

Nordimpianti System Srl, 66100 Chieti (CH), Italy

New plant in Ukraine for hollow core flooring technology

Nordimpianti has emphasized its market credentials at an international level with the supply of a complete modern production line to Oberbeton Ukraine that will play an important strategic role for the company itself and for its suppliers. Nordimpianti System is a supplier of machinery and complete plants for the production of hollow core slabs and gives its customers the opportunity to construct a complete plant, from initial ideas to production start-up, by implementing a “step by step” approach in collaboration with its team of specialized engineers. Oberbeton Ukraine turned to Nordimpianti to supply the machinery for their new plant and has relied on the advice and assistance of Nordimpianti from the very early stages of the project to the commissioning of the production line.

Displaying Italian Engineering expertise elegantly characterised by the “Made in Italy” logo, Nordimpianti supplies machinery and complete production plants for the manufacture of pre-stressed concrete elements all over the world. Nordimpianti’s headquarters are in Chieti in the centre of Italy and within easy reach of Rome. The HQ is located amongst the stunning countryside of Abruzzo from where there has always existed a hub of activity in the precast concrete industry. Nordimpianti has always been a major part of this centre of excellence.

The company is one of the most important players in this sector at an international level. Thanks to over 35 years experience Nordimpianti’s casting machines (Slip-former and Extruder Systems) are able to produce a wide range of prefabricated reinforced concrete products such as vineyard posts, T beams, lintels, U-Panels, right up to the large 1m double T panels and hollow core slabs used for the most demanding construction applications.

Nordimpianti started its activity in 1974 but it was in the 1980’s, thanks to an enthusiastic, enterprising and ambitious team, that the company began to look for new challenges and to create a network of local commercial partners in order to export the technology throughout Europe and all over the world.

Today the company is as vibrant as ever and is active in many different countries, throughout Europe, as well as in Russia, India, Ukraine, Saudi Arabia, Iran, Libya, UAE and the emerging markets such as Burkina Faso and Ghana. This geographical coverage has led Nordimpianti to constantly invest and increase its business.

The company Oberbeton Ukraine was established in 2007 with the aim to provide the Ukrainian construction market with high quality precast reinforced products. Manufacturing takes place at two plants located within the regions where the construction sector is very active. Currently the company owns two plants – in Zhytomir (a “green field” project) and in Novomo-

skovsk, near Dnepropetrovsk in the South-East of the country. Zhytomir was chosen due to its favorable location only 120 km from the capital of the country – Kiev – on a strategically important highway Kiev-Chop, which is the main highway that connects Kiev with Western Ukraine and Europe.

Some examples of the production range of Oberbeton Ukraine for industrial and residential building projects are hollow core floor slabs, beams, columns, bridge beams, filigree slabs and road infrastructure elements.

The Market for hollow core slabs in Ukraine has been mainly of slabs with lengths of up to 9 m and 220-320 mm high. Due to the production method, using formers with non-changeable dimensions, it was only possible to produce slabs in a very small variety of lengths thus the Customer had very little choice and architectural design was severely limited by the range of products on offer.



Nordimpianti has emphasized its market credentials at an international level with the supply of a complete modern plant for Oberbeton Ukraine



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In 2007 the demand for quality and production improvements led Oberbeton Ukraine to search for new international partners that could rise to the challenge of offering specific solutions on new projects using the most advanced available technologies.

Nordimpianti and Oberbeton Ukraine first met in at the 2007 Bauma International Exhibition where Nordimpianti was showcasing its products and systems. Immediately after the exhibition Oberbeton's specialists organised a visit to Nordimpianti in Italy.

The trip impressed the Ukrainian Technicians. They were able to see at first hand the manufacturing site of Nordimpianti and also to see how the machines performed by visiting some of Nordimpianti's Italian Customers. Thanks in part to the technology on offer from Nordimpianti, Oberbeton Ukraine decided to install a new plant in Zhytomyr to satisfy the growing demand of hollow core slabs in Ukraine. The contract was signed in February 2008.



Manufacturing takes place at two plants located within the regions where the construction sector is very active. The first is located near the capital of the country – Zhitomir, the second – at Novomoskovsk, Dnepropetrovsk in the South-East, in what is one of the country's most industrially developed regions

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The plant is comprised of 5 Halls, length 150 meters with a batching plant supplied by the Italian company Simem



A fully automated rail system equipped with three 2 m³ fly buckets and a 24 mt. wide bridge crane to facilitate concrete distribution. In total, the distribution system covers more than 800 linear meters of production area

With Nordimpianti's technology it is now possible to offer unique products to the Ukrainian construction market – hollow core floor slabs 400 mm high and with a maximum length up to 18 m as well as slabs

being 220 and 320 mm high. All these slabs are produced by the extrusion method which has not been widely used in Ukraine before.

Also because of the cutting saw technology provided by Nordimpianti, it is now possible to cut slabs to any length required which allows architects more flexibility with the interior design of the premises without the use of load bearing columns.

This means that Oberbeton Ukraine can supply precast and prestressed concrete products that offer a high quality surface finish, cost saving benefits, time saving on construction projects, and the ability of the customer to order tailor made elements to meet his specific requirements, great advantages to have in today's extremely competitive environment.

Oberbeton's attention was drawn to the build quality of Nordimpianti's Extruder which, through intelligent design and construction allows Oberbeton to reduce production costs. The Extruder for example has a permanent oil bath in the Gear box which means that the gears, chains, and bearings are constantly being lubricated thus minimising maintenance.

The advantage of constructing a "green field construction" meant that the plant could be totally optimised for efficient production. The engineers from Nordimpianti could implement ideas that would not only lead to the best use of their machines, ideas

such as positioning and production logistics but also meet the latest health and safety regulations.

The production line is comprised of 5 beds, 150 meters long each with a batching plant supplied by the Italian company Simem.

The vertical batching and mixing tower plant is a Simem BetonTower T88 with an aggregate loading system from the ground through an underground aggregate receiving hopper with 25 m³ of storage and a belt conveyer 94 meters long and inclined at 20 °.

The plant is equipped with two SUN 3000 planetary mixers with a compacted concrete output capacity of 2 m³ incorporating a microwave probe to control the concrete humidity. The total plant capacity is approximately 120 m³ / hour.

The plant is sized to store up to 430 m³ of aggregates divided into eight proportional compartments, 720 tons of cement in two silos and 16,800 litres of additives in 4 tanks.

The dosing systems include: a double aggregate weighing hopper each of 5000 litres. A double cement concrete weighing hopper each of 1500 litres, a double water weighing hopper each of 600 litres and a Würschum model Weighing Hopper having 30 litre hoppers equipped with pneumatic driven butterfly discharge valves and pneumatic driven water feeding valves for fast and slow dosing cycles.



The Vertical batching and mixing tower plant is a Simem BetonTower T88 with an aggregate loading system from the ground through an underground aggregate receiving hopper with 25 m³ of storage and a belt conveyer 94 meters long and inclined at 20 °.

The plant is also equipped with a warm concrete production system by means of aggregate heating with hot air injection into the storage compartments and a water boiler for hot water production to be used in the concrete production mixer, a Simem BetonWash 25 concrete recycling system, mixer cleaners and fly bucket washing systems, closed circuit cameras to monitor the entire production process and aggregate humidity control systems.

The entire plant is galvanized and covered with 80 mm insulating panels to allow the plant to operate in extreme cold conditions. A fully automated rail system equipped with three 2 m³ fly buckets and a 24 mt. wide bridge crane to facilitate concrete distribution. In total, the distribution system covers more than 800 linear meters of production area.

Nordimpianti supplied the Extruder for the production of 6 hole, hollow core slabs 220 mm high with the possibility that Oberbeton Ukraine can change the forming insert quickly and easily to produce



Nordimpianti supplied the Extruder for the production of 6 Hole, hollow core slabs 220 mm high with the possibility to change the forming insert quickly and easily to produce 4 Hole, hollow core slabs 320- 500 mm high



Nordimpianti produced and supplied all the ancillary equipment such as the Angular Saw to cut panels, a Multifunction machine that can simultaneously clean, oil and lay the stressing wires on the steel production beds, the tensioning and detensioning systems mounted at the end of the production beds

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This Transport system consists of a powered drive wheel situated in the storage yard and an idle wheel in the factory. This drives a ring of cable like a horizontal pulley and by attaching the wagons to the cable allows the wagons to be transported from the production area to the storage area and vice-versa



Oberbeton plant also has an area completely dedicated to formwork production. This system was supplied by the Italian company Bianchi Casseforme, one of the leading suppliers to this sector.

4 hole, hollow core slabs 320- 500 mm high.

In total, a part of Extruder machine, Nordimpianti produced and supplied all the ancillary equipment such as the Angular saw to cut panels, a Multifunction machine that can simultaneously clean, oil and lay the stressing wires on the steel production beds, the tensioning and detensioning systems mounted at the end of the production beds, lifting beams to load the elements onto the transport wagons and a transport system to enable the finished concrete elements to be taken and stored in the on-site warehouse.

This transport system consists of a powered drive wheel situated in the storage yard and an idle wheel in the factory. This drives

a ring of cable like a horizontal pulley and by attaching the wagons to the cable allows the wagons to be transported from the production area to the storage area and vice-versa.

Oberbeton Ukraine plant also has an area completely dedicated to formwork production. This system was supplied by the Italian company Bianchi Casseforme, one of the leading suppliers to this sector.

Bianchi supplied 10 universal production beds each capable of stressing up to 800 T and including all the lifting equipment with a complete set of concrete hoppers for the distribution system.

Bianchi's moulds use advanced technology. They are controlled by hydraulic and elec-

trical systems which allow its customers to produce a wide range of products simply by changing the side formers.

Using Bianchi's Moulds Oberbeton Ukraine can produce elements such as T beams, L beams, I beams, SI beams, beams for bridges, foundation sockets and columns. The mould's length can be up to 50m.

The part of the plant dedicated to the production of hollow core slabs has the potential to expand to 10 production beds, each 150 m long, able to stress up to 300 T on each bed. The choice of potential production beds means that Oberbeton has the opportunity of future diversification to add



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Apart from the production of standard hollow core slabs, the Ukrainian company can produce large size hollow core slabs 400 mm high intended for commercial construction and car parks

other concrete elements to its production range such as special high elements.

Thanks to this new plant production Oberbeton Ukraine can produce hollow core slabs not only for residential construction but also for commercial and large scale industrial projects. Apart from the production of standard hollow core slabs, the Ukrainian company can produce large size hollow core slabs 400 mm high intended for commercial construction and car parks.

Nordimpianti worked in close collaboration with the local representative making sure that there was good two way communication with Oberbeton's personnel. This relationship continued after the plant was put into operation. The design and engineering that Nordimpianti offers is second to none but without doubt one of its strongest points is its attention to service and after sales support which is at hand to help its customers.

The Italian company now holds a ideal position within this new market after the implementation of this first Ukrainian plant. Nordimpianti will now have the chance to work with other Ukrainian companies, ready to help modernize the country through construction sector projects.

FURTHER INFORMATION



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