



One of Besblock's new TEKA planetary mixers, supplied and installed by ConSpare

Taking a Holistic Approach

Process-led thinking and new mixing technology helps Besblock improve block production

New technology constantly makes big promises – better performance, higher quality, lower costs. But when installed, it does not always live up to the hype, especially when it comes to a finely balanced process such as block making. But it is not always the technology that is at fault here.

Often, the problem lies in the fact that concrete production is viewed as separate manufacturing elements, as opposed to

a series of interrelated processes. It is important to realize that, when it comes to the production line, the end product is only ever going to be as good as the weakest link.

If businesses are to reap the rewards of investing in new concrete technology, then moving from being product-led to process-led and looking at the manufacturing process as a whole can be hugely beneficial. Businesses need to make sure that when they get that new

bit of kit, they build in the necessary changes upstream and downstream in the process to allow it to perform at its absolute best.

This is exactly what Besblock, the long-standing, family-run block-making firm did at both of their factories in Telford. Teaming up with concrete production specialists ConSpare, they have transformed their plants with a series of plant upgrades centred around the introduction of two TEKA planetary mixers, a 1m³ TPZ1500K and a 2m³ TPZ3000F, both of which provide the next-generation mixing technology the company was looking for.

Besblock are now able to mix round the clock, with one mixer running 24h a day, five days a week, with no downtime, while also exponentially improving the quality of the blocks. But while the mixers are undeniably at the heart of the plant, they do not operate in isolation and it took a review of the entire plant's performance to help make these improvements possible.

'When the first blocks came out, the difference was unbelievable – you could instantly see it. We were totally blown away by the improvement in quality. The fact that we have been able to ramp up our production to meet our growth plans without compromising on quality has made this investment worth every penny,' recalled Besblock director Nigel Chadwick.

The block-making firm brought in ConSpare because of their close relationship with the TEKA brand, but it was their creative thinking

The TEKA units have provided the next-generation mixing technology Besblock were looking for



and ability to make the process perform better as a whole that ended up having the greatest impact.

'Businesses today see investing in new technology as a silver bullet. But to get the best out of the technology, taking a holistic view of their processes is vital otherwise they will end up throwing good money after bad. It's about making it better at every stage of the process to unlock the technology's – and the plant's – optimum performance', explained Steve Peterson, engineering director at ConSpare.

As part of the plant assessment, ConSpare employed their Make it Better approach. By taking a closer look at a plant's overall performance at all five key stages of the production process – storage, conveying, batching, mixing and discharging – businesses can quickly identify any potential bottlenecks that may hamper the performance of the new technology. This approach will not only help iron out all potential problem areas, it will also give plants greater visibility, allowing them to make informed investment decisions.

But the changes do not need to be big or cost a fortune. Sometimes it is the smallest considerations that can have the greatest impact on the performance. Indeed, at Besblock, ConSpare recommended a slight change to the position of the mixer which meant they could reduce the number of conveyor belts and allow two mixes to go into the hopper at once. This now gives the next batch longer in the mixer, improving the quality of each mix.

As mix designs become increasingly complex, it is important to analyze every application in detail to make sure the mixers perform. Although it was a relatively simple modification, it resulted in a fundamental shift in how the plant works and, as a result, the TEKA mixer is able to operate at peak performance.

The team also introduced other key pieces of world-class technology along the production process which allowed the investment Besblock had made in the new TEKA mixer to really pay off.

They installed a new Hydronix Hydro-Control HC06 digital water control system, which automatically manages and adjusts the moisture content in each concrete mix, optimizing the mix design for consistent results while also reducing waste and, of course, improving the quality. By pairing the Hydro-Control with the latest sensors, the plant can now maintain the concrete quality and achieve a precise final concrete moisture with an accuracy of $\pm 0.1\%$ (absolute moisture).

They also fitted CDX mixer dust-extraction equipment, which, unlike other filters, is an integral part of the production line. This conical shaped filter cleverly purges the dust from the air and puts it back into the mixer in real time. It does not need to be cleaned and will not need replacing as often as regular filters. This has not only improved the working environment in the factories as no dust now escapes when the raw materials are loaded into the mixer, but has also hugely reduced waste and downtime for cleaning.

Investing in new technology is a must for forward-thinking concrete businesses but the equipment alone will not futureproof the plant. Block making is a delicately balanced process



Besblock have been able to ramp up production to meet their growth plans without compromising on quality

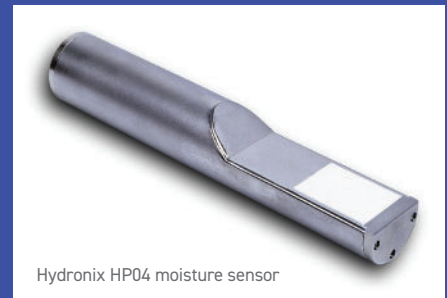
made up of many interdependent stages. Through the adoption of a process-led approach to investing in new technology, businesses will

truly be able to optimize their performance now and for the future. For further information visit: www.conspare.com

QM

Back to the future

At the door to 2020, hoverboards or flying cars like the DeLorean of 'Back to the Future' have not yet materialized, and not everything predicted in the pop culture movies of the 1980s has become a reality. Nonetheless, technology is having a huge impact on people's everyday lives and also upon industrial output, with technology helping to achieve increasingly high peaks of efficiency. Automation is playing a huge role in all industries, making processes safer and improving quality standards.



Hydronix HP04 moisture sensor

In a world where the phones in everyone's pocket can count steps, provide the weather forecast and control domestic heating and lighting, it would be good to know how much water is present within the raw materials you are buying and using?

It would be incredibly useful to be able to know exactly how much water is contained within sand and aggregates, because, depending on particle size, these materials can retain between 2% and 20% water.

For example, imagine buying 1,000kg of sand at 10% moisture. The purchaser would end up having only 909kg of sand and paying for 91kg of water. Now imagine using the same sand to make concrete:

- 500kg of cement
- 1,200kg of sand (10% moisture = 1,091kg sand + 109 litres of water)
- 600kg of aggregate
- 250 litres of water

In this example the mix will end up with a water/cement and aggregate/cement ratio that is completely out of specification, resulting in a liquid and weak concrete. Fortunately, technology is available that can show precisely how much water the raw materials contain.

With online digital microwave moisture sensors, it is possible to control the average moisture level in sand and aggregates, allowing accurate calculation of the right amount of water required, thus removing both guesswork and the need for laboratory sampling.

Compared with other solutions, digital microwave moisture technology is more accurate, has high sensitivity to water, is not affected by impurities or temperature and, most importantly, is cost-effective. This solution can also be implemented inside mixers, to monitor the target moisture levels and automatically calculate the amount of water needed in the mix, as well as controlling the addition of water.

With this solution, over-design of the strength of the final product can be minimized, thereby delivering significant savings. Digital microwave moisture control technology, if used correctly, can reduce waste, improve efficiency and save money. And with 2020 now just around the corner, users of Hydronix systems can even check moisture levels via their phones. For further information visit: www.hydronix.com