Nordimpianti System Srl, 66100 Chieti, Italy

## Hollow core slabs with special workings

Hollow core slabs are well known and are one of the most used flooring systems throughout the world. This is made possible thanks to the numerous advantages these type of precast elements offer among which are the excellent loading capabilities combined with quick and easy installation.

Hollow core slabs heights vary from 7 cm up to 1 metre for special infrastructure applications. The popularity of hollow core slabs all over the world has also developed thanks to the wide range of heights that allow hollow core slabs to be used in many application fields in the construction industry such as floors, internal partitions or as wall panels in both the civil and industrial sectors.

It was the know-how of important international manufacturing companies, such as the Gruppo Centro Nord in Italy, that gave rise to the spread of hollow core slabs with exceptional heights between 50 cm and 100 cm for the construction of large decks and bridges.

Towards the end of the 80's the Gruppo Centro Nord company, in collaboration with the Italian machinery manufacturer Nordimpianti developed the first Slipformer machine capable of producing large hollow core slabs with heights of over 50 cm which represented, up to that moment, the limit for these type of floor slabs.

Over time hollow core slabs have gradually evolved above all in response to specific application needs, in particular to ever



Installation of high hollow core slabs

stricter safety regulations, for use in countries with high seismic risks or to meet certain fire or shear resistance specifications.

To meet these particular needs, Nordimpianti has developed machines and equipment capable of producing elements with particular characteristics without compromising the simplicity with which these elements are produced. Another important aspect to consider when assembling hollow core slabs on-site is the bonding between the upper surface of the concrete element and the final concrete topping.



Examples of hollow core slabs 10 cm and 80 cm high





The best casting machines available for the production of high quality prestressed concrete elements



prestressed concrete products such as hollow core slabs for flooring and Wet Casting machines offer many advantages that make them and walls, inverted T and I-beams, vineyard posts and lintels, a success all over the world. prestressed slabs, U slabs, inverted double T slabs etc.

NORDIMPIANTI's casting machines can produce a wide range of Prestressed products made by NORDIMPIANTI's Extruder, Slipformer





## PRECAST CONCRETE ELEMENTS



In the late 80's the first Slipformer machine was developed by Gruppo Centro Nord in collaboration with Nordimpianti. The Slipformer produces large hollow core slabs with heights of over 50 cm



Casting of hollow core slabs where the smooth finish of the upper surface is clearly visible.





Scratching system with nails mounted on a casting machine and the end result on the product surface



Grooving machine



Hollow core slab with transversal grooves made by the grooving machine



Quality control of the grooves on fresh concrete

The casting machines available on the market such as the extruder, slipformer or wet-casting machine cast the element with a high degree of surface finish that is sometimes unacceptable to the designers or the on-site management.

In such circumstances, the bonding between the topping and the installed flooring may not be sufficient to guarantee adequate composite section behaviour. For this reason, hollow core slab producers resort to basic and inefficient systems to scratch the upper surface of the concrete element during the casting in order to increase the roughness of the surface. However, these systems may not guarantee acceptable results and above all may affect the quality of the entire cast product.

To improve this aspect, the company Nordimpianti has developed a new machine that, working immediately after the casting of the element, makes uniform transversal grooves with constant spacing and depth without compromising the quality of the element.

The width of the grooves, as well as their spacing and depth can be customized according to the customer's requirements. Another important aspect is that this machine works as part of the casting phase meaning that there is no slowdown to the production cycle.

The operation of the grooving machine can be completely automatic. This is made possible thanks to the machine movement being controlled by a laser device which regulates the movement of the machine along the production bed. Furthermore, a proximity sensor situated at the front of the machine keeps it at a predetermined distance from the casting machine which produces the element. Thus, if the latter is stopped on the production bed, the grooving machine also stops thus ensuring complete safety for the operators.

## PRECAST CONCRETE ELEMENTS



Grooving machine automatically following the casting machine



The Japanese client showing his satisfaction for the results obtained with Nordimpiant's Grooving machine

The launch of this grooving machine on the market allows Nordimpianti to respond even more to the needs of the manufacturers of hollow core slabs demonstrating Nordimpianti's commitment to provide advanced products in step with the latest concepts and thinking. This machine has recently been put in service with a major Japanese hollow core slab producer, a country where quality has always been a fundamental consideration. FURTHER INFORMATION

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