

Hardheim, November 2019

First 5000-liter EIRICH mixer for the precast parts industry in the Singapore region

The market for precast concrete parts is booming in Southeast Asia, with acceptance also high in the private housing construction sector. Quality demands are such that state-of-the-art technology is required for production. Poh Cheong from Singapore has modernized its factory in Malaysia – with mixing technology from EIRICH.

As a family-owned manufacturer of high-quality precast parts, Poh Cheong has been offering comprehensive solutions for housing and infrastructure projects for over 40 years in Singapore. The company constantly deploys new production technologies in order to boost the efficiency of its manufacturing processes. The aim is to maintain its market presence in Singapore while expanding its presence in Malaysia, Myanmar and other countries in the region at the same time. The company's philosophy is to achieve profitable growth by meeting the highest standards in terms of service, quality, safety and cost savings.

In Iskandar in Malaysia, Poh Cheong embarked on a project in 2017 with MCT Italy to modernize its precast parts production facility, which was originally taken into operation in 2013 and is now one of the most advanced plants in the region. The quality-defining heart of the plant is the concrete processing system. Here, Poh Cheong has opted for the best mixing technology available and told MCT Italy which supplier to use. The plant concept includes an EIRICH mixer of type R 28/51, which has a capacity of 5000 liters / 8000 kg. Every three minutes around 3.3 m³ of fresh concrete is ready and available. In an 8-hour shift, up to 640 m³ of precast parts can be produced. Prior to the modernization, the capacity was approx. 300 m³.

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Fig. 1: EIRICH Mixer Type R28

Concrete for the production of precast parts requires good mixing technology. A number of university research publications have attributed top mixing performance to EIRICH mixers, including for self-compacting concrete and high-performance concrete. Because of how the system works, pigments and fibers of all types are perfectly disintegrated, separated and mixed. EIRICH mixing technology is quite different to other mixing systems, where 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 in limits.

As a counterflow intensive mixer, the EIRICH mixer is a further development of the ring-trough and planetary mixers, which were invented over a hundred years ago. In it, the processes of transporting and mixing the material are separated from each other. The transport is performed via a rotating mixing pan, which is referred to as the table, 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. 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 conventional concrete mixers often feature ceramic linings, EIRICH mixers do not require any such ceramic protection against wear. For customers, this means less downtime and less time for repairs, as well as significant cost savings.

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The R 28/51 mixer installed at Poh Cheong is equipped with two rotors. A high-pressure cleaning system enables fast formula changes. The mixer control system was also supplied by EIRICH. In addition, Poh Cheong also ordered a smaller mixer of type R 05T (40 l/65 kg) for formula development. With EIRICH mixers, the fundamental design of the system makes upscaling incredibly easy; in many cases, formulas can be transferred from small mixers to large ones without any changes.



Fig. 2: EIRICH Mixer Type R05T for upscaling

The modernized production plant, which was taken into operation in 2018, has enabled Poh Cheong to further increase the size of its market in Malaysia.

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 site 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.