Inorganic Binder Systems

Emission-free casting

Emission-free production with inorganic binder systems

The challenges of our time make responsible use of natural resources and environmentally-friendly production an increasingly urgent task. The completely inorganic nature of a binder system is visible and noticeable in practice, as there is no smoke or odour development during the casting process. Furthermore, the absence of volatile organic compounds (BTEX) makes a measurable contribution to current occupational health and safety regulations and environmental issues.

The inorganic HA binder system consists of an inorganic water-based binder, the Cordis binder, and an additive used in conjunction with it, the Anorgit additive.

Under the influence of temperature in heated core boxes, a chemical-physical process forms a three-dimensional network that gives the sand core its strength. The curing process takes place exclusively through the heated mould and is supported by hot air blow. This significantly reduces the cycle time.

The water present in the cores is transferred to the gas phase and expelled by the heat input.

Combine selectively and benefit.

The inorganic Cordis and Anorgit binder system meets the requirements of our customers with innovative and solution-oriented products.

The various Cordis and Anorgit products can be combined selectively to generate the greatest possible customer benefit.

Your advantages

Environmental protection and sustainability

→ no smoke, no BTEX
→ no odour
→ no CO_2 emissions from decomposing organics
→ efficient resource utilization
→ regenerability

Cost benefits

→ no investment and operating costs for air purification
→ no condensate formation: Reduced cleaning effort and consumption of foundry auxiliary materials
→ extended tool service life reduces costs
→ regenerability

Productivity

→ high-quality castings
→ realisation of complex core geometries
→ no condensate deposits on the mould: increased tool life

Improved working conditions

→ no odour nuisance during the production of inorganically bound cores and during casting
→ reduced noise pollution, since no exhaust systems are required at the core shooter and casting table

Our products

Cordis binder

Our inorganic Cordis binders are based on a modified silicate solution and can be adjusted specifically according to the requirements.

Parting agents, adhesives and coatings

The use of specifically adapted parting agents enhances product quality and productivity in inorganic core production. These products are characterised by long service lives and extended application cycles.

A wide range of cold- and hot-curing adhesives with different properties is available for bonding individual inorganically-bound cores.

Anorgit additives

Our Anorgit powder additives, based on inorganic silicon compounds, are used in conjunction with Cordis binders that are specifically formulated for the additive.

Completing the package is a selection of core coatings, based on water or alcohol, specifically designed for the inorganic core binder to provide insulation against thermal stress from the molten metal.

Application expertise

References

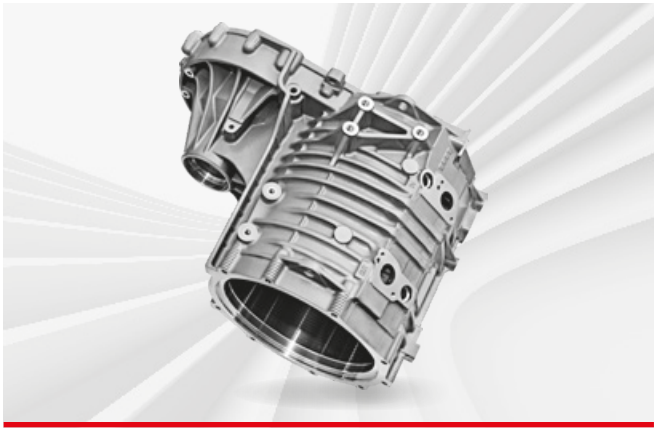
The use of inorganically produced cores has become widely established and proven in many renowned, globally positioned aluminium foundries.

The use of inorganic binders is not limited to various castings for internal combustion engines, but is also used in alternative drive concepts such as electric or hybrid vehicles. Both shot cores and 3D-printed cores are used here.

New application fields

The feasibility of a technology transition in the field of iron casting has been significantly advanced in recent years through close cooperation between HA and Brembo, leading to serial production readiness.

To successfully execute projects of this kind, a holistic concept consisting of defined plant technology, process control, process parameters, as well as binder materials and coatings specifically adapted to the application case is required.



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