Press Release

Hardheim, November 2019

When it comes to facing concrete, EIRICH delivers on other mixer manufacturers' promises

Just like in all other areas of technology, fundamental changes and innovations have also made their way into the world of mixing technology over the last 150 years. The operating principle of the single and twin-shaft mixer (19th century) was followed by ring trough mixers (around 1900), planetary mixers (EIRICH 1906), mixers with a rotating pan (EIRICH 1924), mixers with an additional rotor (EIRICH 1960), and mixers featuring just a single moving mixing tool, the rotor (EIRICH 1972). For a number of years, manufacturers of ring trough mixers and planetary mixers have been offering mixers with additional rotors. Concrete manufacturers regularly approach EIRICH with requests to replace this type of mixer with an EIRICH mixer.

Mixers for concrete are offered by many manufacturers, almost all of them did not start manufacturing mixers until after 1950. This is because this is when the patents for the mixing systems 'single and twin-shaft mixer', 'ring trough mixer' and 'planetary mixer' expired (as did the patents for mixers with funnel-shaped mixing pans, which were built around 1908). For simple types of concrete, mixers with simple mixing systems were sufficient.

In recent decades, however, expectations and demands in the industry have changed. High-performance concrete and increasing requirements in terms of the surface quality of concrete products have placed increasing demands on the mixing technology. Due to the nature of the system used, on all simple mixers the mixing quality is limited by low tool speeds. The mixing tool is responsible not only for the actual mixing tasks, but also for transporting the material in the container. This requires tools that run close to the bottom and to the walls. The speed of these tools is limited in order to keep friction and wear within limits.

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By contrast, on an EIRICH mixer the mixing and transport of the material are kept separate from each other. The transport is performed via a rotating mixing pan, while mixing is performed by a tool that has been adapted to the particular mixing task and is referred to as the rotor. This separation of tasks offers degrees of freedom that are unique and distinctive characteristics of the design.

Fig. 1: EIRICH Intensive Mixer Type RV12 for the preparation of concrete

The rotor now needs practically no contact to the bottom or walls, which means that it can run as fast as is needed. Not only does this help to deliver perfect mix qualities, but it also keeps the mixing times short. Another benefit: Compared to other mixing systems, the mixing pan experiences significantly less wear. While simple concrete mixers often feature ceramic linings, EIRICH mixers do not require any such ceramic protection against wear. For the customer, this means significant cost savings and reduced downtime and repairs.

Scientific investigations carried out around 1980 on simple mixers showed that tool speeds (which were referred to as the processing speed at the time) of around 1.5 m/s delivered the best mixing results. Increasing this figure to just 2 m/s leads to clear separation and demixing as a result of centrifugal forces. The EIRICH mixing system does not display these limitations. Thanks to the rotating container, which is known as the disk, the material being mixed is completely turned over within just a single revolution. The mixer subsequently mixes with no demixing at all, even at higher tool speeds.

Today, many manufacturers of concrete products rely on producing the highest quality with flawless surfaces, and certainly when it comes to facing concrete they have opted

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for the best mixing technology that is available – technology that, thanks to its inherent design, is able to optimally disagglomerate and mix in all types of pigments and fibers.

Because the rotor in the EIRICH mixer allows the best possible mixing effects, in recent years manufacturers of ring trough/ring pan mixers and planetary mixers have started to retrofit their mixers with “rotors”. The effect is completely different – these are closer to stirrers, and improvements to the quality of the mix are modest at best. As a result, in recent years several nearly-new ring trough mixers, planetary mixers and conical mixers used for facing concrete have been replaced with EIRICH mixers.

Today, EIRICH mixers are often found in plants built by other suppliers of mixers. The goal is to provide manufacturers of concrete products with the best and most cost-effective solution for their needs. This is why EIRICH's list of customers also includes a number of companies who build mixers themselves.

For manufacturers of concrete products who want to reduce the amount of rejected product due to the mixer, investment in improved mixing technology will quickly pay off and is easy to justify. EIRICH can also offer a range of attractive plant concepts for expansions and new plants.

Further information:
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The EIRICH Group, with Maschinenfabrik Gustav Eirich as its strategic center in Hardheim, is a supplier of industrial mixing, granulating/pelletizing, drying and fine grinding machinery, systems and services. 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.