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New residual concrete recycling system for Mebin

The Dutch company Mebin, a subsidiary of HeidelbergCement Gruppe with over 30 concrete production facilities, has commissioned a new Bibko residual concrete recycling system for their site in Rotterdam. Since both truck mixers and concrete pumps are stationed at this site, it was necessary to develop a solution for flushing both. Mebin has a total of five Bibko systems.

The solution elected for the concrete pumps was a Bibko pump discharge conveyor. Concrete pumps can be emptied easily and without delay into the ground-level hopper. The residual material, consisting of concrete residue and wash water, goes into the downstream Bibko dosing buffer.

To address the requirement for the shortest possible flush times, a dosing buffer with a length of 5 m and a feed hopper of 6 m length were provided to accommodate the residual material. Only a short rinse time is required for each vehicle, limiting the waiting time considerably.

The material in the dosing buffer is then fed continuously into the Bibko ComTec recycling machine for the washing and recycling process. Due to the large number of vehicles at this location, a Type 30 unit was chosen, which has a recycling capacity of 30 m³/h.

In the recycling plant, any fines less than 0.2 mm (binding cement, fine sand) are washed out. These, along with the wash water, enter the sump built into the recycling machine. From this sump the grey water (water plus fine particle mixture) is pumped

into the existing agitator tank. Any material washed out which is larger than 0.2 mm is removed by the ComTec spiral conveyor.

To obtain as large a buffer volume for grey water as possible, the grey water tank already in situ is used, and is integrated into the overall concept. Bibko also supplied an above-ground steel tank measuring 4 x 4 m. This provides sufficient volume to avoid an excessive increase in density in the agitator tank, even with large quantities of rejected concrete. Built-in agitators prevent the fines contained in the grey water from sedimenting.

The grey water buffered in the agitator tank is fed into the mixing plant via an above-ground pipe and is used in the mixing process. This is where the submersible pumps mounted in the agitator tank come into use.

Conclusion

The concept described above creates a closed loop system. Components found in the residual material such as sand, gravel and grey water containing cement or sand fines, are reused as aggregate or as grey water in concrete production. This has economic benefits for the operator.

As well as promoting the economic benefits, the use of the Bibko recycling plant also has an environmental benefit, namely in conserving natural mineral resources and avoiding CO₂ emissions which would result from the degradation or the extraction of the minerals.

Therefore, operating a Bibko residual concrete recycling machine not only has business benefits, but also makes an active contribution to protecting the environment and preserving natural resources.

FURTHER INFORMATION



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The new Bibko residual concrete recycling system at the Mebin facility in Rotterdam



The Bibko residual concrete recycling system in Rotterdam can flush both truck mixers and concrete pumps