

RIDGWAY Rentals
 'Self Drive Plant'

- Komatsu D61 PX Dazers
- Demolition spec. Excavators, 25 metre reach
- Grabs & Nibblers
- Long Reach Excavators up to 22 metres
- Zero Tail Swing Excavators up to 22 ton
- Loading Shovels
- Excavators from 1.5 to 50 ton
- Rubber Ducks from 12 to 22 ton

PC240 SLF LONG REACH EXCAVATOR
0800 51 51 55
 RIDGWAY PUTS YOU IN THE DRIVING SEAT!

A Division of RIDGWAY Holdings International Ltd.
 Tel: 01691 890733
 www.ridgwayrentals.com

Stent cuts the risks of working at height

Giant vacuum lifting devices have allowed Stent to reduce drastically the amount of working at height necessary to load its precast concrete piles onto lorries for delivery. Paul Howard looks at the kit

FOUNDATIONS are not exactly the most glamorous aspect of construction. Their only claim to notoriety is the opportunity they provide in dubious movies for gangsters to dispose of their victims.

But the real foundation industry is intent on making accidents a thing of the past. A case in point is the new precast concrete pile manufacturing facility run by Stent at its Normanton airfield site near Long Bennington in Nottinghamshire.

Firstly, it is a site that is both benefiting from and fuelling the growth in the off-site foundation market.

Factory manager Chris Wilson says production has more than doubled in the three years since Stent moved to Long Bennington from its Summercoats plant in Derbyshire.

"That could produce up to 350,000 m a year," he says. "At Long Bennington we can produce 750,000 m a year and we have an extra plant in Scotland that can produce 150,000 m."

All that adds up to a turnover of £25 million from precast piling (which accounts for around 40 per cent of Stent's total turnover) and supplies what the company claims is a 30 per cent market share. Mr Wilson continues: "The precast market is definitely on the rise. In fact we've now asked for funding for expansion to allow production to rise to 1 million m a year."

This growth brings with it all the associated benefits of producing piles in a controlled environment rather than on a construction site. But even in the relatively safe confines of a factory, there is still a lot of work required to ensure that the working environment is as safe as possible.

The answer to at least some of the problems presented by the task of stacking hefty lumps of concrete and loading them onto lorries is a giant kerb-lifting device.

More precisely, the answer is two vacuum lifting devices manufactured in Holland by Aerolift and supplied by UK distributor CHL. Each machine – one designed to lift pile lengths from 8 m to 14 m and a smaller one used for piles from 3 m to 7 m – has four banks of vacuum pads, with four pads in each bank. The larger model has a lifting capacity of over 10 tonnes, although it will never used to full capability as this would exceed the limits of the Goliath gantry-crane from which it is suspended. In practice this means the machines can lift up to four 235 sq mm or 275 sq mm profile piles in one go.

"We are the only UK piling manufacturer to use one of these," says Mr Wilson. "We heard of vacuum lifts being used in other countries and other industries so we decided to do a bit of research to see if they could work for us."

"We went to see a company in Holland that uses these machines for lifting piles. They were using them to lift single-section, pre-stressed 33 m by 350 sq mm piles and we thought this could work for us. Aerolift then designed a machine specifically to allow us to lift not just one beam but multiples."

But the real problem for Stent lay not simply in the task of lifting the beams. Spreader beams and chains suspended from the same gantry crane had been successfully employed in this process for years.

It was rather the risk to life and limb involved in working at height to secure the chains, and it was a risk that had been growing due to the industry's increasing enthusiasm for off-site foundations.



"We are the only UK piling manufacturer to use one of them!"
 Chris Wilson



"Now that we've used to it, I think I say it's become so quick to offload the transfer car!"
 Eddie Keenan

"The stockyard is where most work at height is done," says Eddie Keenan, Stent's health, safety and environment manager. "We hold around 50,000 m of piles on site, which is around two weeks' supply. We need this much to be able to supply the 13 Stent piling rigs in the field that can probably install on average 1,800 m a week each."

The result of Stent finding itself with a busier stockyard with larger stacks of piles was more work at height – a situation the company felt compelled to address.

Mr Keenan says: "The process of investigating the use of vacuum beams began when we moved to this site in 2004. We were aware that the Work at Height regulations would be coming in the next year, but this wasn't the main reason for the research – we just wanted a slicker and safer system of work with the aim of reducing or, if possible, eliminating the need for working at height."

To a large degree these goals have been achieved, although not everything has changed in the pile-moving process.

Mr Wilson says: "They are still lifted out of the moulds using a gantry crane and spreader beams, but this doesn't involve working at height, since the piles are fabricated at floor level. Then they're loaded onto transfer car – like a small flatbed railway truck and now fitted with edge protection – to move from factory to yard for storage."

But now the same method is not repeated for loading the piles onto the trucks that come to collect them.

"This did involve a lot of work at height as the slingers had to climb a ladder onto the top of the stacks of piles to attach the slings required in order to use the spreader bars. These stacks could be 10 to 12 piles high," says Mr Wilson.

The new system has proved a major boon to those working on the shopfloor.

"Physically it's a lot easier and a lot safer," says Mr Wilson. "We lost count of the number of times people used to have to go up and down ladders and work on top of the stacks. We'd have 24 lorries a day, with six lifts for each lorry and two sets of chains and hooks to put on for each lift."

"Now it's only very occasionally that we have to go up on the stacks – if the machine's not working and we have to use the back-up spreader beams, for instance, or if we have to clean the piles when some rubbish has been blown onto them."

Then there is the added bonus of a more efficient process. "Now that we're used to it, I think I say it's become so quick to offload the transfer car!"

Mr Keenan says: "We have no concerns. There are audible and visual warning devices on each bank of four pads and unless all banks are working properly the machine won't allow you to lift any weight."

"Then, if the vacuum pressure drops while lifting, a warning signal comes on and an override pump creates sufficient extra vacuum to give you 20 minutes to lower the load safely."

"We've tried to make it fail by sticking rebar over the pile and underneath the padded foot of the suction pads but it just wouldn't let go. Plus, you have to press two buttons at the same time to release the beams."

If only Vinnie Jones could find a way to incorporate them into his next film...

VACUUM lifting beams are not their only safety-enhancing machine. Stent has installed a long beam lift-off (LLO) step to the 'fronts' taken include the use self-climbing (self-leveling) concrete. This reduces the exposure to hand-arm vibration as there's no need to use pickers, and it also gives time, as there's no need to hand float to create a smooth finish," says Mr Keenan.

The company has also installed an automatic cage-welding machine. Mr Wilson says: "This means there's no manual bonding and no risk of RSI from tapping the steel."

It also means another considerable efficiency gain. "Before, we used to need to manually fix eight chains to each pile to get it into the cage. Now, we can use a single chain to fix the pile in place. It's a 100 per cent improvement with a manual handling. We've had a lot of other safety machines."

Real Beginnings



**Piling
 Ground Improvement
 House Foundations
 Concrete Products
 Underpinning
 Mini-Piling**

UK-wide coverage from eight regional centres

**Roger Bullivant Limited
 0845 8381801**

**E: marketing@roger-bullivant.co.uk
 W: www.roger-bullivant.co.uk**

POWERPILE

A new and unique ground stabilisation technology from Uretek

- Fast application - small holes are drilled, tubes are inserted then inflated with Uretek resin
- Eliminates need for costly piling
- Minimal mess and disruption
- Treatment depths of 5m+
- High density resin provides compressive strengths of 1000kPa - 2000kPa.
- Suitable for remedial work

**T: 01695 50525
 F: 01695 555 212
 E: sales@uretek.co.uk
 www.uretek.co.uk**

