From perfectionists to perfectionists
HORN Glass Industries AG – Innovation engineered in Germany

HORN Glass Industries AG has expertise in the design, manufacture and supply of different furnace types, such as regenerative, recuperative continuous tank furnaces, float furnaces and electrical tank furnaces for the production of lighting ware, tableware, containers, cast glass, float glass, solar glass, pharmaceutical glass, cosmetic glass and technical glassware. Moreover HORN serves the glass industry as a system solution partner, providing and managing complete float glass projects.

With more than 125 years of experience in glass melting, HORN is a knowledgeable and flexible supplier for furnaces, distributor channels and forehearts for container glass production. Many customers use the extremely efficient HORN end fired furnaces in combination with the GCS distributor and forehearth series 100, 200 300 and 301 for highly effective glass conditioning.

HORN’s range of utility equipment includes combustion systems, control and safety equipment, electrical boosting and colouring systems, to name but a few. HORN Glass Industries AG also offers state-of-the-art process visualization system SCADA including Web-access or a Server-Client structure.

With its service HORN covers all glass industry requirements. A team of professionals with a wealth of know-how are at the customers’ disposal to install and commission glass plants world wide. Service personnel react quickly in order to provide assistance in any stage of glass production.

Internationally, more than 20,000 tons of glass is produced in furnaces manufactured by HORN each day, underlining the professional and reliable performance of the market leader in glass melting technology.
Many years of experience as a fundamental basis
From the glass furnace construction company serving the glass industry since 1884, HORN has, over generations, developed into the leading international glass plant design and construction company it is today.

The former family owned company belongs to the Certina AG Group since 1999, a holding company for small and medium sized niche companies. HORN was restructured and renamed HORN Glass Industries AG.

In 2003 HORN was certified according to the quality certificate DIN EN ISO 9001. The consistency of the HORN Group's fast and flexible reaction as well as the high standard of the project documentation was positively audited.

As a leader in glass melting technology, HORN joined together with other leading glass industry suppliers in 2010 to form the so-called “Glass-Alliance”, to provide the market with a strong joint-venture for system solutions in the container glass sector.

1884: The company August Horn is founded

1999: Take-over and restructuring by Certina AG, HORN Glass Industries AG is founded


2004: Awarded “Europe’s Best 500”

2008: Certification according AMS BAU for employment protection

Acquisition of HORN India Pvt. Ltd.


2012: Acquisition of HORN Glass Cz s.r.o

HORN Asia Pacific SDN. BHD and HORN Glass Technology (Beijing) Co., Ltd. are founded

2014: EUROX Sauerstoff Mess-Systeme GmbH is founded
A structure for the future
The HORN Group consists of the holding company, HORN Glass Industries AG, which “tailors” the glass melting furnaces and glass plants. HORN Glass Industries AG is the innovative part responsible for the engineering and manufacturing of glass melting technology and plants. Assisted by smaller worldwide subsidiary companies for local service activities, the HORN group is a one-stop-shop providing the glass industry with added value. Since the beginning of 2014 Eurox, a leading oxygen measurement systems manufacturer, has joined the group.

HORN generates a corporate turnover of up to EUR 80 million.

Competitive advantages

Technology and system solution partner
The glass industry benefits from HORN’s wide range of glass melting technology. The company not only provides individual products but also develops tailor-made system solutions in conjunction with the glass industry.

Flexibility and customer orientation
Highly qualified employees and frequent customer contact ensure flexibility and customer orientation throughout the entire organization, e.g. product development, project execution, contract management and financial matters.

High vertical integration
With its different workshops, HORN is able to manufacture the main part of the furnace equipment in-house with its own staff. The communication between engineering office and workshop is ensured, eliminating interface problems between different products. A final test of the goods ensures easy and rapid installation on site.
Playing an active role in globalisation
As a market leader for the supply of glass melting technology, we export our products world wide. HORN glass melting furnaces and auxiliary equipment are in operation all over the world – in Asia, Europe, America, Africa and Australia.

Our experts in the dispatch division work hand-in-hand with well-known shipping companies. This, together with years of experience in export, provide our customers the advantage of trouble-free shipment with short delivery times.

- Domestic market (Germany): 20 - 30%
- Export: 70 - 80%

Global partner for the entire glass industry

HORN provides glass melting products to 440 customers in over 60 countries worldwide. Mostly, the companies purchasing the products, systems and services are in the container glass, float glass, tableware, cosmetic, pharmaceutical, cast glass, fibre glass and technical glass industries.

Turn over
- Container Glass
- Float Glass
- Tableware / Cosmetics
- Rolled / Cast glass
- Fibre glass
- Technical glass
- Machinery equipment
Success in the domestic market and abroad
### Container Glass
- Vetropack Group
- Ardagh Group
- Verallia Group
- Gerresheimer Group
- Wiegand Glass, Germany
- Vetrobalsamo, Italy
- Vidrala, Spain
- Stölzle Oberrglas, Poland
- Hindustan National Glass, India
- Piramal Glass, India
- Razi Glass, Iran
- Shishe Va Gas Co., Iran
- SAVER Glass, UAE
- RAK Ghani, UAE
- LAV Glass, Turkey
- Sisecam, Turkey
- Stæklarna, Rogaska, Slovenia
- Vidporto, Brasil
- Wolnogorskoe Steklo, Ukraine
- Malinovski, Ukraine
- OMSK, Russia
- RASCO, Russia
- Dmitrovsteklo, Russia
- Nakosta, Russia
- Belstekloprom, Russia
- Kavminsteklo, Russia
- Wellgrow, Thailand
- Asia Brewery Inc., Philippines
- Sichuan Malaya Glass, China
- Qixia Chang Yu Glass Co., China
- Shenzhen Tongchan Group, China
- Bangkok Glass, Thailand
- Ta Hsiang Container Co., Taiwan
- Hwa Hsia Glass Co. Ltd., Taiwan
- San Miguel, Vietnam, Philippines
- Malaya Glass, Malaysia
- JG Containers, Malaysia
- Milly Glass Works, Kenya
- Central Glass, Kenya
- Wadi Glass, Egypt
- Sotuver, Tunisia
- Frigo Glass, Nigeria
- Nampak Glass, South Africa

### Tableware
- Nachtmann
- Schott Group
- Ritzenhoff
- LAV Glass, Turkey
- Sisecam, Turkey
- Steklarna, Rogaska, Slovenia
- Kedaung, Indonesia
- El Nasr Glass, Egypt
- R.A.K. Glass, UAE
- Lucky Glass, Thailand
- Mahmood Saeed Glass, SA
- Durobor Group S.A., Belgium

### Float Glass
- Salavatsteklo, Russia
- Gomelglass, Belarus
- Interglass, Kirgistan
- Caspian Flat Glass, Russia
- Pilkington, Germany
- Asmeel, Saudi Arabia
- Schott
- Philips Lighting
- Osram
- General Electrics, Hungary
- E-Glass, Germany

### Figured Glass / Solar Glass
- Jai Mata Glass, India
- El Nasr Glass, Egypt
- Al Majdal Co., Irak
- UBV, Brazil
- Lamberts, Germany
- Lipex, Germany
- Glaswolle Wiesbaden, Germany
- Saint-Gobain Isover, Romania
- Saint-Gobain Isover, Germany

### Borosilicate Glass & Tubing
- Stæklarna, Rogaska, Slovenia
- Saint-Gobain Isover, Germany
- Salavatsteklo, Russia
- Gomelglass, Belarus
- Interglass, Kirgistan
- Caspian Flat Glass, Russia
- Pilkington, Germany
- Asmeel, Saudi Arabia
- Kedaung, Indonesia
- El Nasr Glass, Egypt
- R.A.K. Glass, UAE
- Lucky Glass, Thailand
- Mahmood Saeed Glass, SA
- Durobor Group S.A., Belgium

### Fibre Glass
Located in the heart of Europe - at home in the world
The HORN head office is located in the heart of Europe in Plößberg in South Eastern Germany.

Visitors to HORN can land at several airports:
- Frankfurt a. M.: 270 km
- Munich: 210 km
- Nuremberg: 130 km
- Prague (Czech Republic) 180 km

Area
- Plant area: 11,000 m²
- Office area: 2,500 m²
- Workshop area: 7,400 m²
  (incl. storage area)
HORN is a leading international supplier of high quality glass melting solutions and services.

As a competent and flexible partner, we constantly strive to deliver the best product in terms of price and quality in order to allow our customers to benefit from an improved glass production process.

Our aim is profitable growth in the market by offering our customers professional solutions through a wide range of products, excellent support and service, combined with high flexibility.

Focus on human resources

From 1930 to 1954 when the company became a general mercantile partnership, HORN's staff comprised an average of 30 persons. This number increased to about 300 by 1984, and before the takeover by Certina AG in 1999 the number was around 150. After the takeover the newly formed HORN Glass Industries AG had 69 employees. This number has increased to about 250 within the entire group.

Over 40% of the employees are qualified engineers which is reflected in the high quality of the products.

HORN wants its employees to learn, to develop their skills and ensures that they are treated well. No business can grow without its people growing too. Therefore we are proud of employees who have acquired and used valuable expertise along with technical and entrepreneurial skills to work their way through to the very top of the organisation.

Moreover HORN is committed to professional training and thus ensures that junior staff members develop expertise and by so doing, constantly improve service levels.
Certificates and awards
The Company

Meeting the expectations of our customers is one of our most important goals. We always aim to satisfy our customers regarding the supplied plant. We can only reach this aim with high quality products combined with excellent service and flexibility.

A good partnership with our customers also demands comprehensive support of the glass production on site. Therefore our furnace experts are constantly active all over the world.

HORN is proud to have received two commendations, the first from Vetropack Gostomel, Ukraine, and the second from Gujarat Glass, India, with which both customers express their satisfaction and recognition of HORN’s contribution to the success of their respective projects.

In 2003 HORN was certified according to the quality certificate DIN EN ISO 9001. The consistency of the HORN Group’s fast and flexible reaction as well as the high standard of the project documentation was positively audited.

Occupational health and safety have become ever more important over the last years. Therefore HORN Bau & Service GmbH decided to introduce a management system for occupational health and safety, the AMS BAU, in order to comply with all legal regulations, also on the part of customers, for upcoming construction and repair projects.

HORN Glass Industries AG possesses the welding certificate according to the pressure tank regulation no. 97/23/EG which allows the production of welded pressure tanks and pipelines with an overpressure of above 0.5 bar and examining these for approval. This also applies to all heating equipment for the glass industry.

Siemens Industry Automation and Drive Technologies certified HORN Glass Industries AG to a so called “Siemens Solution Partner”. This confirmed HORN the excellent quality in the development of process control systems by means of Simatec PCS7 components. This Siemens components are used in the optimization and safe operation of HORN glass melting furnaces.

Meeting customer expectations

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Computer-aided engineering
In our own research and development department, qualified engineers are constantly working on new state-of-the-art technology. Innovations, which improve the glass quality and simultaneously reduce energy consumption. Solutions, which not only meet environmental regulations, but also exceed them by far. We constantly implement primary measures which, for example, reduce the emission of NOx as much as possible. The new developments are permanently integrated into our production. This guarantees our customers competitive advantages in the production of glass.

- Computer modelling of
  - Melting tank
  - Distributor
  - Forehears
- Furnace conception
- After sale service
- Trouble-shooting
- Technical Assistance

Each product is based on engineering. We design, plan and construct melting furnaces and forehears with modern computer stations and software which allows efficient engineering in order to reduce cost and time. Our customers profit from enormous synergy effects. Due to the close cooperation between the internal engineering departments, concentrated and professional know-how is at our customers’ disposal.

- Computer Aided Design for all products and engineering works
  - Refractory: AutoCAD
  - Steel: ProSteel and X-Steel
  - Electric equipment: E-Plan
  - Combustion equipment: AutoCAD
  - Tank cooling: Inventor
- 3D-Layouts
- Automatic generation of material lists and workshop drawings
- Collision test for steel construction
- Documentation on paper and CD-ROM
Complete glass manufacturing plants are technically highly complex. Aside from new players in the glass industry such as investors or breweries, who insist on professional project management, well-known glass manufacturing companies are seeing the advantages of external project management:

- reduced risk of delays in the project progress
- reduced technical risk due to many interfaces between different suppliers
- reduced staff requirement for the project management

HORN has the know how to manage the production line from the first layout to the training after start-up of the plant.

**Project management service**
- General layouts, foundation layout, media layouts
- Time schedule management
- Contract management
- Interface management
- Engineering and manufacturing control
- Documentation
- Integrated logistics
- Installation and commissioning coordination
- Training and trouble-shooting

**Production line supply**
- Batch preparation and cullet return
- Glass melting and conditioning
- Forming process
- Annealing
- Inspection, cutting, packing
- Media equipment

With large investments in our modern production area, we fulfil our customers’ requirements for high quality products. Well skilled workers and ultra-modern machines manufacture the products according to internationally accepted quality standards and norms, e.g. Thermoprocess Norm EN746-2

- Highly accurate plasma cutting
- Modern welding table and machines
- CNC milling and turning centre for oversize products
- Standardised products for small-series production, e.g. electrode holders
- High vertical integration of the production to guarantee quality, flexibility and fast manufacturing
Innovative furnace technology

Innovative systems solutions

Project management

Float glass plant
- Batch
- Melting
- Tin Bath
- Annealing
- Cutting / Packing
- Utilities

Container glass plant
- Batch
- Melting
- IS Machines
- Annealing
- Inspection / Packing
- Utilities
Furnaces are our passion. With extensive experience in glass melting furnace products and services, HORN is in a position to provide a complete range of modern glass melting furnaces for all types of glass. Innovative technology regarding energy, emission and glass quality benefits our customers. Specially designed burner ports and superstructures result in optimised utilisation of fuel.

Lowered refining areas are responsible for high flexibility of the furnace with regards to job changes and ensure a constant high glass quality.

Special heating and cooling facilities in the distributor and forehearth channels ensure a homogenous temperature profile of the glass for subsequent glass forming.

- Float furnace
- End fired furnace
- Cross fired furnace
- Electrical furnace
- Recuperative furnace
- Oxy-fuel furnace
- Forehearts
- Float tin bath

Turn-key system solutions

The one-stop shop for glass production plants for container glass and float glass.

In an alliance with three other leading glass plant suppliers, HORN is able to provide turn-key system solutions from batch plant to packing for the container glass industry. In the case of float glass plants HORN provides the system solution together with noted suppliers in the float glass sector.

HORN customers profit from this unique added value.
Over the years, HORN has developed products, which are well established all over the world. All our knowledge culminates in each of the products with one goal: to increase productivity during glass melting. Small glass producers as well as large glass manufacturers all over the world utilise this advantage. These innovative products can be recognised by the brand names such as:

- Optibeam (glass level control)
- Varidrain (drainage system)
- Dualflame AC (natural gas burner)
- CORA (forehearth heating)
- SPR Set point ramp (control behavior)
- GCS Series 100, 200, 300 and 301 (glass conditioning at distributor and forehearth)
- HVR 700F-2P (batch charger for preheated and non-preheated batch)

Our customers can rely on our extensive know-how. Even the very best product requires professional installation. HORN has a team of experts from all divisions of the glass industry with many years of experience. This is the key to why our customers are satisfied with the full service provided by HORN. All products are installed and commissioned at customers’ plants worldwide. Our service starts with the arrival of the goods and ends only when all our customers’ expectations are fulfilled.

- Installation and commissioning
- Furnace repair works
- Heating up
- Furnace draining
- Furnace inspection
- Production assistance
• End fired furnace
• Cross fired furnace
• Recuperative furnace

• Oxy-fuel furnace
• Float glass furnace
• Electrical furnace

Forehearths / Distributor

• GCS Series 100 (Distributor with radiation cooling)
• GCS Series 200 (Forehearth with radiation cooling)

• GCS Series 300 and 301
  (Forehearth with radiation and air cooling)
Combustion equipment

- Burners
- Media stations (Gas, Oil, Oxygen)
- Gas-Air-Mixture station CORA

Electric control equipment

- Hardware control
- Software PLC control
- SCADA system
- Glass level control system OPTIBEAM
• Furnace cooling
• Cooling water equipment
• Bubbling system

Media equipment

• Melting boosting (sidewall or bottom)
• Barrier boosting
• Refining boosting
• Throat boosting
• Forehearth boosting

Electric boosting equipment
Batch chargers

- Vibratory type (HVR)
- Piston type
- Screw type
- Colt top charger for electric furnace

Tin Bath for Float glass production
Annealing lehrs / kilns

- Roller type lehr
- Annealing kiln
- Mould preheating kiln

Services

- Project management
- Computer modelling
- Trouble-shooting
- After Sale Service
- Furnace Inspection
- Furnace draining
- Furnace paving
- Installation
- Furnace repair works
- Heating up
- Hot sealing
- Regenerator cleaning
- Changing of electrode holders and pushing of electrodes