

Teka Maschinenbau GmbH, 67480 Edenkoben, Germany

Extensive modernisation of concrete mixing plant at Perin et Cie at Redon site

The company Perin et Cie is an independent company founded in 1921 in Redon, Brittany. Today, the company has 6 plants located on the west coast of France. With more than 150 employees, the company produces precast concrete parts of various sizes and types (400,000 tons per year), which are sold throughout France. The Perin et Cie product range is extremely extensive. Ready-mix concrete, mainly at the Redon site, completes the range offered by Perin et Cie. For this location, which is also the company headquarters, the company had the goal of increasing its production capacity for precast concrete parts. In addition, the aim was to create the possibility of producing ready-mixed concretes with sophisticated concrete technology in order to be able to meet the constantly growing demands of customers. The number of mixers should be increased from 2 to 3 and the number of aggregate chambers from 6 to 17. The modernisation was to be supplemented by 6 new cement silos. After careful consideration, Fameto Industrie was commissioned to construct a new concrete mixing plant. The mixers were supplied by the company Teka.

Concrete mixing plant from Fameto Industrie

Fameto Industrie, based in Boulleville in the department Eure, has been known in the concrete industry for the production of metal formwork for staircases since the 1980s. Recently, the company specialised in the construction of concrete mixing plants.

One of the many challenges of the project was the prompt pre-assembly of the new plant next to the existing plant in order not to disturb the intensive activities of Perin. Assembly work began on site in mid-May 2018 and the entire plant was commissioned as agreed in the first few days of September, with the production shutdown in August enabling the changeover to the new plant.

The new mixing plant has 3 Teka mixers, each equipped with an automatic high-pressure cleaning system. The mixers also have two emptying options to supply the precast production on the one hand and the ready-mixed concrete requirement on the other.

The new concrete mixing plant of Perin et Cie in Redon



Of the 3 mixers installed, the THT 1500 turbine mixer with a hardened concrete output of 1 m³ per batch was chosen. It is mainly intended for the production of white concrete and other special concretes, as well as for the production of ultra-high performance fibre concretes (UHFB).

The other two mixers selected are the planetary mixers TPZ 3000 and TPZ 1500 for the production of concretes for pre-cast production and conventional ready-mix concrete.

Most innovative mixing technology with 3 Teka high-performance mixers

The three Teka mixers were supplied by the French subsidiary Teka France S.a.r.l of Teka Maschinenbau GmbH. Teka France was founded in 1964 and has been success-fully serving all Teka customers in France since 1964.

Teka France has an extensive stock of spare parts to provide French customers with spare and wear parts quickly and easily. The after-sales service is supplemented by qualified French specialist fitters. Teka France's long-standing and experienced em-ployees guarantee everything from a single source, from joint preliminary planning with the customer to delivery, installation and commissioning.

Teka High Performance Planetary Mixer

The high-performance planetary mixers TPZ 1500 with reinforced 45 kW drive motor and an output per batch of 1.0 m³ and TPZ 3000 with reinforced 90 kW drive motor and an output per batch of 2.0 m³ are proven machines with innovative mixing technology and low maintenance and wear costs at the same time.

This mixer has two or three rotating mixing stars which rotate in opposite directions to each other. In the centre of the mixer the mixing arms intermesh like gear wheels so that no un-mixed zones are created. Likewise, all mixing stars rotate on different radii or different effective circles in order to ensure a clean covering of the trough floor. The rotating clearing and scraper blades continuously feed material to the mixing stars with the special mixing arms in a special design. This leads to a very intensive and fast mix-ing of the material in a very short time and with a very high degree of homogenisation.

A major advantage of the Teka planetary mixer is the special shape of the mixing blades with the very small deposit areas. The exceptionally small deposit areas of the mixing blades ensure that buildup and contamination on the mixing blades are significantly reduced. This also leads to corresponding batch purity between the individual mixtures and is of considerable advantage with regard to the cleaning intervals. Especially with frequent product changes, the longest possible cleaning intervals are of enormous importance.

In addition, the special mixing blades are positioned vertically so that the material slides along the side of the blades, resulting in a self-cleaning effect and significantly improved wear behaviour.

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The Teka planetary mixer also has generously dimensioned and self-opening cleaning flaps for excellent accessibility for cleaning and maintenance work.

Both Teka planetary mixers have two stable discharges. Teka emptying is a complete unit which is operated by a separate hydraulic unit.

Teka high-performance turbine mixer

The Teka high-performance turbine mixer THT 1500 (type G-2-V) with a frequency-controlled 45 kW drive motor has a maximum concrete output of 1.0 m³ per batch and is also supplied.

This high-performance THT 1500 turbine mixer with innovative mixing technology has a patented mixing turbine and a counter-rotating mixing star, which ensures very intensive mixing of the mixture and at the same time does not destroy any grain and thus does not alter the grading curve.

The mixing star and the similarly rotating clearing and scraper blades continuously feed material to the patented mixing turbine. This leads to a very intensive and fast mixing of the material in a very short time and with a very high degree of homogenisation.

One of the essential advantages is the possibility to run absolute small quantities and very small quantities for special products. Here, the turbine mixer runs up to really top form. Furthermore, the mixing turbine has a scraper with a self-cleaning effect.

The mixing turbine is coated with tungsten carbide to ensure a long service life.

Moreover, the intensive mixing leads to very good mixing in of the batch water and a virtually straight moisture measurement curve.

The Teka turbine mixer is supplied as standard with a frequency converter for the main drive, which can also be provided by the customer. The rotational speed of the mixing turbine can be varied for the main drive via a frequency converter and adjusted to the mixture to be mixed. During the different phases of the mixing cycle (dry mixing time, water addition, wet mixing time and emptying time), the speed of the mixing turbine and the mixing tools can also be set accordingly.

The Teka turbine mixer is particularly suitable for producers who produce many different and high-quality products and therefore change products frequently, including frequent colour changes. The Teka turbine mixer can also show its strengths in concretes with a very high proportion of very fine grains, such as facing concretes and self-compacting concretes, and in special products for which only very small quantities are required (approx. 10% of the maximum mixer filling quantity).

The special features of the new turbine mixer series can be summarized as follows:

- **Guarantees an enormous variety of products by the operator**
 - Patented mixing turbine guarantees a very large product variety, among other things by the possibility to produce of very different mixtures, batch sizes and also smallest quantities in one mixer.
 - The patented mixing turbine ensures complete emptying in very short times for product changeover and very fast emptying of the mixer.

- The mixing cycle could also be reduced in terms of mixing and emptying times.
- **Most intensive mixing for special and high-performance concretes**
 - a very good mixing effect even with difficult special concretes and high-performance concretes
 - almost straight-line course of the measuring curve for moisture measurement, correspondingly very good mixing of the addition water
 - no destruction of the grain and therefore no unwanted change of the grading curve
- **Very low operating and maintenance costs**
 - Very low wear due to the special shape of the mixing turbine and the low number of mixing tools. In addition, the mixing turbine has a hard metal coating as standard.
 - Low cleaning costs and long cleaning intervals with short cleaning times due to a low number of mixing tools and adhesion points as well as a scraper on the mixing turbine.
 - In practice, it has been shown that contamination and cleaning effort can be reduced to a minimum by, among other things, the scraper attached to the mixing turbine in the mixer. These advantages are of great importance, especially with frequent product and color changes.
 - The mixing turbine is easily height-adjustable, so that the turbine can always be adjusted to suit the trough bottom, which ensures very fast and clean emptying.
- **Energy efficiency**
 - the drive power is adapted to the mixture and to the specific mixing task. With the same mixing chambers there is a choice of different motor and gearbox variants. The power of the drives is thus used very well.

In the meantime, the Teka turbine mixer has proven itself in practice with many renowned manufacturers of concrete products and with different and difficult concretes. Concrete producers can carry out mixing trials at the test station at the Teka plant in Edenkoben (Palatinate) and be personally convinced by the turbine mixer.

The company DHF Electricité, represented by Mr. Daniel Huquet, has taken over the electrification and automation work on the plant. This player, very present in the Perin Group, carried out the necessary work for the operation of the new complex production plant with efficiency and reactivity.

The process was designed in such a way that each mixer can feed each of the three production lines. At the same time, the possibility of continuing production at reduced capacity in case of specific requirements or maintenance work was taken into account and implemented.



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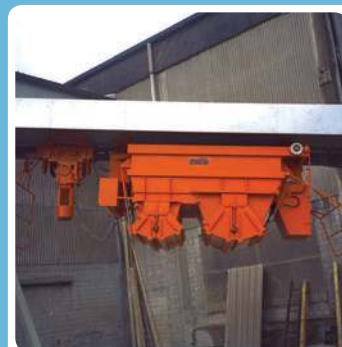
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Conclusions

Perin's goal was to build a very versatile concrete mixing plant for the production of a wide variety of demanding concretes, which would simplify the work of the plant operator through a high degree of automation.

Fameto was chosen for its technical solution, which meets the financial, technical and time constraints. The requirement to build a new plant was also met, while the old plant could still be operated. Downtimes could thus be reduced to a minimum.

The choice of Teka was a matter of course for Perin. The old plant from 1976 was already equipped with a Teka mixer, which has always worked without problems.

The possibilities of a turbine mixer have also convinced the company, so that a wide range of concretes and in particular ultra-high-performance fibre concretes can now be produced. ■

FURTHER INFORMATION



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