

CRP responds to strong increase in demand by investing in another production plant for manhole components

■ Mark Küppers, CPi worldwide, Germany

Founded in 1995, CRP is a family-run company from Malemort-sur-Corrèze in France. With an annual sales growth of 25-30% and a doubling of sales between 2020 and 2022, the company has gone from strength to strength in recent years and is also highly optimistic about the future. If it achieves its target of doubling sales again by 2025, it will have quadrupled its sales in just five years. According to the company's own figures, it is the third-largest producer of precast concrete parts for civil engineering. The significant growth that it has enjoyed in recent years can be attributed to the strong rates of investment, which have brought about a very high level of automation. The result is drastically improved productivity combined with a significant reduction in production costs and rejected goods. Schlüsselbauer Technology has also played a key

role in this success story, since it installed a production facility for manhole components, a Magic 1501 (the "Magic 1"), for CRP in 2019 (a detailed report can be found in CPI 5/2021). In response to the rapidly growing demand for CRP products, another Magic 1501 (the "Magic 2") was delivered and put into operation this year. The identical production lines make it possible to share the use of the numerous different moulds and bottom pallets, thus doubling the production capacity of the concrete elements typically produced on a Magic.

CRP operates at two production sites with a total of five production halls, three of which were newly built between 2018 and 2022. There is also a warehouse for the storage of production moulds and bottom pallets. The fifth plant,



A view of the Magic 2, which went into operation at CRP this year



The Teka mixing plant produces the concrete for all the production areas

which comprises a 6,000 m² building and 90,000 m² of storage space, was put into operation in September of this year. The product portfolio is divided among the sites. The site in Malemort-sur-Corrèze is primarily used to produce round and square manhole elements of various dimensions, along with corresponding accessories. At the second site, manhole bases for rainwater and wastewater are produced in similarly large volumes.

The main customer for CRP's precast concrete parts is the nationwide civil engineering trade; CRP supplies its civil engineering products to more than 600 locations. As the third-largest producer in this segment, CRP manufactures an annual volume of 220,000 metric tons of sewage system components. And with the recent expansions, it has even been possible to increase capacity to 400,000 metric tons.

The commercial success of this family-run company, which is led by Jean-Marc Bessières, is powered by the 180 employees who are currently responsible for the production and

sale of the precast parts for public road construction and civil engineering.

According to Jean-Marc Bessières, one reason for the company's remarkable success in recent years, alongside the exceptional quality of its products, is the fact that CRP holds an extremely wide range of products in very high volumes in stock at a central location. This means that retailers can order a range of products at the same time and from a single source, thus optimizing transport costs since there is a flat rate for delivery with a truck loaded with up to 28 metric tons of precast concrete parts of all varieties.

With this strategy, CRP has become a full-service provider that also delivers quickly and reliably nationwide. However, the growing demand for CRP products meant that production with the Magic 1 from Schlüsselbauer Technology could no longer keep up with the order volumes. From a business perspective, this is certainly a nice problem to have - and it's since been solved with the introduction of the second Magic production facility.

"Even by late 2021, the capacity of the Magic 1 was exhausted, despite our use of a two-shift production pattern. Commissioning the Magic 2 was the logical next step, and was essential in enabling us to meet the boom in demand for our products," says Jean-Marc Bessières, explaining why they invested in the Magic 2 just three years after commissioning the Magic 1.

CRP now operates its production processes in three shifts a day, split between the Magic 1 and the Magic 2. With this setup, the company can produce an average of 600 manhole elements every day. Next year, an increase to four shifts should boost daily production to 800 elements accordingly. Before then, the palletizing system will have to be upgraded so that it can handle these large quantities. A further 400 manhole elements (mainly covers) are produced every day using two older systems.



The Magic 1 production system from Schlüsselbauer Technology in use at CRP



CRP SAS uses the Magic1501 to manufacture both square and round manhole components in a range of product heights



The Magic 1 automatic anchor robot

Magic 1501: Now it Comes in Twos

The Magic from Schlüsselbauer Technology is a universal production system for civil engineering products that is used in concrete plants around the world. There are two versions of the Magic available: the Magic 1501 and the Magic 2500, with the latter specializing in the production of large-format risers.

Twice now, CRP has opted for the Magic 1501, a production system for manhole components such as risers and eccentric cones with heights of up to 1,500 mm, as well as for various civil engineering elements in large quantities. The machine allows single or multiple production of up to six precast parts.

With the Magic 1 and Magic 2 production facilities, CRP produces DN 800 and DN 1000 manhole risers in product heights from 300 to 1,500 mm, optionally with anchors and/or step rungs that are compacted during production. Corresponding reinforced DN 800 and DN 1000 cover plates are also manufactured on the same machines. Square manhole components are produced in comparable volumes in the dimensions 800 x 800, 1,000 x 1,000, 1,200 x 1,200, and 1,500 x 1,500 mm in a similarly wide range of product heights.

Magic 1 and Magic 2 are each operated by two employees. One employee handles all activities related to the actual production of the manhole parts, while the second employee is responsible for the transport of the fresh components and the provision of pallets and reinforcements, as well as other activities.

Both systems are supplied with concrete from a central point, namely the existing Teka concrete mixing plant, which was put into operation along with the Magic 1 in 2019. The J-2-VI model (2,250 liters) Teka high-performance turbine mixer, is equipped with innovative and patented mixing technology.

The concrete is transported from the mixing plant to the Magic 1 production system and transferred to the storage container using special overhead skips from Rekers. The overhead skips feature a frequency-controlled drive, and move virtually silently thanks to their Vulkollan wheels. The overhead skip system also supplies material to other production areas in the hall. Magic 2 is situated much closer to the mixing plant, so concrete can be supplied via a conveyor belt.

Transport Anchors and Step Rungs

France is one of the many places where transport anchors have become the standard for concrete products. For this reason, CRP wanted to ensure that anchors could be inserted automatically during the production of manhole parts. Schlüsselbauer Technology responded to this need by integrating automatic anchor robots in both Magic manhole riser sys-



Manhole riser production with the Magic 1



Products are transported to the curing area and on to the palletizing system using one of the three electrical carts for transportation.

tems. All the operator has to do is make sure that the anchor magazine is filled; everything else happens automatically.

If integrated step rungs are required for the subsequent product, the operator places the step rungs in the special magazine of the Stepmaster during the filling or vibration process of the current cycle, which ensures that the climbing aid is automatically inserted for the following manhole element without increasing the cycle time. The magazine is moved to a waiting position by the program control to transfer the climbing aids to the core during the demoulding process. The step rungs are fed in automatically and compacted in during concrete compaction.

Anchors and step rungs are fed in automatically in line with the working cycles of the production machines without slowing them down.



With the Magic 2, transport anchors are also inserted automatically

A High Level of Automation Simplifies Work

The production of a manhole element begins with the transfer of a cleaned and oiled pallet by means of the automatic bottom pallet infeed under the production system's pressing device. The filling of the mould with concrete, the compaction process, and the ejection of the finished product are fully automated and are simply monitored by the operator.



Fully automatic production of manhole covers with the Magic 2



The palletizing system performs many work steps automatically

The finished products are ejected onto a conveyor belt in front of the machine in an automatic cycle and transported away using one of the three electrical carts for transportation. These electrical carts for transportation were customized specifically to CRP's needs and the comprehensive product range by Schlüsselbauer Technology, and are each equipped with a hydraulically adjustable holding device and a device for removing the set rings at the curing station. CRP has three electrical carts for transportation in operation, making it possible to serve Magic 1, Magic 2, and the palletizing zone all at the same time.

Palletizing System

The palletizing system, specially developed for CRP by Schlüsselbauer Technology, allows bottom pallets to be knocked off automatically and the products to be palletized on wooden transport pallets using a crane rail.

For handling products with varying geometries, a suitable tool for securing the component is required in each case. The palletizing system carries out the tool change automatically, without any significant time losses.

Optionally, the concrete products can be placed on a carousel prior to palletizing and taken to two stations, first for vacuum testing to ensure they are leak-proof, and then for labeling in the next station.

The palletizing system is continuously supplied with new wooden transport pallets via the pallet magazine, which is also located in the internal area.

Given the wide range of finished parts, the system needed to accommodate two types of wooden pallet instead of the standard single pallet. Again, Schlüsselbauer was able to adapt its



Palletizing of manhole risers

existing technology and meet the customer's requirements. The wooden pallets loaded with one or several elements are transported to the outside via the conveyor belt. Here, the precast concrete parts are brought to their temporary destinations in the external storage area by forklifts.

Cleanmaster

After the pallet is removed, it is transported directly to the fully automatic pallet cleaning station by the palletizing system. This dry cleaning is carried out using brush technology. The cleaning systems automatically adjust to the various pallet dimensions, thereby minimizing brush wear. The Cleanmaster is completely enclosed, preventing dust build-up in the hall. After cleaning, the brushed pallets are fed to the downstream pallet oiling system in cycles.



New wooden transport pallets are supplied continuously



A view of the external storage area at the factory in Malemort



Pallet Oiling

In this unit, the supplied pallets are automatically oiled. The pallets are set in rotation by a turning mechanism, and a sponge that adjusts itself according to the respective pallet dimensions applies the oil release agent in a proportioned manner. This entire unit is also enclosed.

The pallets, which have now been oiled and are prepared for the next use, are discharged from the pallet oiling system and stacked in cycles. Once the desired stack height has been reached, the pallet stacks are returned to the bottom pallet magazine of the Magic 1 or Magic 2, or are sent to the warehouse in the event of product changes. All these processes must be carried out quickly in line with the cycle of the production machines.

Expectations Exceeded

As for the question of whether the Magic 1 and 2 met expectations, Jean-Marc Bessières has this to say: "I am very pleased with both of my Magics. A major objective for us was to be able to manufacture round and square manhole components in a wide range of dimensions and heights on the same machine - all at high volumes and to an excellent standard of quality. A Magic makes this all possible. In addition, we have been able to meet our production target of 25 manhole elements with integrated step rungs and transport anchors per hour - in fact, we are increasingly able to exceed this target. Our cycle times are between 90 and 130 seconds. And our staff are now well acquainted with the Magic production system, which has optimized these cycle times even further."

Anyone who visits the CRP factory is immediately captivated by the dynamism and energy that is on display here. And it

will be exciting to see how the family business continues to develop, because the investment of €32 million in capacity expansion between 2019 and 2022 was just one step for Jean-Marc Bessières, with many more to follow. The construction of a new logistics base with a total area of 70,000 m² is already in the works for 2023. ■



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