

Germany

# New Firing Technologies for New Products

Innovative ceramic products are capturing new markets, such as automotive engineering, medical engineering, wear protection and environmental engineering, to name just a few. The requirements for these products are wide-ranging and complex. But the materials used in the firing process itself must also meet ever increasing specifications. For the production of these materials, the firing technology is of central importance. In a relatively short time **CTB ceramic technology GmbH** (Berlin, Germany) has made a name for itself as

a competent partner for these ceramic sectors. The company develops and engineers firing systems such as tunnel kilns, bell kilns, elevator kilns and chamber kilns for special requirements, e.g. for the production of innovative ceramic products in technical ceramics, the refractories industry and high-temperature applications. With an export quota of 80...90 %, CTB has now become firmly established internationally. *Dipl. Ing. Carsten Wünsche* (CW), who manages CTB alongside Bernd Geismar, spoke to us about the corporate philosophy.



Fig. 1 Dipl. Ing. Carsten Wünsche

*cfi: CTB has only been operating for 12 years, yet you have some very well-known names in your reference list. How have you succeeded in getting such a firm foothold in this competitive and difficult market sector in such a short time?*

**CW:** We really started from zero, but we had visions, clear ideas about what we wanted to offer our customers, and we were and are a perfectly coordinated team. We started off with small-scale projects, which we were able to conclude very successfully. In this way, we won the confidence of our customers and successively realized larger, more complex plants. Our most important asset was our employees' know-how and a good knowledge of the market .... and that remains so to this day.

*cfi: Defying the trend in the industry, CTB has grown and made significant inroads into the market. How do you meet the demands of a globalized market?*

**CW:** Our mission was to offer the highest level of quality. For this reason we buy in all the structural components in Germany, unless the customer expresses other preferences. We develop and engineer our firing systems at our Berlin base, and in the Berlin-Brandenburg area we have built up a network of competent partners, who manufacture the components and subassemblies for us. This close proximity enables our project managers to personally monitor the production of the plants

on site. That is important for our quality guarantee and also permits us to develop components for forward-pointing technologies. We aspire to offer new firing solutions that stand out against conventional systems and ensure efficient energy utilization and, of course, guarantee compliance with all environmental standards and maximized process and plant reliability. With creative ideas, we have been able to score points in a wide range of tenders and our good project management has won us many follow-on contracts. With our lean company structure, we met the demands of the global market from the start and are able to respond fast to changing economic conditions in Germany and abroad. As we don't generally supply any standard solutions, but develop highly customer-oriented systems, it is also extremely difficult to copy our

plants. The demand today is for perfect project management guaranteeing on-schedule delivery. This necessitates effective communication within the company, but also with the customer. To ensure this, we use state-of-the-art communication systems and 3-D documentation tools (Fig. 2), that make our management of the project transparent for customers even over long distances. Closeness to our customers is top priority for us. That was, for example, one of the reasons why we have established a subsidiary in the USA.

*cfi: Within ceramics you define certain segments as CTB's core expertise. What are the reasons behind this selection?*

**CW:** Although we have supplied kilns for the tableware industry or ceramic sanitaryware for instance, I would certainly put refractories,

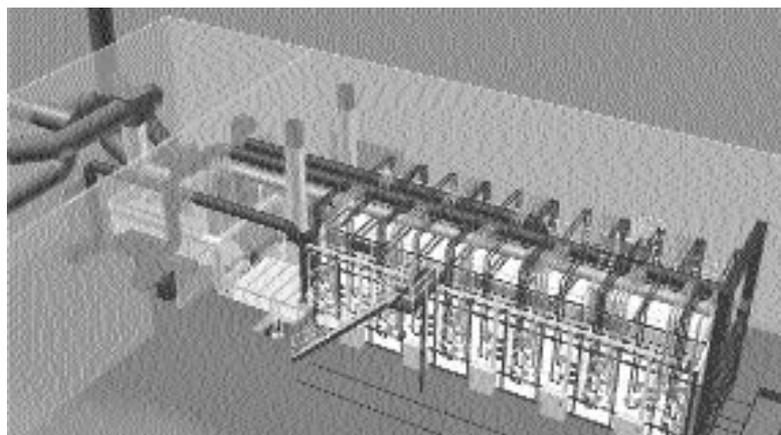
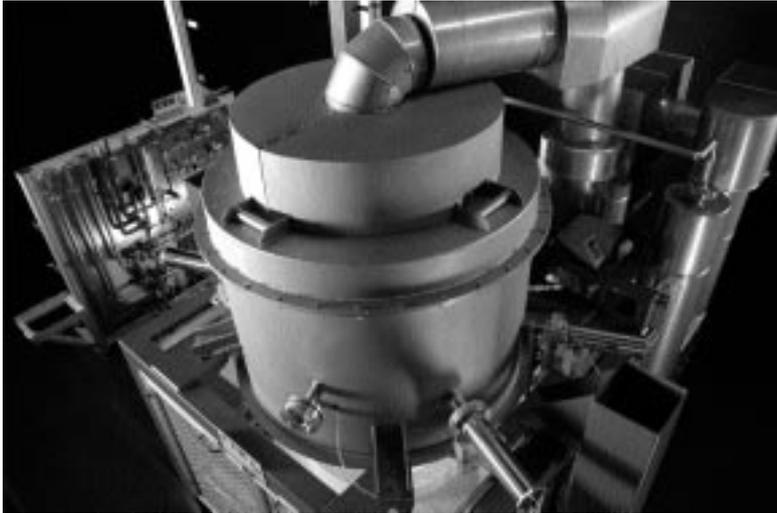


Fig. 2  
3D-scheme: View of a 100 m<sup>3</sup>-hearth kiln for Technial Ceramics (1600 °C)

**Fig. 3**  
Research Kiln DC4,  
for gravimetric and  
dilatometric online-  
measurements  
as well "ΔT -firing"  
of ceramic proto-  
types up to 1600 °C



technical ceramics and high-temperature applications at the top of the list. Here we can best play on our strengths, that is special developments for innovative ceramic products. We can, for instance, guarantee an extremely high temperature accuracy of + 1K and extremely exact atmosphere control.

The challenges that our customers have to meet in the development of new products prompted us, for instance, to develop "research kilns" with special features and measurement systems for exact definition of the firing conditions. Our latest development in this field is an "all-rounder", unique in the world (Fig.3). It consists of an integrated drying, debinding, sintering and firing system for fundamental research, product development and the optimization of ceramic firing processes. All thermal and mechanical processes cannot only be tested on a specimen but a finished product of any shape, with a previously unknown degree of precision.

In a special simulation process, which we also developed, the customer can further optimize the firing conditions during production for scale-up to the installed plant.

Naturally, we can supply solutions for other special production applications. Particularly for technical products, data archiving is becoming increasingly important because the manufacturing cycle must be docu-

mented as part of product guarantees. With our documentation systems, it is possible to trace the "firing history" of a ceramic component years after its production.

*cfi: How important are retrofits and upgrades for CTB?*

**CW:** Very important. With such projects we have been able to win very lucrative follow-on contracts for new installations. But it is always surprising how, with a comparatively low financial investment, a long written-off plant can be transformed into a state-of-the-art system. Following a basic analysis of the plant conditions, we elaborate customized solu-

tions for new firing systems, new control systems with kiln car tracking, new refractory linings or retrofit afterburning and air purification systems to meet new specifications. The objective of such investments is often to increase the throughput rate, improve the product quality and, more and more commonly, to comply with environmental regulations or to optimize energy saving.

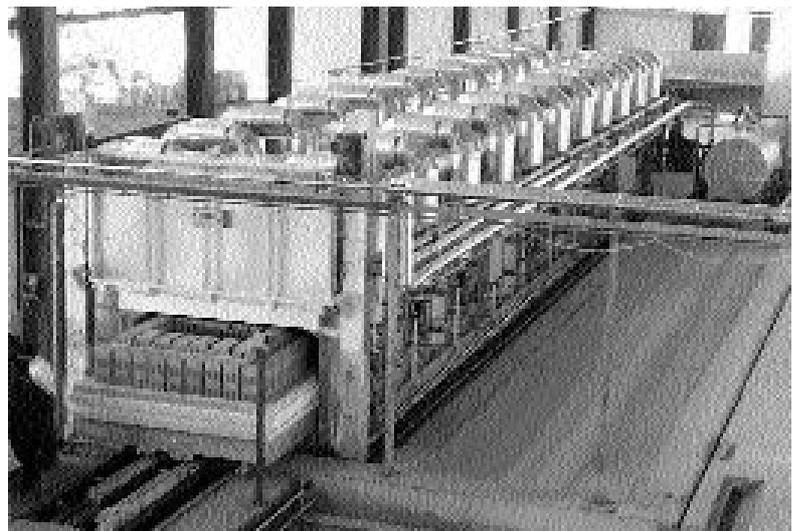
*cfi: Kiln builders today have to deal intensively with automation systems. What is your approach here?*

**CW:** Naturally, we analyse the entire production process and draw up a plan for the material flow. To realize automated systems, we cooperate with automation specialists for conveying systems, loading and unloading systems, storage plants and robot systems, inputting important parameters for our scope of supply. As far as the customer is concerned, CTB assumes full responsibility for the project.

*cfi: How did CTB fare at CERAMITEC 2006?*

**CW:** Our show presentation was even more successful than at the exhibition three years ago. We have increased the awareness of the company in the market, enjoyed more fair contacts with a high-level content, and engaged in further talks concerning specific enquiries.

*cfi: Many thanks for talking to us. KS*



**Fig. 4** Fuel heated 50 m<sup>3</sup> - hearth kiln for refractories (1750 °C)