



SERVICE DIVISION

A DIVISION OF HORN GLASS INDUSTRIES AG

HORN
BAU & SERVICE GMBH

FURNACE SERVICE WORKS

HORN Bau & Service GmbH is the executive division on the construction site. The unique working conditions, such as the extreme temperatures, call for a team of highly qualified specialists and experts – such as those of HORN Bau & Service GmbH.



Assembly and Installation

Before new furnace installations or cold repairs, HORN Bau & Service GmbH provides the material and the expertise to **drain the furnace** and, if necessary, to execute the **controlled cooling down**. Controlled cooling is essential if parts of the plant, such as the melting end crown, etc. are to be preserved.



High precision **bricklaying** then guarantees the customer a furnace with a long lifespan and many years of trouble-free operation. In addition to traditional refractory construction, HORN Bau & Service GmbH undertakes **steel construction** on an international scale.

With its own experts HORN **supervises** its own staff or customers' manpower to guide all the installation or repair works.



Finally the service division of HORN **heats up** the furnace to operation temperature with special heat-up burners and measurement equipment to ensure the proper temperature gradient and controlled expansion of all refractory material.



Assembly and installation:

- Tapping of the Furnace including drilling
- Refractory assembly
- Steel installation
- Site supervision
- Heating up of the furnace and dust free cullet charging

Hot repairs

HORN Bau & Service provides a full service package during furnace operation to maintain the furnace and to secure a long furnace lifespan, e.g. by **thermal regenerator cleaning** and **flux line paving**.

Regenerator cleaning is one of the methods to improve the efficiency of the regenerator by removal of condensation from the checker system.

Thermal regenerator cleaning entails heating instruments being installed in the regenerator beneath the rider arches and raising the temperature of the regenerator to such a degree that the condensation melts and flows down the shafts to the regenerator basement. Since the control and operation of the instruments call for a great deal of experience as well as state-of-the-art technical equipment, customers are well advised to consult specialist such as the HORN staff.



Further special tools are available to execute **hot refractory repair works** during furnace operation. For clean cuts in refractory material a diamond saw is available to replace damaged refractory material with new material without vibration and without influencing adjacent material. The diamond saw is hydraulic driven and water cooled. With the diamond saw, openings up to 580 mm deep can also be sawn into high-strength materials. The ambient temperature during operation may be up to 200° C while the temperature on the inner side of the wall may be up to 1600° C.

The diamond saw is used for the repairing of rat holes, removal of wash-outs in regenerator walls, openings for cleaning, inspection, and placement of dampers or connections.



Hot repairs:

- Furnace hot repair works
- Thermal regenerator cleaning
- Installation and exchange of electrode holders during production
- Patching of the flux line as well as the throat of the furnace
- Shaped block manufacturing and installation
- Fast and clean placing of openings in brickwork walls

FURNACE SERVICE WORKS

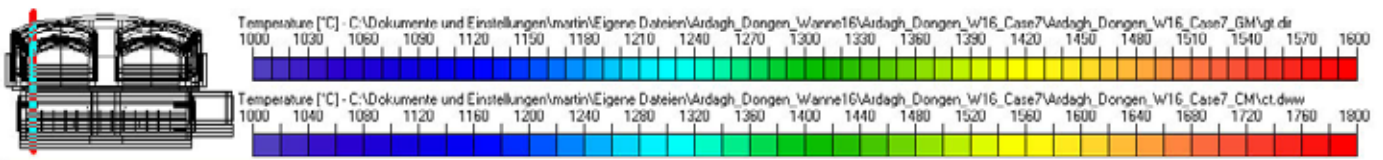
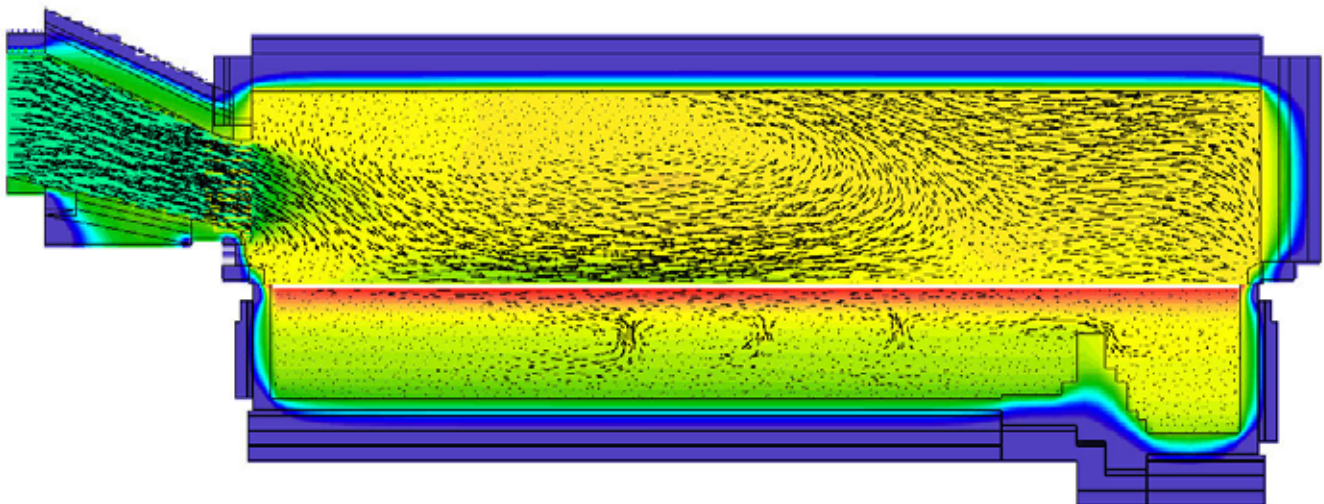
Inspection and assistance in furnace operation

With the HORN inspection service the glass producer can easily observe the inside of the furnace by periscope to exactly determine repair works or remaining lifetime. Nearly all corners and parts of the tank superstructure, port neck and regenerators can be inspected by using water cooled optical lenses to take digital images. Finally all pictures are then optimized and a report is supplied with recommendations regarding repair requirements or remaining lifespan.

Additionally HORN provides experts who are active all over the world to assist the glass producers in operation and adjustment of the furnace. These experts have many years of glass production expertise. Whether it entails changing the glass colour, improving the pack-to-melt or to optimizing the forehearth, HORN assists with its extensive know-how.

Individual solutions are developed for each specific problem. Therefore a pool of experts is available to analyse any glass defect or inad-

equate raw materials. This trouble shooting helps the glass industry to increase productivity. Computer modelling may also be utilized to model the problem and to verify the suitability of new solutions.



Inspection and assistance in furnace operation:

- Furnace inspection with periscope
- Furnace operation assistance, e.g. colour change or forehearth adjustment
- Trouble shooting, e.g. analysis of glass quality problems
- Computer modelling

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GLASS INDUSTRIES

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