

APPLICATIONS



METALS



CERAMICS



GLASS



SPECIAL
FURNACES



FUELS
CHEMICALS
ENERGY

top technology |
creates confidence

RATH

METALS

HEAT TREATMENT FURNACE FOR THE FORGING INDUSTRY

Heat treatment furnaces for the forging industry are exposed to temperatures up to 1,350 °C. The various steel grades and process technologies necessitate mechanical resilience and chemical resistance of the refractory. To meet these needs optimal mixes of dense and lightweight linings provide the most durable energy efficient

solution. Rath manufactures both dense and lightweight refractories meeting the extremely high demands of wear resistance and while providing energy efficient refractory linings. Thanks to our many years of experience in this field, the customer can always rely on efficiency and operational reliability of our design and installation.

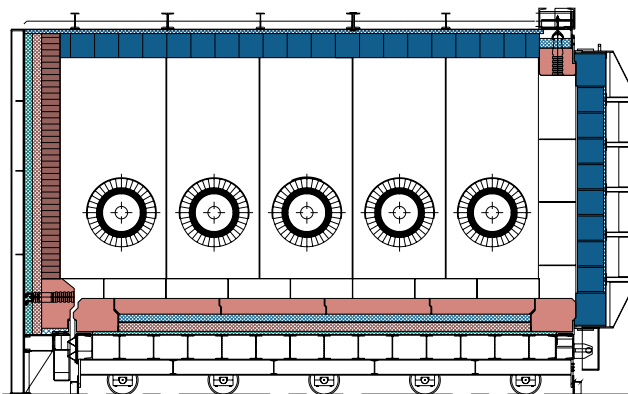
Pivotal materials

[Information «](#)

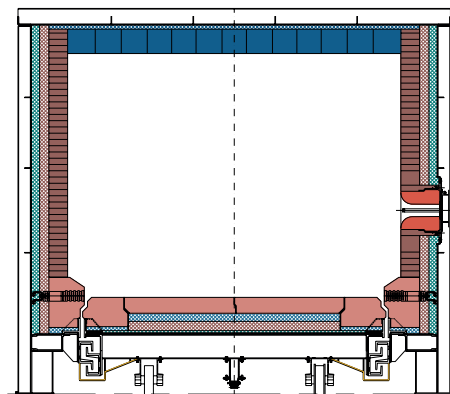
●	PORRATH FL 28	Ground insulating fire brick for use at up 1,420 °C
●	KOMBI MOD ALTRA 72/ALSITRA 1400	HTW*-module made of Altra & Alsitra
●	CARATH 1550LC, B1652LC	Concrete based on bauxite with high mechanical properties

* HIGH TEMPERATURE INSULATION WOOL

BOGIE HEARTH FURNACE



LONGITUDINAL SECTION



CROSS-SECTION

METALS/ ALUMINUM INDUSTRY

TWO-CHAMBER SMELTING FURNACE

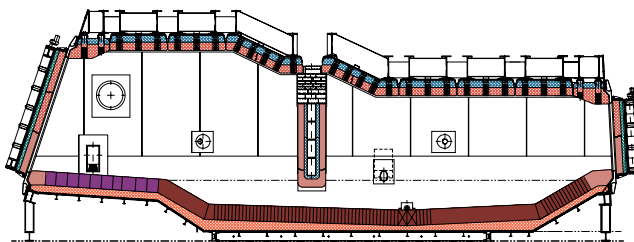
Differing feed material, the variety of alloying additives and different furnace systems make the refractory requirements of each aluminum furnace unique. The high demands in the liquid metal area are a result of the varying aluminum melt and the mechanical stresses from

skimming machines which necessitate optimal material selection. Our many years of experience, innovative solutions for any problem, precise knowledge and understanding of the customers' requirements are indispensable for ensuring a durable refractory lining.

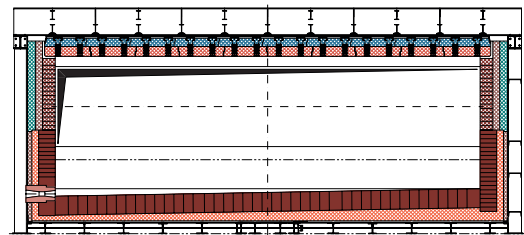
Pivotal materials

[Information «](#)

●	ALURATH B 85 AC	Dry-pressed chemically bonded bauxite brick
●	CARATH B 76 LC AL	Bauxite based concrete with protection against liquid aluminium
●	SILRATH AK 60 SIC	Andalusite brick with added silicon carbide



LONGITUDINAL SECTION



CROSS-SECTION

FUELS, CHEMICALS & ENERGY

WOOD GAS GENERATOR, INCLINED GRATE FIRING

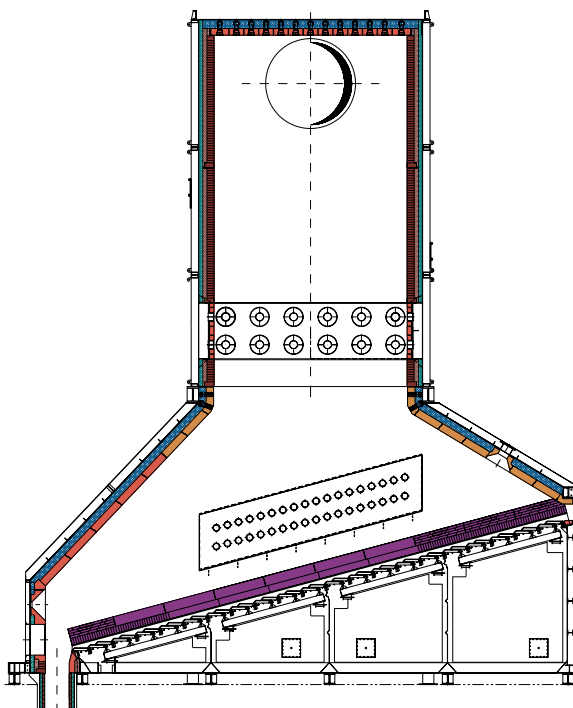
A wide variety of designs of grate firings are used for energy recovery from biomass. The various biomass fuels are prone to creating alkaline attack. To counteract we offer high quality product combinations of bricks and castables. We have also developed our special silicon carbide

materials for high-stress grate wall areas to perfectly complement our design. From systems of 2 MW up to furnaces with output ratings of 70 MW, we deliver complete designs, from engineering through production to installation on site - anywhere in the world.

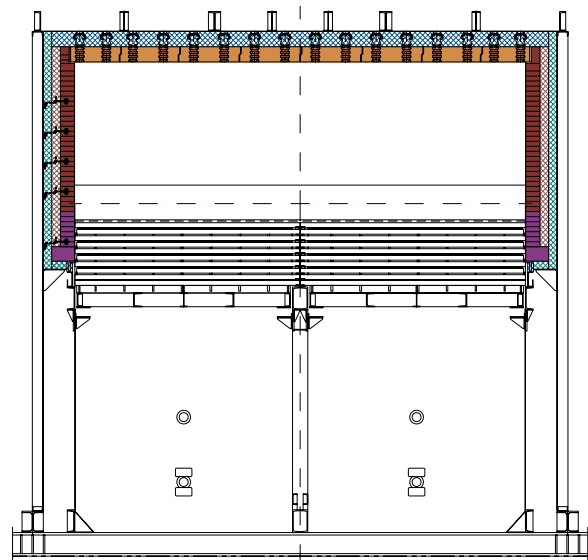
Pivotal materials

[Information «](#)

●	SILRATH GROUP	Andalusite bricks, also with added silicon carbide
●	SUPRATH A 40	High-quality fireclay brick
●	CARATH GUN, CARATH FL GUN	Gunning concretes for complex areas
●	CARATH D	High-density castables



LONGITUDINAL SECTION



CROSS-SECTION

FUELS, CHEMICALS & ENERGY

TREAD REACTOR, VERTICAL CARCASS REACTOR

Extremely high temperatures, reducing atmospheres, water quenching procedures and gas velocities in the supersonic range pose extreme demands on the refractory material. Our many years of experience in detailed engineering and the KORRATH product group with up to 99 % Al₂O₃ content form a perfect combination for the customers' most stringent requirements. The KORRATH shaped bricks are

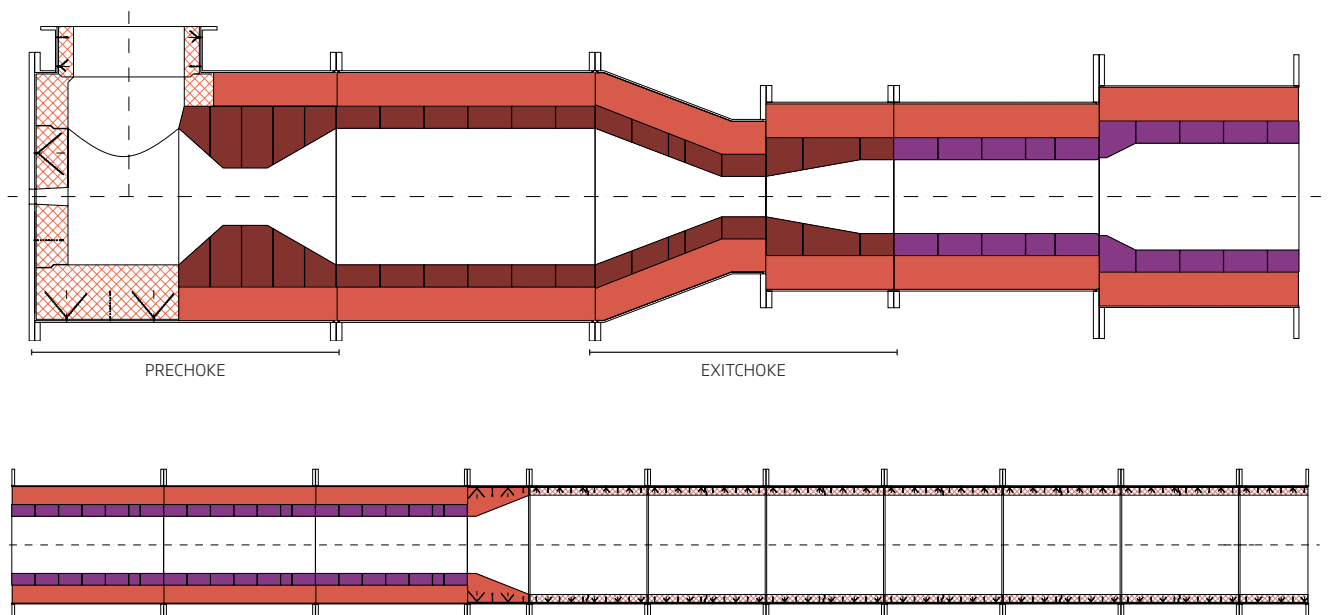
precision-manufactured, ground and pre-assembled at our facility in Krummnussbaum, Austria, per individual customer requirements. As the leading manufacturers of refractory materials in this industry and the ability to fire the KORRATH products at 1,750 °C, we have become the leading global supplier for years.

Pivotal materials

[Information](#) «

●	KORRATH K 99 E	Dry-pressed corundum brick, application temperature up to 1,930 °C
●	KORRATH K 974ZR	Corundum brick with zircon additive, application temperature up to 1,930 °C
●	CARATH 1800 D	Alkali-resistant tabular alumina concrete

TREAD REACTOR



FUELS, CHEMICALS & ENERGY





CRACKING FURNACE, REFORMER

Depending on process requirements, we choose between our light-weight insulating brick PORRATH or a high-temperature wool lining ALSITRA. We address the high gas velocities and temperatures with sophisticated refractory design and selection of appropriate materials. The precise requirements on engineering and products necessitate diligence in every area. Whether insulating fire bricks

in supreme quality grades or standardized light-weight refractory concretes for use in the petrochemical industry, we supply the complete portfolio - all from one source and from our own production. Our many years of experience result in high energy efficiency and ensure availability of the plant.

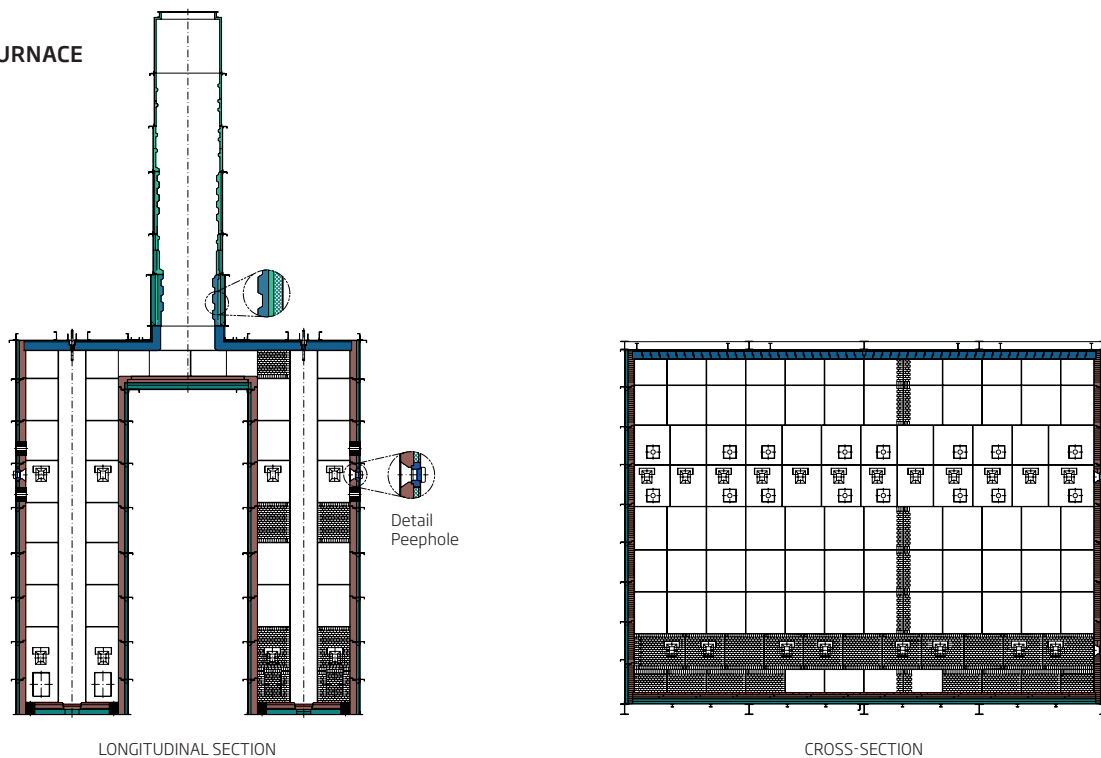
Pivotal materials

[Information «](#)

	PORRATH FL 28	Ground insulating fire brick for use at up to 1,420 °C
	ALSITRA MOD 1400 AND ALSITRA MOD 1400Z	HTiW* module made of Alsitra, if necessary with zircon additive
	KERFORM PRODUCTS	Special vacuum-formed products (Peephole)
	CARATH FL RANGE	Light-weight refractory castables

* HIGH TEMPERATURE INSULATION WOOL

CRACKING FURNACE



FUELS, CHEMICALS & ENERGY

PREHEATER WITH ROTARY KILN

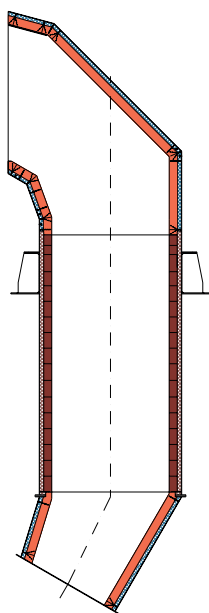
Differing temperatures in the cyclones, riser duct and tertiary ducts, as well as mechanically abrasive and chemical influences make cement production facilities with rotary kilns a complex matter, especially in the dimensioning of the refractory lining. Materials based on andalusite and materials with up to 20 % of added silicon carbide for inlet chambers in mechanically highly stressed areas as well as insu-

lating fire bricks in the back insulation are used. We manufacture all these products in our own production facilities. Thus we are able to act as a reliable partner for new projects as well as for modernization and regularly occurring maintenance cycles, ensuring the swiftest possible availability of the system.

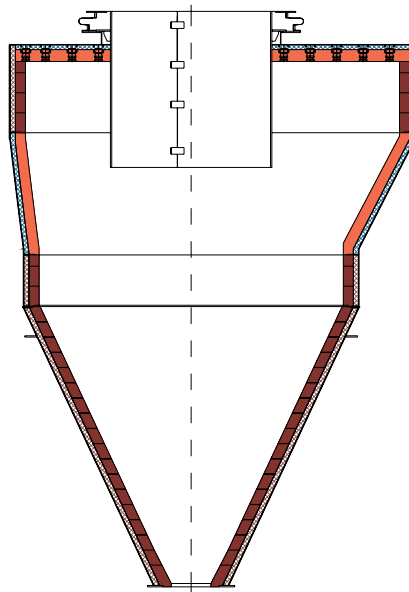
Pivotal materials

[Information «](#)

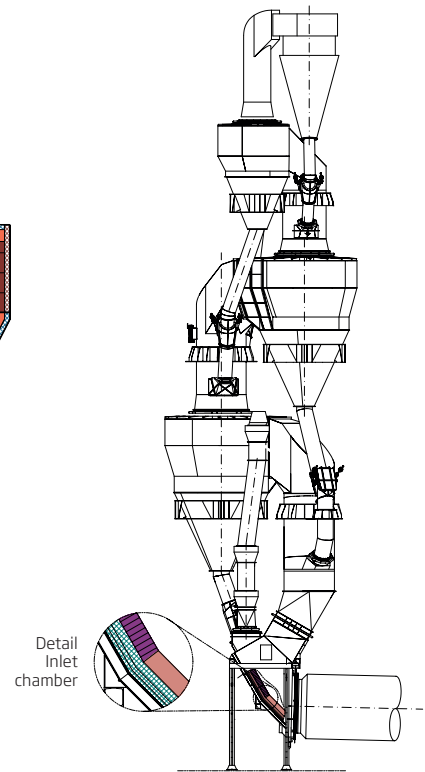
● ●	SILRATH AK 60/SILRATH AK 60 SIC	Andalusite brick with added silicon carbide
●	CARATH 1501-GUN	Dense andalusite based gunning concrete
●	CARATH LC/SIC	Abrasion-resistant, low-cement castables



RISER



CYCLONE WITH IMMERSION PIPE



FULL VIEW HEAT EXCHANGER

CERAMICS

TUNNEL KILN

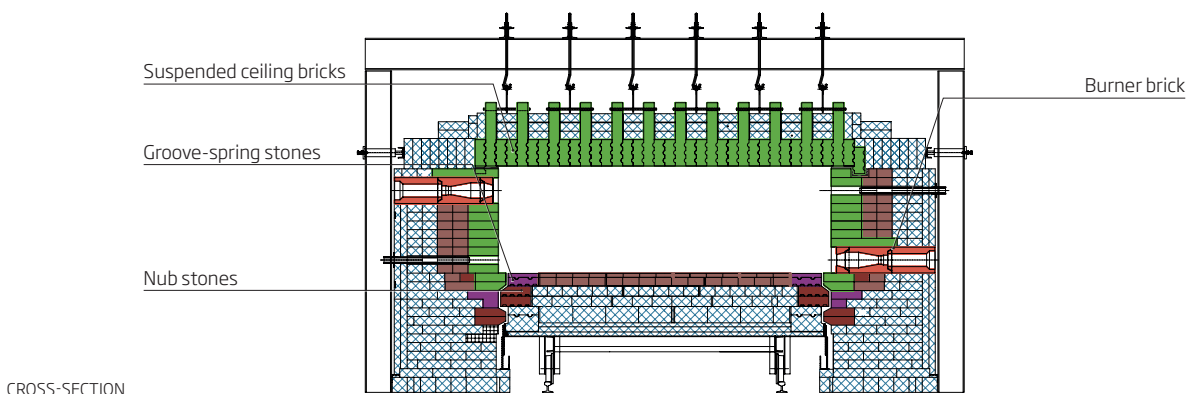
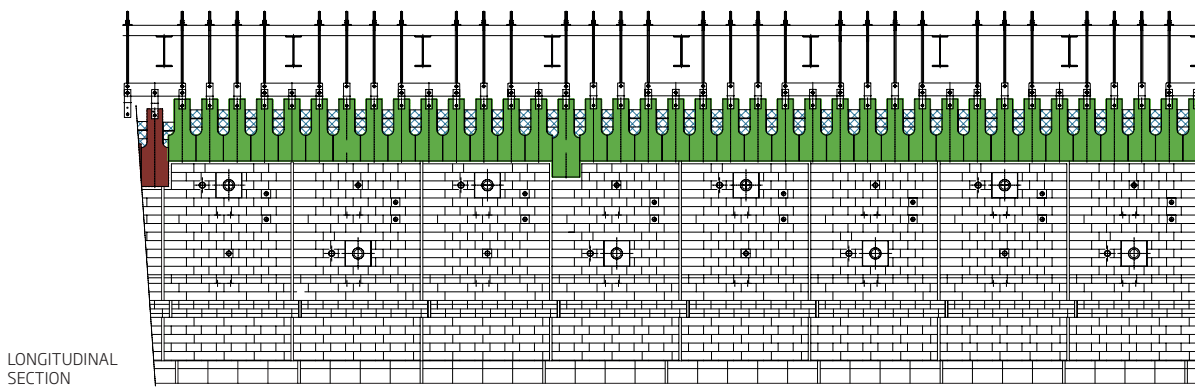
Ceramics for technical applications place extreme demands on the firing process and the firing systems. The refractory lining must meet high demands of thermal resistance and chemical attack. In high-temperature areas the chemical composition of the products isn't the only determining factor for material selection. All of the high-temperature properties of the material such as thermal shock resistance, refractoriness under load and creep in compression play an important role. Our

materials are optimized by extensive research and exceed all requirements in these properties. Whether its whiteware, tableware ceramics or technical ceramics, Rath offers a wide range of materials to meet and exceed the requirements in the construction of ceramics furnaces for any application. The wide range of products from our production enables us to always offer optimal solutions to plant engineering and operations, for periodic as well as continuous furnaces.

Pivotal materials

[Information «](#)

●	ALURATH M 702	Dry-pressed sintered mullite brick for use at up to 1,750 °C
●	SILRATH AK 70	Andalusite brick for use at up to 1,650 °C
●	SILRATH AK 60	Andalusite brick for use at up to 1,600 °C
●	PORRATH FL 32	Pressed alumina silica insulating fire brick



CERAMICS

PERIODIC FURNACE

Firing temperatures greater than 1,400 °C and cyclical operation are normal in the ceramics industry. Light-weight high-performance materials are required to handle thermal shock and high temperature. Linings based on polycrystalline alumina wool meet these require-

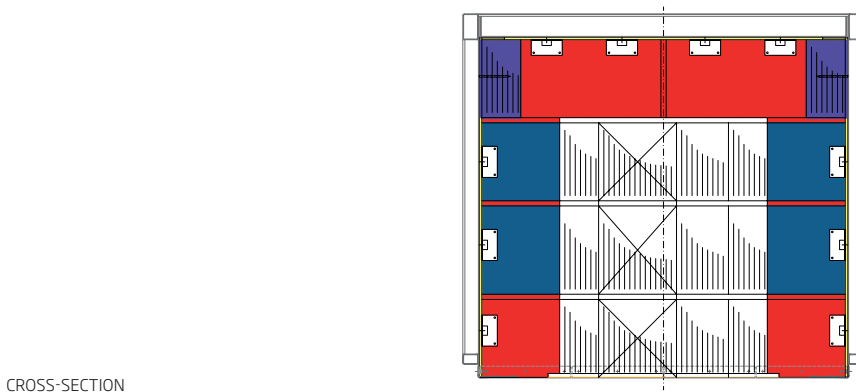
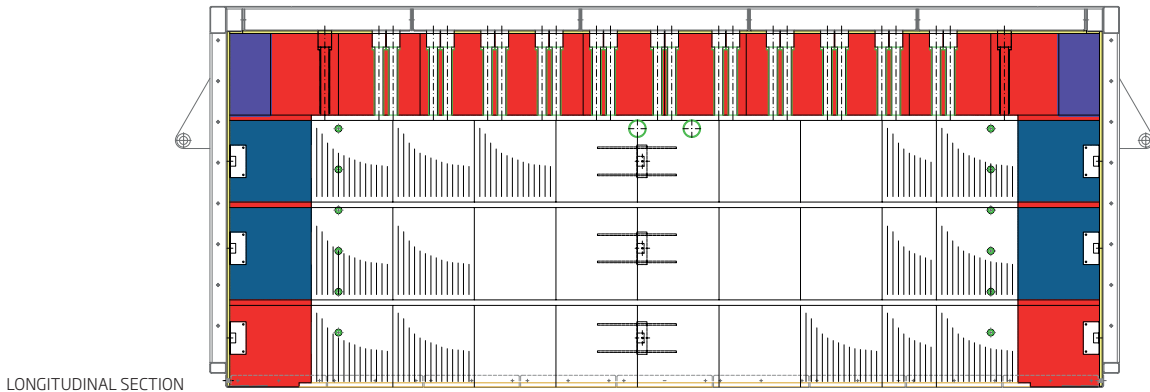
ments. Our Altra® polycrystalline alumina wool and Altra Combi-Modules® allows material usage to be adapted to the temperature gradient in the lining, saving energy and operational costs.

Pivotal materials

[Information](#) «

●	ALTRA MOD 72	HTiW*-module made of Altra
●	KOMBI MOD ALTRA 72/ALSITRA 1400	HTiW*-module made of Altra & Alsitra
●	ALSITRA MOD 1300	HTiW*-module made of Alsitra

* HIGH TEMPERATURE INSULATION WOOL



CERAMICS

PERIODIC FURNACE 1,700 °C - ALTRA COMPOSITE SYSTEM (ACS)

The ACS allows use of materials in the construction of industrial furnaces that were previously available only to laboratory furnace. This system is used in particular where HTiW-modules would be thermally overcharged. The flexibility of the system is based on the modular design expandable in all directions.

Key benefits:

› For use at up to 1,800 °C

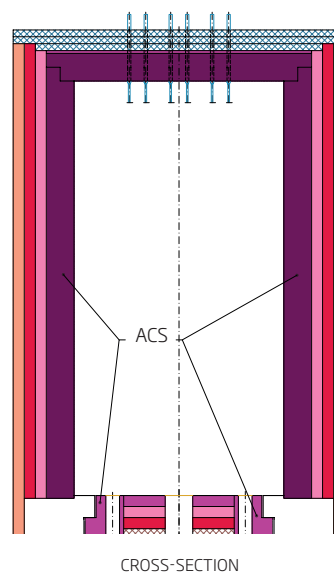
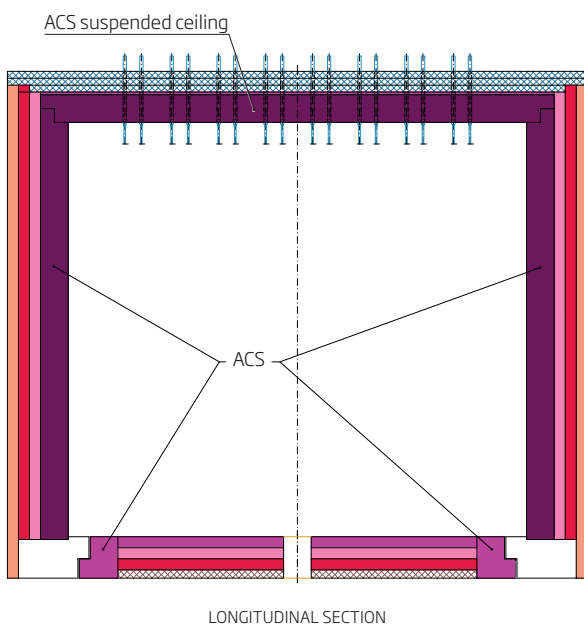
- › Modular structure
- › Good thermal insulation thanks to low thermal conductivity
- › Extremely good thermal shock resistance
- › Low bulk density and thus low heat storage capacity
- › Light-weight steel structure
- › Short furnace cycles
- › Low energy consumption

Pivotal materials

[Information «](#)

●	KERFORM KVS 124	Vacuum-formed, fired HTiW*-plate for use at up to 1,200 °C
●	KERFORM KVS 144	Vacuum-formed, fired HTiW*-plate for use at up to 1,400 °C
●	KERFORM KVS 164	Vacuum-formed, fired HTiW*-plate for use at up to 1,600 °C
●	KERFORM KVS 174/400	Vacuum-formed, fired HTiW*-plate for use at up to 1,700 °C (bulk density 400 kg/m ³)
●	KERFORM KVS 174/1000	Vacuum-formed, fired HTiW*-plate for use at up to 1,700 °C (bulk density 1,000 kg/m ³)

* HIGH TEMPERATURE INSULATION WOOL



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