

New Modular Crushing and Screening Plant for Sinarsky Quarry

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Sandvik Construction in Russia has recently supplied the Sinarsky Quarry with a new modular crushing and screening plant. This is being used to expand the company's aggregates production, aiming to double its capacity to an impressive 1.2–1.8 million tons of accurately sized aggregates per year.

The Sinarsky Quarry is located in the Kurgan Region (Urals) of Russia, and has recently celebrated its new Sandvik crushing and screening plant becoming fully operational. The company has invested over € 2 million on the new plant, and is aiming to use it in order to double its aggregates production. This leap in production is required in order to meet the doubling of demand for aggregates to be used on local authority road construction and infrastructure development projects.

The aggregates from the Sinarsky Quarry are in high demand as they are famous for high resistance and density, which is due to the unique geological qualities of the local touchstone and liparite. However, these attributes come at a price; the rock is also very demanding on crushing and screening equipment efficiency. This meant that when the management of the quarry sought to improve production they decided to source equipment from a reliable European supplier which would be able to provide the ideal equipment solution in order to satisfy the increased demand. To this end they contacted Sandvik Construction in Russia, who was not only able to supply the equipment, but develop a crushing and screening process which maximizes production whilst ensuring accurately sized products.

Following discussions between Sandvik and quarry management it was agreed that the best solution for improving production was to supply an assortment of stationary equipment, comprising of three crushers, two screens, three feeders and one grizzly feeder. The first stage of the process sees the rock being fed to a ST1263 grizzly feeder. Here around 9% of fines (0–20 mm) are separated. The material then proceeds to a CJ411 jaw crusher for primary crushing.

Following this the secondary crushing is performed by a CH440 cone crusher with an EC chamber which produces 0–5, 20–40 and 40–70 mm fractions. After screening by a CS108, the oversize material is then recycled. The 5–20 mm, 20–40 mm and 40–70 mm fractions are then fed into a CH440 cone crusher with an F chamber for tertiary crushing.

The quarry was initially aiming to produce 5–20 mm aggregates with 10% flakiness, but the first laboratory tests showed that the flakiness index to be below 5%. Thus after tertiary crushing the material is fed into a CS126 triple deck screen which produces 0–5 and 5–20 mm final fractions. At first the share of the 5–20 mm fraction was 36%, but thanks to the flexibility of the new plant, the quarry is now able to automatically change the volume ratio of desired fractions thereby anticipating fluctuations in market demand.

In order to ensure that production requirements are being met a 6 month trial period has been scheduled. During this time the operators will be able to undertake any required enhancements and find the best parameters for more efficient crushing. However, the management of the Sinarsky quarry foresees just a few shutdowns being required, as all the constituent crushing and screening parts have been primarily selected and configured in accordance with the results of geological tests performed by Sandvik specialists. This means that the equipment is focused on providing the best possible performance under the exacting current quarrying conditions.

The Sinarsky Quarry operation is proving to be a great success. This is not the only plant that Sandvik Construction has installed. However it is the first of its kind. Cristian Rusu, Sales Manager Crushing and Screening North Europe, Region East, Sandvik Construction, explains: "Today we have more than 40 similar plants operating in Russia, but this one is the first modular plant. It incorporates the latest Sandvik technologies and design. Our vast experience in this field has made it possible to offer the most efficient solution for the Sinarsky Quarry which will help the company to produce sufficient volumes of desired fractions."

Source: Sandvik