STEULER Refractory | Linings

HIGH-TEMPERATURE KILN CONSTRUCTION DESIGN AND MATERIALS UP TO 1,800 °C

FOCUS ON PERFORMANCE

THE BEST MATERIALS
FOR THE BEST KILNS

The green transformation of the industry is accelerating the development of innovative kiln technologies and their efficiency improvements to an unprecedented pace. This poses particular challenges for kiln furniture and refractory kiln linings alike. As a technology partner, Steuler supports kiln manufacturers and operators from the planning phase onwards. Our research and development and engineering specialists are already at your side at this stage. Our focus: the development of innovative kiln furniture and refractory linings with the best possible service life, efficiency and sustainability.

Insulating fire lightweight bricks are based on hollow-sphere corundum and the corresponding dense mullite / corundum and andalusite materials are used for lining kilns with particularly high temperatures and for equipping them with the adequate kiln furniture.
Due to their very good thermal shock resistance, they are ideal for **kiln construction in the high temperature range up to 1,800 °C:**

- **Tunnel kilns**
- **Bogie hearth furnaces**
- **Pusher plate kilns**
- **Chamber kilns**
- **Special furnaces**
- **Kiln car superstructures**

1,800 °C

Pure hollow-sphere corundum materials are used particularly in applications where aggressive atmospheric attack on the lining is to be expected. This is particularly the case when halides such as fluorine or chlorine or a high concentration of hydrogen is present in the atmosphere. Here, our materials offer a resistant and highly durable lining. They can be used both on the hot face and as insulation in the rear lining.

FIRE LIGHTWEIGHT BRICKS MADE OF HOLLOW-SPHERE CORUNDUM

- 100 % hydrogen resistance and excellent thermal shock resistance
- Very good hot properties and precise molding with tight dimensional tolerances
- Resistant even in very aggressive atmospheres

DENSE REFRACTORY BRICKS BASED ON MULLITE/CORUNDUM, ANDALUSITE OR BAUXITE

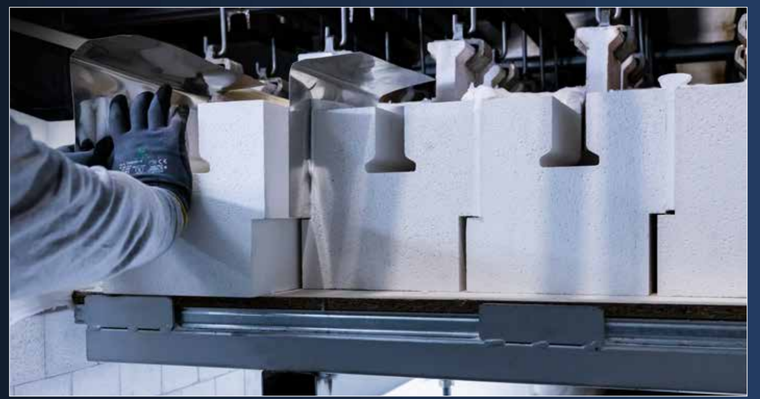
- 100 % hydrogen resistance (mullite/corundum) and high hot compressive and cold crushing strength
- Very good abrasion resistance and resistant even in chemically aggressive atmospheres
- Excellent thermal shock resistance

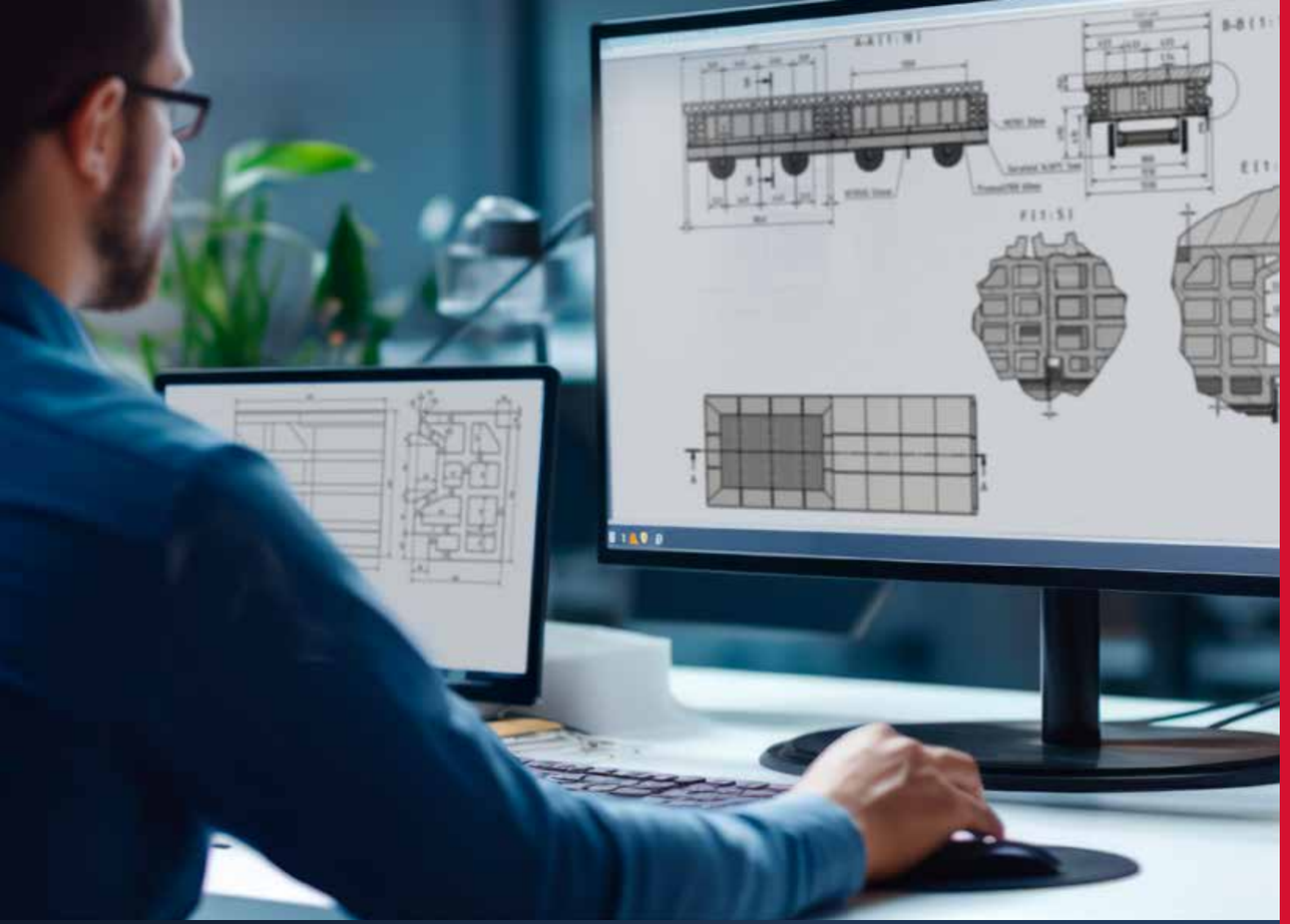
RESEARCH AND DEVELOPMENT

In order to further develop lining materials in a targeted manner, Steuler has built a globally unique test facility that simulates the processes of the future on a one-to-one basis. Different gas mixtures of hydrogen, methane, carbon monoxide or water vapor are precisely adjusted at temperatures of up to 1,400 °C and pressures of up to 6 bar. The structural changes in the refractory materials are analyzed in situ.
The knowledge gained is immediately incorporated into efficient and targeted product development and is available to our customers.

PRODUCTION

Our refractory linings and kiln furniture are manufactured exclusively at our two German sites in Höhr-Grenzhausen and Breitscheid. At these sites, we also use state-of-the-art firing and kiln technology, with refractory linings and kiln furniture designed and manufactured by Steuler. We fire at temperatures of up to 1,750 °C. Depending on requirements and specifications, the products are manufactured using various shaping processes. Our diverse manufacturing processes include wet or dry pressing, vibration pressing, ramming or casting.





MACHINING CENTER

Special components often have complex geometries that cannot be realized with conventional manufacturing processes. In our machining center, components up to a dimension of 2500 x 2000 mm and a depth of 500 mm can be reworked with a 5-axis CNC robot. This enables us to realize very tight tolerances. In addition, products up to 400 mm can be surface-ground with the highest flatness tolerances of up to 0.05 mm.

ENGINEERING

Our experts create specific engineering and detailed design drawings. For planning and CAD design we are using state-of-the-art software including CAD-integrated FEA analyses. Our specialists are at your side right from the planning phase and lay the foundations for the subsequent, trouble-free operation of your kilns.

This also includes customer-specific solutions such as:

- **Wall construction systems with tongue and groove blocks including the appropriate retaining blocks**
- **Ceiling systems with suspended ceiling bricks or vaulted ceiling bricks**
- **Highly insulating and therefore energy-efficient high-temperature kiln car designs**
- **Burner bricks and nozzles in special shaped brick design**

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