

Nordimpianti System SRL, 66100 Chieti, Italy

# Completely customised new extruder for Sweden

**Strängbetong is a Swedish precast company and a part of the international industrial group Consolis. In Sweden Strängbetong is a market leader in the precast field with approximately 950 employees located in 12 sites across the country. The strength of the company lies in its ability to construct all types of buildings, from houses, offices, multi-storey car parks, to industry halls and public buildings. The precast concrete elements are produced in modern industrialized factories and then transported and assembled on the building site.**

Being part of a major group as Consolis brings a great added value for Strängbetong. With operations in 17 countries around the world and a workforce of 10,000 employees, Consolis generates an annual turnover of over € 1 billion in precast construction and public services.

In 2019, Strängbetong felt the need to improve production of prestressed hollow core slabs at its Veddige plant. Established in 1958, the Veddige plant has always played a fundamental role for Strängbetong both due to its large size and production capacity, and for its advantageous geographical position.

The production of precast elements is divided into various highly industrialized departments utilising the best production technologies. The site produces beams, columns, walls, bridge beams, TT and massive slabs however the manufac-

ture of prestressed hollow core floor has always been the flagship of their production.

The hollow core slab production plant consists of 5 production beds, 200m in length, giving an annual production capacity of over 315.000 square meters. The hollow core slabs produced by the company range from 200 mm to 500 mm high for industrial and commercial applications.

After previous investments to improve production of other precast elements the company now decided to update the 380 mm hollow core casting machine, a strategic element height for Strängbetong that allows it to supply floors for important applications such as shopping centers and multi-story car parks.

The new casting machine had to adapt to the infrastructure present in the plant, in particular to the existing concrete gantry that was used to bring concrete to the Extruder machine. The concrete distribution system was at a height above the production bed level compatible with the casting machines of that time. Nowadays modern Extrusion production machines have greatly increased their performance but have also become larger and, in particular, taller.

Strängbetong wanted to take advantage of the increased performance of the modern extruders but the height constraint problem of their existing plant infrastructure meant that all machines available on the market would not be able to function at their production plant.

The Italian company Nordimpianti was able and willing to redesign its latest EVO2 Extruder so that it could work with Strängbetong's existing concrete distributor.

This was quite a re-design. The height of a standard EVO 2 Extruder is 2.3 m. The Extruder now had to be re-configured with a height profile of less than 2 m.

Not an easy task to fulfil as the project meant that the Extruder would have to be completely redesigned from the ground up.

Nordimpianti was able to implement the appropriate modifications to the upper structure whilst maintaining all the tech-



*Aerial view of the Strängbetong production site in Veddige*



Nordimpianti EVO2 XXS extruder during the casting of 380 mm high hollow core slab

nical characteristics and performance of the original machine. Thus, Nordimpianti succeeded in its objective and supplied the Extruder EVO2 machine according to the customer's expectations.



Extruder EVO 2 XXS vs standard Extruder EVO2

The new machine, designated EVO2 XXS, was delivered and tested at the Veddige plant.

**nordimpianti**



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WET CASTING



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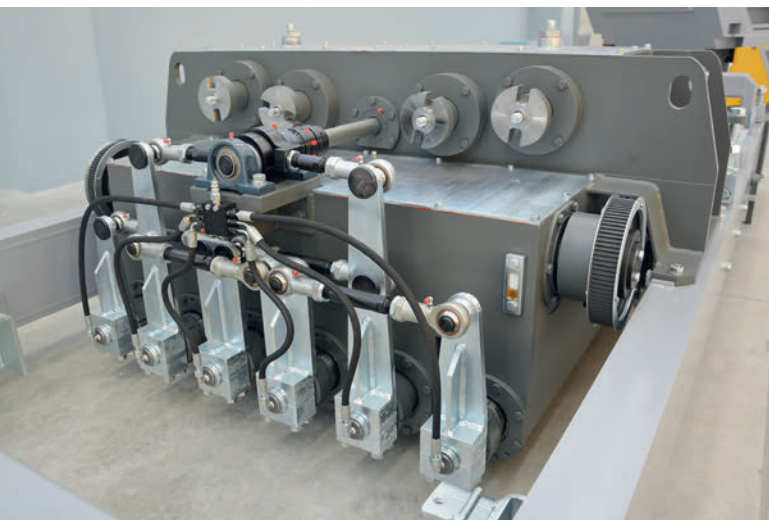
NORDIMPIANTI's casting machines can produce a wide range of prestressed concrete products such as hollow core slabs for flooring and walls, inverted T and I-beams, vineyard posts and lintels, prestressed slabs, U slabs, inverted double T slabs etc.

Prestressed products made by NORDIMPIANTI's Extruder, Slipformer, Wet Casting, and Extruder Nano machines offer many advantages that make them a success all over the world.

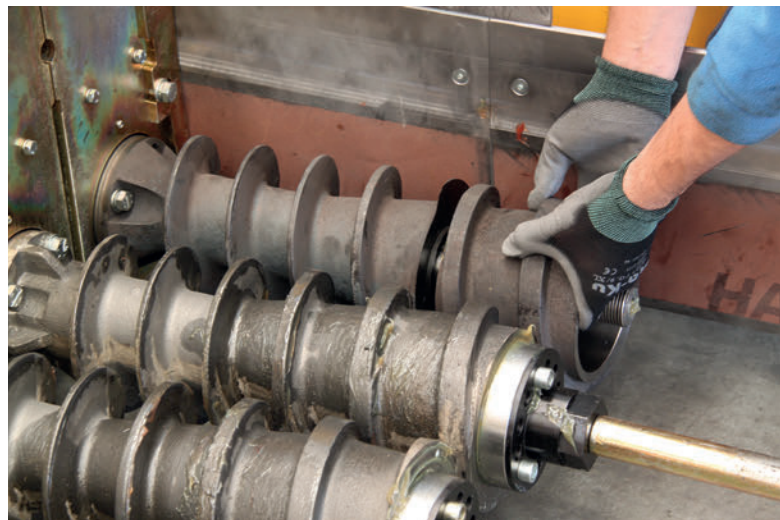
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*All the gears of the transmission working in an Oil bath on the Nordimpianti EVO2 Extruder machine*



*2-part feeding screws offered by Nordimpianti*

This decision to purchase a state-of-the-art casting machine was a key strategic decision for Strängbetong. Strängbetong had many years of experience using extruder machines. This previous experience led them to conclude that they needed to reduce production costs using a reliable machine that required less maintenance.

The decision to purchase the Nordimpianti Extruder was made after detailed comparative analysis between their existing system and the advantages that the Nordimpianti machine had to offer.

After a visit by Consolis Industrial Director Patrik Lindh and Technical Director Jon Morten Lund to Nordimpianti's factory in central Italy Consolis were impressed by the engineering design of the machines, especially noting the use of direct drive instead of drive chains and that all the gears required for the rotation and oscillation of the Archimedean screws and forming tubes worked in a permanent oil bath gear box.

This was a different and a much more reliable design than that fitted to their other machines which had gears and chains that operated in the open and were subjected to harsh operating conditions.

Another very important aspect for Consolis/Strängbetong was the innovative solution offered by Nordimpianti regarding the Archimedean screws.

These feeding screws are the main wear component in extrusion machines and have the task of pushing the concrete into the compaction chamber where the element is formed. The feeding screws used in the old production machines were of the traditional type, that is made up of a single piece. However Nordimpianti can supply feeding screws which are divided into two parts. This offers some great advantages.

The part most subject to wear is the final part of the screw where the greatest pressure generated by the extrusion of the concrete is concentrated.

The two part design of the screws from Nordimpianti make it possible to replace only the end part of the screw and hence giving considerable savings, to both the cost of the screws and on the time needed to replace them.

At Strängbetong's request the EVO2 XXS Extruder was commissioned and tested to produce elements with a height of 380 mm but is capable of producing hollow core slabs up to 500 mm high.



*380 mm hollow core slabs produced with the new Nordimpianti Extruder machine*

During the testing, the technicians of both companies were able to evaluate the performance of the machine in particular the casting speeds which reached over 2m per minute.

This level of production means that Strängbetong is able to complete a casting of a 200m production bed in less than an hour and a half, which will result in the company increasing its daily production capacity by 25%. This has also been an important achievement for Nordimpianti which, in recent years, has seen the Italian company being appreciated by a growing number of Scandinavian precast companies.

The quality of the products and after-sales services offered by Nordimpianti have been highly appreciated by Strängbetong. In addition to the new Extruder machine, other production machines will soon be delivered to the Veddige plant, including a fully automatic plotter for element marking. ■

#### FURTHER INFORMATION

# nordimpianti

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