

Gerhard Warning Verschleisstechnik und Industrieprodukte GmbH, 33619 Bielefeld, Germany

Austrian concrete manufacturer Friedl is banking on drum technology for ageing their concrete products

Friedl, a family-run company, began with the production of concrete blocks in Mittelburgenland, Austria, in 1953. Today, it is a modern, successful manufacturing operation and one of the top suppliers to sales markets covering three countries. Friedl Steinwerke are ranked amongst the most innovative companies in the country and produce concrete blocks of the highest quality for house and garden construction. For their production of pavers, masonry, and garden wall blocks, an accent has been placed on aesthetics and appealing design so that a wide range of the most varied block styles can be offered. The market in which the company is active today has expanded from Austria to include Hungary and Slovakia. The management at Friedl GmbH tracks market trends very closely as a matter of course so as to be able to continuously provide its customers with up-to-date products. This gave rise to the idea of investing in a new ageing plant since antiqued concrete goods are enjoying growing popularity in Austria as well. After looking at several systems available on the market, Friedl finally found the answer they were looking for in an ageing and packaging plant made by Vorning and marketed in Germany by Gerhard Warning GmbH from Bielefeld.

■ Mark Küppers, CPI worldwide, Germany ■

The origins of the Friedl family business go back to operations in a gravel pit in Eggendorf. Then, in 1952, Gustav Friedl commenced a company with two employees for producing small concrete components



Besides a show garden in the outdoor area, the Friedl Weppersdorf site also has an indoor exhibition

in Siegraben. Ten years later came the purchase of factory premises of some 5,000 m² where a 400 m² production hall and office building were erected.

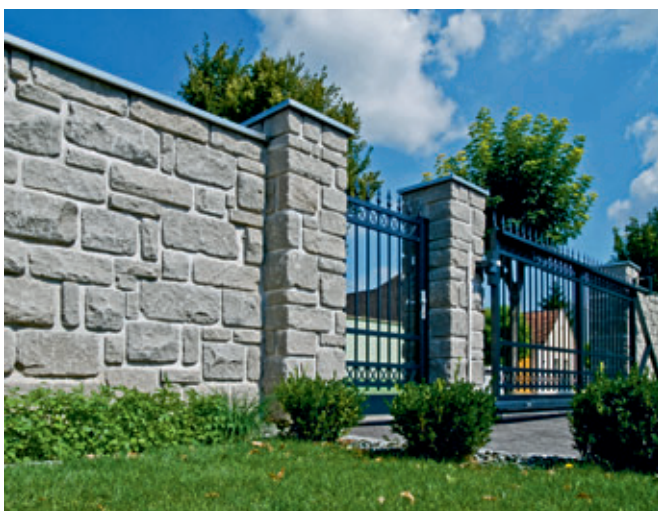
In 1974, with the company now under the leadership of Alfred G. Friedl, manufacturing began with a semi-automatic machine and in the following years the production halls and factory premises underwent continual expansion. Alfred M. Friedl became managing director in 2000 and has since kept the company, which has grown to 90 employees on three sites in the intervening time, on a continual path of expansion.

Besides constantly keeping an eye on the market, the success and ongoing growth in turnover at Friedl Steinwerke is based on contact with architects, garden designers and customers. However, this growth is perhaps particularly due to their entrepreneurial flair for innovation and creativity and the quest to discover and implement new tech-

nologies and developments. The field of activities for Friedl Steinwerke was originally widely diversified: construction materials, planning and carrying out construction work and block production. This has now been concentrated in one key issue – manufacturing concretes and high-class products made of concrete that measure up to prevailing standards and are certified for house and garden. Besides the gravel production facilities in Eggendorf, there are the manufacturing operations mentioned above in Siegraben and the headquarters in Weppersdorf.

Gravel production facilities in Eggendorf

The company-owned gravel pit provides Friedl with a solid mainstay. It has today reached a depth of 22 m in which 40,000 t per year are excavated with dry extraction methods. One third of the aggregates excavated are employed in their own concrete production facilities and the remainder is sold on the free market in Austria.



Aesthetic designs can be created with Friedl concrete blocks – with or without mortar joints



The show garden is an impressive sight even with snow



The indoor exhibition can display its most beautiful face wholly regardless of the weather

Sieggraben

Hollow blocks and ready-mix concrete are nowadays primarily manufactured at the production site in Sieggraben. The first ready-mix concrete mixing plant was commissioned at this site in 1983. By the year 2000, the Sieggraben factory premises had been enlarged to 60,000 m² and a micro-processor controlled mixing plant made by Liebherr (1m³) had replaced the former ready-mix mixing plant. A Liebherr fresh concrete recycling plant was also

commissioned for operations so that 100% of any excess concrete can be fed back into production. Friedl possesses five ready-mix trucks made by Stetter and Karrena for transporting the concrete to the customer. If a concrete pump should be required on site, then the firm's own 32 m Putzmeister pump can be put to work.

Weppersdorf

Further expansion took place in 1989 with the location of the company's headquarters

at Weppersdorf approximately 70 km south of Vienna. Today, 60 of the total 90 staff are employed at this site. All kinds of products imaginable for garden and landscape construction are produced there. As is customary, sales are made exclusively via retailers. About 80% of the customers are to be found in Austria with approximately 10% each in Hungary and Slovakia.

In addition to their show garden outdoors, Friedl has also had an indoor garden exhibition in Weppersdorf since 2003. Cus-



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At the outset of the ageing process, the concrete blocks are fed into an accumulation bin by the pallet. From there, they are placed in batches on a conveyor belt to be transported to the ageing drum

tomers can enjoy Friedl's excellent products there regardless of season and weather conditions.

Friedl is committed to quality and a flawless visual appearance for their products. A new employee with 20 years of experience was engaged this year specifically for quality management. In line with this, Friedl has frequently invested in modernisation during the last few years. A new production hall was built in 2004 and two new Hess plants,

an RH 1500 and an RH 500, were purchased for manufacturing concrete goods. Each production line has its own concrete production plant. A Teka mixer supplies the RH 500; for the RH 1500, an Oru mixer produces the core concrete and an Eirich mixer the facing concrete.

The individual production lines are set up for operations with 2-3 persons in two shifts per day. In 2003, the production site was enlarged from one hectare to the current five but, with property totalling 10 hectares, Friedl still has more than sufficient room to expand. The most recent new investments include the purchase of a splitting plant from Techno-Split in 2007 and, in the current year, a blasting and brushing plant from FC-Sonderkonstruktionen plus a complete, ageing, sorting, and packaging plant for concrete pavers and concrete blocks from Vorning, a Danish company, supplied via Gerhard Warning GmbH.

Automatic ageing, sorting, and packaging plant

To be able to meet the great demand for antiqued concrete goods like pavers and concrete blocks, managing director Alfred M. Friedl decided on investing in an appropriate plant for manufacturing this group of products. But he was not just looking for any ageing plant! Mr Friedl had a very clear idea as to what the end products should look like. The decision was made in favour of an ageing method utilising a drum. Besides the individual products having a better visual appearance, a persuasive factor that finally convinced him was the more harmonious appearance when laid - this comes about automatically because concrete blocks from several different pallets are mixed together in the ageing process.

After a visit had been paid to a reference plant in Switzerland, a new automatic ageing and packaging plant was ordered from Gerhard Warning GmbH. The plant is geared to automatically ageing, sorting, and subsequently packaging normal concrete pavers and concrete blocks. Product changes need only a short changeover time and the entire plant can be operated by just two employees. One person remains at the plant and monitors the ageing, sorting and packaging process. At the same time, the other employee feeds new concrete products into the ageing plant and returns the antiqued, freshly packaged products into the storeroom with his forklift.

180 m² antiqued and packaged concrete pavers per hour

The first stage involves transporting concrete pavers stacked on a pallet with a forklift to the accumulation bin in front of the ageing plant. The blocks are then carefully tipped into the bin. From there, they are conducted slowly and evenly via a conveyor belt to the heavy-duty ageing drum. This ageing drum is controlled by torque and a special feature in the control unit technology makes it possible to produce uniformly aged pavers. An acid and wear resistant rubber lining guarantees that the blocks will be tumbled in an optimum way and that the edges receive special finishing. The drum is equipped with wide cylinder shaped slits on the discharge side so that chipped-off edges and small broken-off pieces can be eliminated immediately.

This means that disruptions in the subsequent sorting process through broken pieces can be virtually ruled out. These broken-off pieces of concrete are collected in a receptacle directly underneath the drum and from there can easily be removed from the hall. The tumbled blocks fall from the drum straight onto another conveyor belt and are brought without delay to the sorting unit, the so-called "Organizer". This machine's special, patented technology arranges all the pavers in a longitudinal direction. Staff are not involved in this process as it takes place fully automatically. The products are subjected to a visual quality check by an employee at the Organizer's discharge point. The operator can view the complete production from his place of location by means of a monitor and, when necessary, can separate out defective pavers manually before packaging.

The sorted concrete blocks are now transferred onto an intermediate storage belt. The products, still arranged longitudinally,



Once they have passed through the ageing drum, the tumbled blocks arrive at a conveyor belt that transports them to the Organizer



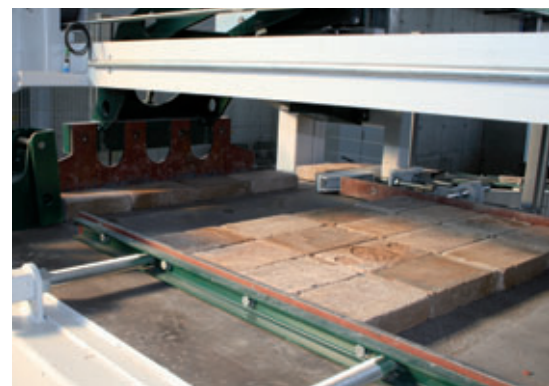
The Organizer arranges the concrete blocks in a longitudinal direction



The sorted blocks are transferred by the Organizer onto the intermediate storage belt which constantly replenishes the supplies for the packaging unit



Only one employee – essentially in a monitoring function – is necessary for the complete ageing and packaging process



The layer shifter sets up the blocks row after row

accumulate on this intermediate storage belt that feeds the packaging unit continually. It is thanks to this process that packaging can be carried on without stop. Slight fluctuations in infeed amounts from the Organizer can be absorbed as the replenished intermediate storage belt brings fresh supplies unceasingly to the packaging machine.

The longitudinally arranged products are taken over by a sideshifting device in the packaging unit at fixed intervals. When a row of products has been put together in the proper manner, the servo-controlled sideshifter takes up each individual row and transports it onto a metal sheet inside the packaging unit. Once a complete layer has been formed by the sideshifter, a layer shifting device takes over the full layer of

block rows and thrusts it onto a metal production sheet on top of a wood pallet that has been fed automatically into the packaging unit from a stack of pallets. The pallet stack can accommodate approximately 15 pallets and is loaded by forklift. The entire unit thus formed is then transferred, also by servo-controlled means, from the metal production sheet to the wood pallet.

The pallet is always maintained at the right height by a scissor-type elevating platform and is lowered accordingly upon receiving a layer of blocks. While this is going on, the sideshifter continues working in tact preparing a new layer for the layer shifter. In this fashion, layer after layer reaches the pallet until it has reached its specified height. This special technique allows the layers to be stacked offset from one another – some-



The finished packets of concrete blocks are transported via a roller conveyor to the outside area. A special technique allows the layers to be stacked offset from one another



Large concrete blocks can also be aged and packaged in the plant



The heavy blocks seem apparently to float on the Magic Table. An employee can sort and feed them to the packaging unit quite effortlessly

thing that gives rise to greater stability. When the entire unit has been formed, it is finally conveyed out of the plant on a heavy-duty roller conveyor.

Non-power sorting for heavy concrete blocks after ageing thanks to "Magic Tables"

Vorning's ageing and sorting plant can be changed over to sorting and packaging heavy concrete blocks in a few easy steps. As with concrete pavers, the concrete blocks are fed into the accumulation bin in front of the ageing plant, pass through the drum and are transported to the Organizer by a conveyor belt. At this point, the blocks are pre-sorted and aligned. However, since concrete blocks are of differing sizes, consolidated combinations of blocks have to be transferred by employees at the operating bay to the intermediate storage belt that

can be adapted in a few simple movements to the width of the blocks. Although sorted blocks may be positioned on a pallet before ageing, for example two large and two small blocks in one row, this order is obviously lost in the ageing process. To be able to transfer these to the intermediate storage belt, arranged as needed in rows for the best utilisation of the packaging process, a so-called "Magic Table" is installed between the Organizer and the intermediate storage belt for handling the concrete blocks.

This table provides space for a sufficient quantity of blocks so as to be able to find any desired combination of blocks to put one row together. Thanks to a sophisticated blending of vibration and Magic Table configuration, the heavy blocks only have to be touched with a finger to move them across the table. The block rows can be assembled

almost as in play and transferred to the intermediate storage belt with a small shove. The packaging process is carried out in the same way as with concrete pavers only with adapted product parameters.



Concrete blocks with coats of arms – made by Friedl

FURTHER INFORMATION



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