

One aspect of stone processing where recycling has become a necessity

Water recycling is a necessity for most stone companies but how do you choose which system to install? *NSS* talks to suppliers of recycling systems and some of their customers.

Since James Turton's New Stone Age in Keighley, Yorkshire, started representing OMEC in 2004, the Italian company's water recycling systems have become the solution of choice to many in the stone processing industry.

What customers particularly like is that they do not have to compromise because they each receive a bespoke system based on their needs now and into the future.

New Stone Age will advise on and design a complete water management system, even though OMEC does not normally install the pipework in the buildings. The technical support from both OMEC and New Stone Age is widely praised by customers who have installed the systems.

OMEC uses a filter press that is fully enclosed, as are the silos and their associated pumps and controls, which means they can be heated in winter to stop them freezing up. It also keeps everything tidy, rather than having wires and pipes trailing around.

Stainless steel pipework and galvanised structures are used to combat rusting, and redundancy is built in on critical components such as sump pumps and clean water pumps, so there is always one in reserve in case of failure. The pumps are used in rotation, a week at a time, to ensure the one in reserve works if it is needed.

The level of automation of OMEC systems can also be varied according to the customer's requirements, ranging from manual control up to the automatic addition of flocculents and pressing that is determined by a set number per day or by the system's controls based on the amount of contaminant in the water.

Technicians from OMEC even arrive with a full toolbox, so the customer does not need to give much assistance during installation (apart from supplying a crane).

Fulvio Allegri from OMEC says: "Although



Fairhurst Stone chose the New Stone Age OMEC system for its new factory at Longcliffe because, says Edward Fairhurst, "everything is more robust; more heavy duty".

OMEC worked since many years with other countries around the world, the United kingdom was a completely new market for us when we were contacted by James Turton in 2004 and we have to thank New Stone Age for having introduced our products to this market.

"In recent years we have witnessed the strong development of New Stone Age due to the commitment and professionalism of James Turton. We think that at this moment OMEC is the point of reference for water management in UK for the stone industry."

Five OMEC systems have been installed in the past few months at Cumbrian Stone in Penrith, Ian Lowes Stonemasonry in Wighton, Cumbria, Fairhurst Stone in Carnforth, Lancashire, A D Calvert in Leyburn, and Meister Masonry in Painswick,

Gloucestershire. For Fairhurst Stone and Meister, the systems are for new factories, while for the other two sites the new plants are upgrading the water management at existing factories.

The variety of the systems installed shows the versatility of the OMEC solution.

At Cumbrian Stone, the system comprises of an OMD 30 (30m³) water cleaning silo, which has a diameter of 2.25m and is 10m high. It is fed by two sump pumps (alternately working and on standby), each capable of delivering 2,200 L/min, which ensures a good pause time to let the mud settle correctly in the silo.

There is a 1,000-litre flocculent tank that automatically doses when required and uses £5-10 worth of flocculent a week.

An OMF 610 filterpress has ten 600 x



The OMEC system supplied by New Stone Age to Cumbrian Stone that can deliver 1,200 L/min of water, with back-up pumps throughout to ensure production continues if a pump fails.

600mm plates. It is fed by a Yamada pneumatic piston pump and is fully enclosed on a steel platform, all supplied by OMEC.

The OMF 610 is an automatic model performing a predetermined number of presses a day (based on the size of the mud discharge container / skip). If the silo is emptied of mud, the press will stop and wait for the operator to restart the cycles.

There is an OMT 20 (20m³) clean water storage silo 2.25m DIA x 8m high which supplies clean water to the factory using pumps supplied by OMEC.

Again, there are two pumps (one working and one on standby) each capable of delivering 1,200 L/min at 2.8 Bar, which ensures good water flow and pressure to the factory's BM primary saws and GMM Euro secondaries. The pressure is important as

each machine normally requires at least 2 Bar to ensure its safety pressure switches are working.

New Stone Age / OMEC also supplied a preformed stainless steel well, which makes it easier to form a well in the ground without using shuttering or precast concrete rings.

Currently, Cumbrian Stone requires 600L/min of water for its machines but wanted to be sure its water treatment plant could cope with future expansion, having outgrown its previous, manually operated filter press system installed when the business started seven years ago.

Mark Johnstone at Cumbrian Stone says he did look at alternative systems but was most impressed by the OMEC offer. He told NSS: "We have dealt with New Stone Age for

quite a while and they have always been good to work with. We like the style of the OMEC system – everything is enclosed.

"James [Turton] came and did a survey in preparation for giving us a full quote, then we had to get the civills done. Then they came and installed it in five working days.

"We had to have it because we were at a stage where we couldn't put another saw in without a new filtration system. It's one of those investments that's not going to increase productivity but you just have to find the money to do it."

At Fairhurst Stone the system has only 

Water treatment

just been installed in a new, bigger factory at Longcliffe, near Settle, with a new paving line, wire saws and Pedrinis.

Fairhurst Stone has a different water recycling system at its factory in Carnforth but chose the New Stone Age OMEC version for the new factory because, says Edward Fairhurst, "everything is more robust; more heavy duty".

The system comprises an OMD 60 (60m³) water cleaning silo that has a 3m DIA and is 12m high, fed by three sump pumps (two working at a time and one on standby). The two working pumps deliver 4,400 L/min. A 1,000 litre flocculent tank automatically doses when required and includes automatic flocculent preparation, mixing the flocculent powder when required. It uses £15-30 worth of flocculent a week.

The OMF 814 filterpress has fourteen 800 x 800mm plates fed by a Pemo impellor pump. Its stainless steel impellor has been specially designed by OMEC to reduce wear caused by the abrasive nature of the stone.

The fully enclosed filterpress is an automatically regulating model that analyses the consistency of the mud being pressed and determines when the next press needs to be made, although the number of presses is limited to the capacity of the mud discharge skip so it does not spill.

An OMT 35 clean water storage silo 2.25m DIA x 11.5m high has two pumps, used one at a time to supply the factory with 2,500 L/min at 2.8 Bar.

The silos are painted green to match the building, as the factory is in a National Park.

Ian Lowes Stonemasonry has a smaller, Kompact system delivering 500 L/min to the factory that currently requires 300 L/min. The OMD 10 water cleaning silo has a diameter of 2.25m and is 5.5m high. It is fed by two sump pumps, each delivering 600 L/min. The 300-litre flocculent tank automatically doses when required, using £3-5 worth of flocculent a week.

The system has an automatic OMF 604 filterpress performing a predetermined number of presses. It has four 600 x 600mm plates fed by a Yamada pneumatic piston pump. New Stone Age also supplied a preformed stainless steel well.

A D Calvert and Meister Masonry have systems supplying 1,600 L/min of cleaned water and clearing 12m³ of mud per day. They use OMD 30 water cleaning silos fed by two sump pumps, each delivering 2,200 L/min. A 1,000 litre flocculent tank automatically doses when required in each case and there are OMF 814 Filterpresses with fourteen 800 x 800mm plates fed by Pemo impellor pumps. The filterpresses are fully automatic, analysing the consistency of the mud being pressed to determine when the next press is necessary. There is an OMT 25 clean water storage silo.



Meister Masonry's new factory in Painswick, Gloucestershire, with its OMEC water recycling system supplied by New Stone Age that will deliver 1,600 L/min of clean water.

Be aware of the threat

by Tony Mitchelmore of the Water Management Society
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Most water can be reused if the suspended solids produced by the various processes can be removed. Techniques for achieving this include:

- a) Sedimentation – whereby the stone particles are allowed to settle, this process can be accelerated by the addition of flocculants, organic chemicals with long-chain molecules that neutralise the electrostatic charges on the solids, causing them to agglomerate to form larger particles that can separate more rapidly under gravity.
- b) Filtration – wherein the spent water is passed through a bed containing filtration medium such as sand / anthracite. A low dose of flocculant may be required to improve the efficiency of the process.