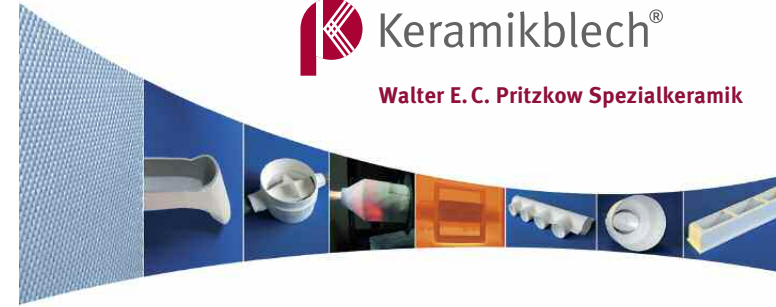
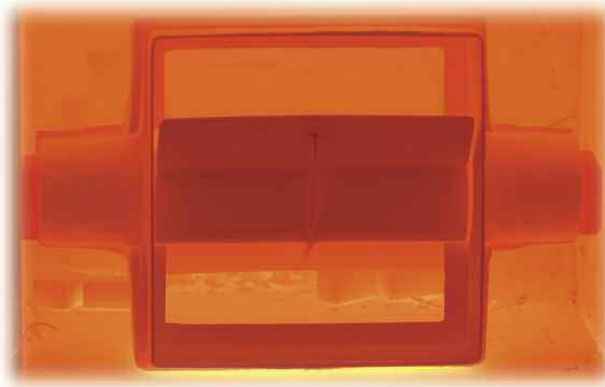




Unique feature of oxide/oxide ceramic matrix composites

- long term operation up to 1300°C
- high strength at high temperatures
- high mechanical load by the use of the textile ceramic composite
- pseudo elastic behavior
- very good thermal shock resistance
- very good oxidation resistance at high temperatures
- good corrosion resistance at high temperatures
- good hardness
- low thermal expansion – about 50 % of stainless steel



Oxide/Oxide Ceramic Matrix Composites for special applications in industry and research

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Riser tube with elbow, $D=48\text{ mm}$

Feed pipe, length 1800mm
Above: launder, length 1350mm

Protective tube, height 320 mm, $D=250\text{ mm}$



Flame tube for gas fired burner

Protection of heater elements, length 700 mm

Zone divider, 860 mm wide



Butterfly valve DN 450 insulated and in metal housing DN 900 integrated

Butterfly valve DN 220 with body stop and tube system

Feeder box for aluminum casting, $560 \times 560\text{ mm}^2$

Production parts for aluminum casting

Production parts for aluminum casting were made of “Keramiklech” type SvM1514N and the surface hardened type SvM1514N-Z. On customers request the components were coated with boron nitride to get a better protection against aluminum. Beside the very good damage tolerance and thermal shock tolerance the advantage is a good isolation, a good protection against aluminum and reduced maintenance expenses. The following parts are successful in operation:

- protective tubes
- launders
- risers
- feeder box and casting pans
- plump sword

Furnace components

In industrial furnaces and facilities replacements for metal structures are needed because the temperature resistance of metal is limited. Samples for “hot” components are:

- protection of heater elements
- zone divider
- hot gas pipes
- butterfly valves
- furnace doors and linings
- sliders

Burner components

Are there problems with metal burner tubes/ flame tubes due to thermal or chemical overload, ceramic parts are the solution. “Keramiklech” makes it possible to produce a 1:1 copy in ceramic. In several applications the lifetime of “Keramiklech” flame tubes is more than 5 times higher than the same metal parts.

Extreme thermal shock

In facilities for testing automotive exhaust systems extreme thermo cycles at high temperatures has to be realized. Therefore thin walled and thermal shock resistant ceramic structures with good insulating properties were needed. For this case different structures made of “Keramiklech” were operating successfully in test facilities of automotive suppliers. Examples are:

- burning chambers
- static mixer for getting homogeneous gas streams
- hot gas distributors
- slide valve for gas stream regulation
- thermal protection and thin walled insulation structures