

Water management

Clean, green and economical

The price of water and waste removal, as well as growing environmental concerns, are making stone processors take a second look at how they manage water. Three companies that have up-dated their systems talk to NSS about the changes they have made.

Company: Hutton Stone, Berwick-upon-Tweed
System chosen: Omec
Supplied by: New Stone Age

Two severe winters up near the border with Scotland convinced Marcus Paine, the Managing Director of Hutton Stone, that he had to update his water management system. Settlement tanks with a pump for each saw lowered into the water on ropes distributing water through a system of pipes that had grown organically as machinery was added just was not up to the job any more.

"Last winter we were in meltdown," says Marcus. It was not that production could not continue as temperatures dropped to -17°C – most stone sawing would stop in such extremes – but how the water management system behaved coming out of those

conditions. The way the old system behaved was enough to convince Hutton Stone it needed a better way of handling its water distribution, especially as all the fresh water used on site was coming from the mains and being paid for through a meter.

Marcus started looking around at water management systems. "We looked at various versions and, I don't know, New Stone Age made it very straight forward. James [Turton, the Managing Director of



The Kompact Complete stand alone system for up to 500L/min.



There are two, 40m³ containers, one for clean water, one for dirty. The filter press is housed in an insulated, heated room.

New Stone Age] helped us to understand more about what we were trying to achieve and presented us with options for how to achieve it.

"It wasn't the cheapest system, but we always try to buy the best we can afford and felt the Omec system was the best. It wasn't simple, either, but New Stone Age and Omec gave us the engineering answers we needed. And their back-up has been excellent. We haven't needed much, but whenever we've had a question New Stone Age has been here with the answer."

Before making the final decision, Hutton Stone visited an existing Omec installation at York stone company Gillson in Haworth,

which proved useful. They learnt, for example, the value of having the filter press in a heated room, which would extend its life by as much as five times.

With the help of New Stone Age, Hutton decided it needed a system that had the capacity to process up to 700L of water a minute, which required a medium sized filter press, allowing for an extra 1200mm bridge saw and another monoblade to be added to the 2m primary saw, monoblade, 800mm and 1200mm secondary saws and milling and routing machine that Hutton already had and the system would have to feed as soon as it was installed.

The new system has two pumps to deliver water to the machines, but they are used one-at-a-time to deliver a predictable 3bar pressure through the use of throttle valves to all the machines. The pump not being used is a back-up to ensure production is not disrupted in case of problems. Each pump is operated for a week alternately so neither deteriorates through lack of use. They are both above ground, rather than swinging from the end of a rope in a sludge tank, and are switched so it is easy to change from one to the other.

The Omec system uses flocculents and all the new pipework is in stainless steel and the Omec structure is galvanised to protect it against the flocculent.

The deal was concluded in March but a problem with replacing an old water management system is that it is likely to disrupt production as the new system is installed, so the changeover had to wait until Hutton Stone had their normal fortnight's shutdown in August.

Marcus says New Stone Age and the Italians from Omec who came to install the plant did everything they could to fit in around Hutton Stone's schedule.

The Italian engineers built the new system on a platform next to the old plant. It has service pipes with electrics and air set into a 200mm thick concrete bed and a 2.5m deep well to collect dirty water.

The engineers then went away for four days while Hutton connected it up to all-new lagged pipes supplied by New Stone Age to feed the saws.

Marcus: "The Italians came over, built it, gave us a demonstration and that was fine. But it takes two to three months to work out how to make it work really well for you – things like: do you press first thing in the morning or last thing at night. It's about understanding the sort of sediment you produce. Then there's draining out; the flocculent mix. But it's a beautifully clean way of dealing with the messiest part of the operation."

There were some more lessons learnt from this winter. Up until this month (February) the weather had been kind, but



Top. Looking up into the filter press.

Centre. Looking down into the 2.5m deep well.

Bottom. The two, switched pumps that work alternately a week at a time to feed all the machinery with water at a constant 3bar.

just severe enough to highlight some changes needed to protect the system when the weather turned colder.

For example, they moved the heaters so the diaphragm pump will not freeze. And they learnt the benefit of draining and blowing out the pipework each night. They have now introduced procedures to make sure that happens as a matter of course.

"We were aware we would learn from the frosts when they came this year," says Marcus.

The cost of installing a water management system like this varies from one installation to the next, depending on the size of the plant, the peripherals required and the civil engineering necessary.

The largest system New Stone Age has

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supplied is capable of processing 2,000L a minute. At the other end of the scale, the company has just started selling a compact, stand-alone system called Kompact Complete. It has a silo and small filter press and can process up to 500L a minute – just right for a primary and two bridge saws. It costs about £30,000, including the civils.

Unlike buying a new saw, there is no immediate improvement in output from the factory to demonstrate what a good investment water recycling plant is. But the financial benefits, as well as the environmental benefits, accrue over time.

There are savings often of hundreds of pounds a year on water from the mains. There are savings on cleaning out sludge from settlement tanks and disposing of it. And because the recycled water is often cleaner than it is from settlement tanks, machines and tools last longer.

And the saving in a reduction of down-time is incalculable, both in terms of less lost production time and fewer dissatisfied customers.