

Progress Maschinen & Automation AG, 39042 Brixen, Italy

# Automation in reinforcement production helps Prefabbricati LP play a leading role in the Italian market

**Prefabbricati LP has become one of the most competitive companies in the Italian market with automated, customised machines from Progress Group. To automate the production of reinforcement meshes and cages, Vittorio Lumini, owner and founder of Prefabbricati LP, invested in an automated plant for the production of the same: in the M-System BlueMesh® mesh welding plant with unprecedented features and in an EBA automatic stirrup bender. The main products manufactured by Prefabbricati LP are manholes, pipes, modular blocks, manhole bases and coated precast elements.**

## Prefabbricati LP automates the production of welded meshes and cages

Prefabbricati LP's technical department made very specific demands on Progress Group's engineers, and they managed to integrate all the technical solutions into the machine that are important for facilitating production.

"We looked around the European machine manufacturer market and we quickly came to trust Progress because they have a great deal of expertise in the development of machines of this type. Progress machines are not standard machines, but each machine is designed and constructed exactly according

to the customer's needs", says Dario Martino, plant manager at Prefabbricati LP.

The M-System BlueMesh is a complex system with several modules - welding, straightening, bending and cutting. The first months after the installation in 2022 were instructive for both companies and characterised by regular exchanges, not only to solve problems in setting up the machine, but also to ensure continuous productivity. This has paid off, as production is now running at full capacity.

## Production automation

According to Dario Martino, the main advantages that automation brings are the following:

### Economic advantage

Labour costs have been reduced to almost zero, considering that 15 to 20 tonnes per day are processed with only one machine operator. The impact of the cost of reinforcement is very significant. If you add to this the considerable economic effort required for the manual installation of the reinforcement, which has been necessary with the old production beforehand, you end up with prices that are not very competitive in Italy.



Left: Ing. Dario Martino - Plant Manager

Right: The Lumini family, who run the Prefabbricati LP company.



The M-System BlueMesh is a special construction for Prefabbricati LP.

### Very short production times

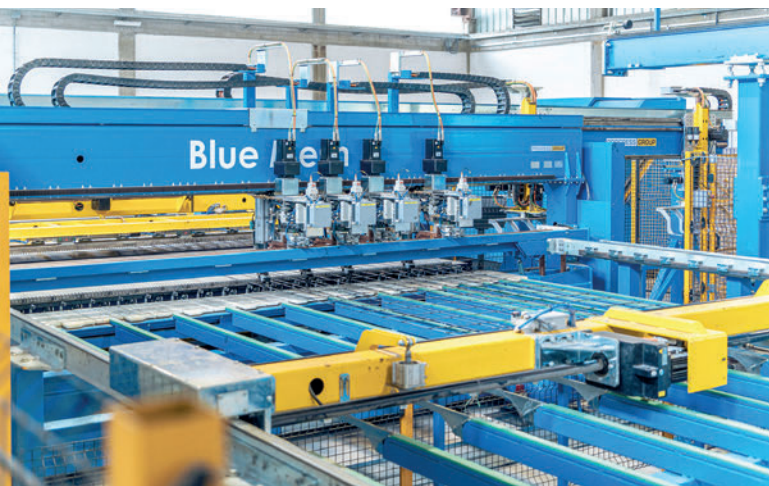
Prefabbricati LP can go into production the day after receiving the customer's order - you have to be fast to stay competitive. Prior to the commissioning of the plant, the reinforcement was manufactured by an external bending company and delivered to Prefabbricati LP. This led to long waiting times and delayed production by about 20 days.

### Quality

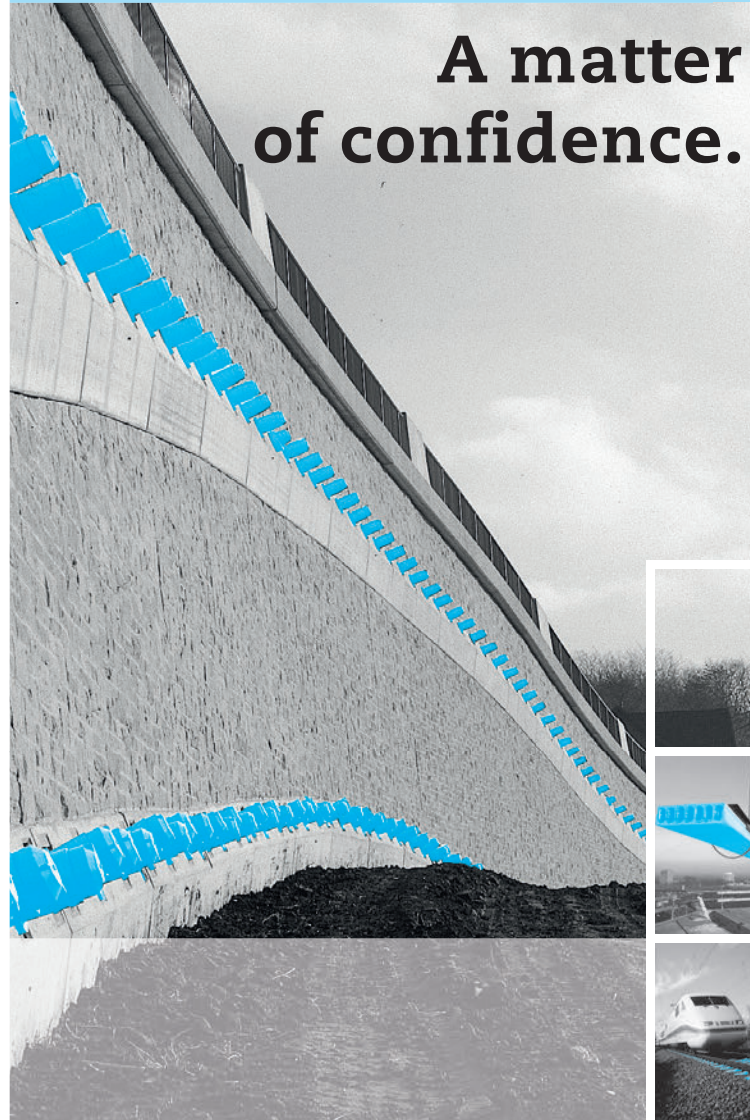
The very high production standard is guaranteed by the automation and precision of the machine. With a tolerance of 1 mm, the reinforcements are very precise and of a much better quality than before the installation of the BlueMesh.

### Mesh welding - from above and below

The M-System BlueMesh is optimally suited for the production of customised meshes and cages in a wide variety of sizes and diameters as well as with a wide variety of recesses. It is thus possible to produce precast concrete elements with



The mesh welding plant enables versatile welding of customised meshes, directly from the coil.



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*The plant is equipped with a flexible mesh bending system.*

integrated windows of different shapes and sizes. With the BlueMesh, Prefabbricati LP can produce meshes of up to 8 x 4 m. The plant can be used flexibly and can produce any type of welded mesh, also for reinforcement sales. The special requirement was to design a system in which the welding of the bars is possible from above as well as from below. This is necessary in order to comply with both the Italian Ministerial Decree 2018 for technical constructions in Italy and the Eurocodes II in relation to European regulations. These regulations require the installation of load reinforcement (transverse) within the structural elements, but also load distribution reinforcement (longitudinal) of about 20%. This must be embedded in the concrete core - one reason why Prefabbricati LP had to make these special demands on Progress Group. In this way, reinforcements are produced with welds of the longitudinal bars made both at the top and at the bottom, which means that the meshes now do not have



*The possibility of welding longitudinal bars both at the top and bottom is an innovation developed for Prefabbricati LP.*

to be moved several times during the bending process. This is an extremely important technical aspect for Prefabbricati LP and a new development for Progress. The plant was designed for the fully automatic bending of welded meshes and has an efficient bending system. The production capacity very much depends on the size of the element and the required bends. For small elements, continuous reinforcements with overlaps in the bending area are produced, whereas for large elements these have to be divided into several parts.

In addition to the mesh welding plant, Prefabbricati LP has invested in an EBA automatic stirrup bender, which is used to produce steel stirrups in a variety of shapes directly from the coil. The automatic stirrup bending machine has a fast wire changing system and an automatic straightening tool adjustment, which ensures high productivity and thus further increases the efficiency of the entire system.



*Progress Group engineers developed this customised system based on Prefabbricati LP's requirements.*



*The EBA automatic stirrup bender produces stirrups in various shapes and sizes.*



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Straightened and bent reinforcement elements are the basis for the final product.

**Industry 4.0 and digital planning**

The entire production is based on the order, from receipt of the customer’s order to delivery. Prefabbricati LP uses software that, together with the stabos software provided by Progress Group, controls and monitors the production of precast elements at every stage. The stabos software is used to record and evaluate production data and is supplied as standard with the M-System and EBA machinery. The most delicate part is the reinforcement production phase. This starts with the arrival of the customer order and gradually evolves with ongoing production. The information is displayed on a screen and recorded in the database, where all the specific data for the traceability of the material is stored: the steel used, the

Prefabbricati LP was founded in 1989 by Lumini Vittorio in Diecimo/Lucca. The family-run company has its roots in the production of precast concrete elements. The location in central Italy is a great advantage, because the company supplies its products to companies all over Italy, even to the islands and to southern France, Austria and even parts of Switzerland. The most recent deliveries went to large construction sites throughout Italy.

Prefabbricati LP manufactures reinforced concrete products. The core business is the production of box-shaped precast concrete elements. In addition, pipes with different diameters are produced. The modular blocks – monolithic concrete modules measuring 1.6 x 0.8 m – are CE-marked and are among the few products of this kind manufactured in Italy.



The products are used throughout Italy for large infrastructure projects such as motorways, bridges and railways.

steel supplier, the coil supplier, the amount of steel used for each part, the time for each complete bend, etc. This is then repeated for each individual order. ■



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**FURTHER INFORMATION**



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