



Industry

Durafox® Ceramics

Heat treatment with high-level know-how



Durafox® Ceramics

Components that are used in corrosive or oxidative environments must withstand extreme conditions.

Thanks to their outstanding material properties, components made of oxide fiber composites (OFC) are the safe solution. They have a high damage tolerance as well as thermal shock resistance and can be used for temperatures of up to 1,300 °C. At your request, we can also manufacture more complex molded components adapted to your requirements.

TAKE ADVANTAGE OF THESE BENEFITS:



Significantly **longer service life** due to oxidation and corrosion resistance



High damage tolerance
(ductile fracture behavior)



Good **thermomechanical** properties



Resistant to thermal shock
and resistant to thermal shock



Increase in quality,
as **distortion-free**
under thermocyclic
loading



Low thermal
conductivity



Electrical
insulator



Thin walls due to
lightweight
construction



Metal-like,
sheet metal
constructions possible

Oxide fiber composites – Durafox®

MATERIAL, PROPERTIES & AREAS OF APPLICATION

Durafox® – Thermal, chemical and electrical barriers

The excellent thermal shock resistance and ductility of Durafox® opens up numerous areas of application for the substitution of brittle ceramics at risk of fracture, for example made of cordierite or aluminum oxide.

For applications in the field of CO₂-free burner technology, very high temperature gradients are possible on Durafox® tubes. On the UHT Thermo Jet, they easily withstand temperature changes from 20 °C at the tube inlet to over 1,000 to 1,200 °C at the tube outlet. Tubes or flat components made of Durafox® are also ideally suited for the protection or electrical insulation of heating elements.

In addition, Durafox® products are a reliable way to avoid carbonization of sintered components or to replace brittle and heavy ceramic substrates. Both self-supporting plates and extremely flexible and ductile underlays can be made to a minimum thickness of 0.5mm. This minimal thickness leads to process optimization in terms of safety, energy savings, increased quality and extended service life and durability.

Durafox® Ceramics – All-oxide Fixture

We also offer our individual charging racks for oxidizing and corrosive atmospheres. For this purpose, we use a fiber composite made of ceramic fiber and ceramic matrix, which remains resistant to temperature changes and distortion in high-temperature applications under these environmental influences.

Compared to charging racks made of steel or monolithic ceramic, the furnace design can be slimmer with charging racks made of Durafox® and thus significant savings can be achieved. We can also design our Durafox® charging frame to fit your furnace, your application and your product exactly. Here we provide you with competent support in consulting, design and production.

Durafox® and CFRC-Hybrid racks

Hybrid solution of load-bearing CFRC and Durafox® Ceramics as carburization protection for your heat treatment.

From temperatures of approx. 1,000 °C, carbon from CFRC batch carriers can diffuse into steel components, resulting in the formation of a eutectic. The lowering of the melting point of the metal can result in contamination of the customer's product through material diffusion or even melting of the customer's components. In most cases, not only are the components or carriers damaged, but often also the furnace interior.

Oxide ceramic composites withstand thermomechanical stress in highly corrosive or oxidizing atmospheres and are our most innovative protection against carburization up to a maximum application temperature of 1,300 °C.

Durafox® – Foundry Industry

Plant components and auxiliaries made of OFC come into play, where components made of conventional materials fail.

They easily withstand applications in highly corrosive or oxidizing environments and optimize the processing of molten aluminum with their special material properties:

- High damage tolerance (ductile material behavior)
- Chemical resistance to Al melts and atmospheric oxygen
- Advantageous wetting behavior
- High thermal shock resistance
- Low thermal conductivity



DOSING CRUCIBLE

Low-wear, extremely unbreakable crucible with long service life for precise metering of aluminum melts.

Are you looking for the right solution to your problem?
Feel free to contact us!



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SCHUNK GROUP

The Schunk Group is a globally operating technology company with around 9,000 employees in 26 countries. The company is a leading supplier of products made of high-tech materials – such as carbon, technical ceramics and sintered metal – as well as machines and systems – from environmental simulation and air conditioning to ultrasonic welding and optical machines.



9.000 employees



26 countries



€1.3 billion in 2021

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Durafox® –
our oxide fiber composites



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for your high temperature
applications



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