

Betonsteinwerk Wegmann Betriebs GmbH, 82386 Huglfing, Germany

# New mixing technology as a further investment in the future

■ Mark Küppers, CPI worldwide, Germany

Betonsteinwerk Wegmann Betriebs GmbH mainly produces concrete manhole systems, consisting of manhole rings, manhole bases and manhole cones, as well as concrete pipes and containers. Other products include angular retaining walls and L-shaped elements. The company also produces special products such as troughs, 2-component manholes with a plastic core and the patented riding arena surrounds. Wegmann supplies the latter product throughout Germany and claims to be the only producer of it. Over the last 10 years, the Betonsteinwerk Wegmann has experienced very strong growth in the supra-regional sector. Since 2015, national sales have grown from 5% to over 50% today, and the trend is still rising. In addition, there are now also enquiries from abroad. Wegmann is facing up to these challenges and plans to increase the concrete plant's turnover by around 15% over the next few years. However, the required quantities and product qualities would not be possible without the investments made, such as in the Perfect manhole base production from Schlüsselbauer Technology a few years ago and now most recently in the new concrete mixing plant from Kniele. A few years ago, the old

concrete mixing plant was still running smoothly in automatic mode. In the end, this was no longer possible due to technical problems and age.

Until 1971, the Betonsteinwerk Wegmann in Huglfing only produced concrete blocks. The concrete block plant then had to move for space reasons and was rebuilt at its current location in 1972, laying the foundations for today's Auwiese Huglfing industrial estate. In the beginning, mainly concrete blocks were manufactured on over 13,000 m<sup>2</sup>. In 1974, the company began manufacturing manhole rings and small wastewater treatment plants.

In the following years, the plant was constantly expanded and investments were made in new plant technology. A used manhole ring machine was put into operation in 2014. Since then, all manhole ring sizes and cones can be manufactured in-house. This has significantly increased sales and the number of customers. In 2018, the management was taken over by Stefanie and Andreas Wegmann, who have been at the helm of the company ever since.



View of the new concrete mixing plant at Wegmann



Kniele has also installed two new cement silos.

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The dosing belts under the individual aggregate silos from the stockpile dose onto the new weighing belt.



Feeder lift with fall protection

### The Perfect concrete manhole base

One year later, the existing production hall was extended again and investments were made in the Perfect production process from Schlüsselbauer Technology - and this marked the company's entry into the market for monolithic concrete manhole bases made of self-compacting concrete.

The Perfect manhole bases are monolithic, manufactured in a single casting and therefore have a uniformly dense concrete microstructure. The entire structure of the monolithic manhole base (base, wall, channel, berm) is reliably sealed, and the channels and pipe connections are precisely moulded. The infinitely variable adjustment of the angle and inclination of all inlets optimises the flow behaviour throughout the channel. Congestion zones and unfavourable turbulence are avoided by maintaining a constant gradient throughout the channel.

#### Individual channels

Wegmann uses 10 moulds for DN 1000 manhole bases, and a few months ago another mould for larger DN 1500 components was added to the mould pool. After the digital planning of a Perfect manhole base on the computer using a configurator, negative moulds made of rigid polystyrene foam are produced for the subsequent channel design. For this purpose, the negative channels are assembled from pre-fabricated basic elements.

#### Pipe connections with integrated seal

If necessary, seals are fitted precisely to the part of the negative channel for the pipe connection. These are later cast with concrete together with the channel in a single work step and form a firm bond with the component. After curing, the negative moulds are removed and the seals remain in the

component as integrated seals. If integrated seals are used, installation on site is not necessary. This ensures tight and durable connections between the pipe and the manhole base.

#### Simple installation

The fully assembled negative channels can then be installed in the steel moulds. The moulds have a two-part mould shell and can be pulled apart in the middle. This means that the formwork surfaces are easily accessible for cleaning and setting-up. Once the negative channels and pipe connections are fixed, the mould halves are pushed together again. The mould can be quickly and easily closed tightly by the employee using the locking mechanism. Magnet technology holds the negative mould made of rigid polystyrene foam in position and prevents buoyancy during the subsequent filling of the moulds with self-compacting concrete.

#### Easy handling with turnover spreader beam

The monolithic concrete manhole bases usually harden in the mould for one day and can be demoulded and lifted out of the mould the following day. In addition, the concrete monoliths produced overhead still have to be turned 180° into the later installation position. This task is also performed at Wegmann by a Schlüsselbauer turnover spreader beam, which was included in the scope of delivery. The turnover spreader beam is hooked into the overhead crane.

#### Special mould for monolithic manhole cones

In addition to the Perfect manhole base moulds, Wegmann also has a Perfect manhole cone mould, which can be used to produce monolithic manhole cones using the same principle. Like the manhole base moulds, the moulds can be pulled apart and thus easily prepared for the next component or cleaned.



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KKM 1000/1500 conical mixer



Earth-moist concrete runs directly into the production area via conveyor belts.

### Modern dosing and mixing technology from Kniele

Until 2023, Wegmann was using a mixer that was around 30 years old, but whose stirrer had already been converted to the Kniele system with mechanically driven agitators. However, this mixer was reaching the limits of its age, especially with regard to the new Perfect manhole section production, the requirements were very high and could no longer be fully met. This led to the first contact with Kniele in July 2020 to initiate the mixer replacement project. A year later, Kniele then took the first step of precisely measuring and recording the existing system and the hall with the mixing and dosing tech-

nology using the in-house 3D scanner to ensure smooth system planning. The mixing plant with the enclosure was then installed in January 2023.

In addition to the core component, the Kniele conical mixer KKM Mixer 1000/1500, which was installed on a completely new mixer platform in steel construction, Kniele also supplied numerous other system components.

Kniele installed the new weighing platform above the mixer platform, on which the water weigher, an admixture weigher from Würschum, the cement weigher and the water dosing



View inside the production hall



Since 2019, Wegmann has been manufacturing monolithic manhole bases using the Perfect manufacturing process from Schlüsselbauer Technology.



A hydraulic turning gripper is used for safe demoulding and turning of the components.

system can be found. Both platforms are completely enclosed and connected by stairs.

Kniele also supplied and installed two new cement silos, the injection pipes and cement augers.

The dosing belts under the individual aggregate silos were taken from the existing system. A new weighing belt in a low design as a special solution ensures that the aggregates are weighed and transported to the new feeder lift with fall protection, which transports the material from the lower level to the mixer.

**Fall protection**

Kniele material lifts are equipped with a wear and overload device. This device is designed to reliably prevent a fall during the ascent. It intervenes in the event of overload or rope wear and switches off the system or emits a warning signal. This significantly reduces the risk of a crash.

The control room for the complete dosing and mixing plant with the control cabinets and the control computer is located in a neighbouring production hall. From here, the mixing and dosing processes can also be monitored on the monitor thanks to cameras in production.



Perfect manhole base with integrated seal





Today, the products are manufactured in production halls at approx. 2,200 m<sup>2</sup> and stored on the site with almost 27,000 m<sup>2</sup>.

### Kniele conical mixer KKM

At Wegmann, Kniele has installed the KKM 1000/1500 conical mixer with an output of 1.00 m<sup>3</sup>. The patented KKM mixer type has been successfully used internationally for many years and is continuously being developed further. The mixer stands for very high performance, quality and reproducibility.

Two counter-rotating, speed-adjustable agitators produce a homogeneous concrete mixture in the cone-shaped mixing chamber. The inner agitator transports the material from the bottom to the top via an Archimedean screw, while the outer agitator scrapes the surface of the mixing container and feeds the mixture to the inner agitator. According to Kniele, the advantage of this mixing system in combination with the conical mixing trough is that the entire mixture is in complete motion at all times.

The mixer is equipped with a water dosing system which is suitable for both coarse and fine dosing. The mixing trough has a ceramic lining for longevity.

### Investments pay off

Depending on which concrete is produced, the methods of transporting the fresh concrete to the production hall differ. Self-compacting concrete is collected by forklift truck with concrete bucket and then transported to the Perfect manhole section production line. Earth-moist concrete, on the other hand, runs via conveyor belts directly into the production area, where the pipe machine is located, among other things.

But no matter what type of concrete is produced, the quality and quantity have increased significantly. Managing Director Andreas Wegmann is very satisfied with the latest investment, which has a positive impact on all areas of production and easily meets the high demand for monolithic concrete manhole elements. ■



### FURTHER INFORMATION



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