

Masa GmbH, 56626 Andernach, Germany

A souvenir from Germany turned into a milestone

Elis Pavaje, now a major Romanian company, has been built up over the past decades with the perseverance and ingenuity of a courageous family from Transylvania. A large part of the success story began over 30 years ago in Petrești, after the opening of Romania's borders and the introduction of a democratic form of government. At that time, pavers were almost unknown in the south-eastern European country. The couple Sâmbza and Elisiu Goța, entrepreneurs in the building materials sector since 1981, recognised the potential of the concrete product while visiting friends in Germany back in 1990. The vision was clear: pavements made of concrete pavers for the new Romania. As an important souvenir, the couple brought two pavers back home.

In the year following their trip, Elisiu Goța bought a vulcanizing press from the local paper factory and converted it into a machine to manually produce pavers, with nothing more than an idea in mind and plenty of Romanian ingenuity. The output

was conceivably low at six m² per day, but it was enough to pave the family's courtyard; which was also served as a form of advertisement. The vision took shape, as external orders were gradually added. In 1993, Elis Pavaje took on the first major order, producing pavers for a BCR Bank site in Deva. This area of about 1,300 m² is still in very good condition, so the pavers have not had to be renewed to this day. In 1995, the entrepreneur replaced the manual press by a semi-automatic machine, which was one of the many key steps towards success that followed over the next years. Finally, in 2022, with an investment volume of 20 million euros, the construction of the fifth and largest plant to date in Arad was completed on an area of 110,000 m².

First steps on the way to a close business relationship

In retrospect, the souvenir from Germany also paved the way for a long-standing, very intensive business relationship with the traditional German company Masa GmbH. The starting



The Elis Pavaje head office in Petrești: More than 30 years ago, the success story began here.

points were the investments in two compact but absolutely reliable new Masa block making machines in 1999 and 2002: the Record 250 AF, also referred to as a 3 at a time block machine, was considered the entry model for automated concrete block production for many years and could also receive good service in Petrești, Alba. The robustness of the Masa machine can be seen a quarter of a century later, with the R 250 still producing pavers day after day.

The year 2004 finally marked a very decisive point in the company's history. The family invested in their first fully automatic Masa block making plant with a complete ring plant. The original production facility in the courtyard of the Goța family's house was vastly outgrown. Dan Ioan, Elis Pavaje's longest-serving employee, later recalled: "The machines caused vibrations and disturbed the neighbours. There was no more space on the original site, so we had to expand." The new production plant in Petrești was a quantum leap in every respect. The dosing and mixing area installed here, each with a Masa concrete mixer for main and face concrete, the Masa Record 9000 AF block making machine and the plant cycle designed and supplied by Masa with transport systems, a finger car for automatic filling of the curing area, other handling components and a modern cubing system for the end products offered production capacities that far exceeded the

previous level. The quality of the kerbstones and pavers produced spoke for itself, and the order books filled up rapidly. The pavers business increasingly picked up speed, and the establishment of a national distribution network led to a further increase in turnover.

The pursuit of perfection

In 2007, the next big step followed with the construction of the second production plant in Stoenești, Prahova. Already in the summer of 2008, the plant started production with a capacity that had been increased once again. Once more, the entrepreneurial couple counted on the business partner from Andernach, Germany. The Goța family's quality standards concerning their own end products have always been just as high as those concerning their business partner. This is the only way to guarantee perfection at all levels. "In addition to a long and successful partnership, Elis Pavaje is also linked to Masa by the pursuit of perfection. The production plant in Stoenești reflected exactly that when it was commissioned," Vasile Goța sums up in retrospect. The previous plant in Petrești was large, but the new plant in Stoenești was to clearly outshine it. Masa planned a plant layout with very modern and powerful components. The dosing and mixing plant again included two Masa concrete mixers (main and face mix

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Marc Blin, Industrial Mechanic, Masa Andernach

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At Masa, we think of nothing but concrete – and how to shape it for the building materials industry. The machines we design and build are used for the production of concrete blocks, pavers, landscape products, as well as sand-lime bricks, aerated concrete blocks and panels. In other words, we are real concrete heads with a passion for reliable, high-performance machines.

Masa-USA LLC
2006 Wery Lane | Green Bay, WI 54313 | USA
+1 920 497-03900

Masa GmbH (concrete blocks)
Masa-Str. 2 | 56626 Andernach | Germany
+49 2632 9292-0

Masa GmbH (sand-lime + AAC)
Osterkamp 2 | 32457 Porta Westfalica | Germany
+49 5731 680-0



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concrete) and the matching equipment for accurate weighing and dosing of the aggregates. With the installation of a Masa Multi-Colour system, Elis Pavaje was now able to produce multi-coloured products with reliable reproducibility. Masa designed the Record 9001 XL block making machine supplied at that time as a high-performance version, so that Elis Pavaje could benefit from significantly shorter cycle and set-up times compared to the standard version. On the wet side, the Masa washing plant opened up the possibility of setting special accents by washing out fine particles of the concrete and thus producing pavers with a characteristic finish.

Generational change and the overriding goal

In 2009, the two sons Emil and Vasile take over the management of the company and continue the excellent business relationship between Elis Pavaje and Masa. Emil Goța assumed the position of general manager, Vasile Goța became managing director.

Before becoming Managing Director of Masa GmbH, Frank Reschke, was their Area Sales Manager and would gladly travel to Petrești, the headquarters of Elis Pavaje, in order to introduce possible future opportunities and optimisation potentials into the development process of the company. It

was important to Emil and Vasile Goța to continue the family tradition and, in doing so, to continue to rely on cooperation with a professional and reliable partner. The overriding goal - the production of high-quality concrete products with a high plant capacity - was to be pursued equally by the plant builder and the plant operators and achieved through active teamwork. The modernisation measures implemented at both production sites in 2011 are just one example of how Masa always supported the Romanian company in weighing up options for action (also with regard to a possible future product range) and designing the production plants in such a way that they can consolidate and strengthen its position on the market. The measures included, among other things, the replacement of the previous face mix concrete mixers in each of the two plants with a state-of-the-art mixer, the S 350/500: This concrete mixer is very well suited for the production of face mix concrete, which is used for the finishing and individualisation of products such as pavers. Both production plants now benefited from the combination of the S 350/500 with a mixer from the Masa PH series: the PH mixer mainly took over the production of large quantities of concrete for the main mix concrete, while the S 350/500 now quickly delivered the significantly smaller quantities of face mix concrete in the appropriate concrete quality. This combination has also proven itself for demanding gardening and landscaping products.

Clean communication is the basis for excellent results

In the following years, Masa also proved to be a business partner with a keen sense for the current requirements of modern production facilities. For example, the crew from Andernach carried out an extensive rebuilding task on the machine hydraulics, thus bringing the hydraulic components back up to the current state of the art. With the installation of new components within the block making machines and on the wet and dry sides, Masa also enabled Elis Pavaje to achieve the desired expansion of the product portfolio or process optimisations within the production plant. Emil and Vasile Goța look back on their cooperation with Masa with pleasure: "In addition to the reliability and quality of the Masa components, we appreciated one thing above all else in all these projects: the extremely good, clear and quick communication with the German plant manufacturer." Another special feature that is almost taken for granted at Masa also proved to be an advantage: Masa plants are standardised, but still not off the peg. Highly qualified teams of engineers, designers and project managers adapt each plant precisely to the customer-specific conditions to deliver optimum performance in the end.

Expansion and extension of the product range

With an unwavering flair for expansion, the Goța brothers planned and created another production facility: In 2018, a Masa production plant (originally sold to Bucharest) was acquired from the company Prefabricate Vest. The plant was dismantled, transported 350 km further southeast to Vințu de Jos, Alba, where it was reinstalled and finally put into operation. Elis Pavaje mainly produces concrete products with split and aged surfaces on this plant.



Company founder Elisiu Goța and his two sons Emil and Vasile.

Shared passion for concrete products

When two companies passionately pursue the same goal, nothing stands in the way of a fruitful collaboration. Emil and Vasile Goța have found the counterpart to their passion for concrete and concrete products in the mechanical engineering company Masa. In 2021, the two companies sealed this again with a comprehensive contract. Preferred location: Arad, one of the country's most important economic, socio-political and cultural centres and a major transport hub in western Romania.

The plant in Arad is particularly important for the company because, in addition to its very large production capacity, it also opens up the possibility for innovations with which Elis Pavaje can once again expand its leading role on the Romanian market as well as open up new markets. The company's general offer naturally includes all kinds of standard products such as pavers, slabs, kerbstones, prefabricated concrete elements for fences and walls as well as drainage elements. With the new plant, it is now also possible in Arad to develop and produce products with special surfaces and eventually introduce new models from the premium range. The plant started production on schedule at the end of 2022.

A look inside the production hall makes the entrepreneurs' hearts beat faster. Because behind the walls is a high-tech plant that uses all the possibilities of manufacturing high-quality

ity and refined products. The know-how and equipment come mainly from Masa. The integration of equipment from other suppliers (e.g. dosing plant and parts of the mixing plant or the surface treatment line, which is to be further expanded in the summer of 2023) was and is carried out in close dialogue



Early stage of construction: Step by step, the new high-tech plant is being installed around the Masa XL-R.

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Dipl.-Ing. for Civil Engineering Björn Gorka,
Process Engineer for AAC and Sand-lime Bricks, Masa Porta Westfalica



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At Masa, we think of nothing but concrete – and how to shape it for the building materials industry. The machines we design and build are used for the production of concrete blocks, pavers, landscape products, as well as sand-lime bricks, aerated concrete blocks and panels. In other words, we are real concrete heads with a passion for reliable, high-performance machines.

One of our concrete heads, Björn Gorka, is specialized in testing raw materials and producing product samples in the Masa laboratory to evaluate the final quality. Whether setting up a new sand-lime brick or AAC plant, or looking to troubleshoot and optimize an existing site, Masa customers benefit from his expertise. **Don't hesitate to consult our experts in Porta Westfalica.**

Masa-USA LLC
2006 Wery Lane | Green Bay, WI 54313 | USA
+1 920 497-03900

Masa GmbH (sand-lime + AAC)
Osterkamp 2 | 32457 Porta Westfalica | Germany
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Masa-Str. 2 | 56626 Andernach | Germany
+49 2632 9292-0

with the respective companies, which for Masa project manager Reinhold Basch is a complex task with high communication requirements: "The starting point for good coordination between our customer Elis Pavaje, the external suppliers and Masa is always trust and openness".

The Masa highlights of the Arad plant at a glance

Multi colour systems and S 350/500 face mixers

Elis Pavaje wanted new models for its premium range, and the focus was primarily on products with special surfaces. Masa's portfolio offered the right components for this: The Masa engineers realised this wish in the area of 'mixing plant/Multi colour system' with a plant concept that provided two different Multi colour systems for the main and face mix concrete. The Multi colour system "Premium" for face mix concrete (with 3 dosing units for storing different coloured concrete batches) enables the production of exclusive, reproducible colour designs with simultaneous, very precise dosing of the concrete into the concrete silo and the filling box of the block making machine. For the main mix concrete, Masa used the Multi colour system "Easy", which allows dosing of the co-



The assembly of the actual heart of the production plant, the Masa XL-R with Multi colour system (here for face mix concrete) required some routine and sensitivity.

loured concrete even in a small space. The Masa S 350/500 mixer, which has already been used successfully in the other plants, takes over the production of the face mix concrete in the plant. With its mixing tool designed as a "Twister", it ensures short mixing times and very good homogenisation of the small quantities of mix.

Block making machine XL-R 9.1

Emil and Vasile Goța have high expectations of a block making machine. It has to be efficient and reliable, no question. But that in itself is not enough to be able to manufacture innovative products. With the XL-R product line, Masa created a Premium Line a few years ago that is the answer to the requirements of premium manufacturers of concrete products. The machine is equipped with plenty of product and cycle time oriented features (which are included as a standard) as well as with additional equipment. Unlike other Masa product lines, the XL-R has servo hydraulics with pressure accumulator.

Fast cycle times are a must for premium manufacturers of pavers, therefore the XL-R 9.1 is on average another 2.5 seconds per cycle faster than the Masa Allrounder XL 9.1 (comparative size: rectangular pavers with face mix, 200 x 100 x 80 mm). Masa achieves the cycle time optimisation through intelligent servo hydraulics, among other things: controlled drives, the use of pressure accumulators, a servo-controlled, fast feed of the production board in combination with a synchronised V-belt lowering device, overlapping motion sequences and more energy-efficient drive systems.

Masa lined all concrete silos and silo extension devices with stainless steel in order to make them particularly easy to clean and maintain - analogous to the metering unit of the Multi-Colour System "Premium".

The production of certain products, such as large-format concrete products, requires special sensitivity. Here, a very precisely metered filling of the main mix concrete filling box is essential, so Masa used a dosing belt instead of the otherwise common dosing flap. In addition, Masa equipped the face mix filling box with a hydraulically operated dosing slide in the bottom of the filling box, which can reduce any undesired re-mixing of the concrete in the mould. Another supporting feature is the smoothing roller installed on the face mix filling box, which - provided the face mix concrete is suitable - helps to improve the surface of large-format products. Masa installed a pneumatic scraper in front of the front wall of the filling box (both main and face mix) to minimise possible contamination of the concrete during the filling process.

Washing plant

Surface treatment is an adequate means of visually enhancing products. For the plant in Arad, Masa planned the proven washing plant on the wet side. Masa combines different spraying and gushing processes in three stations connected in series, with which fine particles of the aggregates as well as the remaining cement particles are removed from the prod-

uct. The special surface texture of the face materials is effectively exposed to create a unique look.

Dry side with two return transports

Forward-looking solutions are a better way to success in the long run. This is also where the importance of mutual trust and openness becomes apparent. Since Elis Pavaje openly communicated from the beginning which expansion stages would be envisaged at a later date, the Masa engineers already took this into account when designing the current expansion stage of the plant. In expansion stage I, Elis Pavaje wanted the cured products to pass directly through to packaging at a very high speed. In 2023, Elis Pavaje would like to add a separate finishing line in expansion stage II, which would have slower throughput times. In order to fully exploit the potential of the plant, the Masa engineers already planned two parallel lines on the dry side in expansion stage I, thus bypassing the bottleneck that would inevitably arise in the dry side/packaging area.



For the transfer of the cured products from the curing area to the return transport, the Masa plant control system coordinates the components finger car, intermediate finger car and lowerator.



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Safety first: Masa designed the plant in such a way that Elis Pavaje can always carry out safe quality checks with consistent cycle times.



The centring devices I and II on the two parallel-guided return transports prepare the cured products on the production board for cubing by loosening and centring the product layer.

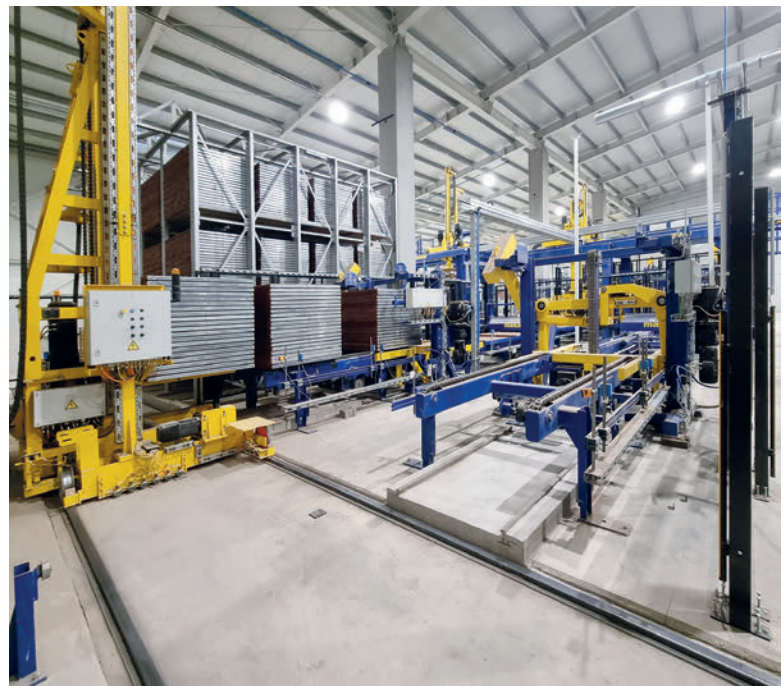
After curing, the Masa finger car automatically transfers the full production boards to the respective intermediate finger car of line I or II. With a sophisticated system, the automated transport of the products to the cubing area (or to the later finishing line) now takes place. Masa left nothing to chance on this line either and planned in various components that either provide room for very flexible quality assurance or support the cubing process in advance. By designing the return transports as a V-belt conveyor system in combination with a walking beam conveyor, the Masa engineers and designers took Elis Pavaje's pronounced quality requirements into account: Due to its mode of operation, the V-belt conveyor system offers a convenient time buffer for detailed quality control without interrupting the entire transport process towards the cubing and thus risking a loss of cycle time.

Storage solution for production boards

In principle, production lines should have the greatest possible independence between the wet and dry side lines, so that product-related cycle time differences within the individual line areas can be compensated. An important adjustment factor in this respect is the design of the area for the intermediate storage of production boards. In Arad, the intermediate storage of production boards was essential because the plant design included two return transports. Here, the two-part storage rack now offers the possibility of temporarily storing up to 2400 empty production boards, either from dry line I or II. It is worth mentioning the very good cooperation with the Rotho company, which supplied both the storage rack and the curing racks with circulating air system here.

Cubing of the final products

The purely servo-electric Masa Cuboter powerfully grips the individual product layers before accurately and very gently combining them into complete cubes. A variety of clamping

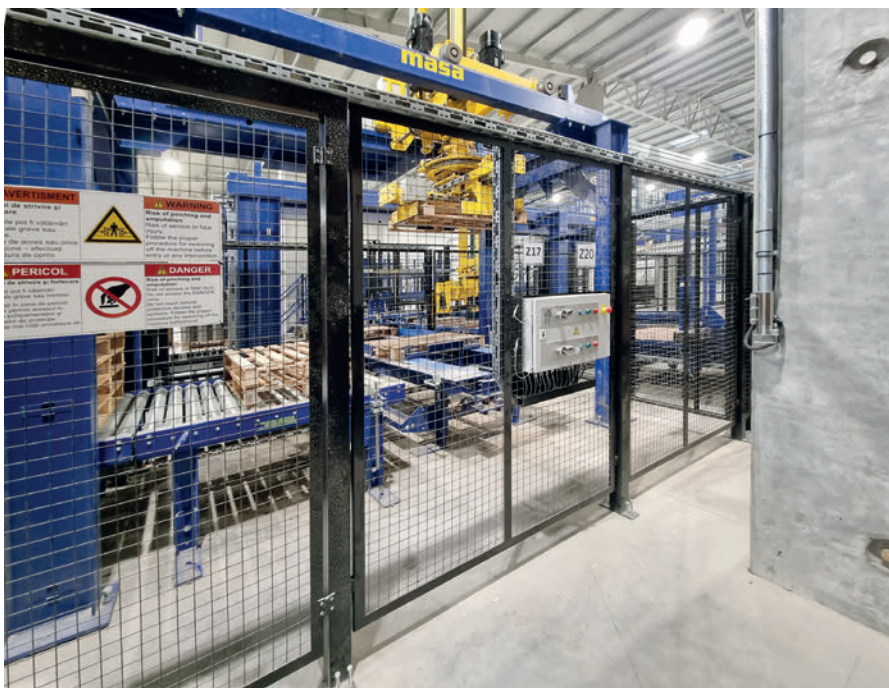


The Masa transport car reliably stores and retrieves the empty production boards in and out of the storage rack.



Complex plant with Masa technology: Dry side with two return transports, Cuboter, transport pallet grab and feeding systems for the empty production boards. As a complete supplier, Masa also provides the cable trays.

functions are available for this purpose. The Masa transport pallet grab handles the automated feeding of the transport pallets required for cubing. The transport pallets are stored in a large buffer (3 stacks).



The Masa transport pallet grab precisely feeds the transport pallets to the Cuboter.

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Vasile Goța, Frank Reschke and Ovidiu Popa share their passion for concrete products.



Plant control system

A modern production plant requires an intuitive and above all reliable plant control system. For uniform operation and visualisation of the components, Masa offers its own modular software in three expansion stages, whereby the Basic version already includes various tools for visualisation, product management and production data acquisition as well as password protection and language switching. Sufficient transparency within the relevant plant data as well as corresponding possibilities for logging and evaluation influence the entrepreneurial success. The Masa programmers took these requirements into account with the two software expansion stages "Advanced" and "Professional". At the plant in Arad, the installed Professional version offers numerous tools that allow conclusions to be drawn about the productivity and efficiency of the plant, enable research into the causes of production interruptions or are tools for optimising the plant.

Market leadership - strengthened by a reliable partner

A souvenir from Germany and 6 m² of pavers per day - who would have thought in 1992 that this would later make Elis Pavaje the market leader in Romania. "Everything that is started must be finished, no matter what," Elisiu Goța often used to say. His sons Emil and Vasile continue to run the company in his spirit, relying on Masa GmbH as their tradition-conscious and efficient partner from Germany. Over the past three decades, Elis Pavaje has invested a large part of the company's profits in development. The fact that the company has been a leader in the paver market for so long confirms this development strategy. The long-term plan is also to invest in innovation and production. "We want to remain the Romanians' first choice in paving and pavers," said Emil Goța, general director of Elis Pavaje. "Masa will continue to accompany us on this journey." Masa is already looking forward to the next projects with excitement and pleasure. ■



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FURTHER INFORMATION



Elis Pavaje SRL
Str. Zorilor, nr.1, Petrești, Jud. Alba, 515850, Romania
T + 40 258 743 682
office@elis.ro, www.elis.ro



Masa GmbH
Masa-Str. 2, 56626 Andernach, Germany
T +49 2632 92920
info@masa-group.com
www.masa-group.com



Rotho - Robert Thomas Metall- und Elektrowerke GmbH & Co. KG
Hellerstraße 6, 57290 Neunkirchen, Germany
T +49 2735 7880, F +49 2735 788559
info@rotho.de, www.rotho.de