

Nordimpianti System Srl, 66100 Chieti (CH), Italy

Advanced production line for prestressed concrete floor slabs in the Russian city of Cheboksary

The ethos of the Chuvash Republic has been to encourage better and more affordable construction and this has directly led to the installation of a new production line from Nordimpianti being installed by the OAO JBK-1 company in the city of Cheboksary. The building strategy of the Chuvash Republic is a reflection of its population of 680,000 citizens and its position at 47th in GDP across the Russian Federation.

The construction market is one of the economic engines of the Chuvash Republic and local authorities are keen to increase the volume of affordable new generation housing. OAO JBK-1 started in 1962 as a simple cotton production fac-

tory but transitioned into a dynamic company for the manufacture of various prestressed concrete elements. The Russian company has always been interested in using advanced technologies and in 2016 looked to Nordimpianti to acquire machinery and equipment for the production of prestressed hollow core concrete slabs.

Nordimpianti supplied to OAO JBK-1 a fully automated plant allowing the Russian company to produce high-quality hollow core slabs with spans up to 20 meters, able to support different types of loads and at the same time reducing the assembly time required at the construction site. In addition the machines and equipment acquired from Nordimpianti are able



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Nordimpianti proposed a number of measures to make operation easier and at the same time increasing the levels of worker safety: radio control for machine operation, laser positioning of machines, protection systems that can report production issues and even automatically stop the machine in cases of an emergency.



The Extruder in particular can be modified to change product height and product width according to a project's specification simply by changing the forming inserts enabling slab widths of 1000, 1200 and 1500 mm wide to be produced.

to produce non-standard concrete products that meet the needs of existing engineering projects. The choice of Nordimpianti as the right partner for the project was not a random one. Nordimpianti currently works in more than 40 countries around the world and in the field of civil and industrial construction and strengths such as innovation and cutting-edge technical solutions can make a difference. Nordimpianti operates on important principles such as the development of a 360-degree collaboration with the customer within a long-term perspective and an exchange of technical advice and research to achieve continuous product improvement. Specialists at Nordimpianti are appreciated at an international level and work closely with customers to optimize the machines and equipment, adapting them to the production schedule and taking into account the prevailing climatic conditions. Having the opportunity to work with products from Nordimpianti means not only having access to machines using high-end technology but also the ability to benefit from a wealth of experience and knowledge built up over years from international experience and research.

JBK-1's director Aleksander Korolev summed up the approach to the modernisation of the plant: "We soon realized that the floor slab market was going more and more towards prestressed hollow core slabs. It was obvious that we would need to follow this trend and that we would need to acquire this production line at our company. I personally visited a number of plants in operation in Russia that use Nordimpianti machines and I could see that the quality of the finished prod-

uct was far superior to others on the market. For many years Russian plants have been operating Extruder machines for the production of hollow core slabs 1.5 meters wide. The production line acquired from Nordimpianti not only delivers a high quality final product but allows for uncomplicated cleaning and maintenance operations because of the simple modular design of the machine making dismantling a quick and easy procedure. Our new production hall has 7 hollow core slab production beds, 114 meters long. The potential production of our plant is 270,000 m² per year. As well as an increase in product quality we also found further benefits: excellent concrete compaction, a reduction in the use of prestressing cables, less cement consumption per cubic meter of concrete and all whilst maintaining the shape, dimensions and excellent surface finish of the designed element. The quality of elements produced by Nordimpianti's machines is superior due to the high level of compaction, the reduced cement consumption, the savings on steel wire strands, the precision of the cast element profile and the surface quality of the panel itself. These elements are 5% lighter than elements manufactured by production methods traditionally used in Russia and 16% lighter than products made by slipformers or wet casting machines. We also appreciate the production flexibility that Nordimpianti's plant offers, which enables us to manufacture slabs beyond 220 mm to up to 500 mm high and with spans of 20 meters. Between our two companies I can proudly say that there is mutual cooperation both on a professional and personal basis, and this makes life easier at all levels "



Production flexibility from Nordimpianti's plant is a great strength and enables JBK-1 to manufacture slabs beyond the standard 220 mm to up to 500 mm high and with spans of 20 meters.

The production of hollow core slabs requires a series of steps and at each step Nordimpianti's machines and equipment are optimised for the task. Nordimpianti's product range includes all the casting technologies, Extruder, Slipformer and Wet casting. The Extruder in particular can be modified to change product height and product width according to a project's specification simply by changing the forming inserts enabling slab widths of 1000, 1200 and 1500 mm wide to be produced.

The first meeting between the two companies took place in 2015 when Andrey Borisenkov, Nordimpianti's head of engineering sales for Russia and the countries of the former Soviet Union presented to JBK-1 the case for modernization. "Our main goal is to help our customers and partners around the world to renew their systems to achieve internal automation efficiencies that can enhance the production process. The automation systems proposed by Nordimpianti allow a company to easily work with high-end technology, enabling mass production of the highest quality products and increase plant profitability year after year. In addition to the automation offered, Nordimpianti proposed a number of measures to make operation easier and at the same time increasing the levels of worker safety: radio control for machine operation, laser positioning of machines, protection systems that can report production issues and even automatically stop the machine in cases of an emergency. For Nordimpianti the implementation of process automation wherever possible within the produc-

FURTHER INFORMATION

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tion cycle has always been a crucial issue. Nordimpianti technology has automated the Extruder, the concrete transport system, element transportation and element cutting saw"

In the Russian Federation, hollow core slabs are mainly used in civil and industrial building for walls and floors. The advantages of the hollow core slab production are evident through all areas of production: reduced cement consumption, reduced use of manpower, better product quality finish as well as easier on-site assembly.

Nordimpianti machines are in operation all over Russia from the city of Ivanovo up to Yakutsk through Tyumen and Novosibirsk. The plant in Cheboksary represents yet another success story of Nordimpianti helping the Russian prestressed industry invest wisely in the modernisation of its production to meet local government objectives to offer all of its citizens the opportunity of comfortable accommodation in which to live.