

Hardheim, May 2020

German chamotte specialist invests in preparation technology from EIRICH

Chamotte products are made from refractory clay and chamotte, which consists of calcined clay. They are among the oldest refractory materials, with application limits extending to above 1400°C depending on the Al₂O₃ content. Today, main application areas include furnace construction, furnaces for the iron and steel industry and the non-ferrous metal industry, coke ovens and the cement industry. Wolfshoeher Tonwerke from Neunkirchen am Sand in Germany is a specialist in chamotte materials for small-scale furnace construction, ceramic inner pipes for chimneys, shaped bricks for heating elements and heavy chamotte for heat accumulator applications. For its planned expansion of processing capacity for refractory mixes and mortars, the company has decided to opt for plant engineering solutions from Eirich.

Wolfshoeher Tonwerke – a family-owned company now in its sixth generation – is one of the oldest manufacturers of refractory products in Germany. The company's beginnings date back to the foundation of a chamotte production factory in 1856. "Chamotte" is the original name for refractory materials, which are still used today in furnace and kiln construction and for chimney pipes. A large number of brick shapes and sizes is needed for the construction of e.g. tiled stoves, baking ovens and pizza ovens. Chimney pipes come with a range of wall thicknesses and diameters. Usually, these products are manufactured via extrusion. To do this, different grain sizes of chamotte are mixed with plastic clay. Intensive kneading then produces a homogeneous mixture. High demands are placed on the quality and uniformness of the mix to ensure that the manufactured products are of a high quality and dimensionally accurate. This is why the company has been using an Eirich mixer of size R23 (usable capacity of 2250 l) since 1993 for the preparation of chamotte brick compounds.

Eirich mixers are the global standard for the preparation of refractory materials. Mixers for the refractory industry need to perform not only well in terms of the mixing process

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itself, but must also be able to deal with hard raw materials (often including materials like corundum or silicon carbide). The mixers have a rotating mixing pan, which transports the material being mixed to the mixing tools. Transportation of the mix is thus kept separate from the actual mixing process. This means that – where necessary – the mixing tools can run at a high speed without causing excessive friction and wear on the mixing pan. On mixers with an inclined mixing pan, only a single moving mixing tool is required for mixer sizes up to 3,000 liters. These mixers enable optimized processing of all types of compounds. Independent studies show that the mixing quality of these mixers is superior to that of any other mixing system.



Fig 1: EIRICH Intensive Mixer Type RV12 with a capacity of 400 liters

In addition to refractory bricks, kiln and furnace construction also requires refractory mixes and mortar. The mortar types used to set chamotte bricks usually have a grain size of less than 1 mm, and the refractory mixes are coarser, e.g. with a maximum aggregate size of 6 mm. From these refractory mixes – usually so-called castables, which is poured into molds and hydraulically cured – complicated brick geometries can be manufactured very easily. As well as aluminous cement, refractory concrete contains a large number (often more than 15) of different raw materials with various grain sizes, including additives designed to optimize processability with only small amounts of water for mixing, in quantities down to 50 ppm.

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Wolfshoeher Tonwerke have the very highest standards for the quality of their products. This is why the company has taken the decision to also use mixing technology from Eirich for the preparation of mortars and refractory mixes. For the new production line, which is due to go live in the last quarter of 2020, Eirich will be supplying a mixer of size RV12 (usable capacity of 400 liters), as well as scales, dosing systems and the plant control. The decision to opt for the best available manufacturing technology means great flexibility and high plant availability. The experience and know-how of Wolfshoeher Tonwerke has already contributed for decades to the formulas used for the company's own mortars and refractory mixes. With the newly gained capacity, they will now be able to develop new mixtures to meet highly specific requirements across different industries. The state-of-the-art production line will enable optimized filling of ceramic products, which will also qualify the company as a contract manufacturer and set up Wolfshoeher Tonwerke perfectly for the future.

Further information:

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The EIRICH Group is a supplier of industrial mixing, granulating/pelletizing, drying and fine grinding machinery, systems and services. The Group has its main strategic base at the corporate headquarters in Hardheim, Germany. EIRICH has core expertise in processes and techniques used for the preparation of free-flowing materials, slurry and sludge. The main fields of application for such technologies include e.g. ceramic and refractory materials, foundries, building materials such as concrete and plaster, battery pastes, fertilizers, glass and the processing of ores. Close co-operation between our own test centers around the world and collaboration with the research and academic community enables the "hidden champion" to provide solutions for innovative, cost-efficient products and processes. The family-managed company was founded in 1863 and operates from twelve locations on five continents.