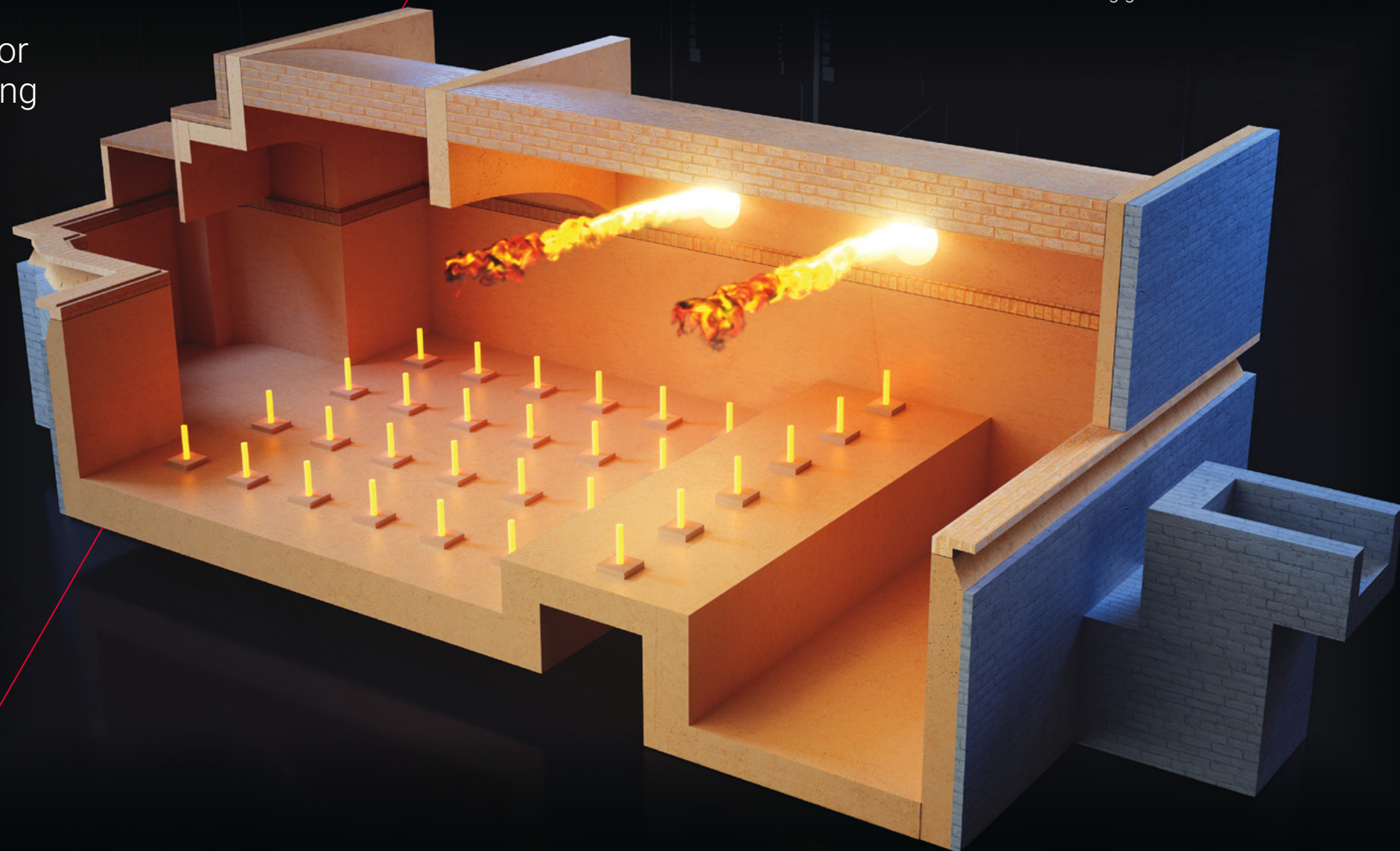
The digitalisation of the glass melting process presents many opportunities both for glassmakers and glass itself. From raw materials to glass delivery, SORG is developing innovations that will increase the predictability of melting glass across many applications, to provide a secure future.

INNOVATION

More than 50 years ago, SORG changed from a furnace builder to a technology innovator. In 1971 the first full-electric furnace type – the VSM® – was developed and started operating. Since then, SORG has been improving or developing technologies.

We engineer new furnaces, components and techniques – everything to offer our customers solutions for their individual needs and to bring the glass industry forward.

Our 100+ patents prove it.



Patents of SORG include ground-breaking innovations such as the VSM® and Deep Refiner®. The Deep Refiner® concept has been copied and adopted by many manufacturers.

Another game-changer was the refining bank. This is an integral part of the FlexMelter, Boro-Oxi-Melter®, LoNOx® and OxEcon® furnaces. Very recently this has been used to produce solar glass. The refining bank has also been implemented on a classic end port furnace to make high-quality glass.

More recently, SORG has introduced the CLEAN Melter® hybrid furnace and Viking® forehearth, advancing lower-carbon melting and fully electric glass conditioning.

We are one of the only furnace companies in the world to have a wholly-owned research and development department, which is crucial to all technological advancements. As we look to a sustainable future, innovations in all-electric and advances in hybrid melting will become the new foundation for melting glass worldwide.

MELTING

SORG is able to supply many different types and sizes of furnaces for the widest range of production and site conditions. Our furnaces are designed for low energy consumption, low emissions, low maintenance and maximum uptime, to deliver the best possible operating results for your production.

SORG provides a wide range of furnace options including:

- ALL-ELECTRIC
- HYBRID
- REGENERATIVE END-FIRED
- REGENERATIVE CROSS-FIRED
- RECUPERATIVE END-FIRED
- RECUPERATIVE SIDE-FIRED
- OXY-FUEL



CONDITIONING

Once out of the furnace, our complementary conditioning systems will help you maintain the highest quality and efficiency. From distributors and working ends to forehearth, gathering bays and auxiliary equipment, we'll design an integrated system that works seamlessly throughout the process to keep everything running at full capacity.

SORG provides a wide range of conditioning systems including:

- DISTRIBUTORS
- FOREHEARTHS
- ALL-ELECTRIC FOREHEARTHS
- HEATING SYSTEMS
- COOLING SYSTEMS
- COLOURING FOREHEARTHS



MATHEMATICAL MODELLING

We are utilising computer modelling more extensively to design furnaces and glass conditioning systems. The key to mathematical modelling is the experience of the modeller and the quality of their assumptions. SORG can simulate designs with pinpoint accuracy and compare different solutions to deliver fully reliable predictions.



MODERN DESIGN TOOLS

With modern design tools we are able to design the installation in the correct manner with collision control and a detailed part list. While with laser scanning we have a mighty tool to check the existing installation. Both can be combined and the data from the laser scanning is incorporated in the 3D design.

3D DESIGN

3D is the most modern and advanced design tool. Collision control is its main advantage. Reworking on-site or late modifications belong to the past.

LASER SCANNING

Laser scanning can provide all the information you need when technical drawings and documentation are not available, up-to-date or accurate enough.





DIGITALISATION

The digitalisation of the glass melting process presents many opportunities both for glassmakers and glass itself. From raw materials to glass delivery, SORG is developing innovations that will increase the predictability of melting glass across many applications to provide a secure future.

AUTOMATION

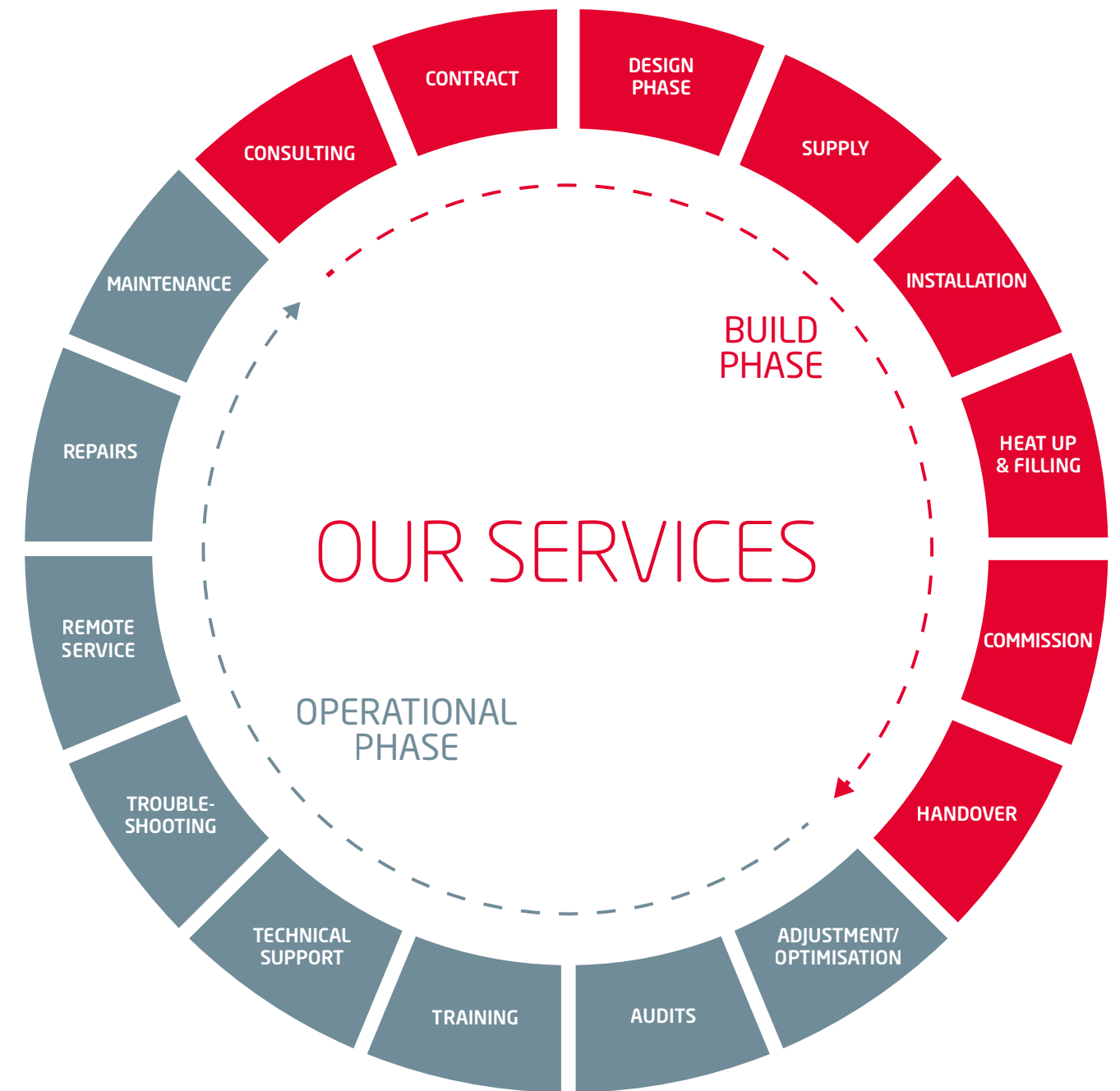
SORG's automation covers the entire glass melting process from batch charging to production-ready glass.

INDUSTRY 4.0

Industry 4.0 is based on continuous standardisation, networking, and digitalisation of the complete production chain.

We recognise that giving support over the lifecycle of a furnace is as important as it is during its rebuild or start up, especially considering that furnaces are in operation for longer periods of time and lifetimes are extending. On top of that, glass production can be harsh and unpredictable.

To give glassmakers peace-of-mind, SORG is committed to unrivalled customer support. Our in-house specialists offer furnace operation optimisation and auditing, glass defects analysis, full maintenance support and consultation on raw material selection and batch composition.





PROJECT MANAGEMENT

At SORG, executing projects in strict accordance with the agreed scope of supply and services has always been, and remains, fundamental to our operations. This includes adhering to project schedules, especially when other trades are working on the construction site, and staying within budget.

This is ensured at SORG through our professional project management (PM) team. The PM team acts as the interface between SORG's sales department and the customer. Support continues even after project completion, covering areas such as maintenance work, repairs, and more complex spare parts deliveries.

SORG strives to offer the best project management in the industry. We are renowned for our meticulous approach and our understanding of our clients' economic, environmental and scheduling objectives.

Adherence to deadlines, consistency, reliability, efficiency and quality are the outcomes our clients expect when they commission SORG with planning, execution, management, design and construction. In addition to these values, cost-consciousness and open communication characterize every phase of the project, from the tender stage through to after-sales support, and form an integral part of our company-wide quality and management system in accordance with DIN EN ISO 9001.

CONTINUING THE JOURNEY TO DECARBONISATION

FROM MELT TO FORMING

Decarbonising glass production requires more than a single innovation. It demands a portfolio of technologies that reduce emissions while maintaining the performance, flexibility and glass quality that manufacturers depend on.

SORG continues to develop practical solutions that support every stage of this transition – from fully electric melting and hybrid furnace technology to 100% electric glass conditioning.

Together, these technologies are helping glassmakers reduce CO₂ emissions today while preparing for the fully sustainable production of tomorrow.

CLEAN MELTER®

The CLEAN Melter® combines electric and combustion heating, delivering up to 80% electric melting energy while maintaining the flexibility required for large pull rates, varied glass chemistries and changing raw materials.

Already proven in industrial production, it provides a practical pathway towards significantly lower-carbon glass manufacturing.

VIKING® FOREHEARTH

The Viking® forehearth has demonstrated that 100% electric glass conditioning is now possible across all production capacities.

Combined with the VSM,® VSM+® and CLEAN Melter,® it enables manufacturers to move closer to fully CO₂-free glass production – from melt to forming.

PROVEN IN PRACTICE

The first CLEAN Melter® entered production in Germany in 2023. Since then, multiple additional CLEAN Melters® are now in operation, with others currently in the installation phase.

These successful projects demonstrate that the journey to decarbonisation is already underway – and SORG continues to lead the industry's transition through proven, practical innovation.



THE POWER OF THREE

SORG Group combines leading technologies in furnace and batch house design and engineering. This unique advantage allows us to provide optimal furnace design, glass melting, glass conditioning and installation as an integral part of our services.



We are a customer-centric partner dedicated to designing, constructing and improving batch and cullet plants using the best technology available.

eme.de



We are the world leader in glass melting and conditioning technology, enhancing the performance of furnaces to maximise asset lifespan.

sorg.de



We are the world-leading service provider for furnace erections, steel supply and glass-to-glass rebuilds, as well as maintenance and hot repairs.

sks.net





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